VOLUME III OF IV

ENGINEER'S REVIEW REPORT

THE NEW SEWAGE TREATMENT INFRASTRUCTURE PROGRAM

FOR THE

HAMLET OF PHOENICIA

TOWN OF SHANDAKEN
ULSTER COUNTY, NEW YORK

New York City Watershed Memorandum of Agreement (MOA)
Identified Community No. 6

October 2011

Catskill Watershed Corporation

Prepared By:

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ENGINEERS • PLANNERS • FACILITY OPERATIONS

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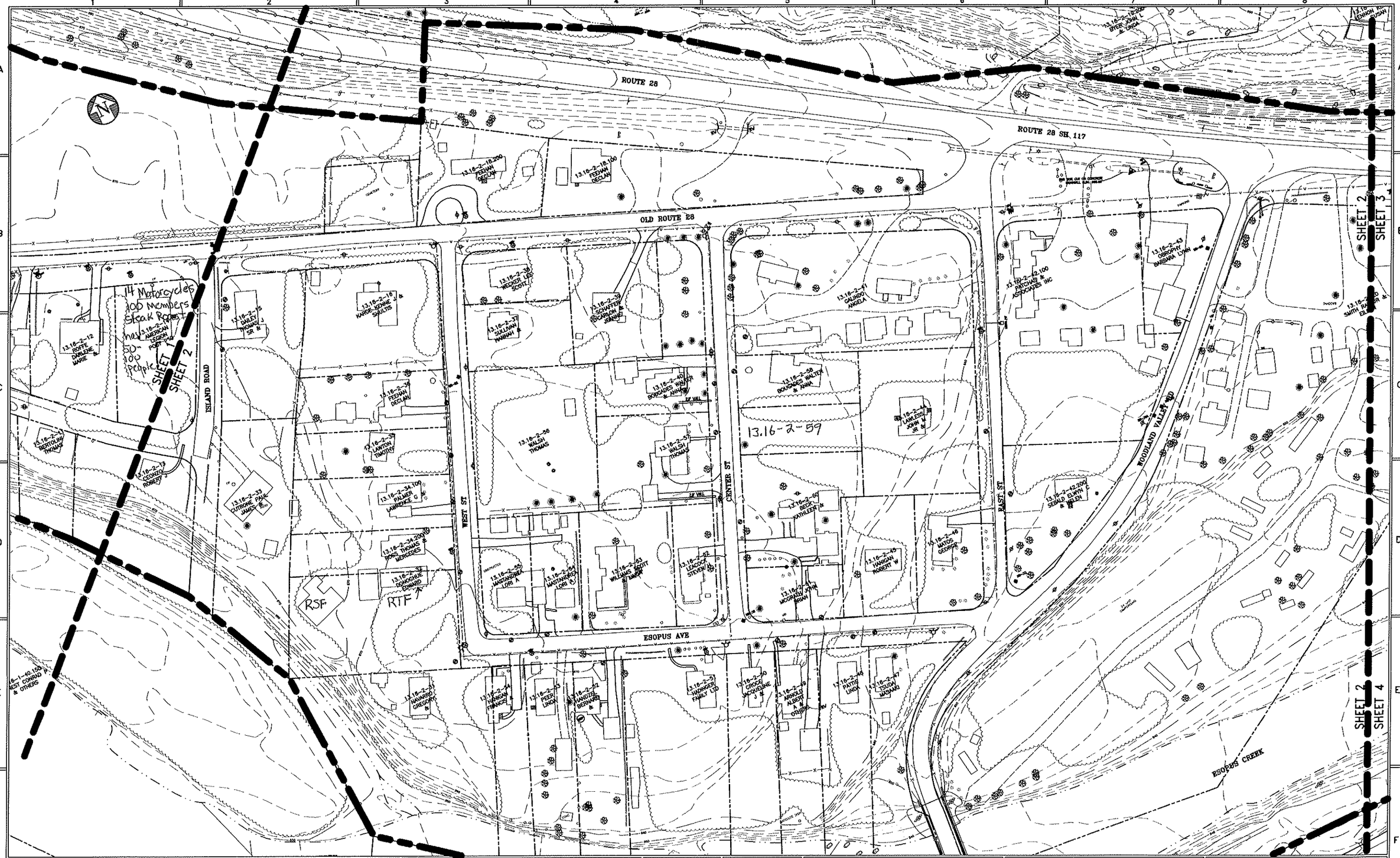

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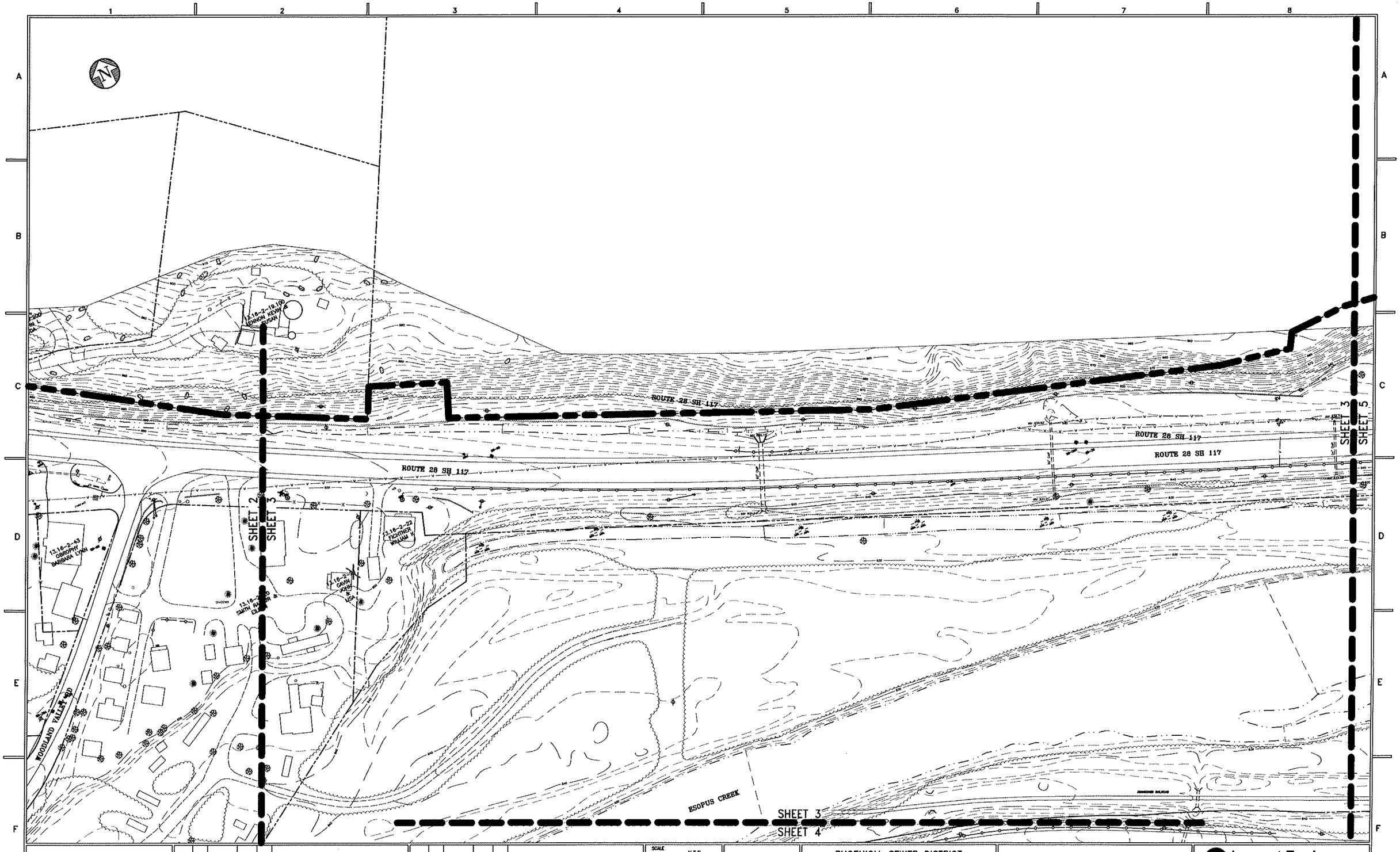

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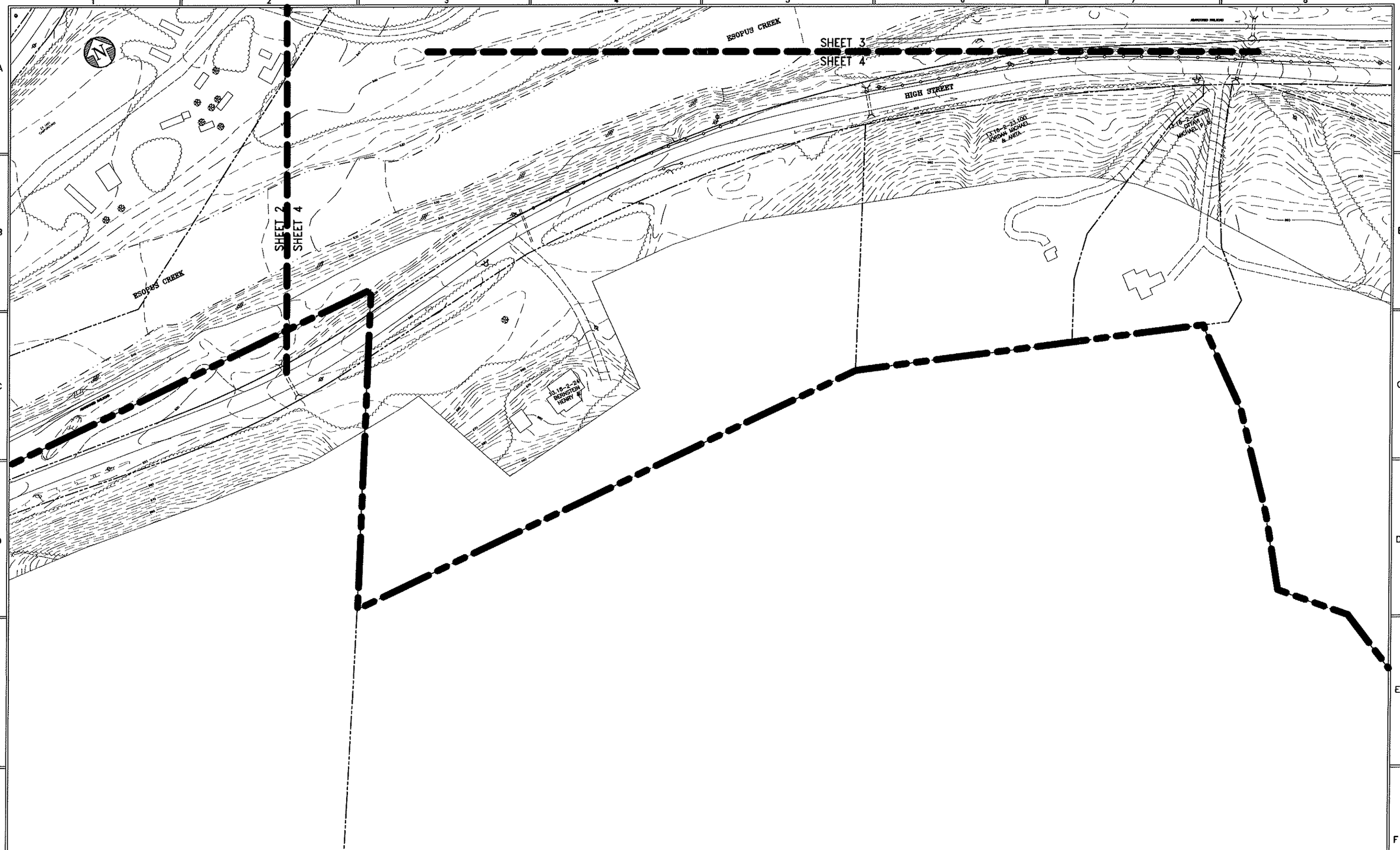

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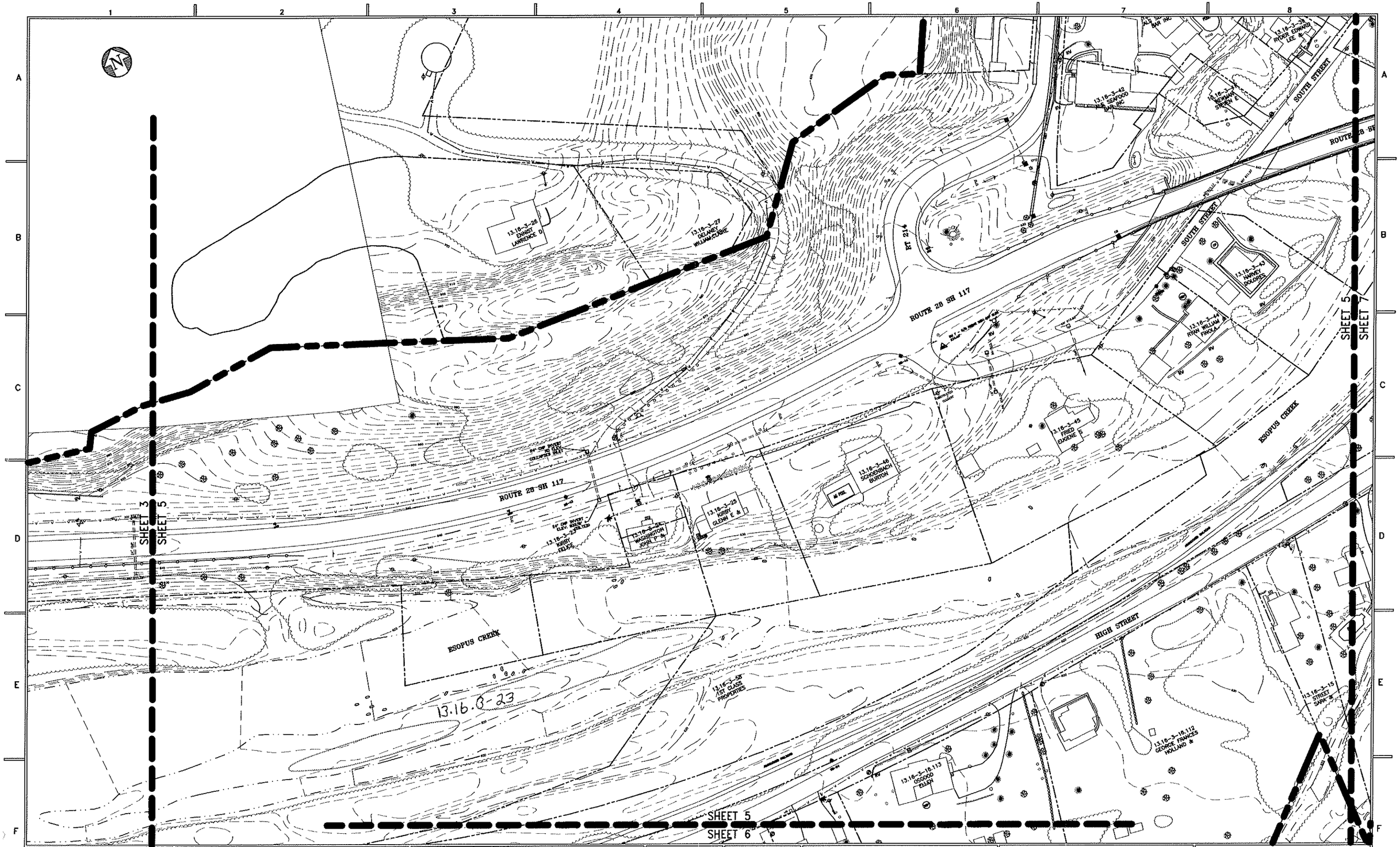

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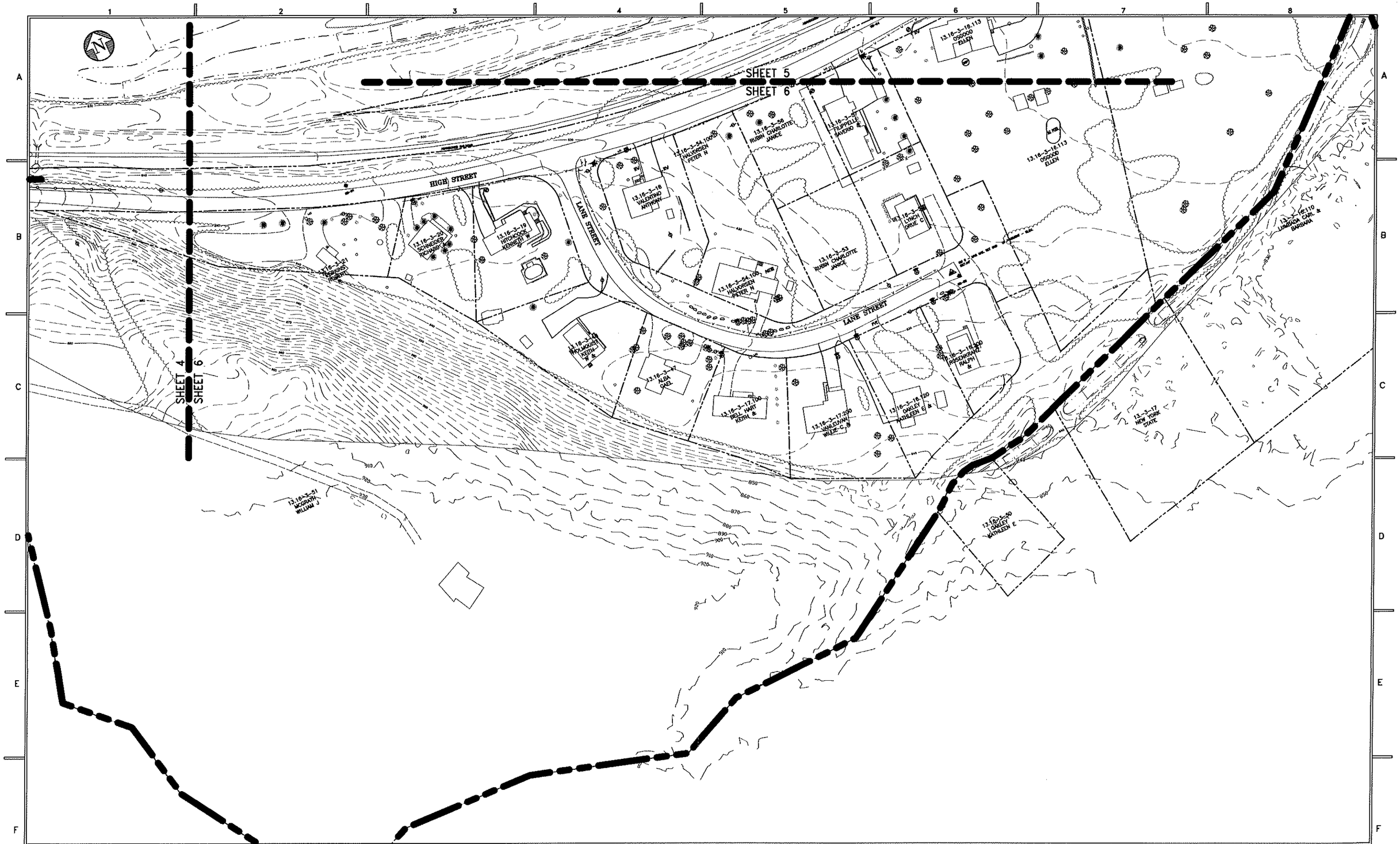

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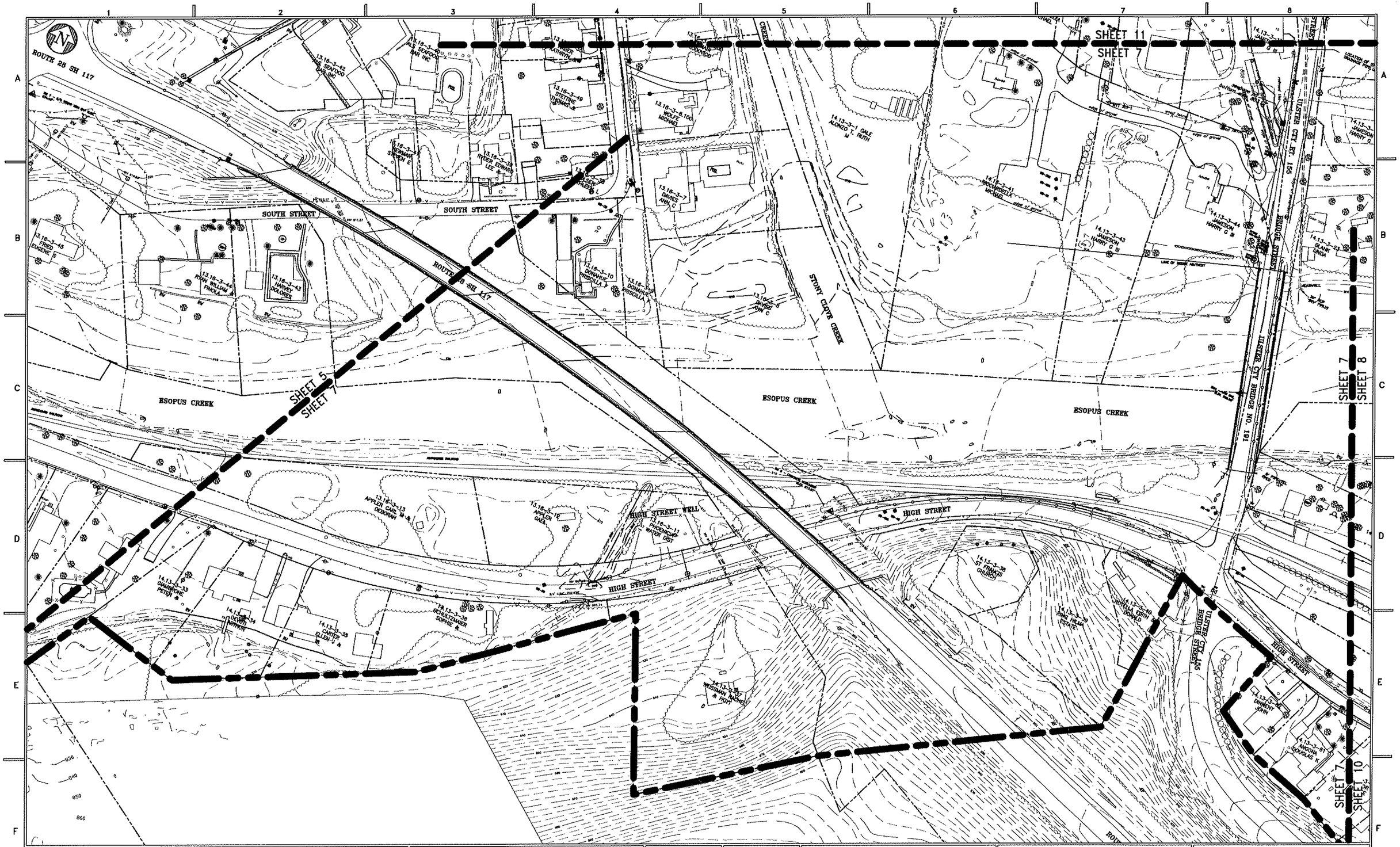

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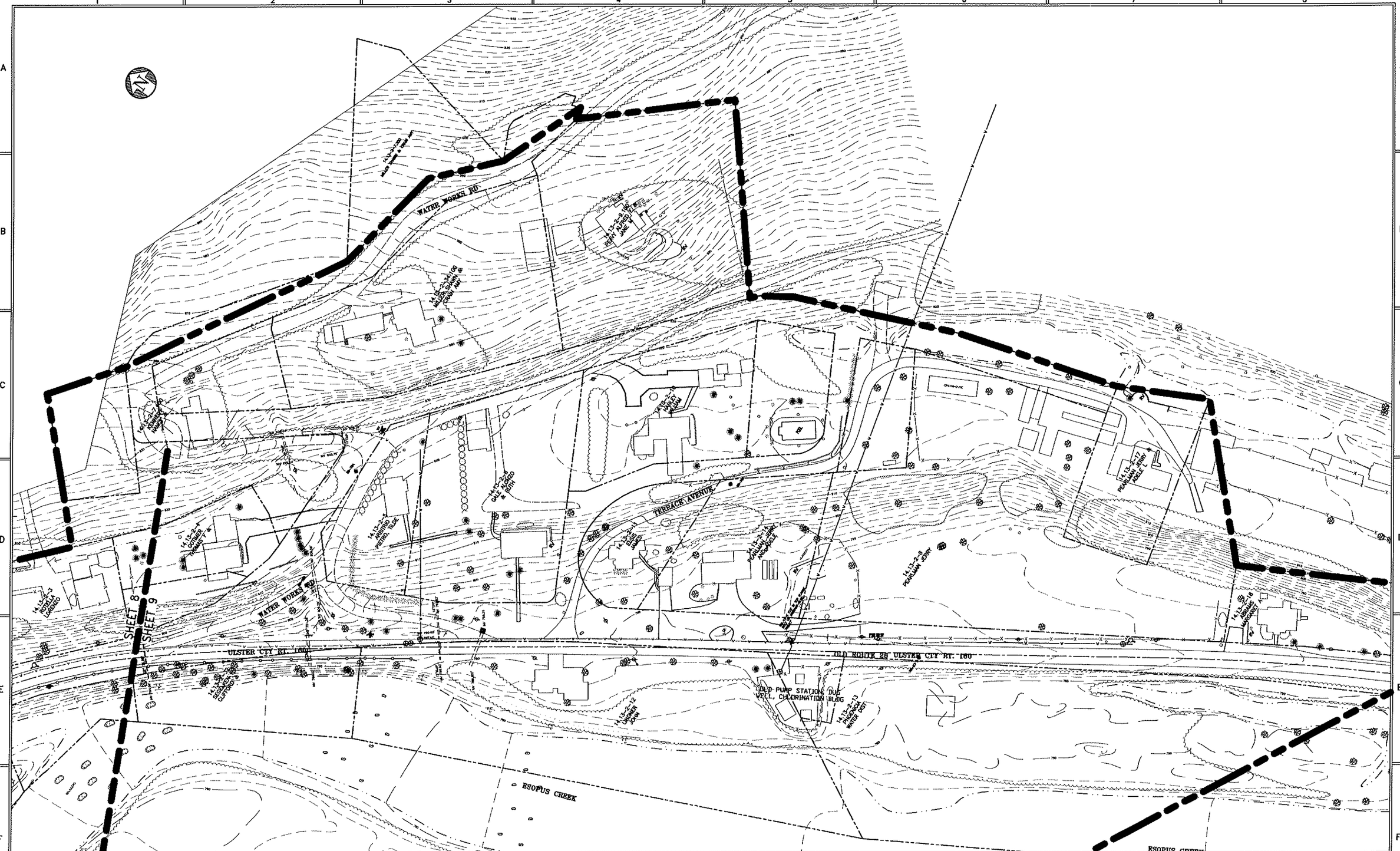

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NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 9

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346 MAIN ST., COHOES, N.Y. 12047 (518) 234-4028

PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 9

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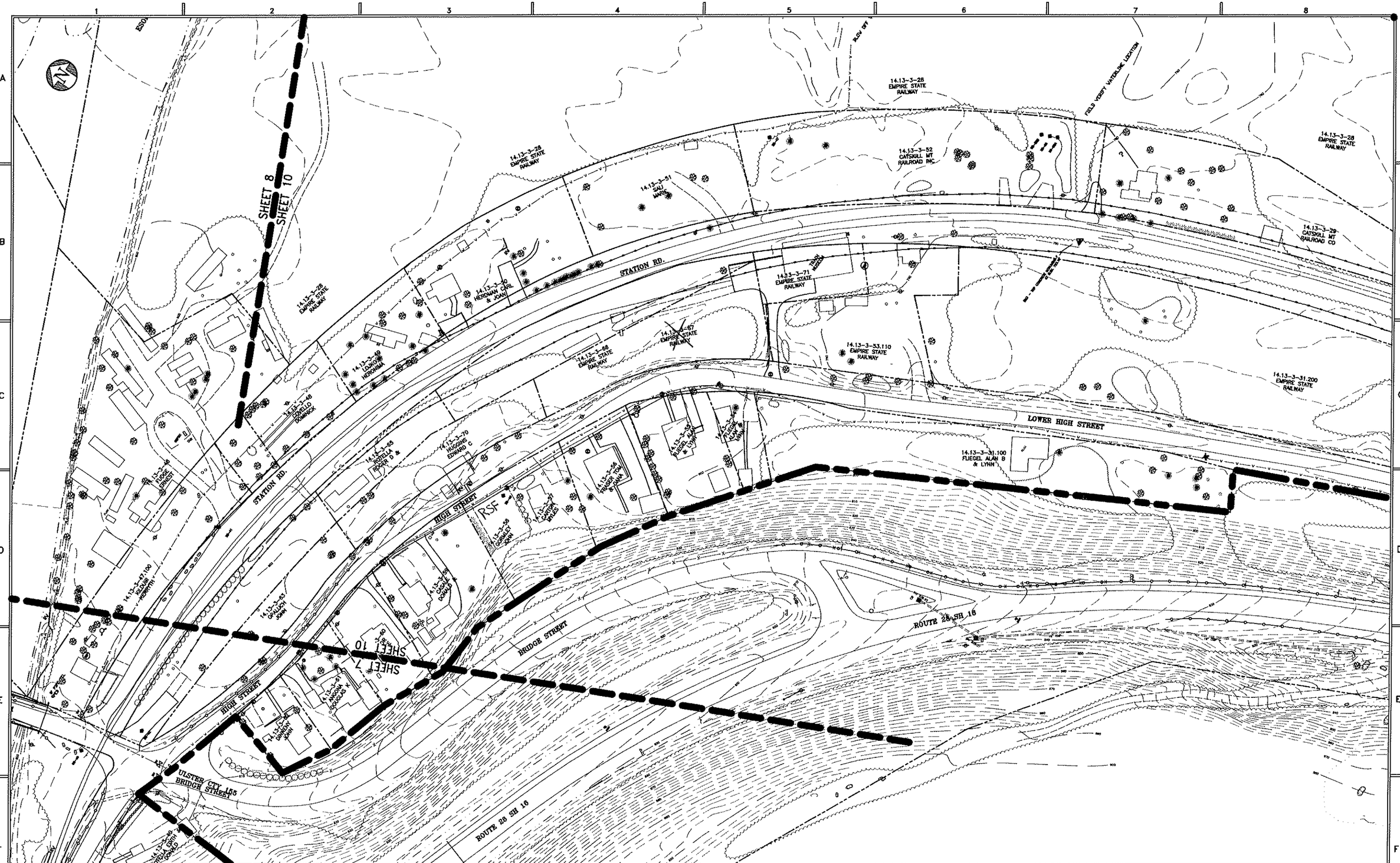

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 10

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 10

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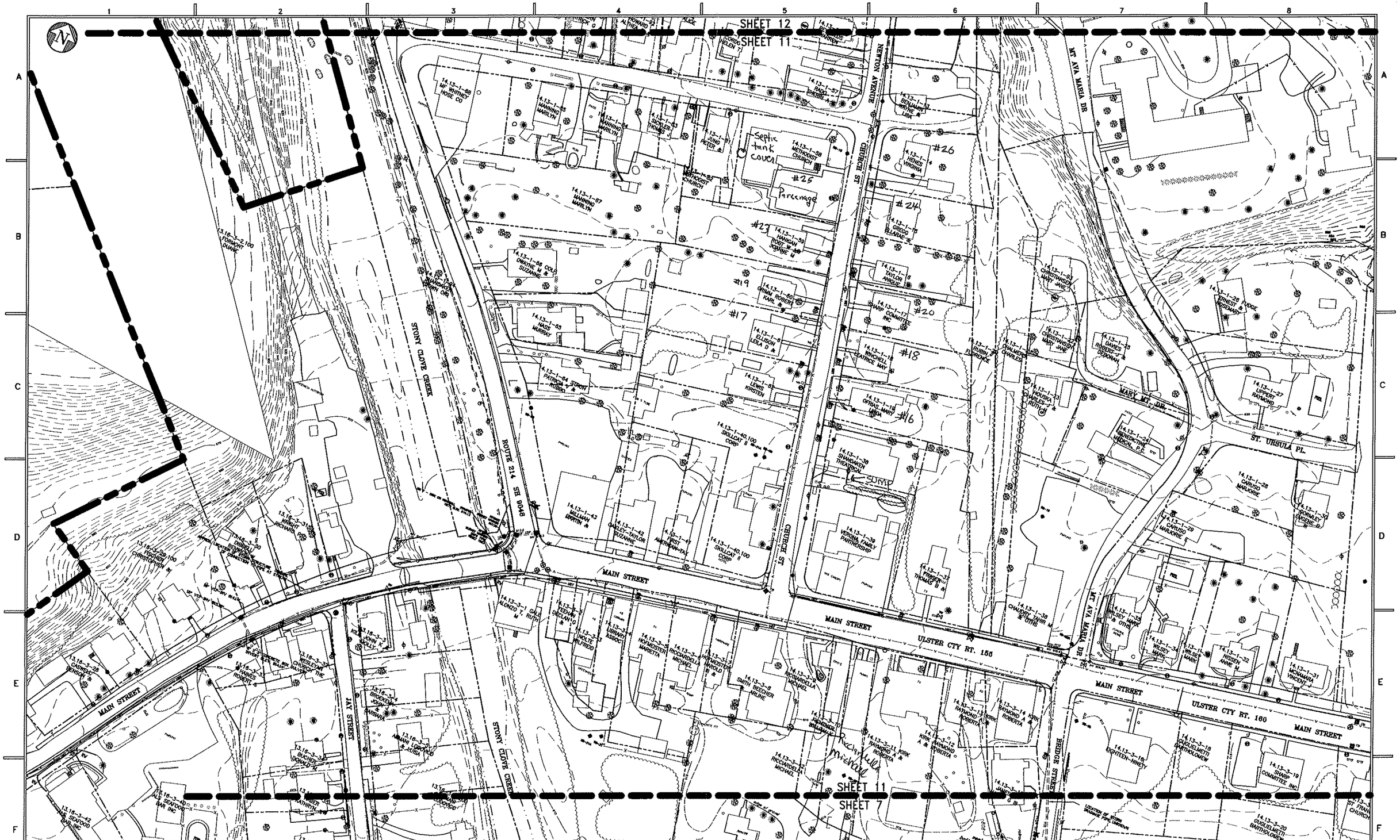

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 11

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 11

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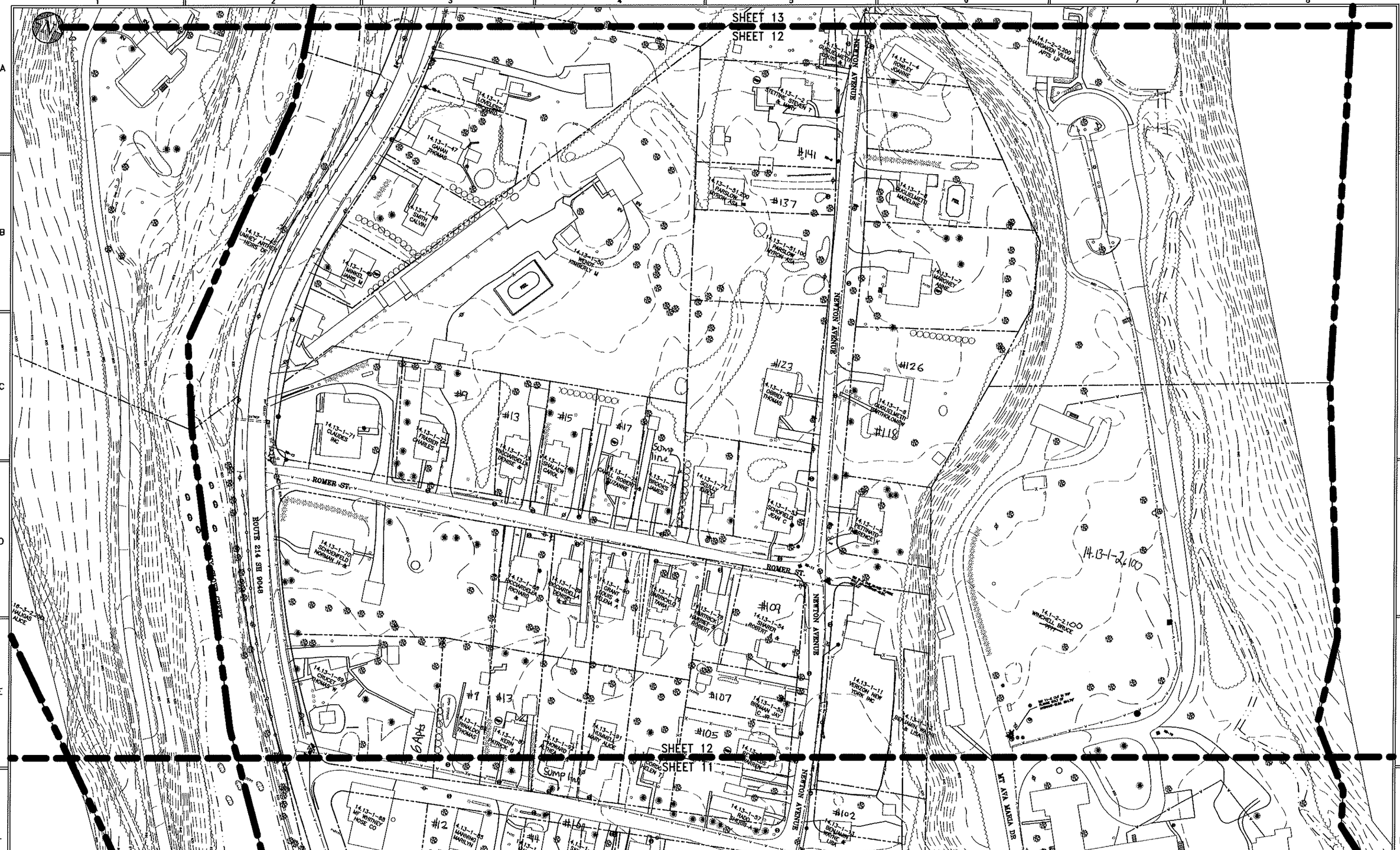

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 12

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 12

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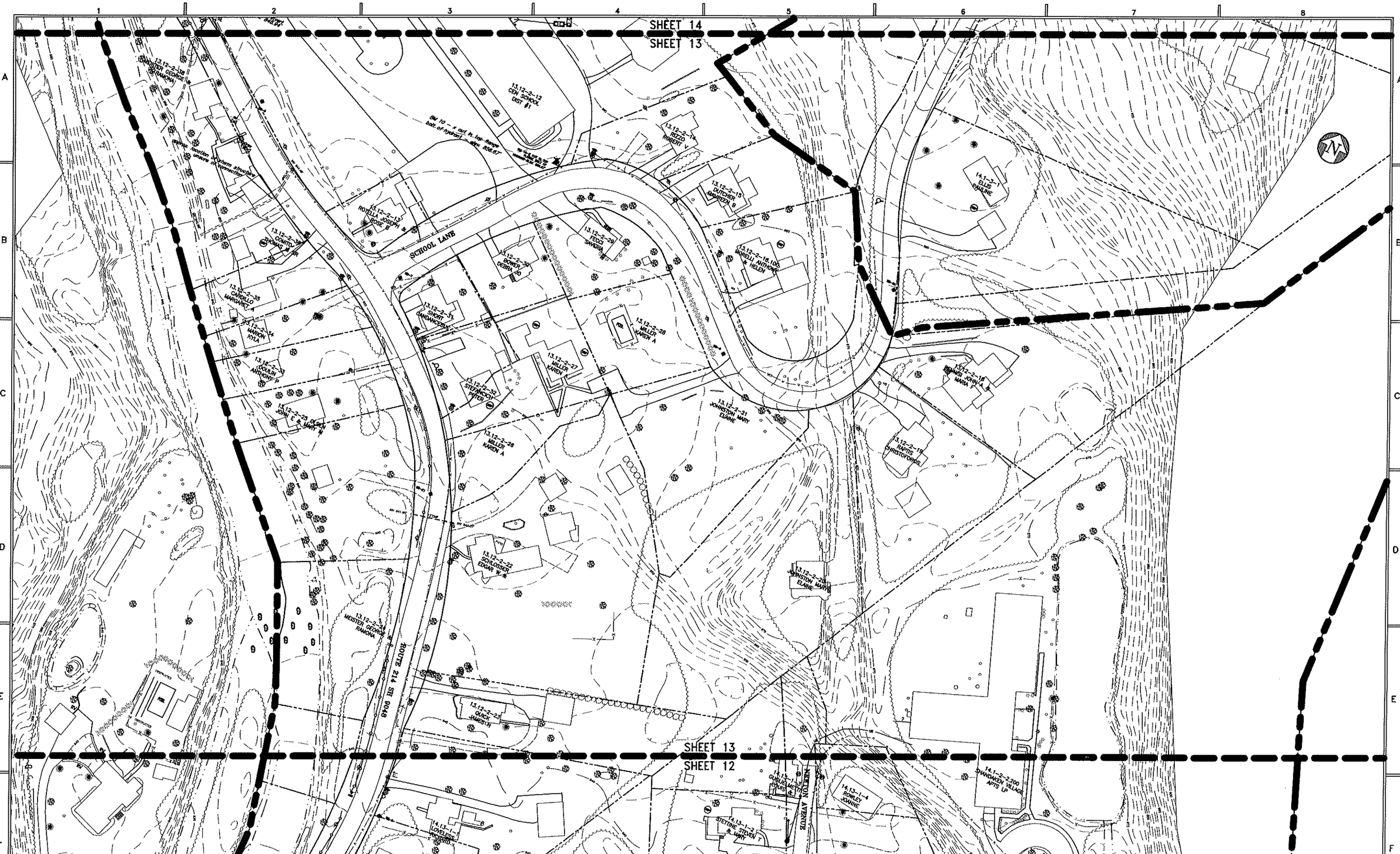

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 13

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 13

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 14

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 14

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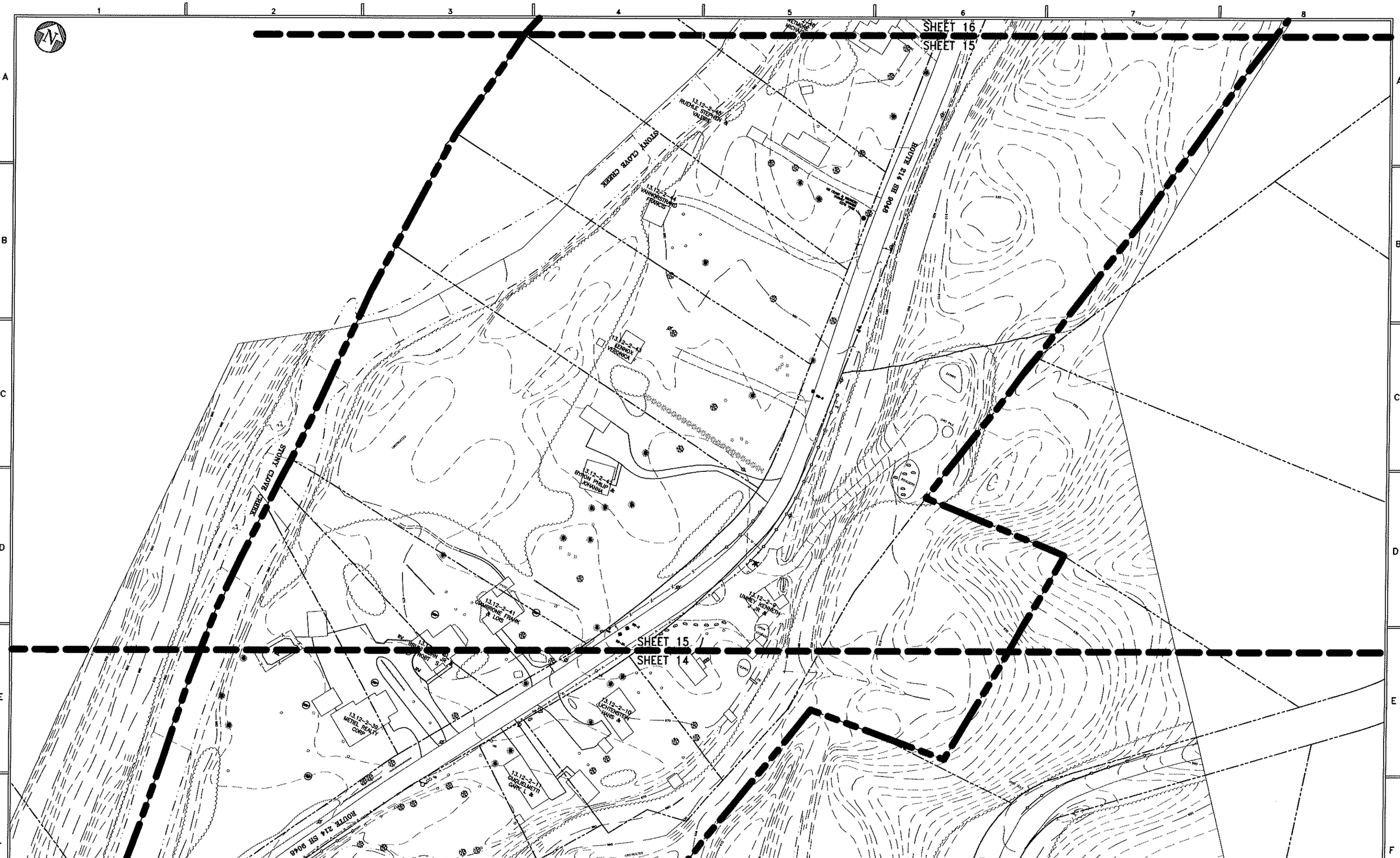

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
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PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 15

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 15

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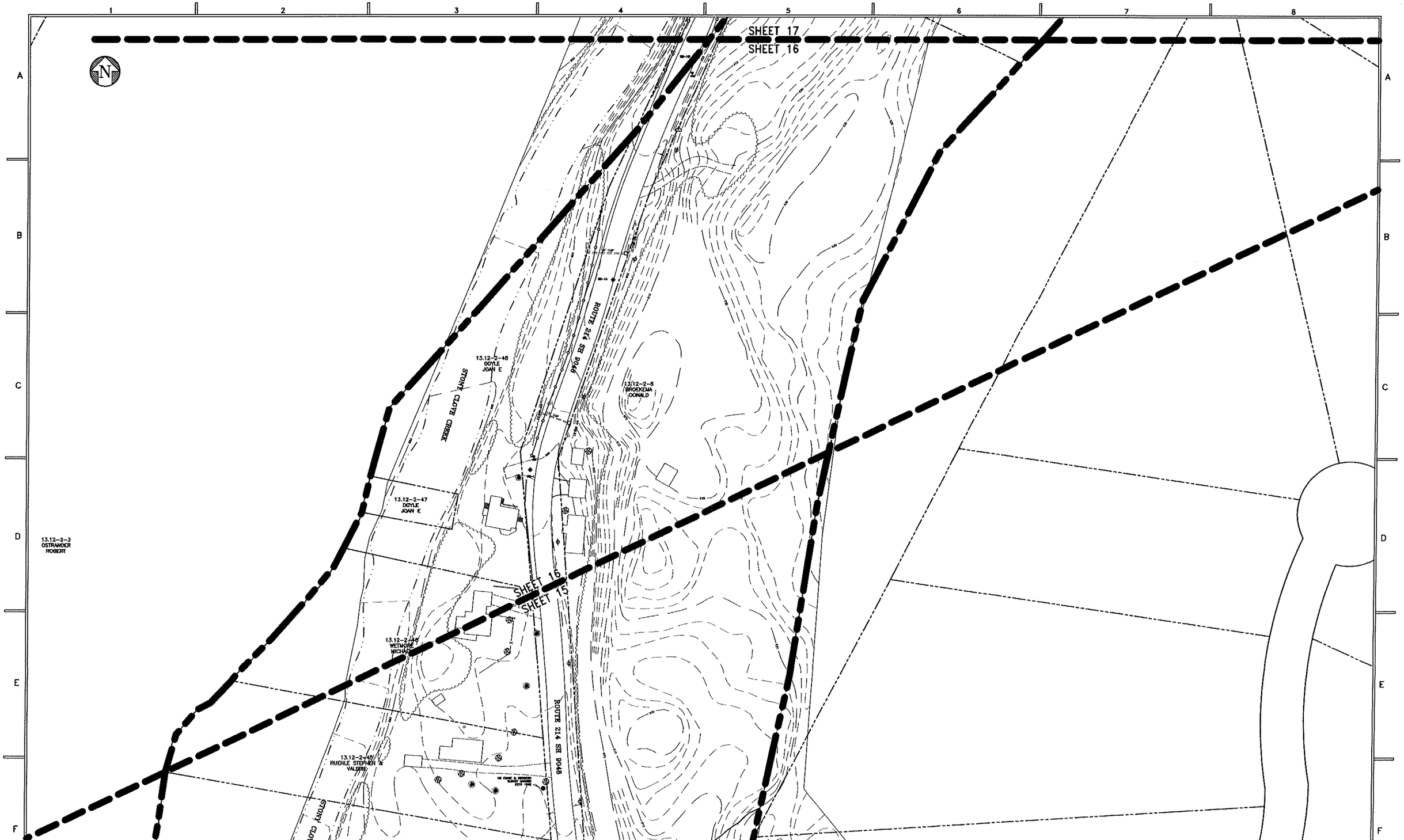

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 16

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 16

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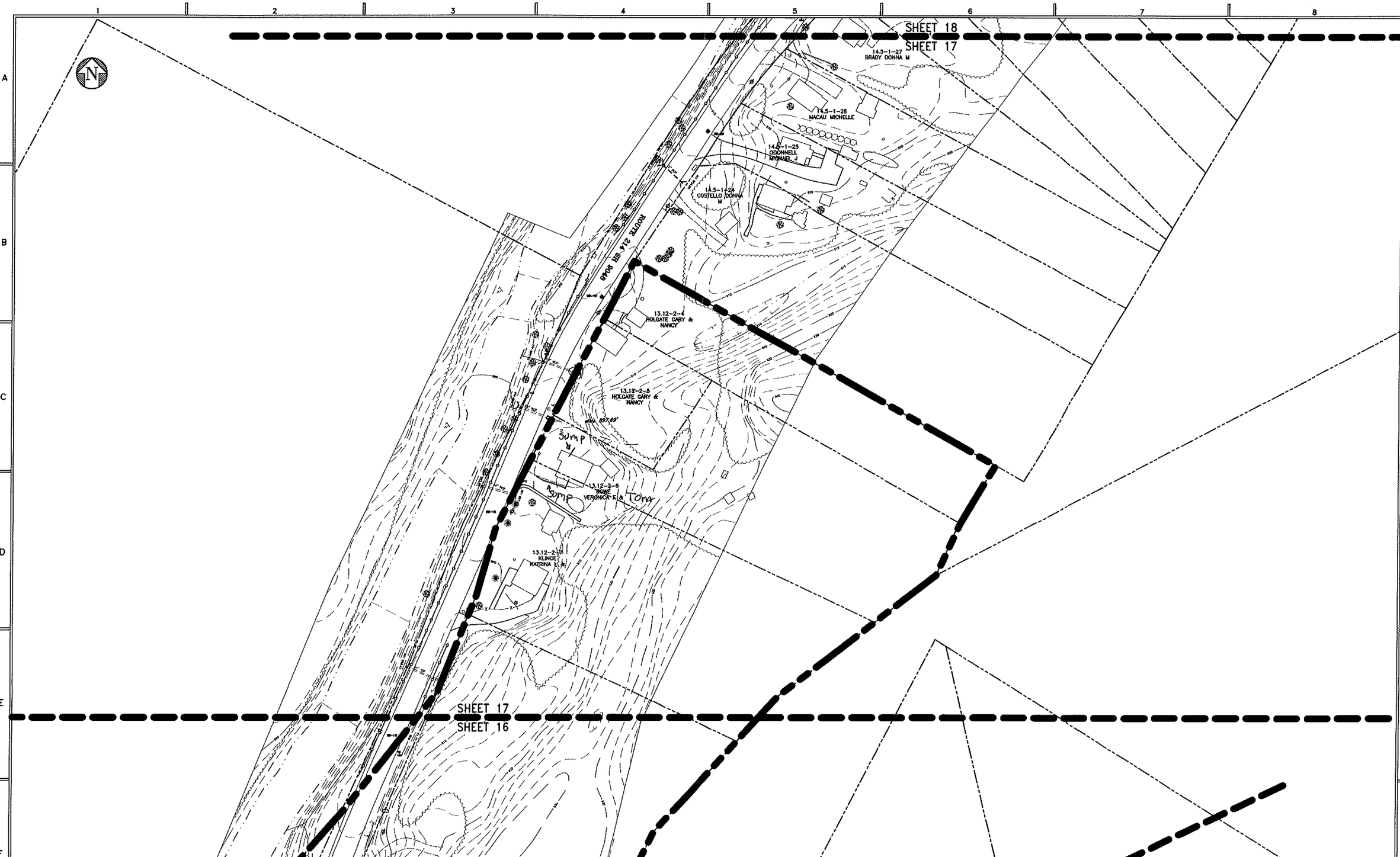

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 17

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 17

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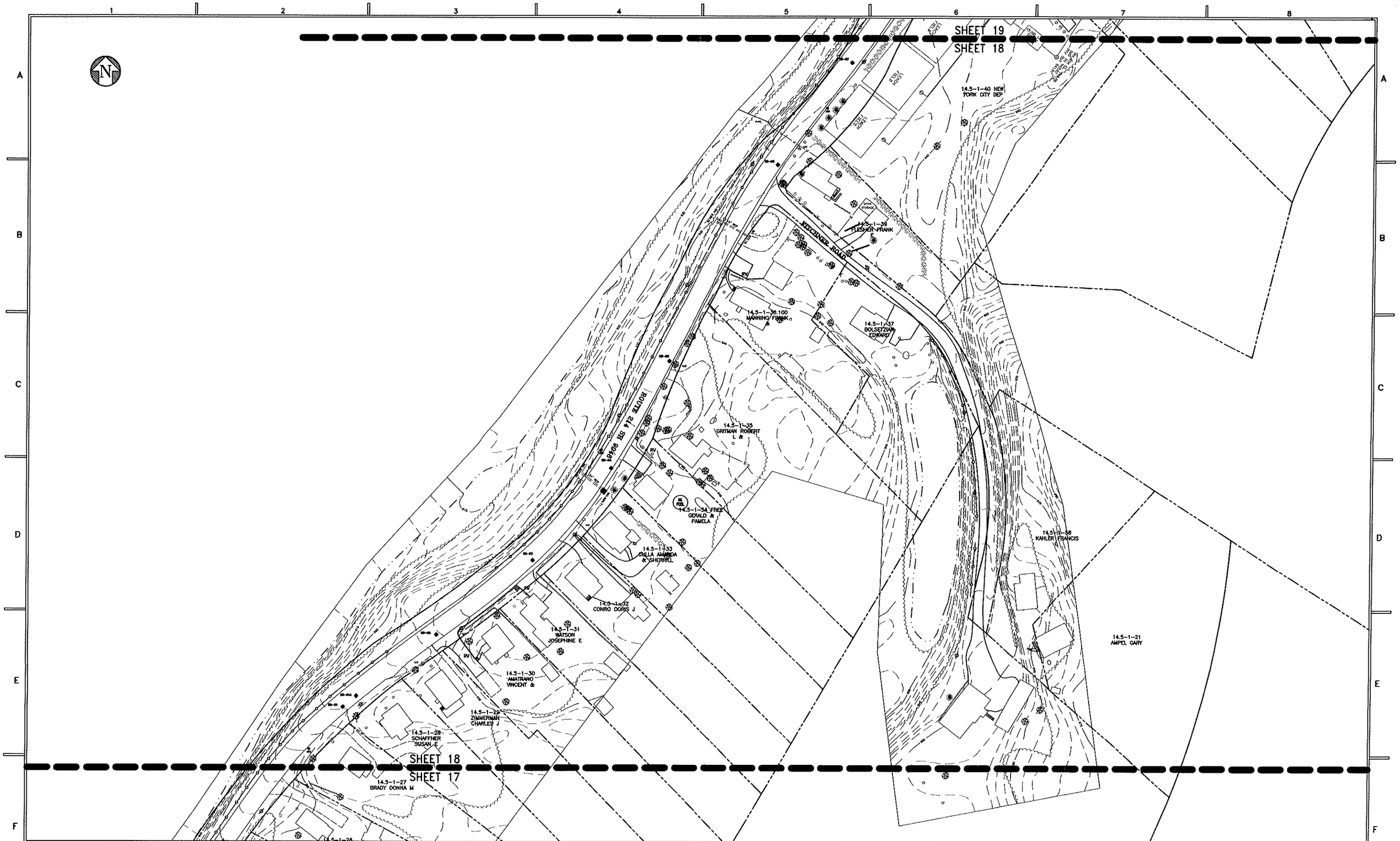

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	N.T.S.
DRAWN	MKS
DATE	03/15/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

WINDSHIELD SURVEY

SHEET 18

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PROJECT NO.	FILE NAME	SHEET NO.
2010050	BM_LAMONT	SHEET 18

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P.O. Box 486
Roxbury, NY 12474
Phone: (607) 326-3341
Fax: (607) 326-3346

SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/17/11
- Observation By: GS/DP
- Drawing Number: #2
- Present Land Use:
- Street Name: Center + East + Island + Lily
- Street Side: Both
- From / To: Rt 28 to Esopus Ave

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.16-2-40		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-58		2		NO	NO	Yes	NO	NO	
RSF	13.16-2-57		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-60		1		Yes	NO	Yes	NO	NO	
RSF	13.16-2-62		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-46		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-42.200		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-44		1		NO	NO	Yes	NO	NO	

Observation Notes:

2 of 2 c ter + East + Island [illegible] Bily

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
I	13.16-2-14	American legion	100 members 1500 GPD		NO	NO	NO	NO	NO	
RSF	13.16-2-15		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-33		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-13		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-4		1		NO	NO	NO	NO	NO	
RSF	13.16-2-6		1		NO	NO	NO	NO	NO	
RSF	13.16-2-5		1		NO	NO	NO	NO	NO	
V	13.16-2-7		—		Yes	—	—	—	—	
RSF	13.16-2-8		1		NO	NO	NO	NO	NO	
V	13.16-2-10		—		Yes	—	—	—	—	
RSF	13.16-2-11		1		NO	NO	NO	NO	NO	
~~RSF~~	~~13.16-2-9~~									
RSF	13.16-2-12									

Remarks:

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: #4, #5, #6 + 7
- Present Land Use:
- Street Name: High ST + Lane
- Street Side: Both
- From / To: Woodland Valley Rd to Bridge ST

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RSF	13.16-2-24	w/cabin	2		NO	NO	yes	NO	NO	
RSF	13.16-2-23.100		1		NO	NO	yes	NO	NO	
RSF	13.16-2-23.200		1		NO	NO	yes	NO	NO	
RSF	13.16-3-51		1		NO	NO	yes	NO	NO	
RSF	13.16-3-21	possibly abandon	1		NO	NO	yes	NO	NO	
RSF	13.16-3-20		1		NO	NO	yes	NO	NO	
RSF	13.16-3-15		1		NO	NO	yes	NO	NO	
RSF	13.16-3-48		1		NO	NO	yes	NO	NO	
RSF	13.16-3-47		1		NO	NO	yes	NO	NO	

2 of 3 H: Stt Lane

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.16-3-54.100		1		NO	NO	Yes	NO	NO	
RSF	13.16-3-17.100		1		NO	NO	Yes	NO	NO	
RSF	13.16-3-17.200		1		NO	NO	Yes	NO	NO	
RSF	13.16-3-16.120		1		NO	NO	Yes	NO	NO	
RSF	13.16-3-16.200		1		NO	NO	Yes	NO	NO	
RSF	13.16-3-52		1		NO	NO	Yes	NO	NO	
V	13.16-3-53		—		—	—	—	—	—	
RSF	13.16-3-18		1		NO	NO	Yes	NO	NO	
V	13.16-3-56		—		—	—	—	—	—	
RSF	13.16-3-57		1		NO	NO	Yes	NO	NO	
RSF	13.16-3-16.113		1		NO	NO	Yes	NO	NO	
RSF	13.16-3-16.112		1		NO	NO	Yes	NO	Yes	Ground
RSF	13.16-3-15		1		NO	NO	Yes	NO	NO	

Remarks:

3 of 3 High St Lane

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-3-34		1		NO	NO	yes	NO	~~yes~~ NO	~~Ground~~
V	14.13-3-33		—		—	—	—	—	—	
RSF	unknown		1		NO	NO	yes	NO	~~yes~~	Ground
RSF	14.13-3-35		1		NO	NO	yes	NO	NO	
V	13.16-3-13		—		—	—	—	—	—	
V	14.13-3-36		—		—	—	—	—	—	
V	13.16-3-12		—		—	—	—	—	—	
M	13.16-3-11	Pump Station	—							
RSF	14.13-3-37		1		NO	NO	yes	NO	NO	
V	14.13-3-38		—							
V	14.13-3-39		—							
RSF	14.13-3-40		1		NO	NO	~~yes~~ NO	NO	NO	

Remarks: _____

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY
New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: #10
- Present Land Use:
- Street Name: Lower Higher & Station
- Street Side: ~~Bridge to End~~ Both
- From / To: Bridge to End

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RSF	14.13-3-62		1		NO	NO	NO	NO	NO	
RTF	14.13-3-63		2		NO	NO	YES	NO	NO	
RSF	14.13-3-61		1		NO	NO	NO	NO	NO	
RSF	14.13-3-60		1		N	N	N	N	N	
RSF	14.13-3-59		1		N	N	N	N	N	
RSF	14.13-3-70		1		N	N	Y	N	N	
RSF	14.13-3-58		1		N	N	N	N	N	
RSF	14.13-3-57		1		N	N	N	N	N	
RSF	14.13-3-56		1		N	N	N	N	N	

2 of 3 Lower Hudson

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-3-55		1		N	N	N	N	N	
RSF	14.13-3-54		1		N	N	N	N	N	
RSF	14.13-3-31.100		1		N	N	Yes	N	N	
I	14.13-3-71	Empire State Museum 2 Batteries								
RSF	14.13-3-47.100		1		N	N	Yes	N	N	
	14.13-3-46	Trailer Park	6		N	N	Yes	N	N	
RSF	14.13-3-65		1		N	N	N	N	N	
V	14.13-3-48		—							
RSF	14.13-3-50		1		N	N	N	N	N	
RSF	14.13-3-49		1		N	N	N	N	N	
V	14.13-3-51		—							
C	14.13-3-52	RR								
C	14.13-3-29	RR								

Remarks:

3 of 3 Low Section

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
V	14.13-3-53.100	(RR)	—							
V	14.13-3-31.200	(RR)	—							

Remarks:

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Phone: (607) 326-3341
Fax: (607) 326-3346

SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: 5, 7, 11
- Present Land Use:
- Street Name: Jay ST / South ST
- Street Side: Both
- From / To: Main to RT 28

	Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
						Observation Notes:					
	RSF	13.16-3-4		1		NO	NO	yes	NO	NO	
	RSF	13.16-3-34		1		NO	NO	yes	NO	NO	
	RSF	13.16-3-5		1		NO	NO	yes	NO	NO	
	RSF	13.16-3-35		1		NO	NO	NO	NO	NO	
RA	[redacted]	13.16-3-6.100		4		NO	NO	yes	NO	NO	
V	[redacted]	13.16-3-6.200		—		—	—	—	—	—	
	RSF	13.16-3-49		1		NO	NO	YES	NO	NO	
	RSF	13.16-3-38		1		NO	NO	NO	NO	NO	
	RSF	13.16-3-7		1		NO	NO	NO	NO	NO	

2 of 2 To South

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
V	13.16-3-8		—		—	—	—	—	—	—
V	13.16-3-9		—		—	—	—	—	—	—
RSF	13.16-3-10		1		NO	NO	YES	NO	NO	
RSF	13.16-3-39		1		NO	NO	NO	NO	NO	
RSF	13.16-3-41		1		NO	NO	NO	NO	NO	
RSF	13.16-3-43		1		NO	NO	NO	NO	NO	
RSF	13.16-3-44		1		NO	NO	NO	NO	NO	
RSF	13.16-3-45		1		NO	NO	NO	NO	NO	

Remarks:

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: 9, 8
- Present Land Use:
- Street Name: RT 160
- Street Side: Both
- From / To: End to Main

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RSF	14.13-2-18		1		NO	NO	NO	NO	NO	
	14.13-2-13	Water Pump Station	—		NO	NO	NO	NO	NO	
C	14.13-2-14	closed Nursery			NO	NO	NO	NO	NO	
RSF	14.13-2-12		1		NO	NO	NO	NO	NO	
V	14.13-2-32		—		—	—	—	—	—	
C	14.13-2-2	closed			—	—	—	—	—	
RSF	14.13-2-1	Storage			NO	NO	NO	NO	NO	
RSF	14.13-3-27		1		N	N	N	N	N	
RSF	14.13-3-26		1		N	N	N	N	N	

20F2 RT 110

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-3-25		1		NO	NO	NO	NO	NO	
V	14.13-3-24		—		—	—				

Remarks: _____

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: 11
- Present Land Use:
- Street Name: Main St Residential
- Street Side: Both
- From / To: RT 160 To RT 214

Observation Notes:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-1-31		1		NO	NO	~~NO~~ Yes	NO	NO	
RSF	14.13-1-32		1		NO	NO	Yes	NO	NO	
V	14.13-1-33		—		NO	—	-	—	—	
RSF	14.13-1-34		1		NO	NO	Yes	NO	NO	

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY
New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: #13
- Present Land Use:
- Street Name: School
- Street Side: Both
- From / To: Rt 214 to End

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RSF	13.12-2-13		1		N	N	N	N	N	
RSF	13.12-2-30		1		N	N	N	N	N	
I	13.12-2-12	School								
RSF	13.12-2-29		1		N	N	N	N	N	
RSF	13.12-2-14		1		N	N	N	N	N	
RSF	13.12-2-15		1		N	N	Y	N	N	
RSF	13.12-2-16		1		N	N	Y	N	N	
RSF	13.12-2-27		1		N	N	N	N	N	
✓	13.12-2-28		—		Y	—	—	—	—	

2 of 2 Sch-1

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.12-2-20		1		N	N	Y	N	N	
RSF	13.12-2-19		1		N	N	Y	N	N	
RSF	13.12-2-18		1		N	N	Y	N	N	

Remarks:

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/12/11
- Observation By: GS/DP
- Drawing Number: #2
- Present Land Use:
- Street Name: Esopus AVE / West ST
- Street Side: Both
- From / To: Woolland to West

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RSF	13.16-2-47		1		NO	NO	NO	NO	NO	
RSF	13.16-2-45		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-48		1		NO	NO	NO	NO	NO	
RSF	13.16-2-61		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-49		1		NO	NO	NO	NO	NO	
RSF	13.16-2-50		1		NO	NO	NO	NO	NO	
RSF	13.16-2-51		1		NO	NO	NO	NO	NO	
RSF	13.16-2-63		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-52		1		NO	NO	NO	NO	NO	

2 of 2 Esopus - West

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.16-2-64	w/cottage	2		NO	NO	Yes	NO	NO	
RSF	13.16-2-53		1		NO	NO	NO	NO	NO	
RSF	13.16-2-55		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-54		1		NO	NO	NO	NO	NO	
RSF	13.16-2-31		1		NO	NO	NO	NO	NO	
RSF	13.16-2-32		3		NO	NO	Yes	NO	NO	
RSF	13.16-2-34.200		1		NO	NO	NO	NO	NO	
RSF	13.16-2-34.100		1		NO	NO	NO	NO	NO	
RSF	13.16-2-35		1		NO	NO	Yes	NO	NO	
Y	13.16-2-56		—		Yes	—	Yes	NO	—	
RTF	13.16-2-36		2		NO	NO	Yes	NO	NO	
RSF	13.16-2-37		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-16		1		NO	NO	Yes	NO	NO	

Remarks:

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/17/11
- Observation By: GS/DP
- Drawing Number: #11
- Present Land Use:
- Street Name: Church St
- Street Side: Both
- From / To: Main to Tremper

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
C	14.13-1-40.100	Commercial	-	18 seat	No	No	Yes	NO	[redacted]	—
1A	14.13-1-38	(C) Playhouse			NO	NO	NO	NO	Yes	Ground
RSF	14.13-1-62	—	1	—	NO	NO	Yes	NO	NO	
RSF	14.13-1-19	—	1	—	NO	NO	Yes	NO	NO	
RSF	14.13-1-18	—	1	—	NO	NO	Yes	NO	NO	
RSF	14.13-1-6	—	1	—	NO	NO	Yes	NO	NO	
RTF	14.13-1-60	—	2	2	NO	NO	Yes	NO	NO	
RA	14.13-1-17		4	4	NO	NO	Yes	NO	NO	
MCA	14.13-1-16				NO	NO	Yes	NO	NO	

2082 Church Dr.

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-1-59	—	1		NO	NO	Yes	NO	Yes	Ground
RSF	14.13-1-15	—	1		NO	NO	Yes	NO	NO	
1	14.13-1-58	(1) Church ~~Parsonage~~ Thrift Store	3444 GPD		NO	Yes	Yes	NO	NO	
RSF	14.13-1-14		1		NO	NO	Yes	NO	NO	

Remarks:

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/17/11
- Observation By: GS/DP
- Drawing Number: #12
- Present Land Use:
- Street Name: Newton
- Street Side: Both
- From / To: Tremper to Dead End

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RTF	14.13-1-13		2	2	NO	NO	Yes	NO	NO	
RSF	14.13-1-57		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-56		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-55		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-54		1		NO	NO	Yes	NO	NO	
C	14.13-1-11	Verizon	1		NO	NO	Yes	NO	NO	
V	14.13-1-12		—		NO					
RSF	14.13-1-9		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-53		1		NO	NO	Yes	NO	NO	

2062 N. Tom

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-1-52		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-8		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-7		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-51.100	House is Vacant	1		NO	NO	Yes	NO	NO	
RSF	14-13-1-6		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-51.200		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-2		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-4		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-3		1		NO	NO	Yes	NO	NO	

Remarks:

1 of 1

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/17/11
- Observation By: GS/DP
- Drawing Number: #11
- Present Land Use:
- Street Name: Mary MT. Dr
- Street Side: Both sides
- From / To: AVA Maria Dr to End

Observation Notes:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-1-25		1		NO	NO	NO	NO	NO	
RSF	14.13-1-93		1		NO	NO	NO	NO	NO	
RSF	14.13-1-22		1		NO	NO	NO	NO	NO	
RSF	14.13-1-21		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-23		1		NO	NO	Yes	NO	NO	

1 of 1

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY
New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/17/11
- Observation By: GS/DP
- Drawing Number: #11 & #12
- Present Land Use:
- Street Name: MT AVA Maria Dr
- Street Side: Both
- From / To: Main

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
M	14.13-1-29	Post Office	60 GPD	4 Employees	NO	NO	Yes	NO	NO	
C	14.13-1-24	old clinic & EMS in garage			NO	NO	Yes	NO	NO	
RSF	14.13-1-30		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-27		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-26		1		NO	NO	Yes	NO	NO	
RA	14.1-2-2.1	4 Buildings	18		Yes	NO	Yess	NO	NO	
RA	14.1-2-2.200	3 Buildings	25		NO	NO	Yes	NO	NO	

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/17/11
- Observation By: GS/DP
- Drawing Number: #11 + #12
- Present Land Use:
- Street Name: Tremper
- Street Side: Both
- From / To: Church to Rt 214

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RSF	14.13-1-80		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-91		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-92		1		NO	NO	Yes	NO	Yes	Ground
RSF	14.13-1-87		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-86		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-85		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-84		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-83		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-81		1		NO	N	Yes	NO	NO	

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/17/11
- Observation By: GS/DP
- Drawing Number: #12
- Present Land Use:
- Street Name: Romer
- Street Side: Both
- From / To: Newton to RT 214

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
						Observation Notes:				
RSF	14.13-1-77		1		NO	~~Yes~~ NO	~~N~~ Yes	NO	NO	
RSF	14.13-1-76		1		NO	NO	Yes	NO	~~No~~ Yes	Ground
RSF	14.13-1-75		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-74		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-73		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-72		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-70		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-88		1		NO	NO	Yes	NO	NO	
RSF	14.13-1-89		1		NO	NO	Yes	NO	NO	

2 of 2 Romer

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-1-90		1		NO	NO	Yes	NO	NO	
RTF ~~RSF~~	14.13-1-79	House w/Cottage	2		NO	NO	Yes	NO	NO	
RSF	14.13-1-78		1		NO	NO	Yes	NO	NO	

Remarks:

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: 11, 12, 13, 14, 15, 16, 17
- Present Land Use:
- Street Name: 214 Residential
- Street Side: Both
- From / To: Rt 28 to Chichester line

Observation Notes:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.16-3-28	W/out Building	1		N	N	Y	N	N	
RSF	13.16-3-29.100		1		N	N	Y	N	N	
RSF	13.16-3-30		1		N	N	N	N	N	
RA	13.16-3-31		4		N	N	N	N	N	
RSF	13.16-3-2.100		1		N	N	Y	N	N	
RSF	14.13-1-64		1		N	N	N	N	N	
RSF	14.13-1-66	W/Cottage	2		N	N	N	N	N	
CA	14.13-1-65	Antique Shop			N	N	N	N	N	
V	14.13-1-67		—		—					

of 4 RT 214

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-1-69		1		N	N	N	N	N	
RSF	14.13-1-70		1		N	N	N	N	N	
RSF	14.13-1-49		1		N	N	N	N	N	
RSF	14.13-1-48		1		N	N	N	N	N	
RSF	14.13-1-47		1		N	N	N	N	N	
RSF	14.13-1-1		1		N	N	Y	N	N	
RSF	13.12-2-23		1		N	N	Y	N	N	
RSF	13.12-2-22	w/cottage	2		N	N	Y	N	N	
V	13.12-2-24		—							
V	13.12-2-26		—							
RSF	13.12-2-32		1		N	N	Y	N	N	
RSF	13.12-2-25		1		N	N	N	N	N	
RSF	13.12-2-33		1		N	N	N	N	N	

Remarks:

3 of 4 Rt 214

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.12-2-34		1		N	N	N	N	N	
RSF	13.12-2-31		1		N	N	N	N	N	
RSF	13.12-2-35		1		N	N	Y	N	N	
RSF	13.12-2-36		1		N	N	Y	N	N	
2 houses ~~RSF~~	13.12-2-38		2		N	N	N	N	N	
RA	13.12-2-39		4		N	N	N	N	N	
RTF	13.12-2-11	w/cottage	3		N	N	Y	N	N	
RSF	13.12-2-40		1		N	N	Y	N	N	
RSF	13.12-2-10		1		N	N	Y	N	N	
RSF	13.12-2-41		1		N	N	Y	N	N	
RSF	13.12-2-9		1		N	N	Y	N	N	
RSF	13.12-2-42		1		N	N	Y	N	N	
RSF	13.12-2-43		1		N	N	Y	N	N	

Remarks:

4 of 4 Rt-14

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.12-2-44		1		N	N	Y	N	N	
RSF	13.12-2-45		1		N	N	N	N	N	
RSF	13.12-2-46		1		N	N	N	N	N	
RSF	13.12-2-48		1		N	N	N	N	N	
RSF	13.12-2-8		1		N	N	N	N	N	
RSF	13.12-2-7		1		N	N	N	N	N	
RSF	13.12-2-6		1		N	Y	N	N	Y	Ground
RSF	13.12-2-5		1		N	N	N	N	N	
V	13.12-2-4		—							
RSF	13.16-3-33		1		N	N	N	N	N	
RSF	13.16-3-3	w/cottage	2		N	N	N	N	N	

Remarks: _____

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: #1 & #2
- Present Land Use:
- Street Name: Old Rt 28
- Street Side: Both
- From / To: Rt 28 to Rt 28

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
					Observation Notes:					
RSF	13.12-1-23		1		NO	NO	Yes	NO	NO	
RSF	13.12-1-22		1		NO	NO	Yes	NO	NO	
RSF	13.12-1-24		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-1		1		NO	NO	Yes	NO	NO	
RSF	13.12-2-1.120		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-2		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-3		1		NO	NO	Yes	NO	NO	
IA	13.12-2-1.130	Preschool 12 kids	120 GPD + 1 EDU		NO	NO	Yes	NO	NO	
RSF	13.16-2-5		1		NO	NO	Yes	NO	NO	

2 of 2 Old 7-8

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	13.16-2-9		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-18.200		1		NO	NO	Yes	NO	NO	
RSF	13.16-2-39		1		NO	NO	Yes	NO	NO	
C	13.16-2-8.100	Vacant 845-688-7280			N	N	Yes	Ni	NO	
RSF	13.16-2-38		1		NO	NO	Yes	NO	NO	
RA	13.16-2-41		8	8	NO	NO	Yes	NO	NO	

Remarks:

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY
New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/18/11
- Observation By: GS/DP
- Drawing Number: 9
- Present Land Use:
- Street Name: Water Works Rd / Terrace
- Street Side: Both
- From / To: RT 160 to End

Observation Notes:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSF	14.13-2-4		1		No	No	Yes	NO	NO	
RSF	14.13-2-5		1		No	No	yes	NO	NO	
RSF	14.13-2-7.400		1		No	No	yes	No	No	
RSF	14.13-2-3		1		No	No	yes	N	NO	
RSF	14.13-2-34.100		1		No	NO	yes	NO	No	
RSF	14.13-2-9.100		1		NO	No	yes	No	No	
RSF	14.13-2-10		1		N	NO	yes	NO	No	
RSF	14.13-2-6		1		No	NO	yes	No	No	
RSF	14.13-2-17		1		NO	No	yes	NO	NO	

2 of 2 Waterworks at Terrace

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
RSE	14.13-2-11		1		NO	NO	NO	NO	NO	

Remarks: _____

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY
New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/22/11
- Observation By: GS/DP
- Drawing Number:
- Present Land Use:
- Street Name: RT 214 Commercial
- Street Side:
- From / To:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Observation Notes: Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
M	14.13-1-68	Fire house			Y	N	Y	N	N	
C	14.13-1-71	Cloudsplitter Bistro B+B rooms / Possibly 5 rooms			N	N	N	N	N	
C	14.13-1-50	Motel Cobblestone 15 rooms or RSF			N	N	Y	N	N	
I	13.16-3-32	Phoenicia Church Wesleyan 688-5276			N	N	N	N	N	
CA	13.16-3-40	Al's Seafood								

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/22/11
- Observation By: GS/DP
- Drawing Number: #2, 3, 4 + 5
- Present Land Use:
- Street Name: Rt 28
- Street Side:
- From / To:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
				Observation Notes:						
C	13.16-2-20 688-5410	Simpler Times Cabins		Main House 8 cabins 19 campsites	Yes	No	Y	N	N	
RSF	13.16-2-21		1		N	N	N	N	N	
RSF	13.16-2-22.1		1		N	N	Y	N	N	
RSF	13.16-3-24		1		N	N	N	N	N	
RSF	13.16-3-25		1		N	N	N	N	N	
RSF	13.16-3-46		1		N	N	N	N	N	
* CA	13.16-2-42.100 13.16-2-43	Phoenicia Lodge motel + cottages			N	N	Y	N	N	

* See note pad

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY
New Sewage Treatment Infrastructure Program
Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York
Project #: 2010050

- Date: 3/22/11
- Observation By: GS/DP
- Drawing Number: #8
- Present Land Use:
- Street Name: Bridge St
- Street Side: Both
- From / To:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
						Observation Notes:				
C	14.13-3-23	Phoenicia Black Bear Campground								
C	14.13-3-15	Tube Rental								
RSF	14.13-3-44		1							
C	14.13-3-17	Tube rental office	—							
RSF	14.13-3-~~42~~ 41		1							

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SEPTIC SYSTEM WINDSHIELD INSPECTION SURVEY

New Sewage Treatment Infrastructure Program

Hamlet of Phoenicia, Town of Shandaken, Ulster County, New York

Project #: 2010050

- Date: 3/22/11
- Observation By: GS/DP
- Drawing Number: #11, #8
- Present Land Use:
- Street Name: Main St
- Street Side: Both
- From / To: Rt 214

Observation Notes:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
I	14.1-2-3	St Francis Rectory and Parish Hall	2700 GPD + 1 EDU							
I	14.13-3-22	St Francis Church 150 Seat	NO Bathroom							
C	14.13-3-19	Sharp Committee 2 Employees	1		N	N	Y	N	Y	Ground
V	14.13-3-20	—	—		Y	—	—	—	—	—
V	14.13-3-18	—	—		Y	—	—	—	—	—
C	14.13-3-16	4 Businesses								
C	14.13-1-41	KeyBank 5 Employees	1		N	N	Y	N	N	
C	14.13-1-42	Sweet Sue's Restaurant								
C	14.13-1-43	Phoenicia Pharmacy 6 Employees	45 GPD							

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
CA	14.13-3-1	Gale Realty Cabana Studios		2 Business 2 APT	N	N	N	N	N	
CA	14.13-3-2	Phoenicia 1 Employee mineral tique	15 GPD + 1 EDU	1 APT						
C	14.13-3-3	Phoenicia Deli	30 GPD + 1 EDU	1 Deli 1 Apt	N	N	N	N	N	
IA	14.13-3-4	Library/Apt								
CA	14.13-3-5	Hardware	15 GPD + 1 EDU	1 Business 1 APT	N	N	N	N	Y	Ground
CA	14.13-3-6	Ricciardello's	3150 GPD 1 EDU	1 APT	N	N	Y	N	N	
CA	14.13-3-7	Ulster Bank	105 GPD + 2 EDUs	2 Apts + Office	N	N	N	N	N	
C	14.13-3-8	60 main ma Clothing Store			N	N	N	N	N	
C	14.13-3-9	Brio + Office	2625 GPD 45 GPD		N	N	Y	N	N	
C	14.13-3-10	Sportsman	2975 GPD + 1 EDU	1 Apt	N	N	Y	N	Y	Ground
C	14.13-3-11	4 Business 1 office			N	N	Y	N	N	
C	14.13-3-14	Nest Egg	75 GPD		N	N	N	N	N	
C	14.13-3-13	Debra Jo's Whisk								

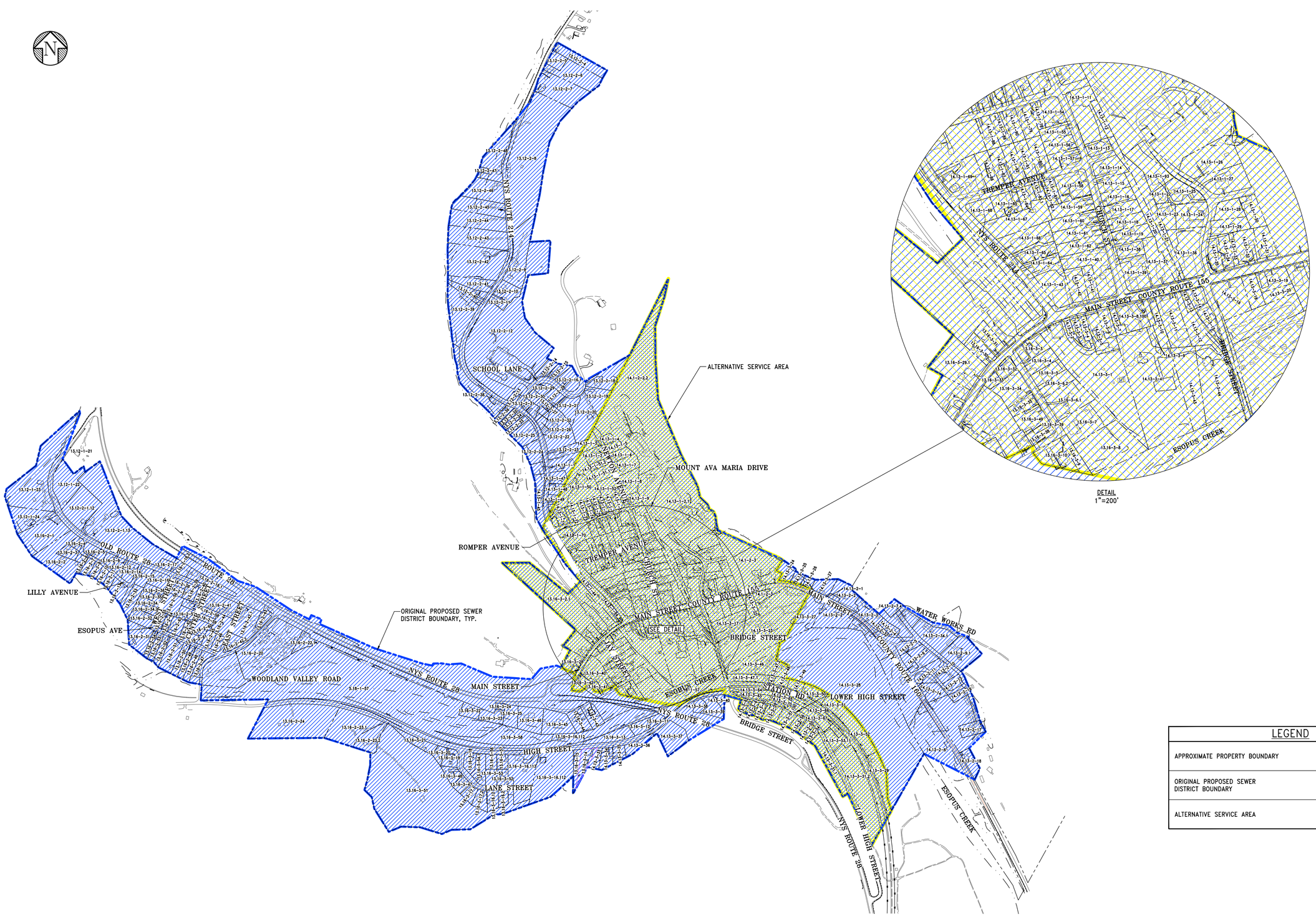
Remarks:

Type	Tax Map #	Type of Commercial/Institution	Unit Count Or # of EDU's	Apartment Count	Vacant Land Buildable?	Septic System Apparent?	Drainage Adequate for Septic?	Ground-water Evident?	Sump Pumps Visible?	Where do sumps Discharge?
V	14.13-3-12	—	—	—	—	—	—	—	—	
C	14.13-1-35	Funeral Home			N	N	N	N	N	
C	14.13-1-36	Prior Supermarket Grocery	50 GPD + 2 EDU	2	N	N	N	N	Y	Ground
C	14.13-1-37	Prior B&B	1		N	N	Y	N	N	
C	14.13-1-37	Miller Bikes	—	—	—	—	—	—	—	

Remarks: _____

Exhibit 4.A

Potential Service Areas Map and Table Summary of Parcels



LEGEND	
APPROXIMATE PROPERTY BOUNDARY	
ORIGINAL PROPOSED SEWER DISTRICT BOUNDARY	
ALTERNATIVE SERVICE AREA	

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=400'
DRAWN	MKS
DATE	2/08/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

POTENTIAL SERVICE AREAS MAP

EXHIBIT 4.A

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

PROJECT NO.	FILE NAME	SHEET NO.
2010050	EX 4.A_POT SEWER DI	EX. 4.A

Table Summary of Parcels
Original Proposed Sewer District
Exhibit 4.A

No.	TAX ID #	STREET	TYPE	DESCRIPTION
1	14.13-3-41	BOARD WALK	RSF	
2	14.13-3-15	BRIDGE ST	C	Town Tinker Tubes
3	14.13-3-17	BRIDGE ST	C	Town Tinker Tubes
4	14.13-3-23	BRIDGE ST	C	Black Bear Campground
5	14.13-3-44	BRIDGE ST	RSF	
6	14.13-3-43	BRIDGE ST	V	
7	14.13-3-64	BRIDGE ST	V	
8	13.16-2-40	CENTER ST	RSF	
9	13.16-2-57	CENTER ST	RSF	
10	13.16-2-60	CENTER ST	RSF	
11	13.16-2-58	CENTER ST	RTF	
12	13.16-2-59	CENTER ST	V	
13	14.13-1-16	CHURCH ST	CA	Antique Taylor Studio
14	14.13-1-58	CHURCH ST	I	Church
15	14.13-1-38	CHURCH ST	IA	Playhouse Theater
16	14.13-1-17	CHURCH ST	RA	
17	14.13-1-14	CHURCH ST	RSF	
18	14.13-1-15	CHURCH ST	RSF	
19	14.13-1-18	CHURCH ST	RSF	
20	14.13-1-19	CHURCH ST	RSF	
21	14.13-1-59	CHURCH ST	RSF	
22	14.13-1-61	CHURCH ST	RSF	
23	14.13-1-62	CHURCH ST	RSF	
24	14.13-1-60	CHURCH ST	RTF	
25	14.13-1-82.100	CHURCH ST	V	Lot Behind Church
26	13.16-2-46	EAST ST	RSF	
27	13.16-2-42.2	EAST ST	RSF	
28	13.16-2-44	EAST ST	RSF	
29	13.16-2-31	ESOPUS AVE	RSF	
30	13.16-2-45	ESOPUS AVE	RSF	
31	13.16-2-47	ESOPUS AVE	RSF	
32	13.16-2-48	ESOPUS AVE	RSF	
33	13.16-2-49	ESOPUS AVE	RSF	
34	13.16-2-50	ESOPUS AVE	RSF	
35	13.16-2-51	ESOPUS AVE	RSF	
36	13.16-2-52	ESOPUS AVE	RSF	
37	13.16-2-53	ESOPUS AVE	RSF	
38	13.16-2-54	ESOPUS AVE	RSF	
39	13.16-2-55	ESOPUS AVE	RSF	
40	13.16-2-61	ESOPUS AVE	RSF	
41	13.16-2-62	ESOPUS AVE	RSF	
42	13.16-2-63	ESOPUS AVE	RSF	
43	13.16-2-64	ESOPUS AVE	RSF	House with Cottage
44	13.16-3-11	HIGH ST	M	
45	13.16-2-23.100	HIGH ST	RSF	
46	13.16-2-23.200	HIGH ST	RSF	
47	13.16-3-15	HIGH ST	RSF	
48	13.16-3-16.112	HIGH ST	RSF	
49	13.16-3-16.113	HIGH ST	RSF	
50	13.16-3-18	HIGH ST	RSF	
51	13.16-3-19	HIGH ST	RSF	

52	13.16-3-20	HIGH ST	RSF	
53	13.16-3-21	HIGH ST	RSF	
54	13.16-3-51	HIGH ST	RSF	
55	13.16-3-57	HIGH ST	RSF	
56	14.13-3-34	HIGH ST	RSF	
57	14.13-3-35	HIGH ST	RSF	
58	14.13-3-37	HIGH ST	RSF	
59	14.13-3-40	HIGH ST	RSF	
60	13.16-2-24	HIGH ST	RTF	RSF w/Cabin
61	13.16-3-12	HIGH ST	V	Vacant Lot
62	13.16-3-13	HIGH ST	V	Vacant Lot
63	13.16-3-56	HIGH ST	V	Vacant Lot
64	13.16-3-58	HIGH ST	V	
65	14.13-3-28	HIGH ST	V	
66	14.13-3-31.200	HIGH ST	V	
67	14.13-3-33	HIGH ST	V	Vacant Lot
68	14.13-3-36	HIGH ST	V	Vacant Lot
69	14.13-3-38	HIGH ST	V	Cemetery
70	14.13-3-39	HIGH ST	V	Vacant Lot
71	14.13-3-67	HIGH ST	V	
72	13.16-3-14	HIGH ST	RSF	
73	13.16-2-13	ISLAND RD	RSF	
74	13.16-2-15	ISLAND RD	RSF	
75	13.16-2-33	ISLAND RD	RSF	
76	13.16-3-6.1	JAY ST	RA	
77	13.16-3-34	JAY ST	RSF	
78	13.16-3-35	JAY ST	RSF	
79	13.16-3-38	JAY ST	RSF	
80	13.16-3-4	JAY ST	RSF	
81	13.16-3-49	JAY ST	RSF	
82	13.16-3-5	JAY ST	RSF	
83	13.16-3-7	JAY ST	RSF	
84	13.16-3-6.200	JAY ST	V	
85	13.16-3-8	JAY ST	V	
86	13.16-3-16.120	LANE ST	RSF	
87	13.16-3-16.200	LANE ST	RSF	
88	13.16-3-17.100	LANE ST	RSF	
89	13.16-3-17.200	LANE ST	RSF	
90	13.16-3-47	LANE ST	RSF	
91	13.16-3-48	LANE ST	RSF	
92	13.16-3-52	LANE ST	RSF	
93	13.16-3-54.100	LANE ST	RSF	
94	13.16-3-53	LANE ST	V	Vacant Lot
95	13.16-2-11	LILLY AVE	RSF	
96	13.16-2-4	LILLY AVE	RSF	
97	13.16-2-6	LILLY AVE	RSF	
98	13.16-2-8	LILLY AVE	RSF	
99	13.16-2-10	LILLY AVE	V	
100	14.13-3-53.11	LOWER HIGH ST	I	Empire State Museum
101	14.13-3-71	LOWER HIGH ST	IA	Empire State Museum
102	14.13-3-31.100	LOWER HIGH ST	RSF	
103	14.13-3-54	LOWER HIGH ST	RSF	

104	14.13-3-55	LOWER HIGH ST	RSF	
105	14.13-3-56	LOWER HIGH ST	RSF	
106	14.13-3-57.100	LOWER HIGH ST	RSF	
107	14.13-3-59	LOWER HIGH ST	RSF	
108	14.13-3-60	LOWER HIGH ST	RSF	
109	14.13-3-61	LOWER HIGH ST	RSF	
110	14.13-3-62	LOWER HIGH ST	RSF	
111	14.13-3-70	LOWER HIGH ST	RSF	
112	14.13-3-63	LOWER HIGH ST	RTF	
113	14.13-1-35	MAIN ST	C	Funeral Home
114	14.13-1-37	MAIN ST	C	Bed and Breakfast
115	14.13-1-39	MAIN ST	C	Valero Gas Station
116	14.13-1-40.100	MAIN ST	C	Mamas Boy Café
117	14.13-1-41	MAIN ST	C	Key Bank
118	14.13-1-43	MAIN ST	C	Phoenicia Pharmacy
119	14.13-2-13	MAIN ST	C	Pump House
120	14.13-2-14	MAIN ST	C	Closed Nursery
121	14.13-2-2	MAIN ST	C	Vacant Bldg.
122	14.13-3-11	MAIN ST	C	4 Businesses/1 Office
123	14.13-3-13	MAIN ST	C	Debra Jo's Unisex Salon
124	14.13-3-14	MAIN ST	C	Nest Egg
125	14.13-3-16	MAIN ST	C	5 Businesses
126	14.13-3-19	MAIN ST	C	Sharp Committee
127	14.13-3-8	MAIN ST	C	Office Bldgs. and Shops
128	14.13-3-9	MAIN ST	C	Brio's Restaurant
129	14.13-1-36	MAIN ST	CA	Phoenicia Grocery
130	14.13-1-42	MAIN ST	CA	Sweet Sue's Restaurant
131	14.13-3-1	MAIN ST	CA	Ruth Gale Reality/ Cabane Studios
132	14.13-3-10	MAIN ST	CA	Sportsman Restaurant
133	14.13-3-2	MAIN ST	CA	Phoenicia Wines and Liquors
134	14.13-3-3	MAIN ST	CA	Phoenicia Deli
135	14.13-3-5	MAIN ST	CA	Hardware Store
136	14.13-3-6	MAIN ST	CA	Ricciardella's Restaurant
137	14.13-3-7	MAIN ST	CA	Ulster Savings Bank
138	14.1-2-3	MAIN ST	IA	
139	14.13-3-22	MAIN ST	I	St. Francis Church
140	14.13-3-4	MAIN ST	IA	Old Phoenicia Library
141	14.13-1-21	MAIN ST	RSF	
142	14.13-1-31	MAIN ST	RSF	
143	14.13-1-32	MAIN ST	RSF	
144	14.13-1-34	MAIN ST	RSF	
145	14.13-2-11	MAIN ST	RSF	
146	14.13-2-12	MAIN ST	RSF	
147	14.13-2-17	MAIN ST	RSF	
148	14.13-3-25	MAIN ST	RSF	
149	14.13-3-26	MAIN ST	RSF	
150	14.13-3-27	MAIN ST	RSF	
151	14.13-1-20	MAIN ST	V	
152	14.13-1-33	MAIN ST	V	
153	14.13-2-1	MAIN ST	V	
154	14.13-3-12	MAIN ST	V	
155	14.13-3-18	MAIN ST	V	

156	14.13-3-20	MAIN ST	V	
157	14.13-3-24	MAIN ST	V	
158	14.13-1-44	MAIN ST	V	
159	14.13-1-22	MARY MOUNT DR	RSF	
160	14.13-1-23	MARY MOUNT DR	RSF	
161	14.13-1-25	MARY MOUNT DR	RSF	
162	14.13-1-93	MARY MOUNT DR	RSF	
163	14.13-1-27	MT. AVA MARIA DR	RSF	
164	14.13-1-24	MT. AVA MARIA DR	C	Old Clinic
165	14.13-1-29	MT. AVA MARIA DR	M	Post Office
166	14.1-2-2.200	MT. AVA MARIA DR	RA	Shandaken Village Apartments
167	14.13-1-2.1	MT. AVA MARIA DR	RA	Sky Rise Apartments
168	14.13-1-26	MT. AVA MARIA DR	RSF	
169	14.13-1-28	MT. AVA MARIA DR	V	
170	14.13-1-11	NEWTON AVE	C	Verizon Station
171	14.13-1-2	NEWTON AVE	RSF	
172	14.13-1-3	NEWTON AVE	RSF	
173	14.13-1-4	NEWTON AVE	RSF	
174	14.13-1-51.100	NEWTON AVE	RSF	
175	14.13-1-51.200	NEWTON AVE	RSF	
176	14.13-1-52	NEWTON AVE	RSF	
177	14.13-1-54	NEWTON AVE	RSF	
178	14.13-1-55	NEWTON AVE	RSF	
179	14.13-1-56	NEWTON AVE	RSF	
180	14.13-1-57	NEWTON AVE	RSF	
181	14.13-1-6	NEWTON AVE	RSF	
182	14.13-1-7	NEWTON AVE	RSF	
183	14.13-1-8	NEWTON AVE	RSF	
184	14.13-1-9	NEWTON AVE	RSF	
185	14.13-1-13	NEWTON AVE	RTF	
186	14.13-1-12	NEWTON AVE	V	
187	14.13-1-5	NEWTON AVE	V	
188	13.16-2-7	OLD ROUTE 28	V	
189	13.16-2-14	OLD RT 28	I	American Legion
190	13.12-2-1.130	OLD RT 28	IA	Pre School
191	13.16-2-41	OLD RT 28	RA	
192	13.12-1-22	OLD RT 28	RSF	
193	13.12-1-23	OLD RT 28	RSF	
194	13.12-1-24	OLD RT 28	RSF	
195	13.12-2-1.120	OLD RT 28	RSF	
196	13.16-2-1	OLD RT 28	RSF	
197	13.16-2-12	OLD RT 28	RSF	
198	13.16-2-18.200	OLD RT 28	RSF	
199	13.16-2-2	OLD RT 28	RSF	
200	13.16-2-3	OLD RT 28	RSF	
201	13.16-2-39	OLD RT 28	RSF	
202	13.16-2-5	OLD RT 28	RSF	
203	13.16-2-9	OLD RT 28	RSF	
204	13.16-2-17	OLD RT 28	V	
205	14.13-2-18	PLANK RD	RSF	
206	14.13-2-32	RAWSON RD	V	
207	14.13-2-8	RAWSON RD	V	

208	14.13-1-53	ROMER ST	RSF	
209	14.13-1-72	ROMER ST	RSF	
210	14.13-1-73	ROMER ST	RSF	
211	14.13-1-74	ROMER ST	RSF	
212	14.13-1-75	ROMER ST	RSF	
213	14.13-1-76	ROMER ST	RSF	
214	14.13-1-77	ROMER ST	RSF	
215	14.13-1-78	ROMER ST	RSF	
216	14.13-1-88	ROMER ST	RSF	
217	14.13-1-89	ROMER ST	RSF	
218	14.13-1-90	ROMER ST	RSF	
219	14.13-1-79	ROMER ST	RTF	House with Cottage
220	13.16-3-42	ROUTE 214	C	Al's Seafood
221	14.13-1-50	ROUTE 214	CA	Cobblestone Motels
222	14.13-1-71	ROUTE 214	C	Claude's Bistro
223	13.16-3-40	ROUTE 214	CA	Al's Seafood
224	14.13-1-65	ROUTE 214	CA	Antique shop and residence
225	13.16-3-32	ROUTE 214	I	Phoenicia Church Wesleyan
226	14.13-1-68	ROUTE 214	M	Fire House
227	13.12-2-39	ROUTE 214	RA	
228	13.16-3-31	ROUTE 214	RA	
229	14.13-1-69	ROUTE 214	RA	
230	13.12-2-10	ROUTE 214	RSF	
231	13.12-2-13	ROUTE 214	RSF	
232	13.12-2-22	ROUTE 214	RSF	With Cottage
233	13.12-2-23	ROUTE 214	RSF	
234	13.12-2-25	ROUTE 214	RSF	
235	13.12-2-31	ROUTE 214	RSF	
236	13.12-2-32	ROUTE 214	RSF	
237	13.12-2-33	ROUTE 214	RSF	
238	13.12-2-34	ROUTE 214	RSF	
239	13.12-2-35	ROUTE 214	RSF	
240	13.12-2-36	ROUTE 214	RSF	
241	13.12-2-40	ROUTE 214	RSF	
242	13.12-2-41	ROUTE 214	RSF	
243	13.12-2-42	ROUTE 214	RSF	
244	13.12-2-43	ROUTE 214	RSF	
245	13.12-2-44	ROUTE 214	RSF	
246	13.12-2-45	ROUTE 214	RSF	
247	13.12-2-46	ROUTE 214	RSF	
248	13.12-2-48	ROUTE 214	RSF	
249	13.12-2-5	ROUTE 214	RSF	
250	13.12-2-6	ROUTE 214	RSF	
251	13.12-2-7	ROUTE 214	RSF	
252	13.12-2-8	ROUTE 214	RSF	
253	13.12-2-9	ROUTE 214	RSF	
254	13.16-3-2.100	ROUTE 214	RSF	
255	13.16-3-28	ROUTE 214	RSF	
256	13.16-3-3	ROUTE 214	RSF	With Cottage
257	13.16-3-30	ROUTE 214	RSF	
258	13.16-3-33	ROUTE 214	RSF	
259	14.13-1-1	ROUTE 214	RSF	

260	14.13-1-47	ROUTE 214	RSF	
261	14.13-1-48	ROUTE 214	RSF	
262	14.13-1-49	ROUTE 214	RSF	
263	14.13-1-64	ROUTE 214	RSF	
264	14.13-1-66	ROUTE 214	RSF	With Cottage
265	14.13-1-70	ROUTE 214	RSF	
266	13.16-3-29.100	ROUTE 214	RSF	
267	13.12-2-11	ROUTE 214	RTF	With Cottage
268	13.12-2-38	ROUTE 214	RTF	2 Houses
269	13.12-2-24	ROUTE 214	V	
270	13.12-2-4	ROUTE 214	V	
271	13.12-2-47	ROUTE 214	V	
272	14.13-1-45	ROUTE 214	V	
273	14.13-1-94	ROUTE 214	V	
274	13.16-2-18.1	ROUTE 28	C	Office Space for Rent on Route 28
275	13.16-2-20	ROUTE 28	C	Simpler Times Cabins
276	13.16-2-42.100	ROUTE 28	C	Phoenicia Lodge
277	13.16-2-43	ROUTE 28	CA	Phoenicia Lodge Motel and Cottages Office
278	13.16-2-22.100	ROUTE 28	RSF	
279	13.16-3-24	ROUTE 28	RSF	
280	13.16-3-25	ROUTE 28	RSF	
281	13.16-3-23	ROUTE 28	V	
282	13.16-3-22	ROUTE 28	V	
283	13.12-2-12	SCHOOL LN	I	School
284	13.12-2-14	SCHOOL LN	RSF	
285	13.12-2-15	SCHOOL LN	RSF	
286	13.12-2-16.100	SCHOOL LN	RSF	
287	13.12-2-18	SCHOOL LN	RSF	
288	13.12-2-19	SCHOOL LN	RSF	
289	13.12-2-20	SCHOOL LN	RSF	
290	13.12-2-27	SCHOOL LN	RSF	
291	13.12-2-28	SCHOOL LN	RSF	
292	13.12-2-29	SCHOOL LN	RSF	
293	13.12-2-30	SCHOOL LN	RSF	
294	13.12-2-21	SCHOOL LN	V	
295	13.12-2-26	SCHOOL LN	V	
296	13.16-3-10	SOUTH ST	RSF	
297	13.16-3-39	SOUTH ST	RSF	
298	13.16-3-41	SOUTH ST	RSF	
299	13.16-3-43	SOUTH ST	RSF	
300	13.16-3-44	SOUTH ST	RSF	
301	13.16-3-45	SOUTH ST	RSF	
302	13.16-3-46	SOUTH ST	RSF	
303	13.16-3-9	SOUTH ST	V	
304	14.13-1-30	ST URSULA PL	RSF	
305	14.13-3-29	STATION RD	V	Railroad
306	14.13-3-52	STATION RD	V	Railroad
307	14.13-3-46	STATION RD	RA	Trailer Park
308	14.13-3-47.100	STATION RD	RSF	
309	14.13-3-49	STATION RD	RSF	
310	14.13-3-50	STATION RD	RSF	
311	14.13-3-65	STATION RD	RSF	

312	14.13-3-48	STATION RD	V	
313	14.13-3-51	STATION RD	V	
314	14.13-3-66	STATION RD	V	
315	14.13-3-47.2	STATION RD	V	
316	14.13-2-15	TERRACE AVE	V	
317	14.13-2-16	TERRACE AVE	V	
318	14.13-1-83.100	TREMPER AVE	RSF	
319	14.13-1-80	TREMPER AVE	RSF	
320	14.13-1-81	TREMPER AVE	RSF	
321	14.13-1-84	TREMPER AVE	RSF	
322	14.13-1-85	TREMPER AVE	RSF	
323	14.13-1-86	TREMPER AVE	RSF	
324	14.13-1-87	TREMPER AVE	RSF	
325	14.13-1-91	TREMPER AVE	RSF	
326	14.13-1-92	TREMPER AVE	RSF	
327	14.13-1-67	TREMPER AVE	V	
328	14.13-2-10	WATERWORKS RD	RSF	
329	14.13-2-3	WATERWORKS RD	RSF	
330	14.13-2-34.100	WATERWORKS RD	RSF	
331	14.13-2-4	WATERWORKS RD	RSF	
332	14.13-2-5	WATERWORKS RD	RSF	
333	14.13-2-6	WATERWORKS RD	RSF	
334	14.13-2-7.400	WATERWORKS RD	RSF	
335	14.13-2-9.100	WATERWORKS RD	RSF	
336	13.16-2-32	WEST ST	RA	
337	13.16-2-16	WEST ST	RSF	
338	13.16-2-34.100	WEST ST	RSF	
339	13.16-2-34.200	WEST ST	RSF	
340	13.16-2-35	WEST ST	RSF	
341	13.16-2-37	WEST ST	RSF	
342	13.16-2-38	WEST ST	RSF	
343	13.16-2-36	WEST ST	RTF	
344	13.16-2-56	WEST ST	V	
345	5.18-1-57		V	Ulster County Property

CALCULAT

C	Commercial	26
CA	Commercial w/ Apartment	14
CV	Vacant Commercial	0
I	Institutional	6
IA	Institutional w/ Apartment	5
M	Municipal	3
RA	Residential Apartment	10
RSF	Residential Single Family	217
RTF	Residential Two Family	9
V	Vacant	55
	TOTAL PROPERTIES	345

Town of Shandaken
Hamlet of Phoenicia

Table Summary of Parcels
Alternative Service Area
Exhibit 4.A

No.	TAX ID #	STREET	TYPE	DESCRIPTION
1	14.13-3-41	BOARD WALK	RSF	
2	14.13-3-17	BRIDGE ST	C	Town Tinker Tubes
3	14.13-3-64	BRIDGE ST	V	
4	14.13-3-15	BRIDGE ST	C	Town Tinker Tubes
5	14.13-3-23	BRIDGE ST	C	Black Bear Campground
6	14.13-3-44	BRIDGE ST	RSF	
7	14.13-3-43	BRIDGE ST	V	
8	14.13-1-16	CHURCH ST	CA	Antique Taylor Studio
9	14.13-1-58	CHURCH ST	I	Church
10	14.13-1-38	CHURCH ST	IA	Playhouse Theater
11	14.13-1-17	CHURCH ST	RA	
12	14.13-1-14	CHURCH ST	RSF	
13	14.13-1-15	CHURCH ST	RSF	
14	14.13-1-18	CHURCH ST	RSF	
15	14.13-1-19	CHURCH ST	RSF	
16	14.13-1-59	CHURCH ST	RSF	
17	14.13-1-61	CHURCH ST	RSF	
18	14.13-1-62	CHURCH ST	RSF	
19	14.13-1-60	CHURCH ST	RTF	
20	14.13-1-82.100	CHURCH ST	V	Lot Behind Church
21	14.13-3-31.200	HIGH ST	V	
22	13.16-3-58	HIGH ST	V	
23	14.13-3-28	HIGH ST	V	
24	14.13-3-67	HIGH ST	V	
25	13.16-3-6.1	JAY ST	RA	
26	13.16-3-34	JAY ST	RSF	
27	13.16-3-35	JAY ST	RSF	
28	13.16-3-38	JAY ST	RSF	
29	13.16-3-4	JAY ST	RSF	
30	13.16-3-49	JAY ST	RSF	
31	13.16-3-5	JAY ST	RSF	
32	13.16-3-7	JAY ST	RSF	
33	13.16-3-6.200	JAY ST	V	
34	13.16-3-8	JAY ST	V	
35	14.13-3-31.100	LOWER HIGH ST	RSF	
36	14.13-3-54	LOWER HIGH ST	RSF	
37	14.13-3-55	LOWER HIGH ST	RSF	
38	14.13-3-56	LOWER HIGH ST	RSF	
39	14.13-3-57.100	LOWER HIGH ST	RSF	
40	14.13-3-59	LOWER HIGH ST	RSF	
41	14.13-3-60	LOWER HIGH ST	RSF	
42	14.13-3-61	LOWER HIGH ST	RSF	
43	14.13-3-62	LOWER HIGH ST	RSF	
44	14.13-3-70	LOWER HIGH ST	RSF	
45	14.13-3-63	LOWER HIGH ST	RTF	
46	14.13-3-53.11	LOWER HIGH ST	I	Empire State Museum
47	14.13-3-71	LOWER HIGH ST	IA	Empire State Museum
48	14.13-1-42	MAIN ST	CA	Sweet Sue's Restaurant
49	14.13-1-44	MAIN ST	V	
50	14.13-1-35	MAIN ST	C	Funeral Home
51	14.13-1-37	MAIN ST	C	Bed and Breakfast
52	14.13-1-39	MAIN ST	C	Valero Gas Station
53	14.13-1-40.100	MAIN ST	C	Mamas Boy Café

54	14.13-1-41	MAIN ST	C	Key Bank
55	14.13-1-43	MAIN ST	C	Phoenicia Pharmacy
56	14.13-3-11	MAIN ST	C	4 Businesses/1 Office
57	14.13-3-13	MAIN ST	C	Debra Jo's Unisex Salon
58	14.13-3-14	MAIN ST	C	Nest Egg
59	14.13-3-16	MAIN ST	C	5 Businesses
60	14.13-3-19	MAIN ST	C	Sharp Committee
61	14.13-3-8	MAIN ST	C	Office Bldgs. and Shops
62	14.13-3-9	MAIN ST	C	Brio's Restaurant
63	14.13-1-36	MAIN ST	CA	Phoenicia Grocery
64	14.13-3-1	MAIN ST	CA	Ruth Gale Reality/ Cabane Studios
65	14.13-3-10	MAIN ST	CA	Sportsman Restaurant
66	14.13-3-2	MAIN ST	CA	Phoenicia Wines and Liquors
67	14.13-3-3	MAIN ST	CA	Phoenicia Deli
68	14.13-3-5	MAIN ST	CA	Hardware Store
69	14.13-3-6	MAIN ST	CA	Ricciardella's Restaurant
70	14.13-3-7	MAIN ST	CA	Ulster Savings Bank
71	14.1-2-3	MAIN ST	IA	
72	14.13-3-22	MAIN ST	I	St. Francis Church
73	14.13-3-4	MAIN ST	IA	Old Phoenicia Library
74	14.13-1-21	MAIN ST	RSF	
75	14.13-1-31	MAIN ST	RSF	
76	14.13-1-32	MAIN ST	RSF	
77	14.13-1-34	MAIN ST	RSF	
78	14.13-1-20	MAIN ST	V	
79	14.13-1-33	MAIN ST	V	
80	14.13-3-12	MAIN ST	V	
81	14.13-3-18	MAIN ST	V	
82	14.13-3-20	MAIN ST	V	
83	14.13-1-22	MARY MOUNT DR	RSF	
84	14.13-1-23	MARY MOUNT DR	RSF	
85	14.13-1-25	MARY MOUNT DR	RSF	
86	14.13-1-93	MARY MOUNT DR	RSF	
87	14.13-1-27	MT. AVA MARIA DR	RSF	
88	14.13-1-2.1	MT. AVA MARIA DR	RA	Sky Rise Apartments
89	14.1-2-2.200	MT. AVA MARIA DR	RA	Shandaken Village Apartments
90	14.13-1-24	MT. AVA MARIA DR	C	Old Clinic
91	14.13-1-29	MT. AVA MARIA DR	M	Post Office
92	14.13-1-26	MT. AVA MARIA DR	RSF	
93	14.13-1-28	MT. AVA MARIA DR	V	
94	14.13-1-5	NEWTON AVE	V	
95	14.13-1-11	NEWTON AVE	C	Verizon Station
96	14.13-1-2	NEWTON AVE	RSF	
97	14.13-1-3	NEWTON AVE	RSF	
98	14.13-1-4	NEWTON AVE	RSF	
99	14.13-1-51.100	NEWTON AVE	RSF	
100	14.13-1-51.200	NEWTON AVE	RSF	
101	14.13-1-52	NEWTON AVE	RSF	
102	14.13-1-54	NEWTON AVE	RSF	
103	14.13-1-55	NEWTON AVE	RSF	
104	14.13-1-56	NEWTON AVE	RSF	
105	14.13-1-57	NEWTON AVE	RSF	
106	14.13-1-6	NEWTON AVE	RSF	
107	14.13-1-7	NEWTON AVE	RSF	

108	14.13-1-8	NEWTON AVE	RSF	
109	14.13-1-9	NEWTON AVE	RSF	
110	14.13-1-13	NEWTON AVE	RTF	
111	14.13-1-12	NEWTON AVE	V	
112	14.13-1-53	ROMER ST	RSF	
113	14.13-1-72	ROMER ST	RSF	
114	14.13-1-73	ROMER ST	RSF	
115	14.13-1-74	ROMER ST	RSF	
116	14.13-1-75	ROMER ST	RSF	
117	14.13-1-76	ROMER ST	RSF	
118	14.13-1-77	ROMER ST	RSF	
119	14.13-1-78	ROMER ST	RSF	
120	14.13-1-88	ROMER ST	RSF	
121	14.13-1-89	ROMER ST	RSF	
122	14.13-1-90	ROMER ST	RSF	
123	14.13-1-79	ROMER ST	RTF	House with Cottage
124	13.16-3-42	ROUTE 214	C	Al's Seafood
125	14.13-1-50	ROUTE 214	CA	Cobblestone Motels
126	14.13-1-71	ROUTE 214	C	Claude's Bistro
127	13.16-3-40	ROUTE 214	CA	Al's Seafood
128	14.13-1-65	ROUTE 214	CA	Antique shop and residence
129	13.16-3-32	ROUTE 214	I	Phoenicia Church Wesleyan
130	14.13-1-68	ROUTE 214	M	Fire House
131	13.16-3-31	ROUTE 214	RA	
132	14.13-1-69	ROUTE 214	RA	
133	13.16-3-2.100	ROUTE 214	RSF	
134	13.16-3-28	ROUTE 214	RSF	
135	13.16-3-3	ROUTE 214	RSF	With Cottage
136	13.16-3-30	ROUTE 214	RSF	
137	13.16-3-33	ROUTE 214	RSF	
138	14.13-1-64	ROUTE 214	RSF	
139	14.13-1-66	ROUTE 214	RSF	With Cottage
140	14.13-1-70	ROUTE 214	RSF	
141	13.16-3-29.100	ROUTE 214	RSF	
142	14.13-1-94	ROUTE 214	V	
143	13.16-3-10	SOUTH ST	RSF	
144	13.16-3-39	SOUTH ST	RSF	
145	13.16-3-41	SOUTH ST	RSF	
146	13.16-3-9	SOUTH ST	V	
147	14.13-1-30	ST URSULA PL	RSF	
148	14.13-3-47.2	STATION RD	V	
149	14.13-3-29	STATION RD	V	Railroad
150	14.13-3-52	STATION RD	V	Railroad
151	14.13-3-46	STATION RD	RA	Trailer Park
152	14.13-3-47.100	STATION RD	RSF	
153	14.13-3-49	STATION RD	RSF	
154	14.13-3-50	STATION RD	RSF	
155	14.13-3-65	STATION RD	RSF	
156	14.13-3-48	STATION RD	V	
157	14.13-3-51	STATION RD	V	
158	14.13-3-66	STATION RD	V	
159	14.13-1-83.100	TREMPER AVE	RSF	
160	14.13-1-80	TREMPER AVE	RSF	
161	14.13-1-81	TREMPER AVE	RSF	

Town of Shandaken
Hamlet of Phoenicia

Table Summary of Parcels
Alternative Service Area
Exhibit 4.A

No.	TAX ID #	STREET	TYPE	DESCRIPTION
1	14.13-3-41	BOARD WALK	RSF	
2	14.13-3-17	BRIDGE ST	C	Town Tinker Tubes
3	14.13-3-64	BRIDGE ST	V	
4	14.13-3-15	BRIDGE ST	C	Town Tinker Tubes
5	14.13-3-23	BRIDGE ST	C	Black Bear Campground
6	14.13-3-44	BRIDGE ST	RSF	
7	14.13-3-43	BRIDGE ST	V	
8	14.13-1-16	CHURCH ST	CA	Antique Taylor Studio
9	14.13-1-58	CHURCH ST	I	Church
10	14.13-1-38	CHURCH ST	IA	Playhouse Theater
11	14.13-1-17	CHURCH ST	RA	
12	14.13-1-14	CHURCH ST	RSF	
13	14.13-1-15	CHURCH ST	RSF	
14	14.13-1-18	CHURCH ST	RSF	
15	14.13-1-19	CHURCH ST	RSF	
16	14.13-1-59	CHURCH ST	RSF	
17	14.13-1-61	CHURCH ST	RSF	
18	14.13-1-62	CHURCH ST	RSF	
19	14.13-1-60	CHURCH ST	RTF	
20	14.13-1-82.100	CHURCH ST	V	Lot Behind Church
21	14.13-3-31.200	HIGH ST	V	
22	13.16-3-58	HIGH ST	V	
23	14.13-3-28	HIGH ST	V	
24	14.13-3-67	HIGH ST	V	
25	13.16-3-6.1	JAY ST	RA	
26	13.16-3-34	JAY ST	RSF	
27	13.16-3-35	JAY ST	RSF	
28	13.16-3-38	JAY ST	RSF	
29	13.16-3-4	JAY ST	RSF	
30	13.16-3-49	JAY ST	RSF	
31	13.16-3-5	JAY ST	RSF	
32	13.16-3-7	JAY ST	RSF	
33	13.16-3-6.200	JAY ST	V	
34	13.16-3-8	JAY ST	V	
35	14.13-3-31.100	LOWER HIGH ST	RSF	
36	14.13-3-54	LOWER HIGH ST	RSF	
37	14.13-3-55	LOWER HIGH ST	RSF	
38	14.13-3-56	LOWER HIGH ST	RSF	
39	14.13-3-57.100	LOWER HIGH ST	RSF	
40	14.13-3-59	LOWER HIGH ST	RSF	
41	14.13-3-60	LOWER HIGH ST	RSF	
42	14.13-3-61	LOWER HIGH ST	RSF	
43	14.13-3-62	LOWER HIGH ST	RSF	
44	14.13-3-70	LOWER HIGH ST	RSF	
45	14.13-3-63	LOWER HIGH ST	RTF	
46	14.13-3-53.11	LOWER HIGH ST	I	Empire State Museum
47	14.13-3-71	LOWER HIGH ST	IA	Empire State Museum
48	14.13-1-42	MAIN ST	CA	Sweet Sue's Restaurant
49	14.13-1-44	MAIN ST	V	
50	14.13-1-35	MAIN ST	C	Funeral Home
51	14.13-1-37	MAIN ST	C	Bed and Breakfast

Exhibit 5.2.A

U.S. Census Bureau 2005-2009 American Community Survey for
New York State and the United States

FACT SHEET

New York

2005-2009 American Community Survey 5-Year Estimates - what's this?
Data Profile Highlights:

Note: The following links are to data from the American Community Survey and the Population Estimates Program.

NOTE: Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Social Characteristics - show more >>	Estimate	Percent	U.S.	Margin of Error	
Average household size	* 2.64	(X)	* 2.60	+/-0.01	map
Average family size	3.31	(X)	3.19	+/-0.01	
Population 25 years and over	13,047,684			+/-1,127	
High school graduate or higher	(X)	84.2	84.6%	(X)	map
Bachelor's degree or higher	(X)	31.8	27.5%	(X)	map
Civilian veterans (civilian population 18 years and over)	1,064,754	7.1	10.1%	+/-6,243	map
With a Disability	(X)	(X)	(X)	(X)	
Foreign born	4,138,670	21.3	12.4%	+/-18,562	map
Male, Now married, except separated (population 15 years and over)	3,702,483	49.1	52.3%	+/-13,812	
Female, Now married, except separated (population 15 years and over)	3,551,570	43.3	48.4%	+/-13,467	
Speak a language other than English at home (population 5 years and over)	5,192,994	28.5	19.6%	+/-18,857	map
Household population	18,817,976			*****	
Group quarters population	(X)	(X)	(X)	(X)	

Economic Characteristics - show more >>	Estimate	Percent	U.S.	Margin of Error	
In labor force (population 16 years and over)	9,816,866	63.5	65.0%	+/-11,400	map
Mean travel time to work in minutes (workers 16 years and over)	31.4	(X)	25.2	+/-0.1	map
Median household income (in 2009 inflation-adjusted dollars)	55,233	(X)	51,425	+/-179	map
Median family income (in 2009 inflation-adjusted dollars)	67,040	(X)	62,363	+/-281	map
Per capita income (in 2009 inflation-adjusted dollars)	30,634	(X)	27,041	+/-102	
Families below poverty level	(X)	10.5	9.9%	+/-0.1	
Individuals below poverty level	(X)	13.8	13.5%	+/-0.1	map

Housing Characteristics - show more >>	Estimate	Percent	U.S.	Margin of Error	
Total housing units	7,950,035			+/-1,128	
Occupied housing units	7,137,013	89.8	88.2%	+/-10,676	
Owner-occupied housing units	3,977,522	55.7	66.9%	3977522	
Renter-occupied housing units	3,159,491	44.3	33.1%	+/-9,146	
Vacant housing units	813,022	10.2	11.8%	+/-11,117	
Owner-occupied homes	3,977,522			+/-15,256	map
Median value (dollars)	300,600	(X)	185,400	+/-1,116	map
Median of selected monthly owner costs					
With a mortgage (dollars)	1,898	(X)	1,486	+/-6	map
Not mortgaged (dollars)	650	(X)	419	+/-3	

ACS Demographic Estimates - show more >>	Estimate	Percent	U.S.	Margin of Error	
Total population	19,423,896			*****	
Male	9,425,099	48.5	49.3%	+/-937	
Female	9,998,797	51.5	50.7%	+/-937	
Median age (years)	37.7	(X)	36.5	+/-0.1	map
Under 5 years	1,221,034	6.3	6.9%	+/-406	
18 years and over	14,925,614	76.8	75.4%	+/-356	
65 years and over	2,560,705	13.2	12.6%	+/-621	
One race	19,065,395	98.2	97.8%	+/-6,621	
White	13,031,404	67.1	74.5%	+/-11,601	map
Black or African American	3,024,739	15.6	12.4%	+/-6,743	map
American Indian and Alaska Native	64,950	0.3	0.8%	+/-2,221	map
Asian	1,319,787	6.8	4.4%	+/-3,119	map
Native Hawaiian and Other Pacific Islander	5,378	0.0	0.1%	+/-867	map
Some other race	1,619,137	8.3	5.6%	+/-14,242	map
Two or more races	358,501	1.8	2.2%	+/-6,619	map
Hispanic or Latino (of any race)	3,172,353	16.3	15.1%	+/-28	

Source: U.S. Census Bureau, 2005-2009 American Community Survey

Explanation of Symbols:
'****' - The median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
'*****' - The estimate is controlled. A statistical test for sampling variability is not appropriate.
'N' - Data for this geographic area cannot be displayed because the number of sample cases is too small.
'(X)' - The value is not applicable or not available.

The letters PDF or symbol indicate a document is in the Portable Document Format (PDF). To view the file you will need the Adobe® Acrobat® Reader, which is available for free from the Adobe web site.

Exhibit 5.2.B

Wastewater Flow Estimates

Town of Shandaken
Hamlet of Phoenicia

Wastewater Flow Estimate
Original Proposed Sewer District
Exhibit 5.2.B

Facility Type	No. of Units	Flow Calculation Basis	Flow (gpd)	Source	Total Flow (gpd)
Residential					
Single Family Homes	217	EDU	291		63,147
Two Family Homes	18	EDU	291		5,238
Apartments	84		291		24,444
Commercial w/ Apartment	25	EDU	291		7,275
				Residential Total =	**100,104**
Commercial/Institutional					
Town Tinker Tubes (14.13-3-17, 14.13-3-15)		15 employees		NYSDEC - 15 gallons per employee	225
Valero Gas Station (14.13-1-39)		2 toilet service station		NYSDEC - 400 gallons per service station toilet	800
Funeral Home (14.13-1-35)		150 guests at calling hours		NYSDEC - 3 gallons per church seat	450
Key Bank (14.13-1-41)		5 employees		NYSDEC - 15 gallons per office employee	75
Bed and Breakfast (14.13-1-37)		4 rooms + 8 seats at breakfast		NYSDEC - 100 gallons per motel room + 35 gallons per restaurant seat	680
Sharp Committee (14.13-3-19)		2 employees		NYSDEC - 15 gallons per office employee	30
Embodyment, Yoga, Physical Therapy (14.13-3-16)		5,000 square foot building		NYSDEC - 0.1 gallons per square foot	500
Vacant Factory Building / Art Gallery (14.13 2-2)		5,000 square foot building		NYSDEC - 0.1 gallons per square foot	500
Debra Jo's Unisex Salon (14.13-3-13)		2 stations		NYSDEC - 170 gallons per hair dresser station	340
Mystery Spot, Free Style Reality, Phoenicia Healing Arts, Ice Cream Station (14.13-3-11)		7 employees + 6 car parking spaces		NYSDEC - 15 gallons per office employee, 50 gallons per curb service car space	405
The Nest Egg (14.13-3-14)		5 employees		NYSDEC - 15 gallons per office employee	75
Mama's Boy Café (14.13-1-40.100)		18 seats		NYSDEC - 20 gallons per tavern restaurant seat	360
Brio's Restaurant (14.13-3-9)		75 seats + 3 employee office		NYSDEC - 35 gallons per restaurant seat, 15 gallons per office employee	2,670
Phoenicia Pharmacy (14.13-1-43)		3 employees		NYSDEC - 15 gallons per office employee	45
Community Store, Art Gallery, Threads of Time, Ricciardella Reality, Tattoo Shop (14.13-3-8)		24 employees		NYSDEC - 15 gallons per office employee	360
Garden Nursery (14.13-2-14)		2 employees		NYSDEC - 25 gallons per factory person	50
Water Filtration Building (14.13-2-13)		1 employee		NYSDEC - 25 gallons per factory person	25
St Francis Church (14.13-3-22)		No bathroom		n/a	0
Office Space for Rent on Route 28 (13.16-2-18.1)		15 employees		NYSDEC - 15 gallons per office employee	225
Phoenicia Lodge (13.16-2-42.100)		6 motel units + 6 cabins		NYSDEC - 100 gallons per motel room + 150 gallons per motel room with kitchen	1,500
American Legion (13.16-2-14)		50 people at outdoor food events		NYSDEC - 20 gallons per banquet facility seat	1,000
Claude's Bistro and Bed and Breakfast (14.13-1-71)		5 rooms + 50 seats		NYSDEC - 100 gallons per motel room + 35 gallons per restaurant seat	2,250
Wesleyan Church [1] (13.16-3-32)		100 seats + 50 coffee hour seats		NYSDEC - 3 gallons per church seat, 20 gallons per banquet facility seat	1,300
M.F. Whitney Hose Company [2] (14.13-1-68)		10 people at monthly meeting + Wash Vehicles + Food Pantry		NYSDEC - 400 gallons per service station	400
Playhouse Theater [3] (14.13-1-38)		100 seats		NYSDEC - 3 gallons per church seat	300
Phoenicia Elementary School (13.12-2-12)		Capacity: 300 Students + 50 employees		NYSDEC - 15 gallons per office employee, 15 gallons per student (including cafeteria)	5,250
New Library Location and EMS Clinic (14.13-1-24)		3 EMS employees + 4 Library Employees		NYSDEC - 15 gallons per office employee	105
Post Office (14.13-1-29)		4 employees		NYSDEC - 15 gallons per office employee	60
Verizon Station Building (14.13-1-11)		1 employee		NYSDEC - 15 gallons per office employee	30
				Commercial/Institutional Subtotal =	20,010

Wastewater Flow Estimate
Original Proposed Sewer District
Exhibit 5.2.B

Mixed Use [4]					
Empire State Railway Museum (14.13-3-71, 14.13-3-53.11) (w / trailer)		Museum + Future Park Restrooms (200 picnickers)		NYSDEC - 5 gallons per park picnicker	1,000
Black Bear Campground (14.13-3-23) (w/ 1 trailer)		16 campground trailers + 35 campsites with toilets and showers		NYSDEC - 150 gallons per motel unit w/ kitchen, 35 gallons per campsite with shower and toilet facilities	3,625
Sportsman Restaurant (14.13-3-10) (w/ apartment)		85 seats		NYSDEC - 35 gallons per restaurant seat	2,975
Ricciardella's Restaurant (14.13-3-6) (w/ apartment)		90 seats		NYSDEC - 35 gallons per restaurant seat	3,150
Sweet Sue's (14.13-1-42) (w/ 2 apartments)		70 seats		NYSDEC - 35 gallons per restaurant seat	2,450
Ulster Savings Bank (14.13-3-7) (w/ 2 apartments)		7 employees		NYSDEC - 15 gallons per office employee	105
Hardware (14.13-3-5) (w/ apartment)		2 employees		NYSDEC - 15 gallons per office employee	30
Phoenicia Deli (14.13-3-3) (w/ apartment)		2 employees + 6 car parking spaces		NYSDEC - 15 gallons per office employee, 50 gallons per curb service car space	330
Phoenicia Grocery (14.13-1-36) (w/ 2 apartments)		4 employees + 10 seats		NYSDEC - 15 gallons per office employee, 35 gallons per restaurant seat	410
Phoenicia Wines and Liquors (w/ apartment) (14.13-3-2)		1 employee		NYSDEC - 15 gallons per office employee	15
Ruth Gale Reality, Cabane Studios (14.13-3-1) (w/ 2 apartments)		7 employees		NYSDEC - 15 gallons per office employee	105
St Francis Rectory and Parish Hall (14.1-2-3) (w/ rectory)		100 seats at banquets		NYSDEC - 20 gallons per banquet facility seat	2,000
Old Library Location (14.13-3-4) (w/ apartment)		3 employees		NYSDEC - 15 gallons per office employee	45
Phoenicia Lodge (13.16-2-43) (w/ apartment)		2 employees		NYSDEC - 15 gallons per office employee	30
Simpler Times Cabins (13.16-2-20) (w/ apartment)		19 campground trailers + 8 cabins		NYSDEC - 150 gallons per motel unit w/ kitchen	4,050
Pre-School / Daycare (13.12-2-1.130) (w/ house)		12 students + 2 employees		NYSDEC - 15 gallons per office employee, 15 gallons per student (including cafeteria)	210
Cobblestone Motel (14.13-1-50) (w/ house)		15 motel rooms		NYSDEC - 100 gallons per motel room	1,500
Al's Seafood (13.16-3-40, 13.16-3-42) (w/ apartment)		100 restaurant seats (300 people at outdoor pavilion events)		NYSDEC - 35 gallons per restaurant seat	3,500
Antique Shop and Residence (14.13-1-65) (w/ house)		2 employee office		NYSDEC - 15 gallons per office employee	30
Anique Taylor Studio (14.13-1-16) (w/ house)		1 Studio Employee		NYSDEC - 25 gallons per factory person	25
United Methodist Church (14.13-1-58) (w/ parsonage)		150 Church Seats + 50 Coffee Hour Seats + 4 Thrift Shop Employees		NYSDEC - 3 gallons per church seat, 20 gallons per banquet facility seat, 15 gallons per employee	1,510
				Mixed Use Subtotal =	27,095
				Commercial/Institutional/Mixed Use Total =	**47,105**
				WASTEWATER FLOW - PHOENICIA =	147,200
				10% GROWTH =	14,720
				TOTAL WASTEWATER FLOW - PHOENICIA =	161,920

ORIGINAL PROPOSED SEWER DISTRICT DESIGN FLOW (GPD) = 162,000

Notes

[1] Flow estimate for Wesleyan Church is assumed to be similar to other Phoenicia churches.

[2] No wastewater flow from fire departments is given in NYSDEC standards. Therefore, the standard flow from a service station was used.

[3] No wastewater flow from theaters is given in NYSDEC standards. Therefore, the standard flow based on church seats was used.

[4] Apartment flow is included in the apartment flow estimate from the residential section above.

Town of Shandaken
Hamlet of Phoenicia

Alternative Sewer District Wastewater Flow Estimate

Facility Type	No. of Units	Flow Calculation Basis	Flow (gpd)	Source	Total Flow (gpd)
Residential					
Single Family Homes	87	EDU	291		25,317
Two Family Homes	8	EDU	291		2,328
Apartments	69	EDU	291		20,079
Commercial w/ Apartment	22	EDU	291		6,402
				Residential Total =	**54,126**
Commercial/Institutional					
Town Tinker Tubes (14.13-3-17, 14.13-3-15)		15 employees		NYSDEC - 15 gallons per employee	225
Valero Gas Station (14.13-1-39)		2 toilet service station		NYSDEC - 400 gallons per service station toilet	800
Funeral Home (14.13-1-35)		150 guests at calling hours		NYSDEC - 3 gallons per church seat	450
Key Bank (14.13-1-41)		5 employees		NYSDEC - 15 gallons per office employee	75
Bed and Breakfast (14.13-1-37)		4 rooms + 8 seats at breakfast		NYSDEC - 100 gallons per motel room + 35 gallons per restaurant seat	680
Sharp Committee (14.13-3-19)		2 employees		NYSDEC - 15 gallons per office employee	30
Embodyment, Yoga, Physical Therapy (14.13-3-16)		5,000 square foot building		NYSDEC - 0.1 gallons per square foot	500
Debra Jo's Unisex Salon (14.13-3-13)		2 stations		NYSDEC - 170 gallons per hair dresser station	340
Mystery Spot, Free Style Reality, Phoenicia Healing Arts, Ice Cream Station (14.13-3-11)		7 employees + 6 car parking spaces		NYSDEC - 15 gallons per office employee, 50 gallons per curb service car space	405
The Nest Egg (14.13-3-14)		5 employees		NYSDEC - 15 gallons per office employee	75
Mama's Boy Café (14.13-1-40.100)		18 seats		NYSDEC - 20 gallons per tavern restaurant seat	360
Brio's Restaurant (14.13-3-9)		75 seats + 3 employee office		NYSDEC - 35 gallons per restaurant seat, 15 gallons per office employee	2,670
Phoenicia Pharmacy (14.13-1-43)		3 employees		NYSDEC - 15 gallons per office employee	45
Community Store, Art Gallery, Threads of Time, Ricciardella Reality, Tattoo Shop (14.13-3-8)		24 employees		NYSDEC - 15 gallons per office employee	360
St Francis Church (14.13-3-22)		No bathroom		n/a	0
Claude's Bistro and Bed and Breakfast (14.13-1-71)		5 rooms + 50 seats		NYSDEC - 100 gallons per motel room + 35 gallons per restaurant seat	2,250
Wesleyan Church [1] (13.16-3-32)		100 seats + 50 coffee hour seats		NYSDEC - 3 gallons per church seat, 20 gallons per banquet facility seat	1,300
M.F. Whitney Hose Company [2] (14.13-1-68)		10 people at monthly meeting + Wash Vehicles + Food Pantry		NYSDEC - 400 gallons per service station	400
Playhouse Theater [3] (14.13-1-38)		100 seats		NYSDEC - 3 gallons per church seat	300
New Library Location and EMS Clinic (14.13-1-24)		3 EMS employees + 4 Library Employees		NYSDEC - 15 gallons per office employee	105
Post Office (14.13-1-29)		4 employees		NYSDEC - 15 gallons per office employee	60
Verizon Station Building (14.13-1-11)		1 employee		NYSDEC - 15 gallons per office employee	30
				Commercial/Institutional Subtotal =	11,460

Alternative Sewer District Wastewater Flow Estimate

Mixed Use [4]					
Empire State Railway Museum (14.13-3-71, 14.13-3-53.11) (w / trailer)		Museum + Future Park Restrooms (200 picnickers)		NYSDEC - 5 gallons per park picnicker	1,000
Black Bear Campground (14.13-3-23) (w/ 1 trailer)		16 campground trailers + 35 campsites with toilets and showers		NYSDEC - 150 gallons per motel unit w/ kitchen, 35 gallons per campsite with shower and toilet facilities	3,625
Sportsman Restaurant (14.13-3-10) (w/ apartment)		85 seats		NYSDEC - 35 gallons per restaurant seat	2,975
Ricciardella's Restaurant (14.13-3-6) (w/ apartment)		90 seats		NYSDEC - 35 gallons per restaurant seat	3,150
Sweet Sue's (14.13-1-42) (w/ 2 apartments)		70 seats		NYSDEC - 35 gallons per restaurant seat	2,450
Ulster Savings Bank (14.13-3-7) (w/ 2 apartments)		7 employees		NYSDEC - 15 gallons per office employee	105
Hardware (14.13-3-5) (w/ apartment)		2 employees		NYSDEC - 15 gallons per office employee	30
Phoenicia Deli (14.13-3-3) (w/ apartment)		2 employees + 6 car parking spaces		NYSDEC - 15 gallons per office employee, 50 gallons per curb service car space	330
Phoenicia Grocery (14.13-1-36) (w/ 2 apartments)		4 employees + 10 seats		NYSDEC - 15 gallons per office employee, 35 gallons per restaurant seat	410
Phoenicia Wines and Liquors (w/ apartment) (14.13-3-2)		1 employee		NYSDEC - 15 gallons per office employee	15
Ruth Gale Reality, Cabane Studios (14.13-3-1) (w/ 2 apartments)		7 employees		NYSDEC - 15 gallons per office employee	105
St Francis Rectory and Parish Hall (14.1-2-3) (w/ rectory)		100 seats at banquets		NYSDEC - 20 gallons per banquet facility seat	2,000
Old Library Location (14.13-3-4) (w/ apartment)		3 employees		NYSDEC - 15 gallons per office employee	45
Cobblestone Motel (14.13-1-50) (w/ house)		15 motel rooms		NYSDEC - 100 gallons per motel room	1,500
Al's Seafood (13.16-3-40, 13.16-3-42) (w/ apartment)		100 restaurant seats (300 people at outdoor pavilion events)		NYSDEC - 35 gallons per restaurant seat	3,500
Antique Shop and Residence (14.13-1-65) (w/ house)		2 employee office		NYSDEC - 15 gallons per office employee	30
Anique Taylor Studio (14.13-1-16) (w/ house)		1 Studio Employee		NYSDEC - 25 gallons per factory person	25
United Methodist Church (14.13-1-58) (w/ parsonage)		150 Church Seats + 50 Coffee Hour Seats + 4 Thrift Shop Employees		NYSDEC - 3 gallons per church seat, 20 gallons per banquet facility seat, 15 gallons per employee	1,510
				Mixed Use Subtotal =	22,805
				Commercial/Institutional/Mixed Use Total =	**34,265**
				WASTEWATER FLOW - PHOENICIA =	88,400
				10% GROWTH =	8,840
				TOTAL WASTEWATER FLOW - PHOENICIA =	97,240
				PHOENICIA DESIGN FLOW	**98,000**

Notes

[1] Flow estimate for Wesleyan Church is assumed to be similar to other Phoenicia churches.

[2] No wastewater flow from fire departments is given in NYSDEC standards. Therefore, the standard flow from a service station was used.

[3] No wastewater flow from theaters is given in NYSDEC standards. Therefore, the standard flow based on church seats was used.

[4] Apartment flow is included in the apartment flow estimate from the residential section above.

Exhibit 6.1.b.A

Phoenicia Water System Reports and
Annual Drinking Water Quality Reports for the Phoenicia Water District

Phoenicia Water District Monthly Water System Reports Summary

Month/Year	Monthly Average (gpd)
3/2011	85,713
2/2011	95,664
1/2011	103,727
12/2010	95,143
11/2010	82,699
10/2010	118,569
07/2010	**110,610**
06/2010	**106,364**
05/2010	**105,013**
04/2010	**94,690**
03/2010	**89,838**
02/2010	**90,481**
01/2010	**99,534**
12/2009	**106,910**
11/2009	**101,433**
10/2009	**101,662**
09/2009	**100,745**
08/2009	**102,169**
05/2009	107,685
03/2009	84,193
02/2009	83,160
01/2009	88,176

Yearly Average, 8/2009 to 7/2010 = 100,787 gpd
Maximum Day Demand, 8/2009 to 7/2010 = 136,432 gallons

ULSTER COUNTY
DEPARTMENT OF HEALTH

300 Flatbush Avenue, Kingston, NY 12401-2740, (845) 340-3150, Fax (845) 334-8337

MICHAEL P. HEIN
County Executive

LA MAR HASBROUCK, MD, MPH
Public Health Director

MAY - 4 2011

May 2, 2011

David Page
Lamont Engineers
P.O. Box 610
548 Main Street
Cobleskill, NY 12043

Re: FOIL Request

Dear Mr. Page:

In compliance of the New York Freedom of Information Law (FOIL), Article 6 of the Public Officers Law allowing members of the public to access records of governmental agencies, this letter is to confirm the Ulster County Department of Health has researched your FOIL request for the following information:

> *Pages from Monthly Operational Reports with flow monitoring readings only from 2009 and 2010 AND the most recent annual water quality report for the Phoenicia water district.*

The Ulster County Department of Health's Environment Health Division search has produced a file for the aforementioned request. Please find the requested information enclosed.

If I can be of further assistance, please do not hesitate to contact me at (845)340-3009.

Sincerely,

Katrina Kouhout

Katrina Kouhout
FOIL Compliance Officer

Enclosure

cc: LaMar Hasbrouck, MD, MPH

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	03/2011 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☒ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fluoride/Phosphate	Other Treatments / Readings: Poly	Other Treatments / Readings: pH
1	old 28	91,640			1	.6		.5	7.52
2	old 28	78,785			1	.4		.5	7.65
3	old 28	85,506			1	.6		.5	7.68
4	old 28	90,909			1	.6		.5	7.49
5	old 28	87,752			1	.6		.5	7.71
6	old 28	81,351			1	.4		.5	7.75
7	old 28	84,984			1	.2		.5	7.61
8	old 28	80,967			1	.6		1.0	8.12
9	old 28	86,723			1	.2		.5	7.39
10	old 28	80,772			1	.2		.5	7.65
11	old 28	81,121			1	.4		.5	7.50
12	old 28	85,876			1	.4		.5	7.48
13	old 28	88,344			1	.2		.5	7.52
14	old 28	92,284			1	.4		.5	7.50
15	old 28	87,111			1	.4		.5	7.68
16	old 28	85,165			1	.5		.5	7.57
17	old 28	92,504			1	.2		1.0	7.59
18	old 28	84,473			1	.2		.5	7.63
19	old 28	100,473			1	.2		.5	7.71
20	old 28	84,087			1	.2		.5	7.90
21	old 28	77,416			1	.2		.5	7.52
22	old 28	83,542			1	.4		.5	7.63
23	old 28	85,248			1	.4		.5	7.71
24	old 28	86,460			1	.4		.5	7.90
25	old 28	93,177			1	.4		.5	7.52
26	old 28	82,680			1	.8		.5	7.63
27	old 28	86,007			1	.4		.5	7.67
28	old 28	82,449			1	.4		.5	7.55
29	old 28	77,425			1	.4		.5	7.34
30	old 28	85,816			1	.4		.5	7.42
31	old 28	74,891			1	.2		1.0	7.18
TOTAL		2,657,103			31			17.0	235.72
AVG.		85,713			1	0.38		0.548	7.60

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of _____ % chlorine added to 40 gallons of water in crock.

Reported by: R.M. Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 4/1/11 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	02/2011 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☑ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Gaseous: Chlorine used per day (lbs.)	Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	Poly	P.H.	
1	old 28	103,403			1	.6		.5	7.86	
2	old 28	104,437			1	.4		.5	7.60	
3	old 28	106,712			1	.4		.5	7.55	
4	old 28	113,409			1	.4		.5	7.67	
5	old 28	106,324			1	.4		.5	7.62	
6	old 28	113,252			1	.4		.5	7.42	
7	old 28	109,251			1	.4		.5	7.58	
8	old 28	94,452			1	.2		.5	7.69	
9	old 28	110,125			1	.2		.5	7.67	
10	old 28	97,948			1	.2		.5	7.65	
11	old 28	94,265			1	.2		.5	7.70	
12	old 28	95,564			1	.4		.5	7.73	
13	old 28	89,359			1	.4		.5	7.47	
14	old 28	89,535			1	.8		4.0	7.35	
15	old 28	82,923			1	.4		.5	7.57	
16	old 28	84,361			1	.4		.5	7.55	
17	old 28	84,092			1	.4		.5	7.63	
18	old 28	96,381			1	.2		.5	7.51	
19	old 28	94,895			1	.4		.5	7.89	
20	old 28	87,801			1	.4		.5	7.85	
21	old 28	100,259			1	.4		.5	7.66	
22	old 28	84,704			1	.4		.5	7.65	
23	old 28	86,542			1	1.0		.5	7.69	
24	old 28	89,922			1	.4		.5	7.49	
25	old 28	90,176			1	.4		.5	7.72	
26	old 28	96,336			1	.4		.5	7.80	
27	old 28	94,132			1	.4		.5	7.51	
28	old 28	81,045			1	.4		.5	7.62	
29										
30										
31										
TOTAL		2,678,605			28			17.5	985.7	
AVG.		95,664			1	0.428		0.625	7.40	

Chlorine Mix Ratio = 1 quarts/gallons of _____ % chlorine added to 40 gallons of water in crock.

Reported by: RM Recciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Recciardella Date: 3/1/11 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	01/2011 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☑ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fluoride	Other Treatments / Readings: Poly	Other Treatments / Readings: PH	
1	old 28	105,965			1	.4		.5	7.60	
2	old 28	100,281			1	.4		.5	7.65	
3	old 28	108,552			1	.4		.5	7.69	
4	old 28	99,603			1	.4		.5	7.61	
5	old 28	93,640			1	.4		.5	7.73	
6	old 28	98,289			1	.6		.5	7.50	
7	old 28	99,900			1	.2		1.0	7.55	
8	old 28	98,094			1	.6		.5	7.47	
9	old 28	101,427			1	.8		.5	7.61	
10	old 28	98,923			1	.4		.5	7.77	
11	old 28	101,779			1	.4		.5	7.72	
12	old 28	98,820			1	.4		.5	7.74	
13	old 28	92,428			1	1.2		.5	7.81	
14	old 28	101,458			1	.4		.5	7.86	
15	old 28	113,542			1	.4		3.0	7.49	
16	old 28	102,314			1	.4		.5	7.51	
17	old 28	117,373			1	.4		.5	8.03	
18	old 28	93,873			1	.4		.5	7.46	
19	old 28	101,342			1	.4		.5	7.29	
20	old 28	94,594			1	.4		.5	7.47	
21	old 28	102,080			1	.6		.5	7.46	
22	old 28	104,836			1	.6		.5	7.59	
23	old 28	109,843			1	.8		.5	7.23	
24	old 28	108,862			1	.4		.5	7.60	
25	old 28	110,302			1	.4		.5	7.33	
26	old 28	111,381			1	.4		.5	7.75	
27	old 28	120,651			1	.4		.5	7.68	
28	old 28	107,941			1	.4		.5	7.37	
29	old 28	100,951			1	.4		.5	7.62	
30	old 28	109,347			1	.2		.5	7.81	
31	old 28	106,480			1	.4		.5	7.72	
TOTAL		3,215,561			31			19.0		
AVG.		103,727			1			1.0		

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of _____ % chlorine added to 40 gallons of water in crock.

Reported by: Richard Ricciardella Title: Water Superintendent NYSDOH Operator Certification Number: NY0031318

Signature: Richard Ricciardella Date: 1/3/11 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	12/2010 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☑ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Thiosulfate	Other Treatments / Readings: Poly	Other Treatments / Readings: pH	
1	old 28	67,418			1	.4		.5	7.59	
2	old 28	83,691			1	.4		.5	7.64	
3	old 28	75,843			1	.6		.5	7.74	
4	old 28	89,180			1	.4		.5	7.72	
5	old 28	73,176			1	.4		.5	7.68	
6	old 28	75,694			1	.4		.5	7.61	
7	old 28	79,764			1	.4		.5	7.62	
8	old 28	78,672			1	.2		.5	7.55	
9	old 28	88,420			1	.4		.5	7.50	
10	old 28	81,496			1	.2		.5	7.62	
11	old 28	87,649			1	.4		.5	7.70	
12	old 28	99,701			1	.4		.5	7.61	
13	old 28	100,698			1	.8		3.0	7.78	
14	old 28	91,085			1	.4		.5	7.77	
15	old 28	93,910			1	.4		.5	7.45	
16	old 28	96,584			1	.4		.5	7.60	
17	old 28	100,586			1	.4		.5	7.74	
18	old 28	99,829			1	.4		.5	7.49	
19	old 28	94,589			1	.4		.5	7.19	
20	old 28	102,749			1	.4		.5	7.79	
21	old 28	91,124			1	.6		.5	7.74	
22	old 28	103,660			1	.4		.5	7.68	
23	old 28	112,951			1	.6		.5	8.11	
24	old 28	115,110			1	.4		.5	7.90	
25	old 28	104,094			1	.4		0	7.56	
26	old 28	120,125			1	.4		1.0	7.76	
27	old 28	105,824			1	.4		.5	7.78	
28	old 28	102,760			1	.4		.5	7.29	
29	old 28	96,254			1	.4		.5	7.66	
30	old 28	112,137			1	.4		.5	7.59	
31	old 28	118,669			1	.2		.5	7.56	
TOTAL		2,949,434			31			18.0	237.02	
AVG.		95,143			1	0.412		.580	7.64	

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of _____ % chlorine added to 40 gallons of water in crock.

Reported by: R.M. Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 1/3/11 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	11/2010 (MM YYYY)	12/01/2010 (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fluoride/Phosphate	Poly	PH	
1	Old 28	84,826			1	.4		.5	7.31	
2	Old 28	77,554			1	.4		.5	7.49	
3	Old 28	70,347			1	.2		.5	7.55	
4	Old 28	79,138			1	.4		.5	7.61	
5	Old 28	83,727			1	.4		.5	7.65	
6	Old 28	82,778			1	.4		.5	7.72	
7	Old 28	82,849			1	.6		4.0	7.73	
8	Old 28	92,289			1	.4		.5	7.75	
9	Old 28	75,909			1	.4		.5	7.79	
10	Old 28	83,196			1	.4		.5	8.01	
11	Old 28	75,437			1	.4		.5	7.77	
12	Old 28	80,324			1	.4		.5	7.66	
13	Old 28	89,725			1	.4		.5	7.64	
14	Old 28	80,882			1	.4		.5	7.68	
15	Old 28	94,757			1	.4		.5	7.69	
16	Old 28	78,013			1	.4		.5	7.60	
17	Old 28	80,180			1	.2		.5	7.67	
18	Old 28	83,402			1	.4		.5	7.56	
19	Old 28	82,672			1	.4		.5	7.59	
20	Old 28	83,169			1	.5		1.0	7.65	
21	Old 28	85,737			1	.4		.5	7.70	
22	Old 28	76,910			1	.4		.5	7.72	
23	Old 28	82,089			1	.4		.5	7.50	
24	Old 28	87,170			1	.4		.5	7.61	
25	Old 28	86,595			1	.4		.5	7.49	
26	Old 28	83,588			1	.4		.5	7.67	
27	Old 28	85,586			1	.4		.5	7.75	
28	Old 28	88,740			1	.4		.5	7.88	
29	Old 28	78,427			1	.2		.5	7.74	
30	Old 28	84,662			1	.4		.5	7.44	
31										
TOTAL		2,480,978			30			19	229.63	
AVG.		82,699			1	0.39		0.633	7.654	

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of _____ % chlorine added to 40 gallons of water in crock.

Reported by: RM Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 12/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	10/2010 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fluoride	Other Treatments / Readings: Poly	Other Treatments / Readings: PH	
1	Old 28	98,135			1	.2		.5	7.83	
2	Old 28	97,795			1	.4		.5	7.65	
3	Old 28	106,201			1	.4		.5	7.77	
4	Old 28	115,599			1	.4		.5	8.05	
5	Old 28	110,711			1	.2		.5	7.43	
6	Old 28	114,296			1	.6		.5	7.62	
7	Old 28	100,902			1	.8		.5	7.51	
8	Old 28	107,196			1	.8		.5	7.64	
9	Old 28	114,519			1	.5		.5	7.39	
10	Old 28	113,258			1	.4		.5	7.68	
11	Old 28	110,954			1	.2		.5	7.59	
12	Old 28	103,759			1	.2		.5	7.71	
13	Old 28	124,573			1	.2		1.0	7.64	
14	Old 28	140,042			1	.2		.5	7.61	
15	Old 28	155,958			1	.6		.5	7.80	
16	Old 28	221,567			1	.4		.5	7.35	
17	Old 28	225,739			1	.4		.5	7.29	
18	Old 28	167,154			1	.4		.5	7.51	
19	Old 28	171,623			1	.4		.5	7.42	
20	Old 28	179,186			1	.6		1.0	7.64	
21	Old 28	126,593			1	.6		1.0	7.45	
22	Old 28	137,184			1	.4		.5	7.57	
23	Old 28	134,610			1	.4		.5	7.68	
24	Old 28	129,913			1	.4		.5	7.35	
25	Old 28	99,662			1	.6		.5	7.96	
26	Old 28	91,399			1	.4		.5	7.54	
27	Old 28	86,408			1	.4		.5	7.29	
28	Old 28	89,802			1	.4		.5	7.81	
29	Old 28	81,758			1	.4		.5	7.66	
30	Old 28	84,551			1	.4		.5	7.80	
31	Old 28	85,097			1	.4		.5	7.45	
TOTAL		3,675,644			31			1.50	235.69	
AVG.		118,569			1			.5	7.60	

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of _____ % chlorine added to 40 gallons of water in crock.

Reported by: Richard Piccardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Piccardella Date: 11/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	07/2010 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☑ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Poly Phosphate	Poly	PH
1	Old 28	108,843			1	.8		1.0	7.58
2	Old 28	110,077			1	.2		.5	7.48
3	Old 28	131,644			1	.6		1.0	7.47
4	Old 28	130,499			1	.4		.5	7.39
5	Old 28	129,874			1	.6		1.0	7.52
6	Old 28	117,363			1	.8		.5	7.61
7	Old 28	115,559			1	.4		.5	7.67
8	Old 28	111,869			1	.6		.5	7.20
9	Old 28	124,967			1	.6		.5	7.24
10	Old 28	107,141			1	.8		.5	7.35
11	Old 28	110,415			1	.8		.5	7.30
12	Old 28	109,797			1	.6		.5	7.29
13	Old 28	103,712			1	.4		.5	7.46
14	Old 28	104,617			1	.4		.5	7.84
15	Old 28	107,437			1	.2		.5	7.61
16	Old 28	102,711			1	.4		.5	7.15
17	Old 28	107,942			1	.4		.5	7.03
18	Old 28	115,004			1	.8		1.0	7.80
19	Old 28	130,868			1	.2		.5	7.27
20	Old 28	101,126			1	.4		.5	7.91
21	Old 28	103,588			1	.2		.5	7.61
22	Old 28	103,582			1	.2		.5	7.21
23	Old 28	103,022			1	.4		.5	7.29
24	Old 28	122,978			1	.4		.5	7.13
25	Old 28	107,485			1	.4		.5	7.27
26	Old 28	111,969			1	.4		.5	8.05
27	Old 28	104,470			1	.2		.5	7.23
28	Old 28	98,642			1	.2		1.0	7.16
29	Old 28	96,784			1	.8		.5	7.47
30	Old 28	98,946			1	.4		.5	7.42
31	Old 28	104,092			1	.4		.5	7.09
TOTAL		3,428,923			31			19.	230.1
AVG.		110,610			1	0.464		0.612	7.422

Chlorine Mix Ratio = 1 quarts/gallons of 12.50 % chlorine added to 40 gallons of water in crock.

Reported by: Richard Riccardella Title: Water Superintendent NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Riccardella Date: 8/1/10 Operator Grade Level: C

AUG - 4 2010
ULSTER COUNTY HEALTH DEPARTMENT

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	06/2010 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☒ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Gaseous: Chlorine used per day (lbs.)	Liquid: Hypochlorite added to crock (gallons or ~~quarts~~)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fluoride	Poly	PH	
1	Old 28	104,661			1	.4		.5	7.29	
2	Old 28	107,500			1	.6		1.0	7.36	
3	Old 28	109,053			1	.2		.5	7.25	
4	Old 28	110,189			1	.2		.5	7.23	
5	Old 28	130,259			1	.2		.5	7.41	
6	Old 28	99,426			1	.6		1.0	7.73	
7	Old 28	108,327			1	.2		.5	7.51	
8	Old 28	94,656			1	.2		.5	7.29	
9	Old 28	98,608			1	.8		.5	7.42	
10	Old 28	101,444			1	.6		.5	7.70	
11	Old 28	104,030			1	.4		.5	7.55	
12	Old 28	100,133			1	.4		.5	7.39	
13	Old 28	101,549			1	.4		1.0	7.18	
14	Old 28	102,092			1	.2		.5	7.29	
15	Old 28	101,786			1	.6		2.0	7.32	
16	Old 28	108,389			1	.4		.5	7.31	
17	Old 28	97,714			1	.2		.5	7.19	
18	Old 28	103,628			1	.4		.5	7.21	
19	Old 28	122,591			1	.4		.5	7.28	
20	Old 28	136,432			1	.4		.5	7.41	
21	Old 28	113,178			1	.6		.5	7.38	
22	Old 28	102,137			1	.8		.5	7.69	
23	Old 28	97,008			1	.2		.5	7.00	
24	Old 28	96,293			1	.6		1.0	7.56	
25	Old 28	110,470			1	.2		.5	7.44	
26	Old 28	95,999			1	.2		.5	7.31	
27	Old 28	111,705			1	.2		.5	7.14	
28	Old 28	107,211			1	.4		.5	7.22	
29	Old 28	108,547			1	.4		.5	7.41	
30	Old 28	97,310			1	.6		.5	7.01	
31										
TOTAL		3,190,935			30				220.48	
AVG.		106,364			1	0.4		0.616	7.349	

Chlorine Mix Ratio = 1 ~ ~~quarts~~/gallons of 12.50 % chlorine added to 40 gallons of water in crock.

Reported by: Richard Ricciardella Title: Water Superintendent NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 7/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	05/2010 (MM YYYY)	06/01/2010 (MM DD YYYY)	☐ Surface ☒ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fluoride (mg/l)	Poly	pH
1	Old 28	113,546			1	.4		.5	7.73
2	Old 28	112,868			1	.6		.5	7.22
3	Old 28	93,096			1	.4		.5	6.97
4	Old 28	95,806			1	.4		.5	7.65
5	Old 28	100,106			1	.4		.5	7.29
6	Old 28	97,053			1	.4		.5	7.15
7	Old 28	108,864			1	.4		.5	7.78
8	Old 28	110,069			1	.4		.5	7.39
9	Old 28	89,179			1	.2		.5	7.42
10	Old 28	96,356			1	.8		1.0	7.28
11	Old 28	92,049			1	.5		1.0	7.71
12	Old 28	94,596			1	.4		.5	7.55
13	Old 28	94,587			1	.4		.5	7.56
14	Old 28	98,607			1	.2		.5	7.22
15	Old 28	86,239			1	.4		.5	7.35
16	Old 28	111,920			1	.8		.5	7.37
17	Old 28	102,119			1	.2		.5	7.30
18	Old 28	86,392			1	.6		.5	7.28
19	Old 28	90,851			1	.5		.5	7.19
20	Old 28	101,260			1	.2		.5	7.65
21	Old 28	107,678			1	.6		.5	7.67
22	Old 28	115,516			1	.6		.5	7.17
23	Old 28	114,777			1	.4		.5	6.94
24	Old 28	109,425			1	.4		.5	7.14
25	Old 28	108,101			1	.4		.5	7.70
26	Old 28	114,239			1	.2		.5	7.50
27	Old 28	118,736			1	.2		.5	7.55
28	Old 28	117,630			1	.2		1.0	7.81
29	Old 28	123,335			1	.8		.5	7.76
30	Old 28	128,851			1	.6		.5	7.15
31	Old 28	124,574			1	.4		1.0	7.19
TOTAL		3,255,424			31			17.5	224.4
AVG.		105,013			1			0.564	7.4

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of Hypochlorite % chlorine added to 40 gallons of water in crock.

Reported by: Richard Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 6/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	04/2010 (MM YYYY)	05/01/2010 (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	Poly	P.H.
1	old 28	89,445			1	.6		.5	7.44
2	old 28	98,718			1	.8		.5	6.91
3	old 28	89,491			1	.4		.5	7.12
4	old 28	96,585			1	.4		.5	7.23
5	old 28	89,265			1	.6		.5	7.35
6	old 28	92,074			1	.4		.5	7.29
7	old 28	91,245			1	.5		2.0	7.90
8	old 28	92,900			1	.4		.5	7.88
9	old 28	86,432			1	.4		.5	7.65
10	old 28	102,177			1	.8		.5	7.66
11	old 28	102,177			1	.4		.5	7.33
12	old 28	87,500			1	.4		.5	7.25
13	old 28	87,792			1	.4		.5	7.39
14	old 28	99,932			1	.4		.5	7.67
15	old 28	93,675			1	.4		.5	7.21
16	old 28	94,566			1	.4		.5	7.19
17	old 28	98,397			1	.4		.5	7.30
18	old 28	97,052			1	.6		.5	7.73
19	old 28	93,903			1	1.0		.5	7.15
20	old 28	109,916			1	1.2		.5	7.17
21	old 28	93,045			1	1.0		.5	7.19
22	old 28	92,212			1	.8		.5	7.31
23	old 28	91,083			1	.8		.5	7.29
24	old 28	100,708			1	.6		.5	7.32
25	old 28	99,004			1	.8		.5	7.61
26	old 28	97,217			1	.8		.5	7.05
27	old 28	86,281			1	.4		.5	7.35
28	old 28	97,071			1	.4		.5	7.21
29	old 28	97,160			1	.4		.5	7.17
30	old 28	93,720			1	.4		1.0	7.18
31									
TOTAL		2,840,713			30				13.89
AVG.		94,690			1			.5	46.9

Chlorine Mix Ratio = 1 quarts/gallons of Hypochlorite % chlorine added to 40 gallons of water in crock.

Reported by: R.M. Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 5/1/10 Operator Grade Level: C

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New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	03/2010 (MM YYYY)	04/01/2010 (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Phosphate	Poly	PH	
1	old 28	106,718			1	.6		.5	7.15	
2	old 28	98,245			1	.6		.5	7.09	
3	old 28	86,929			1	.2		.5	7.45	
4	old 28	87,008			1	.8		.5	7.53	
5	old 28	98,480			1	.4		.5	7.85	
6	old 28	94,132			1	.4		.5	7.65	
7	old 28	86,540			1	.4		.5	7.21	
8	old 28	89,296			1	.4		.5	7.19	
9	old 28	86,294			1	.4		.5	7.32	
10	old 28	92,813			1	.4		.5	7.01	
11	old 28	86,227			1	.6		.5	6.92	
12	old 28	85,811			1	.4		.5	7.05	
13	old 28	88,962			1	.4		.5	7.29	
14	old 28	91,067			1	.8		.5	7.31	
15	old 28	94,804			1	1.0		.5	7.22	
16	old 28	90,841			1	.6		.5	7.41	
17	old 28	82,424			1	.2		.5	7.32	
18	old 28	89,309			1	.8		1.0	7.20	
19	old 28	89,322			1	.4		.5	7.12	
20	old 28	94,606			1	.4		.5	7.24	
21	old 28	97,198			1	.2		.5	7.28	
22	old 28	83,848			1	.4		.5	7.09	
23	old 28	92,296			1	.4		.5	7.20	
24	old 28	87,753			1	.4		.5	7.31	
25	old 28	86,337			1	.4		.5	7.67	
26	old 28	88,818			1	.2		.5	8.01	
27	old 28	92,152			1	.6		.5	7.70	
28	old 28	82,836			1	.4		.5	7.14	
29	old 28	84,496			1	.4		1.0	7.22	
30	old 28	87,914			1	.4		.5	7.16	
31	old 28	87,526			1	.4		.5	7.17	
TOTAL		2,785,002			31					
AVG.		89,838			1			.5	7.30	

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of Hypochlorite % chlorine added to 40 gallons of water in crock.

Reported by: Richard Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 4/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	02/2010 (MM YYYY)	03/01/2010 (MM DD YYYY)	☑ Surface ☑ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fluoride	Other Treatments / Readings: Poly	Other Treatments / Readings: pH	
1	Old 28	97,823			1	.2	✓	.5	7.33	
2	Old 28	89,718			1	.6		1.0	7.66	
3	old 28	79,087			1	.4		.5	7.45	
4	old 28	91,594			1	.2		4.0	7.33	
5	old 28	98,723			1	.6		1.0	7.41	
6	old 28	101,305			1	.4		1.0	7.69	
7	old 28	91,035			1	.2		.5	7.32	
8	old 28	97431			1	.8		.5	7.75	
9	old 28	86,524			1	.2		.5	7.64	
10	old 28	88484			1	.2		.5	7.56	
11	Old 28	88,685			1	.4		1.0	7.64	
12	old 28	105,105			1	.6	✓	.5	7.76	
13	old 28	89,719			1	.8		.5	7.71	
14	old 28	105,058			1	.4		.5	7.45	
15	old 28	99,797			1	.6		.5	7.61	
16	old 29	86,785			1	.4		.5	7.52	
17	old 28	100,028			1	.4		.5	7.31	
18	old 28	89,622			1	.6		.5	7.47	
19	old 28	89284			1	.4		.5	7.65	
20	old 28	94,668			1	.2		.5	7.29	
21	old 28	87,120			1	.4		.5	7.27	
22	old 28	92,246			1	.4		.5	7.49	
23	old 28	82938			1	.4	✓	.5	7.52	
24	old 28	80,295			1	.4		.5	7.66	
25	old 28	63,665			1	.8		.5	7.21	
26	old 28	81,137			1	.6		.5	7.67	
27	old 28	93,287			1	.4		.5	7.50	
28	old 28	82,413			1	.2		.5	7.41	
29										
30										
31										
TOTAL		2,533,476			28					
AVG.		90,481			1					

Chlorine Mix Ratio = 1 ~~quarts~~/gallons of Chlorine % chlorine added to 40 gallons of water in crock.

Reported by: Richard Ricciardelli Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard Ricciardelli Date: 3/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	01/2010 (MM YYYY)	02/01/2010 (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☑ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Poly-phosphate	Other Treatments / Readings: Poly	Other Treatments / Readings: Ph	
1	Old 28	125 507				.2		.5	6.91	
2	old 28	98,867				.2		1.0	6.82	
3	old 28	115 780				.4		.5	7.87	
4	old 28	116 236				.2		.5	7.82	
5	old 28	118,484				.4		1.0	7.66	
6	old 28	102,014				.2		.5	6.89	
7	old 28	117,639				.2		.5	7.51	
8	old 28	112,567				.6		.5	7.77	
9	old 28	118,060				.4		.5	7.35	
10	old 28	127121				.4		.5	7.49	
11	old 28	100,450				.4		.5	7.32	
12	old 28	82,647				.2		.5	7.54	
13	old 28	93283				.2		.5	7.29	
14	old 28	96,022				.2		.5	7.51	
15	old 28	88,185				.4		.5	7.55	
16	old 28	97,080				.4		.5	7.77	
17	old 28	94,898				.4		.5	7.31	
18	old 28	90,130				.4		.5	7.39	
19	old 28	89,821				.6		.5	7.21	
20	old 28	95443				.4		.5	7.45	
21	old 28	84663				.4		.5	7.81	
22	old 28	98598				.4		.5	6.82	
23	old 28	88311				.4		.5	7.21	
24	old 28	95723				.6		.5	7.33	
25	old 28	88,399				.6		.5	7.51	
26	old 28	88574				.6		.5	7.93	
27	old 28	92034				.6		.5	7.60	
28	old 28	83540				.4		.5	7.27	
29	old 28	99530				.6		.5	7.48	
30	old 28	90 081				.4		.5	7.62	
31	old 28	95386				.2		.5	7.67	
TOTAL		3085573								
AVG.		99 534								

Chlorine Mix Ratio = 1 ~~quarts~~ gallons of _____ % chlorine added to 40 gallons of water in crock.

Reported By: R M Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 2/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT

Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	12/2009 (MM YYYY)	01/01/2010 (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Fe/Mn/Phosphate	Other Treatments / Readings: Ph	Other Treatments / Readings: Poly
1	old 28	105723				.2		7.15	.5
2	old 28	106,843				.4		7.27	.5
3	old 28	100,955				.4		7.19	.5
4	old 28	108,867				.4		7.39	.6
5	old 28	103,699				.4		7.41	.5
6	old 28	108,665				.4	↓	7.15	.5
7	old 28	106,246				.5		7.17	.5
8	old 28	106982				.4		7.24	.5
9	old 28	97,123				.4		7.33	.5
10	old 28	112,931				.4		7.07	.5
11	old 28	103,426				.2		7.20	1.0
12	old 28	106,569				.2		7.22	.5
13	old 28	117,215				.2		7.10	.5
14	old 28	99,787				.6		6.92	.5
15	old 28	111,302				.6	↓	7.04	.5
16	old 28	94,731				.6		7.12	.5
17	old 28	110,924				.4		7.29	.5
18	old 28	109,266				.4		7.51	.5
19	old 28	103,515				.4		7.09	.5
20	old 28	100594				.4		7.31	1.0
21	old 28	107913				.4		7.12	.5
22	old 28	107973				.4		7.10	.5
23	old 28	101,910				.4		7.38	.5
24	old 28	114,045				.4	↓	7.35	.5
25	old 28	104,081				.4		7.12	.5
26	old 28	107,361				.4		7.16	.5
27	old 28	119,046				.4		7.19	.5
28	old 28	106,291				.2		7.26	.5
29	old 28	115,210				.2		7.29	.5
30	old 28	107,193				.4		7.21	.5
31	old 28	107850				.4		7.27	.5
TOTAL		3,314,236							
AVG.		106,910							

Chlorine Mix Ratio = _____ quarts/gallons of _____ % chlorine added to _____ gallons of water in crock.

Reported by: Richard Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 1/1/10 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	11/2009 (MM YYYY)	12/01/2009 (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Gaseous: Chlorine used per day (lbs.)	Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	Poly	Ph	
1	old 28	103,909				.8		.5	7.31	
2	old 28	98,110				.4		.5	7.29	
3	old 28	101,413				.6		1.0	7.56	
4	old 28	101,818				.6		1.0	7.64	
5	old 28	99,624				.2		.5	7.66	
6	old 28	99,782				.2		.5	7.49	
7	old 28	106,486				.2		.5	7.53	
8	old 28	99,218				.4		.5	7.29	
9	old 28	102,428				.4		.5	7.40	
10	old 28	96,379				.4		.5	7.43	
11	old 28	96,059				.6		.5	7.27	
12	old 28	96,083				.2		0	7.30	
13	old 28	100,781				.4		.5	7.17	
14	old 28	90,781				.4		.5	7.29	
15	old 28	99,878				.4		.5	7.11	
16	old 28	99,412				1.0		.5	7.14	
17	old 28	97,678				.4		.5	7.59	
18	old 28	99,776				.4		.5	7.29	
19	old 28	102,938				.4		.5	7.23	
20	old 28	102,906				.4		2.0	7.27	
21	old 28	109,551				.2		.5	7.35	
22	old 28	95,537				.2		.5	7.28	
23	old 28	99,570				.2		.5	7.25	
24	old 28	101,209				.2		.5	7.43	
25	old 28	109,749				.6		.5	7.45	
26	old 28	93,993				.2		.5	7.41	
27	old 28	109,440				.2		.5	7.47	
28	old 28	107,983				.2		.5	7.53	
29	old 28	104,438				.4		.5	7.33	
30	old 28	107,579				.2		.5	7.21	
31										
TOTAL		3,043,018								
AVG.		101,433								

Chlorine Mix Ratio = _____ quarts/gallons of _____ % chlorine added to _____ gallons of water in crock.

Reported by: Richard M. Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 12/1/09 Operator Grade Level: C

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New York State Department of Health
Bureau of Water Supply Protection

~~WATER SYSTEM OPERATION REPORT~~
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	__/2 0__ (MM YYYY)	__/__/2 0__ (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Polyphosphate	PH	Poly	Chl. Res.
1	Old 28	95,210						6.89	.30	.4
2	old 28	108,002						7.33	.5	.4
3	old 28	98,014						7.13	0	.4
4	old 28	101,001						7.30	.5	.2
5	old 28	98,483						6.99	.5	.4
6	Old 28	98,716						6.93	1.0	.6
7	old 28	95,746						7.34	1.0	.4
8	Old 28	103,020						7.20	.5	.4
9	old 28	98,435						7.39	1.0	.6
10	Old 28	108,587						7.59	.5	.2
11	old 28	107,190						7.37	.5	.5
12	old 28	110,828						7.25	.5	.6
13	old 28	91,994						7.61	.5	.6
14	Old 28	102,324						7.44	.5	.2
15	old 28	102,452						7.27	.5	.4
16	old 28	102,122						7.34	.5	.8
17	old 28	102,726						7.44	.5	.6
18	old 28	99,333						7.42	.5	.6
19	old 28	100,015						7.66	.5	.4
20	old 28	96,852						7.58	.5	.4
21	old 28	102,655						7.42	.5	.2
22	old 28	105,439						7.38	.5	.2
23	old 28	106,071						6.81	.5	.4
24	old 28	103,387						7.34	.5	.4
25	Old 28	107,435						7.56	.5	.2
26	old 28	98,815						7.25	.5	.2
27	old 28	102,070						7.36	.5	.2
28	old 28	94,028						7.56	.5	.2
29	old 28	101,264						6.97	.6	.2
30	old 28	105,622						7.75	1.0	.6
31	old 28	103,707						7.39	.5	.2
TOTAL		3,151,543								
AVG.		101,662								

Chlorine Mix Ratio = _____ quarts/gallons of _____ % chlorine added to _____ gallons of water in crock.

Reported by: Richard Riccardella Title: Water Comm. NYSDOH Operator Certification Number: NY0031318

Signature: Richard Riccardella Date: 11/1/09 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT

Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	09/2009 (MM YYYY)	__/__/20__ (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or ~~quarts~~)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	pH	Poly	Chlo Res
1	Old 28	97355			1			7.01	.5	.4
2	old 28	91,973			1			7.10	.5	.4
3	old 28	106048			1			7.11	.5	.2
4	old 28	105316			1			7.00	0	.6
5	Old 28	110,107			1		✓	6.92	0	.8
6	Old 28	115,011			1			6.88	0	.2
7	old 28	108970			1			6.59	0	.8
8	old 28	103197			1			6.72	0	.6
9	old 28	108,080			1			6.61	0	.4
10	old 28	110094			1			6.67	0	.4
11	old 28	104,683			1			6.54	0	.4
12	old 28	87,854			1			6.59	0	.2
13	old 28	105,950			1			6.72	0	.6
14	old 28	94358			1			6.91	0	.4
15	old 28	90758			1		✓	6.85	0	.4
16	old 28	92,807			1			6.86	0	.4
17	old 28	94798			1			6.78	0	.6
18	old 28	91317			1			6.75	0	.5
19	old 28	103165			1			6.60	0	.4
20	old 28	105872			1			6.56	0	.6
21	old 28	95115			1			6.84	0	.4
22	old 28	97036			1			6.79	0	.4
23	old 28	99,944			1			7.12	.5	.2
24	old 28	97,092			1			7.30	.5	.4
25	old 28	96380			1		✓	7.21	.5	.4
26	old 28	101,223			1			7.17	.5	.4
27	old 28	110,081			1			7.34	2.0	.4
28	old 28	99,840			1			7.17	.5	.2
29	old 28	101,078			1			6.88	0	.4
30	old 28	100,032			1			6.61	.5	.4
31										
TOTAL		3,023,534			30					
AVG.		100,745			1					

Chlorine Mix Ratio = 2.5 quarts/gallons of 12.5 % chlorine added to 30 gallons of water in crock.

Reported by: Richard Riccardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard Riccardella Date: 10/1/09 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	08/2009 (MM YYYY)	09/01/2009 (MM DD YYYY)	☐ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or ~~quarts~~)	Chlorination: Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	Other Treatments / Readings: Poly	Other Treatments / Readings: Ph	
1	old 28	113 802			1	.4		.5	7.16	
2	old 28	105 347			1	.4		.5	7.23	
3	old 28	109,425			1	.4		.6	7.42	
4	old 28	102,537			1	.2		.5	7.29	
5	old 28	105 673			1	.6		.5	7.16	
6	old 28	105,605			1	.6		.5	7.21	
7	old 28	113363			1	.6	✓	.40	7.17	
8	old 28	111564			1	.4		.5	7.39	
9	old 28	116222			1	.6		.5	7.10	
10	old 28	114842			1	.4		.5	7.31	
11	old 28	98058			1	.5		.5	7.34	
12	old 28	134474			1	.5		.5	7.23	
13	old 28	111980			1	.8		.5	7.29	
14	old 28	104202			1	.8		.5	7.35	
15	old 28	112,242			1	.4	✓	.5	7.42	
16	old 28	109 201			1	.6		.5	7.43	
17	old 28	105 783			1	.4		.5	7.49	
18	old 28	101,888			1	.4		.5	7.62	
19	old 28	103 257			1	.4		.5	7.09	
20	old 28	108 841			1	.4		.5	7.20	
21	old 28	45002			1	.2		.5	7.45	
22	old 28	54772			1	.4		.5	7.17	
23	old 28	93307			1	.4		.5	7.51	
24	old 28	101046			1	.6		.5	7.19	
25	old 28	100780			1	.6	✓	.5	7.35	
26	old 28	93884			1	.6		.5	7.60	
27	old 28	91,713			1	.4		.5	7.24	
28	old 28	104821			1	.4		.5	7.16	
29	old 28	100899			1	.4		.6	7.29	
30	old 28	99427			1	.4		.5	7.32	
31	old 28	95,302			1	.4		.20	7.15	
TOTAL		3,167,239			31			[illegible]		
AVG.		102,169			1					

Chlorine Mix Ratio = _____ quarts/gallons of _____ % chlorine added to _____ gallons of water in crock.

Reported by: Richard Ricciardella Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Ricciardella Date: 9/1/09 Operator Grade Level: C

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New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia WATER	05/2009 (MM YYYY)	06/01/2009 (MM DD YYYY)	☑ Surface ☐ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Poly Phosphate	Other Treatments / Readings: pH		
1		98,267			1	.4	.5	7.27		
2		105,136			1	.5	.6	7.10		
3		98,391			1	.6	.5	7.35		
4		108,561			1	.4	.5	7.42		
5		98,454			1	.5	.5	7.46		
6		92,279			1	.6	.5	7.19		
7		97,778			1	.6	.5	7.22		
8		107,451			1	.6	.5	7.27		
9		112,069			1	.4	1.0	7.33		
10		97,508			1	.5	.5	7.29		
11		97,317			1	.6	.5	7.15		
12		104,078			1	.4	.5	7.05		
13		109,228			1	.2	1.0	7.39		
14		99,336			1	.6	.5	7.29		
15		112,531			1	.2	.5	7.43		
16		108,142			1	.8	.5	7.49		
17		95,138			1	.9	1.0	7.24		
18		110,259			1	.5	.5 3/4	7.19		
19		90,743			1	.4	.5	7.39		
20		118,385			1	.4	.5	7.60		
21		109,301			1	.4	.5	7.37		
22		124,371			1	.4	.5	7.50		
23		128,907			1	.8	.5	7.28		
24		129,902			1	.9	.5	7.19		
25		134,617			1	.8	.5	7.42		
26		105,027			1	.8	.5	7.25		
27		106,221			1	1.0	.5	7.32		
28		119,887			1	.9	.5	7.19		
29		115,714			1	.4	1.0	7.16		
30		88,941			1	.6	.5	7.24		
31		114,685			1	.6	.5	7.07		
TOTAL		3,338,260			31					
AVG.		107,685			1					

Chlorine Mix Ratio = _____ quarts/gallons of _____ % chlorine added to _____ gallons of water in crock.

Reported by: _____ Title: _____ NYSDOH Operator Certification Number: NY0031318

Signature: _____ Date: _____ Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT
Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia water Dist.	03/2009 (MM YYYY)	04/01/2009 (MM DD YYYY)	☑ Surface ☑ Ground ☑ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5 5 0 3 3 8 0	ULSTER	Phoenicia N.Y.

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	Other Treatments / Readings: Polyphos Rate		
1	Resy well	88,342			1	.4		.5		
2		73,657			1	.2		.5		
3		90,858			1	.4		.5		
4		74,474			1	.4		0		
5		83,464			1	.6		.5		
6		102,000			1	.2		.5		
7		84,896			1	.4		.5		
8		78,329			1	.2		.5		
9		79,190			1	.5		.5		
10		78,862			1	.5		.5		
11		80,131			1	.4		.5		
12		77,089			1	.2		.5		
13		79,003			1	.6		.5		
14		82,002			1	.6		.5		
15		80,258			1	.2		.0		
16		87,561			1	.2		.5		
17		92,214			1	.8		.5		
18		80,276			1	.2		.5		
19		94,681			1	.4		.5		
20		84,153			1	.4		.5		
21		88,150			1	.4		1.0		
22		91,534			1	.6		.5		
23		88,124			1	.2		.5		
24		80,748			1	.2		.5		
25		[illegible]			1	.4		.5		
26		86,681			1	.2		.5		
27		87,380			1	.6		.5		
28		91,411			1	.3		.5		
29		69,605			1	.6		.5		
30		86,384			1	.4		.5		
31		85,021			1	.2		.5		
TOTAL		2,609,995			31					
AVG.		84,193			1					

Chlorine Mix Ratio = 1 quarts/gallons of 1 1/2 % chlorine added to _____ gallons of water in crock.

Reported by: Richard Ricciardelli Title: Operator NYSDOH Operator Certification Number: NY0031318

Signature: Richard Ricciardelli Date: 4/1/09 Operator Grade Level: C

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT

Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia Water Works	02/2009 (MM YYYY)	03/01/2009 (MM DD YYYY)	☒ Surface ☒ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 5503380	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or ~~pounds~~)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	Other Treatments / Readings: Ph		
1		86,973			1	.2	.5	7.29		
2		93,297			1	.4	.5	7.62		
3		95,946			1	.5	.5	7.47		
4		90,954			1	.4	.5	7.32		
5		95,898			1	.2	2.00	7.25		
6		91,182			1	.6	.5	7.16		
7		78,927			1	.8	.5	7.10		
8		79,378			1	.2	.5	7.26		
9		85,089			1	.4	.5	7.14		
10		71,072			1	.4	0	7.42		
11		76,597			1	.4	.5	7.68		
12		84,269			1	.2	1.0	7.53		
13		78,226			1	.5	.5	7.28		
14		77,094			1	.3	.5	7.25		
15		87,595			1	.2	.5	7.16		
16		89,444			1	.2	.5	7.21		
17		74,652			1	.2	.5	7.27		
18		86,039			1	.4	.5	7.29		
19		77,542			1	.2	.5	7.35		
20		92,073			1	.7	.5	7.12		
21		77,610			1	.2	.5	7.26		
22		90,223			1	.6	.5	7.42		
23		75,481			1	.8	.5	7.16		
24		81,361			1	.4	1.0	7.18		
25		78,099			1	.4	0	7.19		
26		76,856			1	.6	.5	7.22		
27		83,886			1	.6	.5	7.48		
28		72,735			1	.8	.5	7.11		
29										
30										
31										
TOTAL		2,328,498			28					
AVG.		83,160			1					

Chlorine Mix Ratio = _____ quarts/gallons of _____ % chlorine added to _____ gallons of water in crock.

Reported by: _____ Title: _____ NYSDOH Operator Certification Number: NY0031318

Signature: _____ Date: _____ Operator Grade Level: _____

New York State Department of Health
Bureau of Water Supply Protection

WATER SYSTEM OPERATION REPORT

Microbiological Sample Results

Public Water System Name	Reporting Month/Year	Date Report Submitted	Source Water Type (s)
Phoenicia Water Works	01/2009 (MM YYYY)	02/01/2009 (MM DD YYYY)	☑ Surface ☑ Ground ☐ GWUDI ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination

Public Water System ID	County	Town, Village or City
NY 0 0 3 1 3 1 8	ULSTER	SHANDAKEN

DATE	Source(s) in use	Treated water volume (1,000 gallons/day)	Chlorination: Gaseous: Cylinder weight (lbs.)	Chlorination: Gaseous: Chlorine used per day (lbs.)	Chlorination: Liquid: Hypochlorite added to crock (gallons or quarts)	Free chlorine residual at entry point (mg/l)	Other Treatments / Readings: Polyphosphate	Other Treatments / Readings: Ph		
1		82,757			1	.6	.5	7.21		
2		122,895			1	.8	.5	7.53		
3		113,354			1	.6	.5	7.26		
4		90,660			1	.8	.5	7.17		
5		85,658			1	.5	.5	7.32		
6		82,192			1	.6	.5	7.10		
7		75,347			1	.6	.5	7.15		
8		75,638			1	.4	1.0	7.23		
9		76,297			1	.4	.5	7.62		
10		87,907			1	.4	.5	7.21		
11		81,242			1	.6	.5	7.27		
12		73,936			1	.6	.5	7.39		
13		78,260			1	.8	.5	7.50		
14		72,376			1	.8	.5	7.45		
15		72,938			1	.5	.5	7.29		
16		71,629			1	.4	.5	7.60		
17		86,918			1	.4	.5	7.36		
18		85,072			1	.4	.5	7.21		
19		100,259			1	.4	.5	7.23		
20		89,041			1	.4	.5	7.29		
21		84,782			1	.6	1.5	7.15		
22		97,054			1	.8	.5	7.17		
23		99,338			1	.4	.5	7.19		
24		89,378			1	.4	.5	7.22		
25		97,694			1	.6	.5	7.25		
26		92,467			1	.8	.5	7.33		
27		87,393			1	.4	.5	7.31		
28		95,543			1	.4	.5	7.42		
29		82,241			1	.4	.5	7.40		
30		98,011			1	.5	.5	7.42		
31		100,201			1	.8	2.0	7.41		
TOTAL		2,733,478			31					
AVG.		88,176			1					

smart!

Chlorine Mix Ratio = _____ quarts/~~gallons of~~ _____ % chlorine added to _____ gallons of water in crock.

Reported by: RMR Title: Water Commissioner NYSDOH Operator Certification Number: NY0031318

Signature: Richard M. Riccardella Date: _____ Operator Grade Level: C

called 2/17/09

Annual Drinking Water Quality Report for 2009

Phoenicia Water District
7209 Rt. 28, Shandaken, NY 12480
Public Water Supply Identification Number NY5503380

INTRODUCTION

To comply with State regulations, the Phoenicia Water District, will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. We are very pleased to provide you with this year's Annual Water Quality Report. Last year, your drinking water met all State drinking water health standards. This report is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to New York State standards. Our constant goal is and always has been, to provide to you a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and to protect our water resources. If you have any questions concerning this report or concerning your drinking water please contact: *Mr. Richard Ricciardella, Water Commissioner, Phoenicia Water District, PO Box 247, Phoenicia, 12464; NY; Telephone (845) 688-5172 or (845) 688-7233 ext. 21.* If you want to learn more, please attend any of our regularly scheduled Town Board meetings. They are held on the 1st Monday of each month, 7:00 PM at the Shandaken Town Hall, 7209 Route 28, Shandaken, NY 12480; *Telephone (845) 688-7165.* If you want to learn more, please call us.

WHERE DOES OUR WATER COME FROM?

The Phoenicia Water District (PWD) draws its water from ground water sources, and ground water under the direct influence of surface water. We have a water filtration plant to filter our water. Water from Apree, Rock and Simpson Springs and Smith Reservoir located on Mount Tremper feed our (reservoir) infiltration gallery. The water flows through packed sand and gravel into a collection pipe by gravity flow to a 20 foot deep well at Old Well 28, where we add chlorine to protect against contamination from harmful bacteria. After chlorination the water passes through a series of filters which remove particulate or suspended solids. The filters can remove particulate material as small as 1 micron. In addition to filtration, we adjust the pH of the finished water with soda ash and add polyphosphate for corrosion control. The treated water goes to a 10,000 gallon underground clearwell and is then pumped into the distribution system. A SCADA (Supervisory Control and Data Acquisition) system controls the operation of the treatment plant providing 24 hour operation. We are now in compliance with the EPA's Surface Water Treatment Rule with our new filtration plant.

The High Street Pump Station consists of 2 wells. Well #1 is an 18-foot drilled well with a 70-gpm yield. Well #2 is an 100-foot drilled well with a 100 gpm yield. Due to its high iron content and dissolved air, High Street is used for emergency purposes only. Chlorine is also added for disinfection.

The source water assessment performed by the New York State Health Department has rated our source water as having very high susceptibility to microbials and nitrates, a high susceptibility to industrial solvents, and a medium-high susceptibility to other industrial contaminants. The SWAP summary for our water supply is attached to this report.

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and EPA prescribe regulations, which limit the amount of certain contaminants in water, provided by public water systems. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

FACTS AND FIGURES

The Phoenicia Water District provides water through 280 service connections to a population of approximately 950 people. Our average daily demand is 147,000 gallons. Our single highest day was 128,000 gallons. The total water produced in 2009 was approximately 35,657,872 gallons. * Error: Average day cannot be higher than single highest day.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

In accordance with State regulations, the Phoenicia Water District routinely monitors your drinking water for numerous contaminants. We test your drinking water for inorganic contaminants, radiological contaminants, lead and copper, nitrate, volatile organic contaminants, and synthetic organic contaminants. In addition, we test (1) sample for coliform bacteria each month. The table presented below depicts which contaminants were detected in your drinking water. The state allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old and is noted.

It should be noted that all drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily pose a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791) or the Ulster County Health Department at 845-340-3150.

WHAT DOES THIS INFORMATION MEAN?

As you can see by the table on page 4, our system had no violations. We have learned through our monitoring and testing that some contaminants have been detected; however, these compounds were detected below New York State requirements. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2009, our system was in compliance with applicable State drinking water operating requirements. We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During 2009, we "did not monitor or test" or "did not complete all monitoring or testing" for Lead & Copper samples, and therefore cannot be sure of the quality of your drinking water during that time. The Phoenicia Water District was issued a monitoring violation for not doing Lead & Copper samples during July 1, 2009 through December 31, 2009. Therefore, we must include the following statement in this report: "Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning disabilities. Adults who drink this water over many years could develop kidney problems or high blood pressure." We will collect two sets of Lead and Copper samples during 2010 to determine if we have optimized our corrosion control.

Additionally, Phoenica Water District was issued 9 violations in 2009 for incomplete operations report submittals for March, April, May, June, July, October, November and December. We have corrected this deficiency as of January 2010.

IS OUR WATER SAFE FOR EVERYONE?

Some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbiological pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

WHAT IS THE SOURCE WATER ASSESSMENT PROGRAM (SWAP)?

To emphasize the protection of surface and ground water sources used for public drinking water, Congress amended the Safe Drinking Water Act (SDWA) in 1996. The amendments require that New York State Department of Health's Bureau of Public Water Supply Protection is responsible for ensuring that source water assessments are completed for all of New York's public water systems.

A source water assessment provides information on the potential contaminant threats to public drinking water sources:

- each source water assessment will: determine where water used for public drinking water comes from (delineate the source areas)
- Inventory potential sources of contamination that may impact public drinking water sources
- Assess the likelihood of a source water area becoming potential contaminated

A SWAP summary for our water supply is attached to this report. The SWAP summary for the spring fed reservoir will be in next year's report.

WATER CONSERVATION TIPS

The Phoenicia Water District encourages water conservation. There are a lot of things you can do to conserve water in your own home. Conservation tips include:

- Only run the dishwasher and clothes washer when there is a full load
- Use water saving showerheads
- Install faucet aerators in the kitchen and the bathroom to reduce the flow from 4 to 2.5 gallons per minute
- Water gardens and lawn for only a couple of hours after sunset
- Check faucets, pipes and toilets for leaks and repair all leaks promptly
- Take shorter showers

CLOSING

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit our customers. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have questions.

PHOENICIA WATER DISTRICT TABLE OF DETECTED CONTAMINANTS Public Water Supply Identification Number NY5503380						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants (sample data from 11/16/2009 unless otherwise noted)						
Barium	N	8.1	ppb	2000	2000	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chloride	N	10	ppm	N/A	250	Geology; Naturally occurring
Copper (sample data from 6/8/09-6/18/09) Range of copper concentration	N	1.0 0.13-1.10	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (sample data from 6/8/09-6/18/09) Range of lead concentration	N	2[3] ND-34	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Manganese	N	20	ppb	N/A	300	Geology, Naturally occurring
Nitrate (as Nitrogen)	N	0.3	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Odor	N	1	units	NA	3	natural sources
pH	N	6.9	units		6.5-8.5	
Sodium[1]	N	14.4	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	6	ppm	N/A	250	Geology
Disinfection Byproducts (sample data from 2/18/09, 5/18/09, 8/26/09, & 11/16/09)						
Haloacetic Acids (HAA5)[4] Range of Values for HAA5	N	9.1 4.8-13.4	ppb	N/A	60	By-product of drinking water disinfection needed to kill harmful organisms
TTHM[Total Tribalomethanes](Average)[4] Range of values for Total Tribalomethanes	N	10 4.84-10.8	ppb	0	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Chlorine (continuous monitoring) Range of chlorine residuals	N	0.3 0.3-1.7	ppm	MRDLG N/A	MRDL 4	Used in the treatment and disinfection of drinking water
Microbiological Contaminants						
Turbidity (highest value from 8/09)	N/A	0.887[5] 99.9%	NTU	N/A	TT=1.0 NTU TT= 95% samples < 0.3	Soil Runoff

NOTES-
1. The level presented represents the 90th percentile of 22 test sites. The action level for copper was not exceeded at any of the 22 sites tested.
2. The level presented represents the 90th percentile of 22 test sites. The Action Level was exceeded at 2 of the 22 sites tested.
3. Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets.
4. Average based on running annual average
5. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Level detected represents the highest level detected.

PHOENICIA WATER DISTRICT TABLE OF DETECTED CONTAMINANTS FOR HIGH STREET PUMPHOUSE Public Water Supply Identification Number NY 5503380						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants (sample data from 11/17/06 unless otherwise noted)						
Barium	N	12	ppb	2000	2000	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chloride	N	16	ppm	N/A	250	Geology; Naturally occurring
Iron	N	170	ppb	N/A	300	Geology; Naturally occurring
Manganese	N	20	ppb	N/A	300	Geology; Naturally occurring
Nickel	N	ND-140	ppb	N/A	N/A	Discharge from steel/metal factories
pH	N	6.8	units		6.5-8.5	
Sodium[1]	N	21.7	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	8	ppm	N/A	250	Geology;
Zinc	N	40	ppb	N/A	5000	Galvanized pipe; corrosion inhibitor

NOTES-
Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets.

Annual Drinking Water Quality Report for 2010

Phoenicia Water District
7209 Rt. 28, Shandaken, NY 12480
Public Water Supply Identification Number NY5503380

INTRODUCTION

To comply with State regulations, the Phoenicia Water District, will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. We are very pleased to provide you with this year's Annual Water Quality Report. Last year, your drinking water met all State drinking water health standards. This report is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to New York State standards. Our constant goal is and always has been, to provide to you a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and to protect our water resources. If you have any questions concerning this report or concerning your drinking water please contact: *Mr. Richard Ricciardella, Water Commissioner, Phoenicia Water District, 7209 Rt. 28, PO Box 247, Phoenicia, 12464; NY; Telephone (845) 688-5172 or (845) 688-7233 ext. 21.* about their water service. If you want to learn more, please attend any of our regularly scheduled Town Board meetings. They are held on the 1st Monday of each month, 7:00 PM at the Shandaken Town Hall, Route 28, Shandaken, NY 12480; *Telephone (845) 688-7165.* If you want to learn more, please call us.

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The Phoenicia Water District (PWD) draws its water from ground water sources, and ground water under the direct influence of surface water. We have a water filtration plant to filter our water. Water from Apree, Rock and Simpson Springs and Smith Reservoir located on Mount Tremper feed our (reservoir) infiltration gallery. The water flows through packed sand and gravel into a collection pipe by gravity flow to a 20 foot deep well at Old Well 28, where we add chlorine to protect against contamination from harmful bacteria. After chlorination the water passes through a series of filters which remove particulate or suspended solids. The filters can remove particulate material as small as 1 micron. In addition to filtration, we adjust the pH of the finished water with soda ash and add polyphosphate for corrosion control. The treated water goes to a 10,000 gallon underground clearwell and is then pumped into the distribution system. A SCADA (Supervisory Control and Data Acquisition) system controls the operation of the treatment plant providing 24 hour operation. We are now in compliance with the EPA's Surface Water Treatment Rule with our new filtration plant.

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The source water assessment performed by the New York State Health Department has rated our source water as having very high susceptibility to microbials and nitrates, a high susceptibility to industrial solvents, and a medium-high susceptibility to other industrial contaminants. The SWAP summary for our water supply is attached to this report.

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and EPA prescribe regulations, which limit the amount of certain contaminants in water, provided by public water systems. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

FACTS AND FIGURES

The Phoenicia Water District provides water through 350 service connections to a population of approximately 950 people. Our average daily demand is 90,000 gallons. Our single highest day was 145,000 gallons. The total water produced in 2010 was approximately 36,000,000 gallons.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

In accordance with State regulations, the Phoenicia Water District routinely monitors your drinking water for numerous contaminants. We test your drinking water for inorganic contaminants, radiological contaminants, lead and copper, nitrate, volatile organic contaminants, and synthetic organic contaminants. In addition, we test (1) sample for coliform bacteria each month. The table presented below depicts which contaminants were detected in your drinking water. The state allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old and is noted.

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As you can see by the table on page 4, our system had no violations. We have learned through our monitoring and testing that some contaminants have been detected; however, these compounds were detected below New York State requirements. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2010, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

INFORMATION ON LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Phoenicia Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *http://www.epa.gov/safewater/lead*

IS OUR WATER SAFE FOR EVERYONE?

Some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbiological pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

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Department of Health's Bureau of Public Water Supply Protection is responsible for ensuring that source water assessments are completed for all of New York's public water systems.

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- Inventory potential sources of contamination that may impact public drinking water sources
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A SWAP summary for our water supply is attached to this report. The SWAP summary for the spring fed reservoir will be in next year's report.

WATER CONSERVATION TIPS

The Phoenicia Water District encourages water conservation. There are a lot of things you can do to conserve water in your own home. Conservation tips include:

- Only run the dishwasher and clothes washer when there is a full load
- Use water saving showerheads
- Install faucet aerators in the kitchen and the bathroom to reduce the flow from 4 to 2.5 gallons per minute
- Water gardens and lawn for only a couple of hours after sunset
- Check faucets, pipes and toilets for leaks and repair all leaks promptly
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CLOSING

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit our customers. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have questions.

PHOENICIA WATER DISTRICT TABLE OF DETECTED CONTAMINANTS Public Water Supply Identification Number NY5503380							
Contaminant	Violation Y/N	Date of Sample	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants							
Chloride	N	11/1/2010	14	ppm	N/A	250	Geology; Naturally occurring
Copper Range of copper concentration	N	6/7/10	0.62[1] 0.07-1.05	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Copper) Range of copper concentration		11/15/10	0.96[1] 0.13-1.21				
Lead Range of lead concentration	N	6/7/10	2[2] ND-16	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Lead Range of lead concentration		11/15/10	2[2] ND-26				
Manganese	N	11/1/2010	20	ppb	N/A	300	Geology, Naturally occurring
Nickel	N	11/1/2010	7.5	ppb	N/A	100	Discharge from steel/metal factories
Nitrate (as Nitrogen)	N	11/1/2010	0.3	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
pH	N	11/1/2010	6.9	units		6.5-8.5	
Sodium[3]	N	11/1/2010	12.5	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	11/1/2010	6	ppm	N/A	250	Geology
Zinc	N	11/1/2010	730	ppb	N/A	5000	Galvanized pipe; corrosion inhibitor
Disinfection Byproducts							
Haloacetic Acids (HAA5)[4] Range of Values for HAA5	N	2/15/10, 5/17/10, 8/16/10, 12/6/10	10.5 4.8-14.6	ppb	N/A	60	By-product of drinking water disinfection needed to kill harmful organisms
TTHM[Total Trihalomethanes](Average)[4] Range of values for Total Trihalomethanes	N	2/15/10, 5/17/10, 8/16/10, & 12/6/10	8.6 5.3-11.5	ppb	0	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Chlorine (continuous monitoring) Range of chlorine residuals	N	daily	0.68 0.30-2.11	ppm	MRDLG N/A	MRDL 4	Used in the treatment and disinfection of drinking water
Microbiological Contaminants							
Turbidity (highest value)	N/A	2/1/10	0.989[5]	NTU	N/A	TT=1.0 NTU	Soil Runoff
August 2010			99.9%			TT= 95% samples < 0.3	

NOTES-

1. The level presented represents the 90th percentile of 20 test sites. The action level for copper was not exceeded at any of the 20 sites tested in June and November 2010.
2. The level presented represents the 90th percentile of 20 test sites. The Action Level was exceeded at 1 of the 2 sites tested in June and November 2010
3. Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets.
4. Average based on running annual average
5. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Level detected represents the highest level detected. The regulations also require that 95% of the turbidity samples collected have measurements below 0.3 NTU. Although August 2010 was the month when we had the fewest measurements meeting the treatment technique for turbidity, the levels recorded were within the acceptable range allowed and did not constitute a treatment technique violation.

PHOENICIA WATER DISTRICT TABLE OF DETECTED CONTAMINANTS FOR HIGH STREET PUMPHOUSE Public Water Supply Identification Number NY 5503380							
Contaminant	Violation Y/N	Date of Sample	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants							
Barium	N	11/17/06	12	ppb	2000	2000	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chloride	N	11/17/06	16	ppm	N/A	250	Geology; Naturally occurring
Iron	N	11/17/06	170	ppb	N/A	300	Geology; Naturally occurring
Manganese	N	11/17/06	20	ppb	N/A	300	Geology; Naturally occurring
Nickel	N	11/17/06	ND-140	ppb	N/A	N/A	Discharge from steel/metal factories
pH	N	11/17/06	6.8	units		6.5-8.5	
Sodium[1]	N	11/17/06	21.7	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	11/17/06	8	ppm	N/A	250	Geology;
Zinc	N	11/17/06	40	ppb	N/A	5000	Galvanized pipe; **corrosion inhibitor**

NOTES-

Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets.

GLOSSORY OF TERMS

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

90th Percentile Value- The values reported for lead and copper represent the 90th percentile. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead and copper values detected at your water system

Action Level - the concentration of a contaminant, which, if exceeded, triggers treatment, or other requirements, which a water system must follow.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal The "Goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination

N/A-Not applicable

Phoenicia Water District
NY5503380
Source Water Assessment Summary

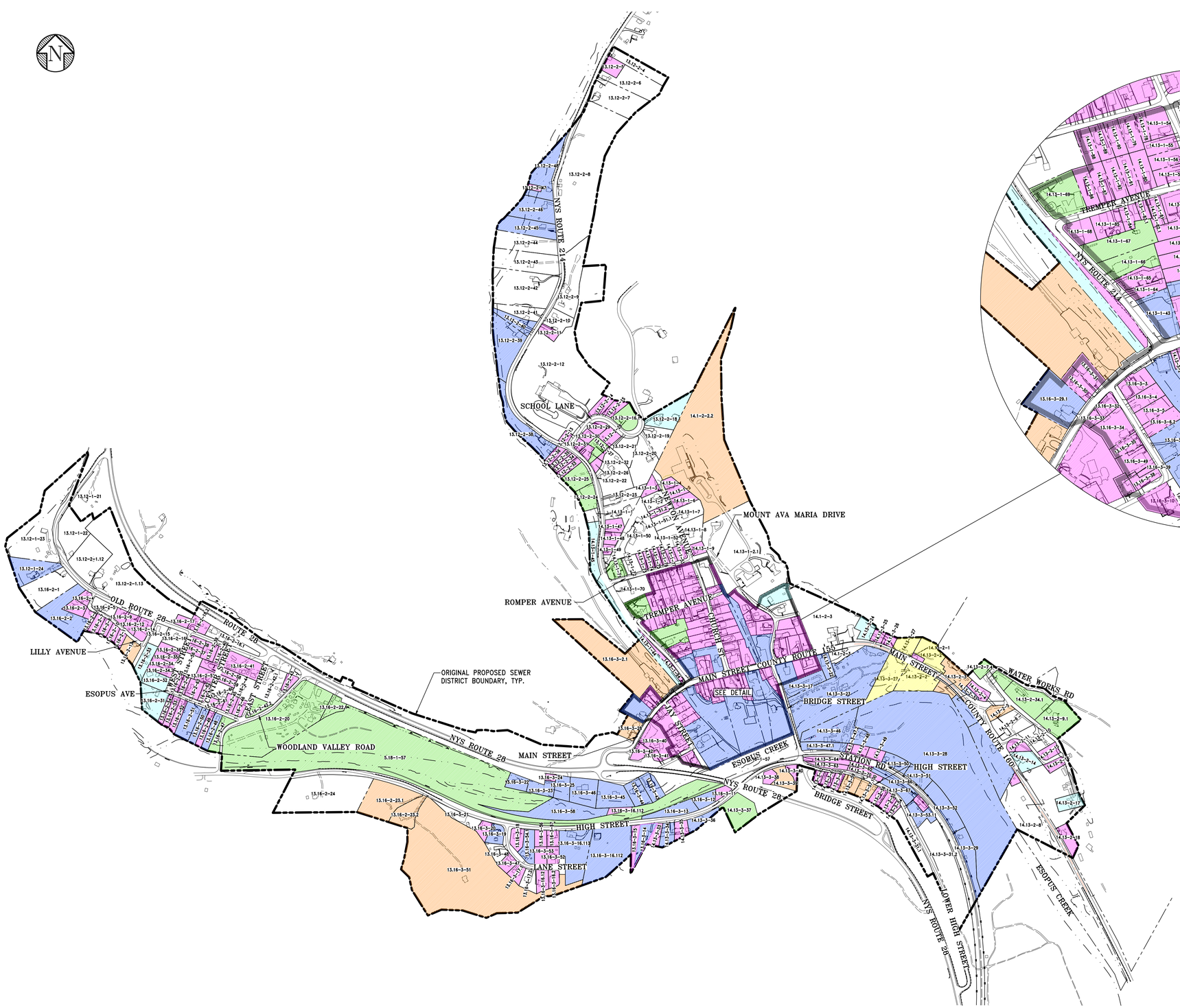
The NYS DOH has completed a source water assessment (for Well #1 and Well #2 of this system only), based on available information. Possible and actual threats to these drinking water sources were evaluated. The state source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can move through the subsurface to the wells. The susceptibility rating is an estimate of the potential for contamination of the source water, it does not mean that the water delivered to consumers is, or will become contaminated. *The presence of contaminants does not necessarily indicate that the water poses a health risk.* See section "Are there contaminants in our drinking water?" for a list of the contaminants that have been detected. The source water assessments provide resource managers with additional information for protecting source waters into the future.

As mentioned before, the sources for our water system include 2 wells. The source water assessment has rated these wells as having a very high susceptibility to microbials and nitrates, a high susceptibility to industrial solvents, and a medium-high susceptibility to other industrial contaminants. These ratings are due primarily to the close proximity of a permitted discharge facility (industrial/commercial facilities that discharge wastewater into the environment and are regulated by the state and/or federal government), and low intensity residential activities in the assessment area. In addition, the wells draw from a shallow sand and gravel aquifer, and the overlying soils do not provide adequate protection from potential contamination. Please note that, while the source water assessment rates our well as being susceptible to microbials, our water is disinfected to ensure that that the finished water delivered into your home meets the New York State drinking water standards for microbial contamination.

A copy of this assessment, including a map of the assessment area, can be obtained by contacting us, at the number provided in the report.

Exhibit 7.3.a.A

Septic Limitation Map Summary



LEGEND

APPROXIMATE PROPERTY BOUNDARY	
ORIGINAL PROPOSED SEWER DISTRICT BOUNDARY	
PARCELS WITH INSUFFICIENT LOT SIZE	
PARCELS IN THE FLOOD ZONE	
PARCELS WITH SLOPE GREATER THAN 15%	
PARCELS WITHIN THE FLOOD ZONE AND WITH SLOPES GREATER THAN 15%	
PARCELS WITHIN THE 100' WATERWAY OFFSET	
PARCELS WITH UNSUITABLE SOILS	

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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=400'
DRAWN	MKS
DATE	2/08/11
DESIGNED	JRB
CHECKED	HL

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM
ULSTER COUNTY NEW YORK STATE

SEPTIC LIMITATION SUMMARY

EXHIBIT 7.3.a.A

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

PROJECT NO.	FILE NAME	SHEET NO.
2010050	PARCEL EXCLUSIONS	EX. 7.3.a.A

Exhibit 7.3.b.i.A

Site Selection Criteria for Subsurface Disposal

Site Selection Criteria for a Community Wastewater Treatment Facility
(Subsurface Treatment and Disposal)
Hamlet of Phoenicia, Town of Shandaken

Phase I – Initial site identification by Town and Engineer
Phase II – Desktop investigation by Engineer
Phase III – Contact property owners by Town
Phase IV – Field investigation and testing by the Engineer
Phase V – Choose site and continue studies by Town and Engineer

Phase I. Phase I – Initial site identification by Town and Engineer. Phase I is a review of the list of criteria using visual observation and local knowledge from the Town officials and members of the community to select possible sites for a Municipal Wastewater Treatment Facility. The following list of criteria is meant to be only preferential, and it is understood that no site will meet all of these conditions.

- Distant from public water supply reservoir
  - Minimum 200' per NYSDEC regulations
  - Minimum 300' per NYCDEP regulations
- Distant from active private wells
  - Minimum 100' away if down stream of the well
  - Minimum of 200' away if upstream.
- Distant from active municipal wells
  - Minimum 250' away
- Prefer to be down gradient from the Hamlet
  - Avoid costly pumping
- Prefer relatively flat land
  - Land should not be over a 15% slope (If you would be uncomfortable driving a riding lawnmower across it, it is too steep.)
- Distant from a surface water
  - 100' buffer from surface water
- Prefer to be distant from residences, but not too distant
  - At least 250' and less than 1500'
- Above the flood plain
  - Check with local flood plain manager
  - If the area floods on a regular basis, the site is not usable.
  - If the site is within the 100 year flood plain, a leach field may be sited there if the trench is above the 10 year flood elevation.
- Prefer to avoid areas being considered by the community for other purposes.
  - Avoid areas inconsistent with the community comprehensive plans and zoning.
- Prefer to avoid prime farm land
  - Check with County Planning department (Agricultural Districts)
  - Check with County Soil and Water Conservation Districts
- Prefer to avoid prime development land
  - Check with County Planning Department
  - Review zoning maps
  - Review Comprehensive Plan

- Prefer to avoid areas where rock outcroppings are visible.
    - This may indicate shallow depth to bedrock.
- Prefer to avoid areas that lay wet or where water ponds after rain.
    - A wet area may indicate soil that is not suitable for wastewater treatment or a high groundwater table.
    - Could indicate wetlands which would increase permitting requirements, time and cost
- Prefer that land is relatively inexpensive to purchase and develop.
    - Prefer willing seller
    - Easy vehicular access
    - Easy access to power
    - Unencumbered by easements and rights-of-way
        - Railroad
        - Highway
    - Prefer to avoid land that would acquire extensive clearing or grading
- History of Land Use
    - Prefer to avoid land known to have been filled because of possible foundation, settlement or environmental issues
    - Prefer to avoid land known to have historical significance
    - Prefer to avoid land known to be possibly contaminated in the past since remediation will be costly

Phase II. Phase II – Desktop investigation by Engineer. Phase II is a desktop review of the sites identified under Phase I. This will require review of existing data and mapping. Identified sites will be reviewed by the Town and Engineer prior to moving on to Phase III.

- Contact NYS DOH and local health departments regarding proximity to private and municipal wells and water supplies.
    - Review local Wellhead Protection Law.
    - Per "Design Standards for Wastewater Treatment Works 1988"
        - Absorption fields must be a minimum of 200 feet from public wells or water supply reservoirs.
        - 100 foot separation from a private well.
- Review available topographic maps.
    - Per "Design Standards for Wastewater Treatment Works 1988"
        - Absorption fields must be a minimum of 25 feet from the top of an embankment or steep slope.
- Review soils maps and descriptions
    - Suitability of soil for leach field
    - Likely depth to ground water
    - Likely depth to bedrock
- Review flood maps
    - Per "Design Standards for Wastewater Treatment Works 1988"
        - "Flooding of a …disposal site must be avoided."
        - "No part of a subsurface treatment and disposal system should be located lower than the 10-year flood elevation. "
- Review wetland and stream maps
    - An Article 24 permit is required for any construction in or adjacent (within 100 feet) of a New York State designated wetland.
    - Per "Design Standards for Wastewater Treatment Works 1988"

        - An absorption field must be a minimum of 100 feet from any surface water.
        - 50' minimum separation distance from an open drainage ditch.
    - Per 10 NYCRR Part 75 Appendix 75-A Table 2
        - The minimum separation distance from a well to an absorption field is 100 feet except "When sewage treatment systems are located in coarse gravel or upgrade and in the general path of drainage to a well, the closest part of the treatment system shall be at least 200 feet away from the well."
    - Per "Rules and Regulation for the Protection from Contamination, Degradation and Pollution of the NYC Water Supply and its Sources", Section 18-38(a)(5):
        - "No part of any absorption field ..., shall be located within the limiting distance of 100 feet of a watercourse or wetland or 300 feet of a reservoir, reservoir stem or controlled lake."
    - Possible ACOE permitting
- Review documents from DOH, DEC, and DEP relative to performance of existing septic systems in the area.

Phase III. Phase III – Contact property owners by Town. At this point the Town will send letters to the property owners of potential sites requesting permission for the Engineer to go on site to perform soil and other on-site investigations and requesting an indication of whether or not the owner may be willing to sell the site to the project.

Phase IV. Phase IV – Field investigation and testing by the Engineer. Once permission is obtained to enter the property and perform tests the Engineer will:

- Contact UFPO regarding utilities at the site.
- Perform percolation tests
    - Moderately rapid percolation rate to minimize the size of the leach field.
        - Greater than 3 minutes up to 5 minutes is ideal
        - Maximum is 60 minutes per inch.
- Obtain a detailed topographic survey of the property
    - Including adjacent buildings, water courses, any other surface features.
- Perform soil borings and deep test holes to determine soil profile.
    - Factors to be evaluated (per "Design Standards for Wastewater Treatment Works 1988")
        - Thickness of layers or horizons
        - Texture, consistence, and structure of soil layers.
        - General color and color mottling or variation.
        - Depth to Groundwater
            - The seasonally high groundwater level shall be at least 2 feet below an absorption field.
        - Depth to bedrock
            - The bottom of a conventional absorption field shall be at least 4 feet above bedrock or impervious strata.

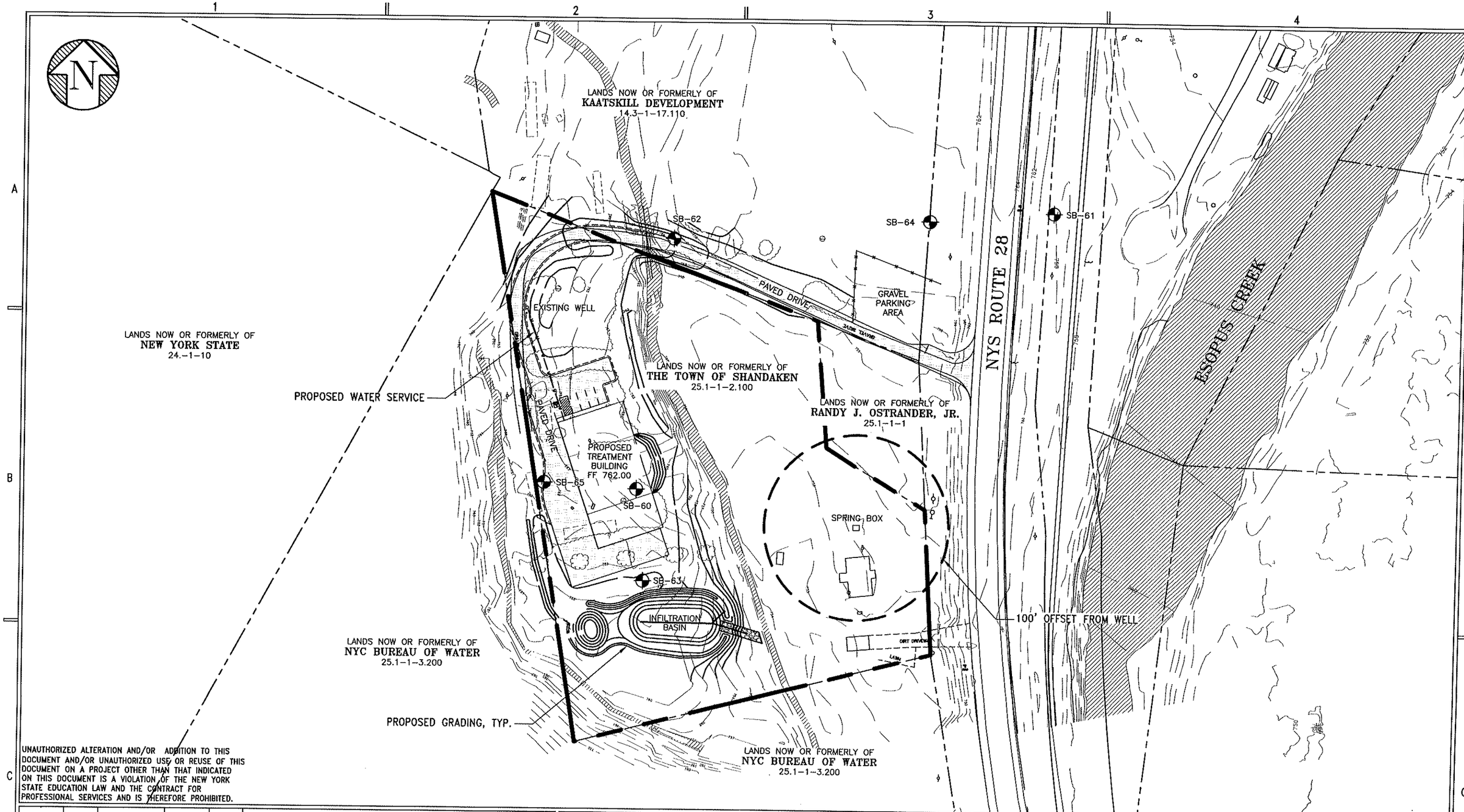
        - Other prominent features such as visible pores, stoniness, roots, or animal traces.
- Preliminary groundwater mounding test
- Determine proximity to septic systems, wells and drains.
- Review tax maps and available surveys of the properties.
    - The minimum separation distance from a property line is 10 feet.
- If reasonable and necessary, install monitoring wells to determine groundwater fluctuations.
- Perform preliminary environmental assessment work.
    - Contact New York State Office of Parks, Recreation and Historic Preservation
    - Contact New York State Department of Environmental Conservation
    - Contact the US Army Corps of Engineers

Phase V. Phase V – Choose site and continue studies by Town and Engineer

- Perform environmental assessment work and other environmental studies such as archeological surveys, wetlands delineations, and wildlife and endangered species investigations.

Exhibit 8.1.a.A

Original Proposed Wastewater Treatment Plant Site Map



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ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=100'
DRAWN	DIP/MKS
DATE	09/14/11
DESIGNED	N/A

EXHIBIT 8.1.a.A
ORIGINAL PROPOSED TREATMENT PLANT SITE MAP

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

PROJECT NO.	FILE NAME	SHEET NO.
2010050	ORIG TREAT SITE	8.1.a.A

Exhibit 8.1.a.B

Site Selection Criteria for Surface Discharge WWTP

Site Selection Criteria for a Municipal Wastewater Treatment Plant
(Surface Discharge)
Hamlet of Phoenicia, Town of Shandaken

Phase I. Phase I – Initial site identification by Town and Engineer. Phase I is a review of the list of criteria using visual observation and local knowledge from the Town officials and members of the community to select possible sites for a Municipal Wastewater Treatment Plant. The following list of criteria is meant to be only preferential, and it is understood that no site will meet all of these conditions.

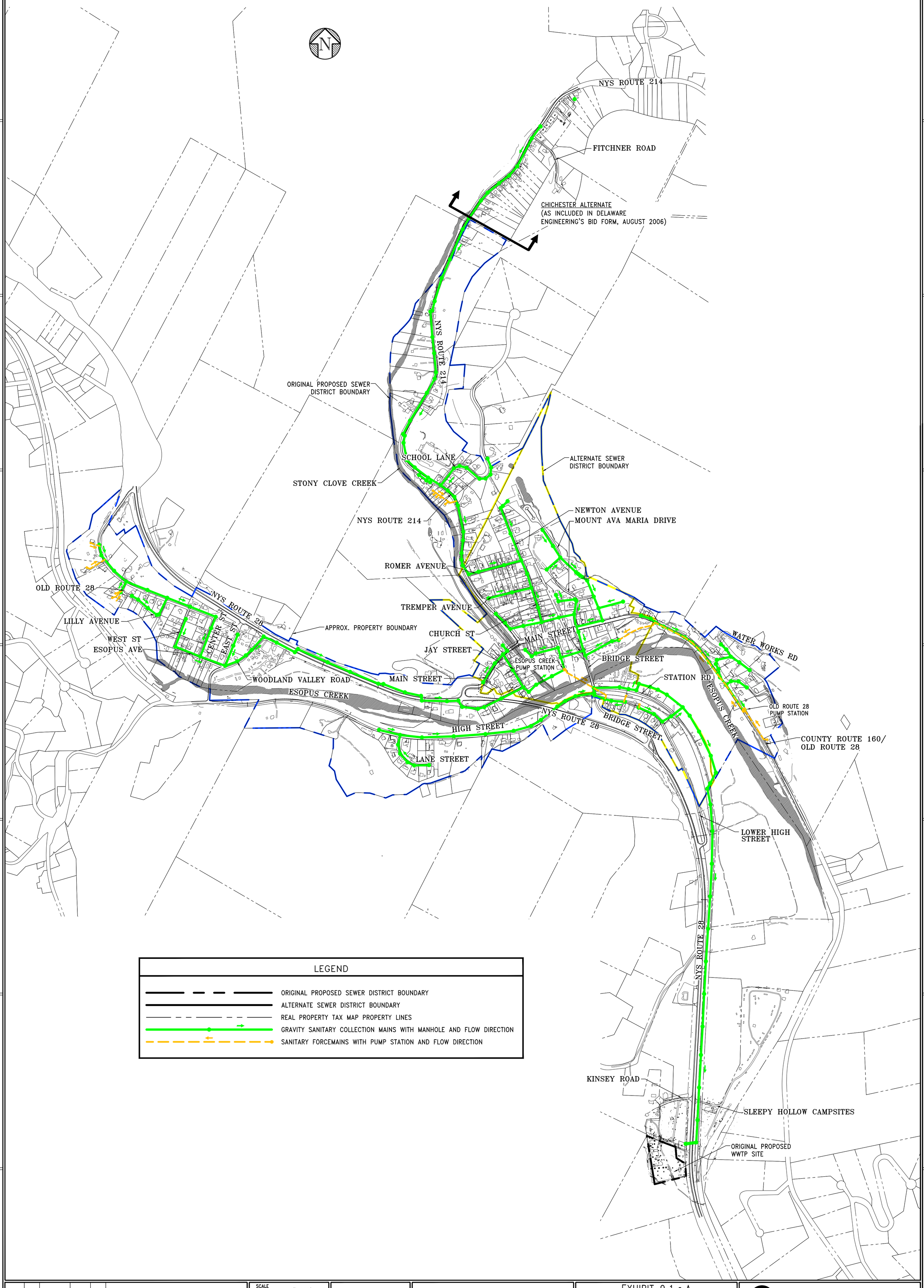
- Distant from public water supply reservoir
  - Minimum 200' per NYSDEC regulations
  - Minimum 300' per NYCDEP regulations
- Distant from active private wells
  - Prefer to be 100' away if down stream of the well
  - Prefer to be 200' away if upstream
- Distant from active municipal wells
  - Minimum 250' away
- Prefer to be down gradient from the Hamlet
  - Avoid costly pumping of sewage to treatment site
- Prefer relatively flat land
  - Sites that would need extensive grading should be avoided
- Prefer close proximity to a stream or creek
  - Larger the stream the better
  - Close enough for short inexpensive piping route for gravity surface discharge to a stream or creek
- Prefer to be distant from residences, but not too distant
  - Preferably at least 250' and less than 1500'
- Prefer to be above the flood plain
  - Check with local flood plain manager
  - Would require flood proofing of proposed structures at WWTP which would increase grading cost
- Prefer to avoid areas being considered by the community for other purposes.
  - Avoid areas inconsistent with the community comprehensive plans and zoning.
- Prefer to avoid prime farm land
  - Check with County Planning department (Agricultural Districts)
  - Check with County Soil and Water Conservation Districts
- Prefer to avoid prime development land
  - Check with County Planning Department
  - Review zoning maps
  - Review Comprehensive Plan
- Prefer to avoid areas where rock outcroppings are visible.
  - This may indicate shallow depth to bedrock
  - Shallow bedrock could require expensive excavations and possible blasting
- Prefer to avoid areas that lay wet or where water ponds after rain.
  - Could indicate high water table which would increase cost of excavation because of dewatering

    - Could indicate a wetland area which would increase permitting requirements, time and costs
- Land should be relatively inexpensive to purchase and develop.
    - Prefer willing seller
    - Easy vehicular access
    - Easy access to power
    - Unencumbered by easements and rights-of-way
        - Railroad
        - Highway
    - Better to avoid land that would acquire extensive clearing or grading
- History of Land Use
    - Prefer to avoid land known to have been filled because of possible foundation, settlement or environmental issues
    - Prefer to avoid land known to have historical significance
    - Prefer to avoid land known to be possibly contaminated in the past since remediation will be costly

R:\2010050\Report\Exhibits\Phoenicia WWTP Site Selection Criteria.doc

Exhibit 9.1.e.A

General Plan – Existing Collection System Design
by Delaware Engineering



LEGEND

- ORIGINAL PROPOSED SEWER DISTRICT BOUNDARY
- ALTERNATE SEWER DISTRICT BOUNDARY
- REAL PROPERTY TAX MAP PROPERTY LINES
- GRAVITY SANITARY COLLECTION MAINS WITH MANHOLE AND FLOW DIRECTION
- SANITARY FORCEMAINS WITH PUMP STATION AND FLOW DIRECTION

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=500'
DRAWN	MKS
DATE	09/13/11
DESIGNED	DIP
CHECKED	JRB

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM

ULSTER COUNTY NEW YORK STATE

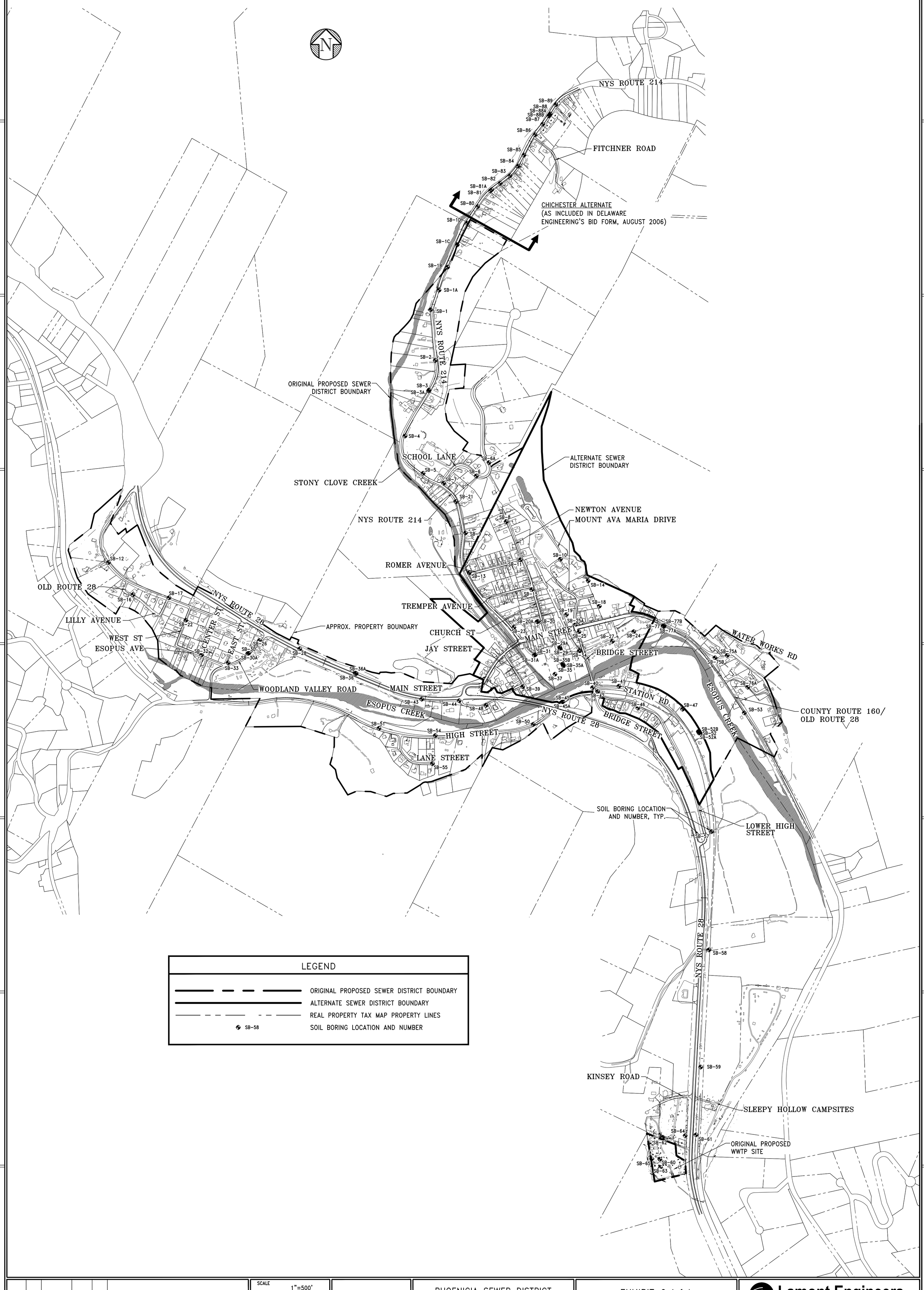
EXHIBIT 9.1.e.A
GENERAL PLAN
EXISTING COLLECTION SYSTEM
DESIGN BY
DELAWARE ENGINEERING

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

PROJECT NO.	FILE NAME	SHEET NO.
2010050	EX. 9.1.e.A_COLL	9.1.e.A

Exhibit 9.1.f.A

Soil Boring Location Map and Soil Boring Logs



ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=500'
DRAWN	MKS
DATE	09/13/11
DESIGNED	DIP
CHECKED	JRB

PHOENICIA SEWER DISTRICT
NYCDEP NEW SEWAGE TREATMENT
INFRASTRUCTURE PROGRAM

ULSTER COUNTY NEW YORK STATE

EXHIBIT 9.1.f.A

SOIL BORING LOCATIONS

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

PROJECT NO.	FILE NAME	SHEET NO.
2010050	EX. 9.1.f.A_SOIL	9.1.f.A

FILE COPY

Subsurface Exploration

Waste Water System Improvements
Town Of Shandaken, New York

Prepared For:
Delaware Engineering

Prepared By:

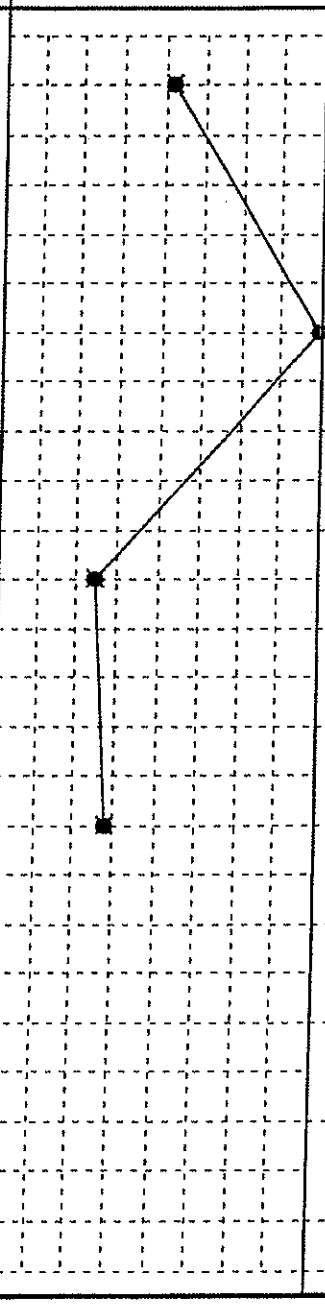
S M T
Soil & Material Testing, Inc.
Drilling & Testing Services

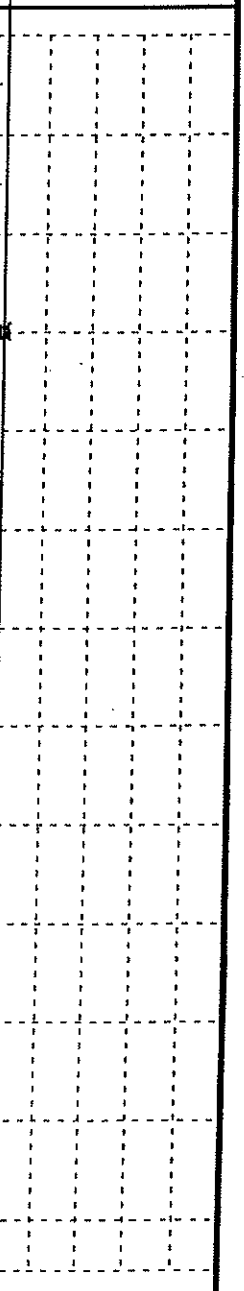
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-1

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	32	13 15 17 16
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	0.9	96	30 46 50 42
	BROWN SILTY CLAY	-12	3	SS	1.5	15	4 6 9 14
	BROWN SILTY CLAY	-17	4	SS	1.7	18	6 8 10 13
	End of Borehole						





Completion Depth: 17.0'
Drill Date: 02/15/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

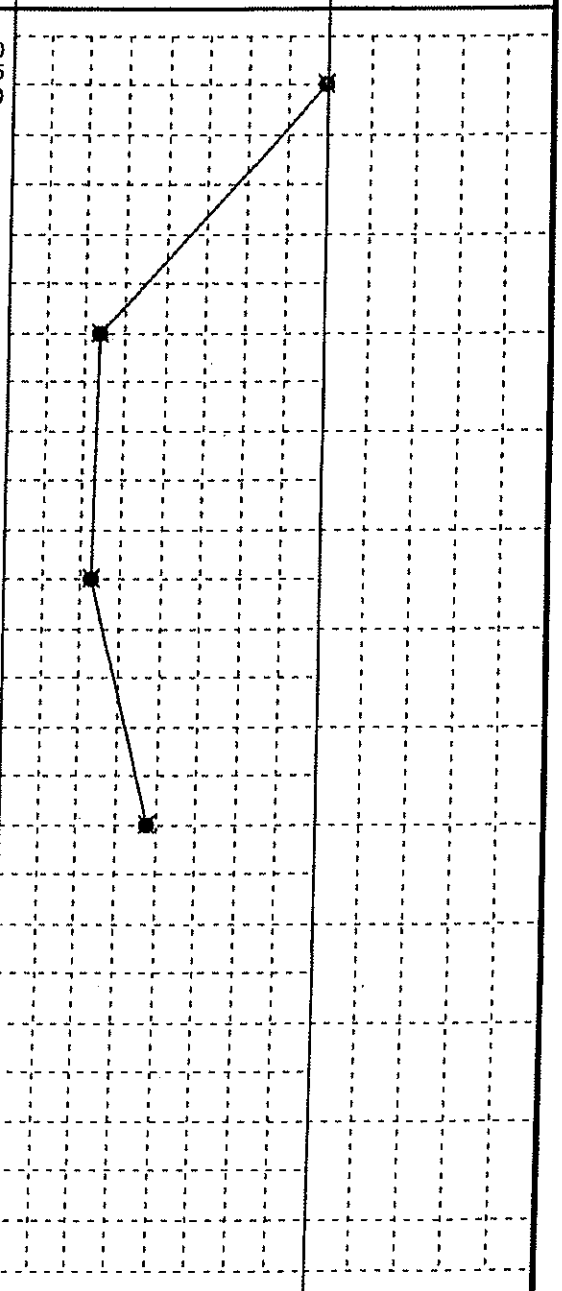
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-1a

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROOTS, SS REFUSAL 1.1'	-1.1	1	SS	1.0	95	30 45 50
	BROWN SILTY CLAY	-5	2	SS	1.1	14	6 7 7 9
	BROWN SILTY CLAY	-7	3	SS	1.5	13	6 7 6 8
	BROWN SILTY CLAY	-10	4	SS	1.5	28	8 13 15 17
	End of Borehole	-12					
		-15					
		-17					



Completion Depth: 17.0'
Drill Date: 02/15/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-1b

Station:
Offset:

SUBSURFACE PROFILE				SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)		Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0		Ground Surface	0							
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	17	14 10 7 5		
		BROWN SILTY CLAY	-7	2	SS	1.5	14	6 7 7 9		
		BROWN SILTY CLAY	-12	3	SS	1.3	16	5 7 9 4		
		BROWN SILTY CLAY	-17	4	SS	1.0	47	12 22 25 26		
		End of Borehole								

Completion Depth: 17.0'
Drill Date: 02/15/06
Water Level: 9.6'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-1c

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	32	30 20 12 12
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	27	20 15 12 12
	BROWN SILTY CLAY	-12	3	SS	1.5	18	7 7 11 13
	BROWN SILTY CLAY	-17	4	SS	1.1	19	7 8 11 15
	End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60

Water Content % — Wp 20 40 60 80 Wl

Completion Depth: 17.0'
Drill Date: 02/15/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-1d

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	90	80 70 20 25
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROCK END OF SS, SS REFUSAL 5.7'	-5.7	2	SS	0.3	140	60 70
	PA REFUSAL 9.0'	-9					
	End of Borehole						

Standard Penetration Test: SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows: blows/6 in. 0 10 20 30 40 50 60

Water Content %: Wp 20 40 60 80 Wl

Completion Depth: 9.0'
Drill Date: 02/15/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

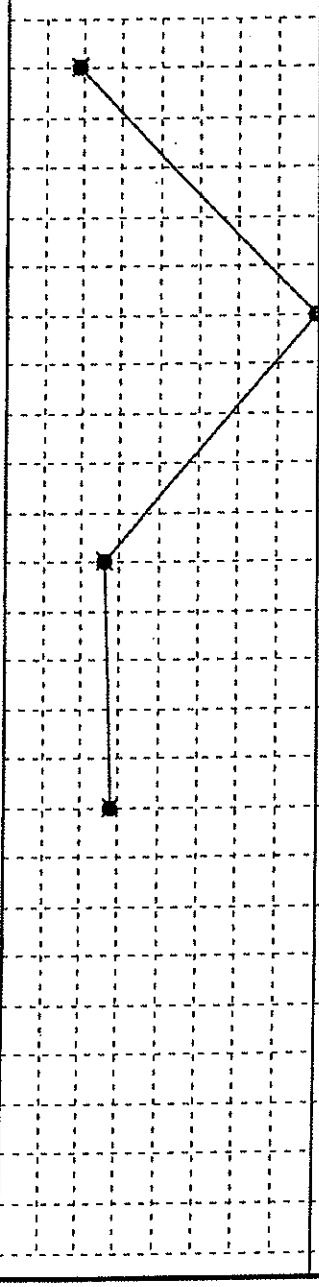
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-2

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)		Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0		Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	9	13 15 17 16
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	76	30 46 50 42
		BROWN SILTY CLAY	-12	3	SS	1.0	16	4 6 9 14
		BROWN SILTY CLAY	-17	4	SS	1.7	18	6 8 10 13
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X



Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 17.0'
Drill Date: 02/15/06
Water Level: 13.7'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-3

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0	Ground Surface	0							
1	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	88	51 46 42 40		
5	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 5.6'	-5.6	2	SS	0.3	100	55 50		
	End of Borehole								

Completion Depth: 5.6'
Drill Date: 03/01/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP end Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-3a

Station:
Offset:

SUBSURFACE PROFILE				SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp |-------0-------| Wl 20 40 60 80
Depth (ft / m)		Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0 / 0		Ground Surface	0							
10		NO RECOVERY, PA AND SS REFUSAL 10.2'	10	1	SS	n/r	60	60		
		End of Borehole								

Completion Depth: 10.2'
Drill Date: 03/01/06
Water Level: 6.7'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-4

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0	Ground Surface	0							
	MEDIUM TO COARSE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	21	6 6 15 18		
	MEDIUM TO COARSE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	56	17 26 30 31		
	BROWN SILTY CLAY	-12	3	SS	1.7	16	13 8 8 7		
	BROWN SILTY CLAY	-17	4	SS	1.8	23	8 9 14 18		
	End of Borehole								

Completion Depth: 17.0'
Drill Date: 02/15/06
Water Level: 12.4'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-5

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0	Ground Surface	0							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.3	6	8 3 3 3		
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 6.5'	-6.5	2	SS	1.0	143	35 43 100		
	NO RECOVERY, SS REFUSAL 10.1'	-10.1	3	SS	n/r	100	100		
	End of Borehole								

Completion Depth: 10.1'
Drill Date: 02/24/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

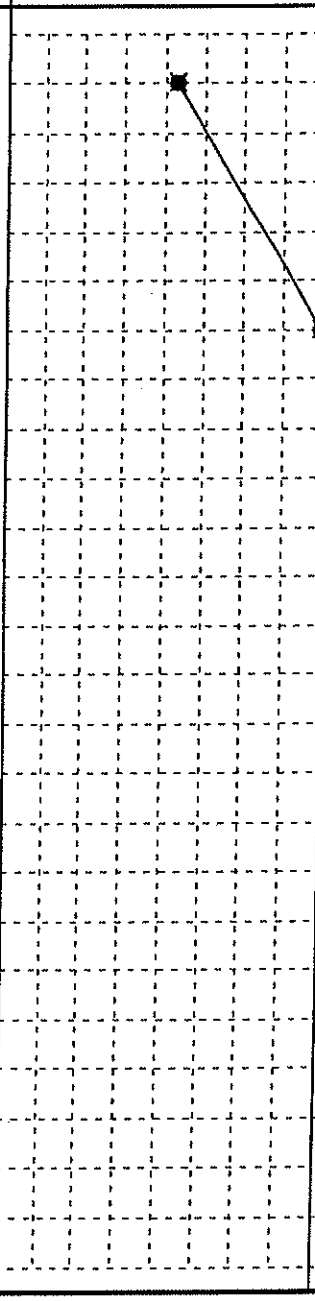
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-6

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.1	33	20 18 15 17
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROCK END OF SS, SS REFUSAL 6.0'	-5 / -6	2	SS	0.5	160	70 80
		PA REFUSAL 9.0'	-9					
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — X blows/6 in. X 0 10 20 30 40 50 60
Water Content % — Wp |——0——| Wl 20 40 60 80



Completion Depth: 9.0'
Drill Date: 02/13/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-6a

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0	Ground Surface	0							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	115	55 65 50 40		
		-5							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS AND PA REFUSAL 6.5'	-6.5	2	SS	0.5	112	51 62 50		
	End of Borehole								

Completion Depth: 6.5'
Drill Date: 02/13/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

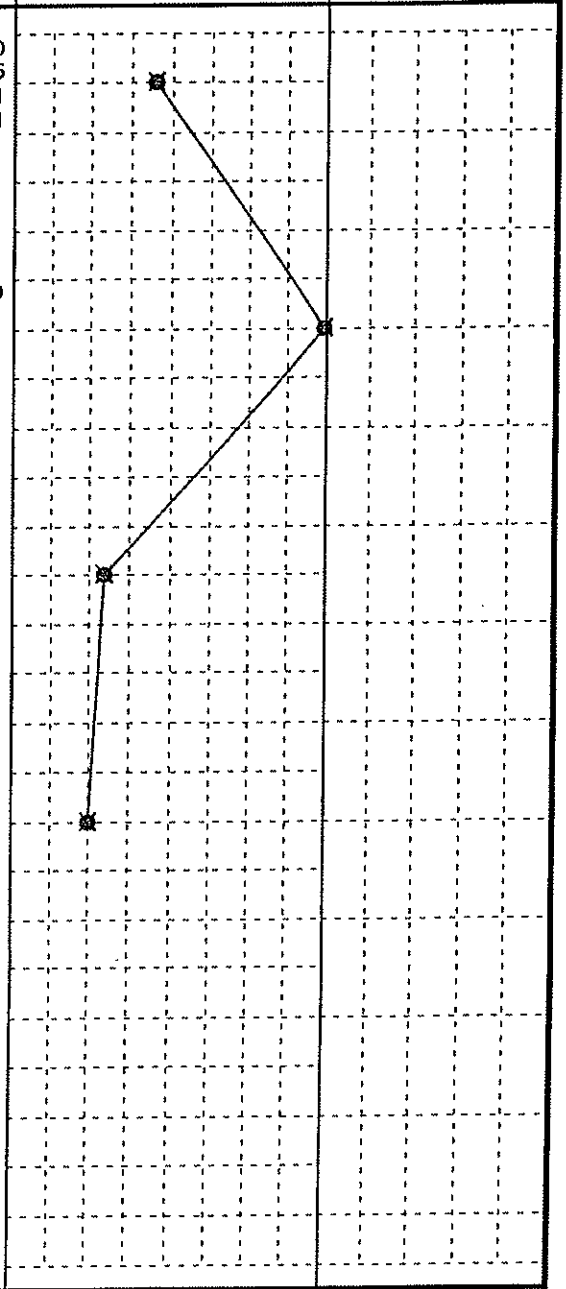
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-7

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	26	20 15 11 11
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROCK END OF SS, SS REFUSAL 5.2'	-5	2	SS	0.2	70	70
		BROWN SILTY CLAY	-10	3	SS	1.5	14	7 7 7 9
		BROWN SILTY CLAY	-15	4	SS	1.5	10	4 4 6 7
		End of Borehole	-17					



Completion Depth: 17.0'
Drill Date: 02/13/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

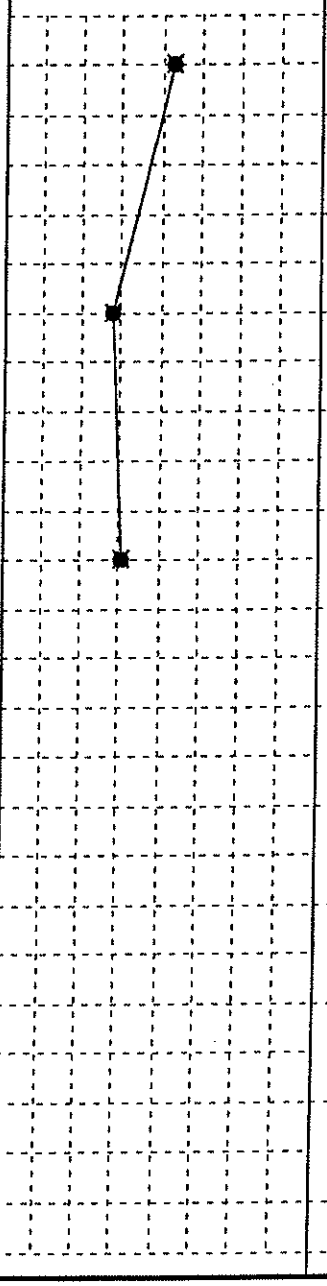
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-8

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0 / 0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	33	20 18 15 11
		-5					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	18	7 8 10 10
		-10					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-12	3	SS	1.0	21	10 10 11 13
	PA REFUSAL 14.5'	-14.5					
	End of Borehole						

Standard Penetration Test
SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows
X blows/6 in. X
0 10 20 30 40 50 60



Water Content %
Wp |——0——| Wl
20 40 60 80

Completion Depth: 14.5'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

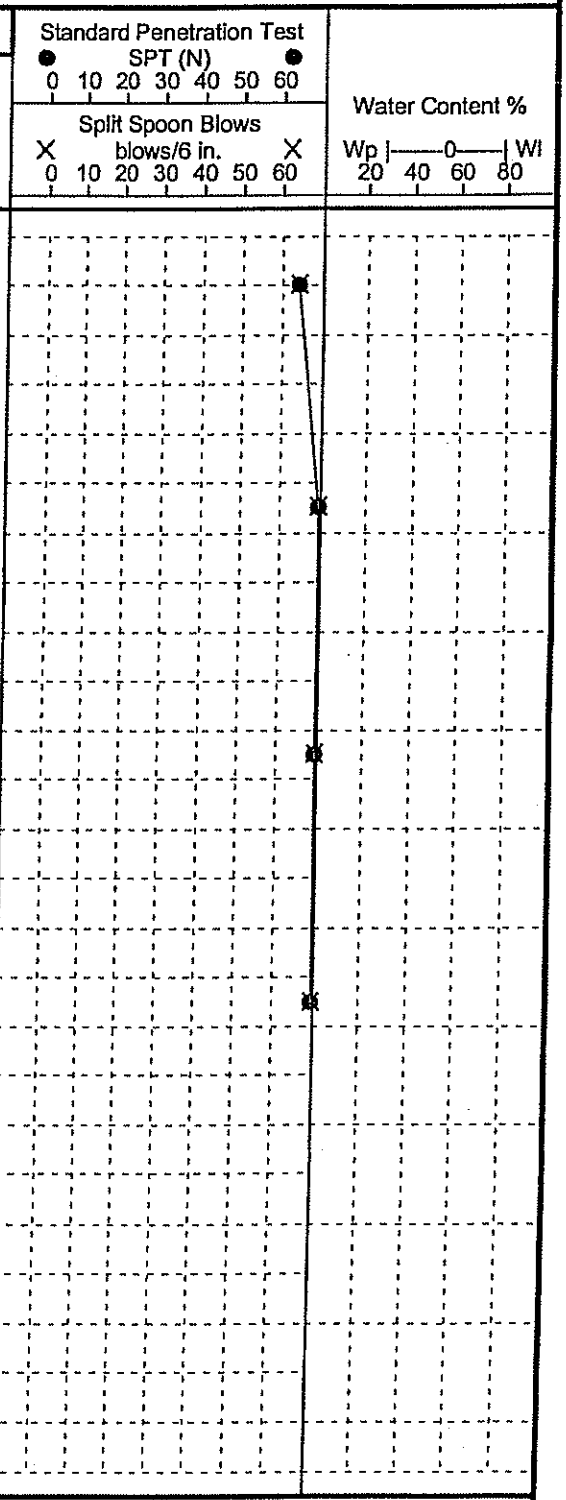
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-10

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	64	30 33 31 25
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 5.6'	-5.6	2	SS	0.5	100	44 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 10.6'	-10.6	3	SS	0.3	100	59 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 15.5'	-15.5	4	SS	0.5	100	100
	End of Borehole						



Completion Depth: 15.5'
Drill Date: 02/13/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

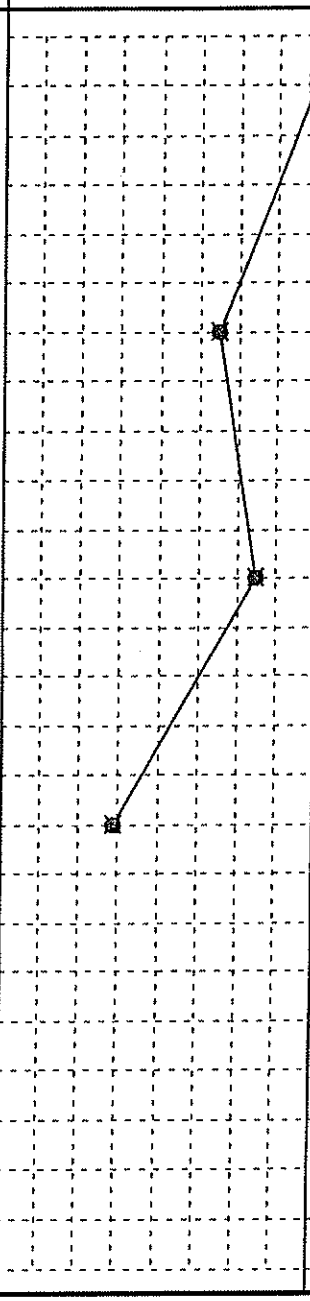
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-11

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	0.5	99	46, 51, 48, 52
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	45	30, 25, 20, 15
	BROWN GLACIAL TILL	-12	3	SS	1.0	55	18, 25, 30, 33
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-17	4	SS	1.3	19	9, 9, 10, 10
	End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — X blows/6 in. X 0 10 20 30 40 50 60



Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 17.0'
Drill Date: 02/13/06
Water Level: 10.0'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-12

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0	Ground Surface	0							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	36	28 18 18 20		
1		-5							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, COBBLES	-7	2	SS	1.0	40	18 19 21 20		
2	PA REFUSAL 9.0'	-9							
3	End of Borehole								
4									
5									
6									
7									

Completion Depth: 9.0'
Drill Date: 02/16/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

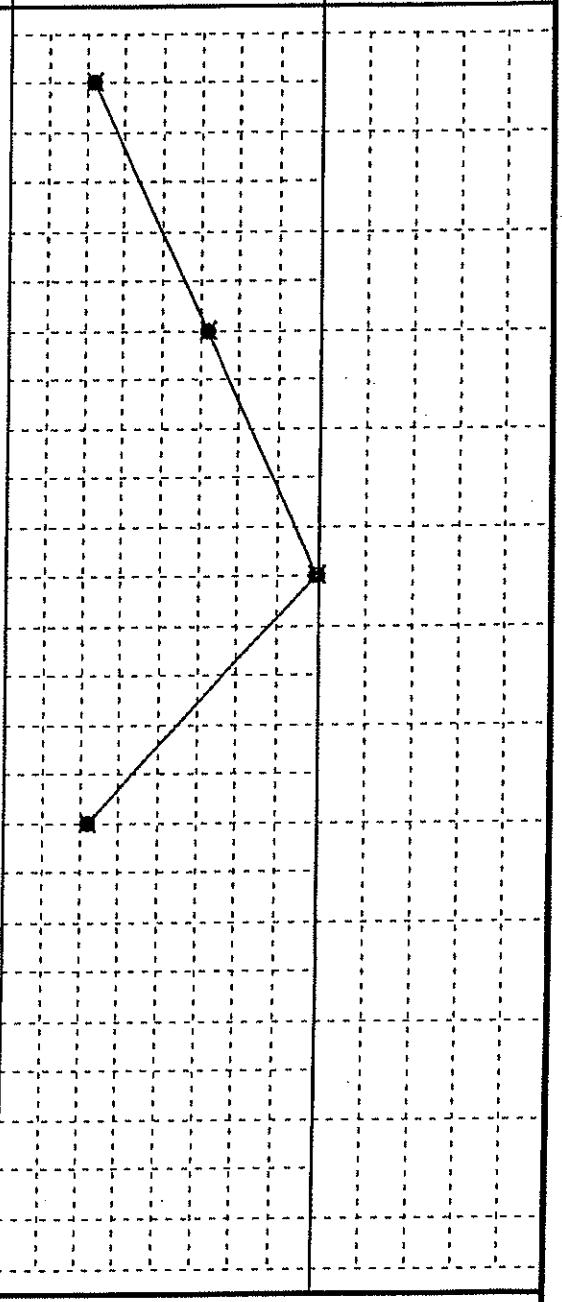
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-13

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	12	7 6 6 8
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	0.5	42	17 20 22 26
		BROWN GLACIAL TILL, SS REFUSAL 11.4'	-11.4	3	SS	1.0	80	70 80 80
		BROWN SILTY CLAY	-17	4	SS	1.1	12	6 6 6 7
		End of Borehole						



Completion Depth: 17.0'
Drill Date: 02/13/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

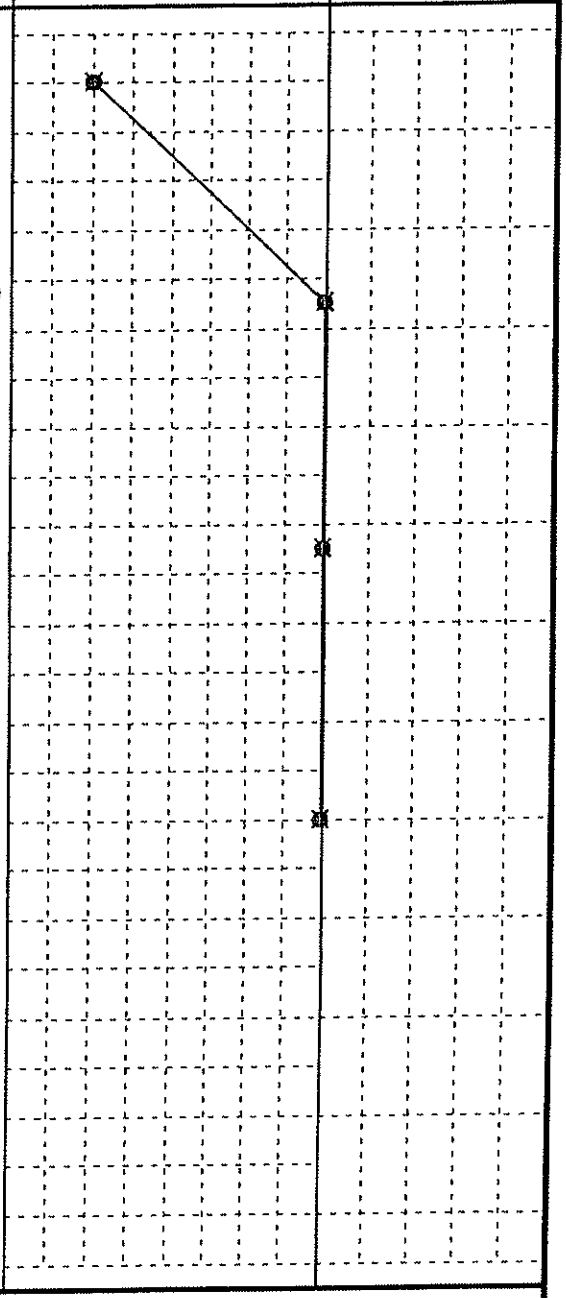
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-14

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	10	5 5 5 7
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 5.2'	-5	2	SS	0.2	140	70
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 10.4'	-10	3	SS	0.2	160	80
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-17	4	SS	1.0	106	44 51 55 70
		End of Borehole						



Completion Depth: 17.0'
Drill Date: 02/20/06
Water Level: 10.4'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-15

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	108	66 58 50 43
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 5.6'	-5.6	2	SS	0.5	100	60 50
		NO RECOVERY	-10	3	SS	n/r	160	80
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 16.0'	-16	4	SS	0.4	160	70 80
		End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60
Water Content % Wp |——0——| Wl 20 40 60 80

Completion Depth: 16.0'
Drill Date: 02/13/06
Water Level: 12.2'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-16

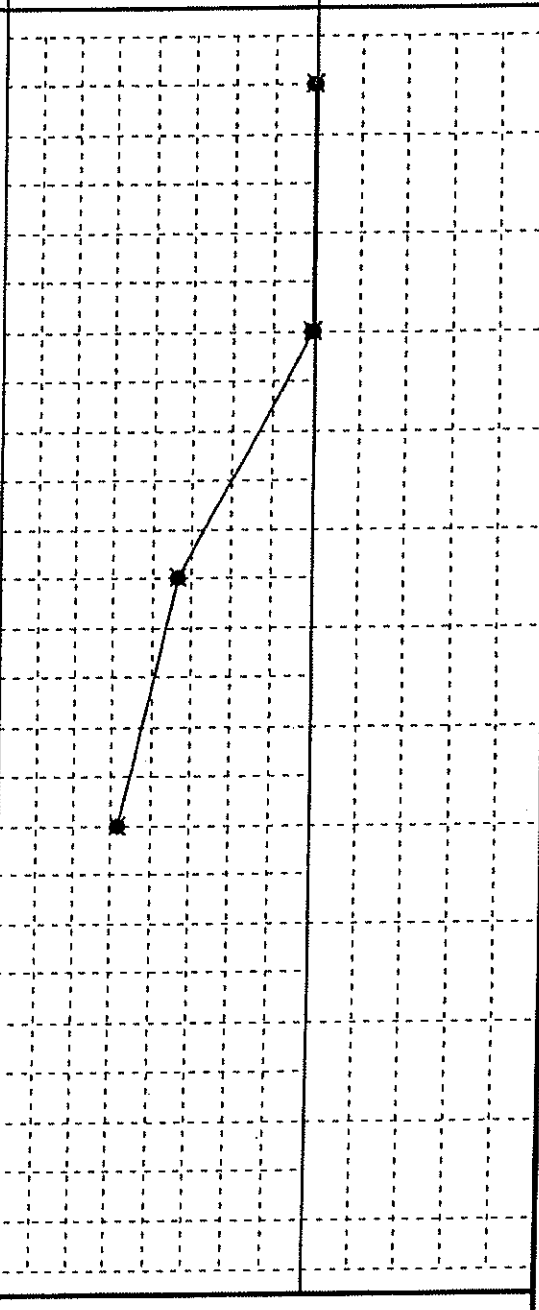
Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.1'	-1.1	1	SS	0.5	101	48 51 50
			-5					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, COBBLES	-7	2	SS	1.0	88	46 44 44 40
			-10					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROCK END OF SS, COBBLES	-12	3	SS	0.1	37	29 19 18 19
			-15					
		BROWN SILTY CLAY	-17	4	SS	1.7	22	6 11 11 13
		End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60

Water Content % Wp |——0——| Wl 20 40 60 80



Completion Depth: 17.0'
Drill Date: 02/16/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-17

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE END OF SS	-2	1	SS	0.9	92	38 41 51 60
		FINE TO MEDIUM BROWN SILTY SAND AND GRAVEL, TRACE CLAY	-7	2	SS	1.0	79	31 36 43 51
		FINE TO MEDIUM BROWN SILTY SAND AND GRAVEL, TRACE CLAY	-12	3	SS	1.0	114	46 51 63 72
		FINE TO MEDIUM BROWN SILTY SAND AND GRAVEL, TRACE CLAY (MOIST)	-17	4	SS	0.9	115	51 55 60 71
		FINE TO MEDIUM BROWN SILTY SAND AND GRAVEL, TRACE CLAY	-20	5	SS	0.9	130	60 60 70 75
		End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 20.0'
Drill Date: 12/22/05
Water Level: 14.3' WD
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-18

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	32	18 16 16 18
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	71	18 34 37 58
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 11.5'	-11.5	3	SS	1.0	111	4 50 61 50
		BROWN SILTY CLAY	-17	4	SS	1.5	31	6 14 17 21
		End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60

Water Content % Wp 20 40 60 80 Wl

Completion Depth: 17.0'
Drill Date: 02/20/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-19

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.5'	-1.5	1	SS	1.0	68	15 20 48 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 6.9'	-5 / -6.9	2	SS	0.3	9	5 5 4 80
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10 / -12	3	SS	1.0	77	33 37 40 45
	BROWN SILTY CLAY	-15 / -17	4	SS	1.5	18	7 7 11 14
	End of Borehole						

Standard Penetration Test: SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows: X blows/6 in. X 0 10 20 30 40 50 60
Water Content %: Wp |——0——| Wl 20 40 60 80

Completion Depth: 17.0'
Drill Date: 02/20/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-20

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	15	6 7 8 10
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 2.0'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-20a

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-5	1	SS	1.0	69	43 34 35 59
			-7					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 10.9'	-10	2	SS	0.9	100	55 50
			-10.9					
		PA REFUSAL 12.0'	-12					
		End of Borehole						

Standard Penetration Test: SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows: X blows/6 in. X 0 10 20 30 40 50 60
Water Content %: Wp |——0——| Wl 20 40 60 80

Completion Depth: 12.0'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-20b

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	15	6 7 8 10
3	1	PA REFUSAL 5.0'	-5					
		End of Borehole						

Standard Penetration Test SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % Wp |——0——| Wl 20 40 60 80

Completion Depth: 5.0'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-21

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.1'	-1.1	1	SS	0.5	120	60 70 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-5	2	SS	0.5	55	21 24 31 46
		-7					
		-9.5					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 10.0'	-10	3	SS	0.5	100	100
	End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 10.0'
Drill Date: 03/03/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-22

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, COBBLES, SS REFUSAL 1.1'	-1.1	1	SS	0.5	115	70 65 50
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, COBBLES	-5	2	SS	1.0	59	44 40 19 20
		PA REFUSAL 9.0'	-7					
		End of Borehole	-9					

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 9.0'
Drill Date: 02/16/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-23

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.1'	-1.1	1	SS	1.0	95	40 45 50
	NO RECOVERY, SS REFUSAL 5.0'	-5	2	SS	n/r	100	50
	NO RECOVERY, SS AND PA REFUSAL 10.5'	-10 -10.5	3	SS	n/r	100	50
	End of Borehole						

Standard Penetration Test: SPT (N) 0 10 20 30 40 50 60; Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60

Water Content %: Wp |-------0-------| Wl 20 40 60 80

Completion Depth: 10.5'
Drill Date: 02/22/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-24

Station:
Offset:

SUBSURFACE PROFILE				SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)		Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0	0	Ground Surface	0							
1		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	12	5 5 7 7		
3	1	PA REFUSAL 4.5'	-4.5							
5		End of Borehole								
6	2									
10	3									
13	4									
16	5									
20	6									
23	7									
25										

Completion Depth: 4.5'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-24a

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) ● 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. X 0 10 20 30 40 50 60	Water Content % Wp |——0——| Wl 20 40 60 80
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0 / 0	Ground Surface	0							
1									
2									
3 / 1									
4									
		-5							
5	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL		1	SS	0.9	43	17 20 23 27		
6 / 2									
		-7							
7	PA REFUSAL 8.5'								
8		-8.5							
9	End of Borehole								
10 / 3									
11									
12									
13 / 4									
14									
15									
16 / 5									
17									
18									
19									
20 / 6									
21									
22									
23 / 7									
24									
25									

Completion Depth: 8.5'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-25

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0	Ground Surface	0							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	18	20 9 9 8		
	PA REFUSAL 5.0'	-5							
	End of Borehole								

Completion Depth:
Drill Date: 02/10/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-25a

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	77	48 40 37 39
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 5.5'	-5	2	SS	0.5	100	100
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10	3	SS	1.0	94	40 44 50 55
		BROWN SILTY CLAY	-15	4	SS	1.7	13	5 6 7 7
		End of Borehole	-17					

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp |-------0-------| Wl 20 40 60 80

Completion Depth: 17.0'
Drill Date: 02/14/06
Water Level: 14.3'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

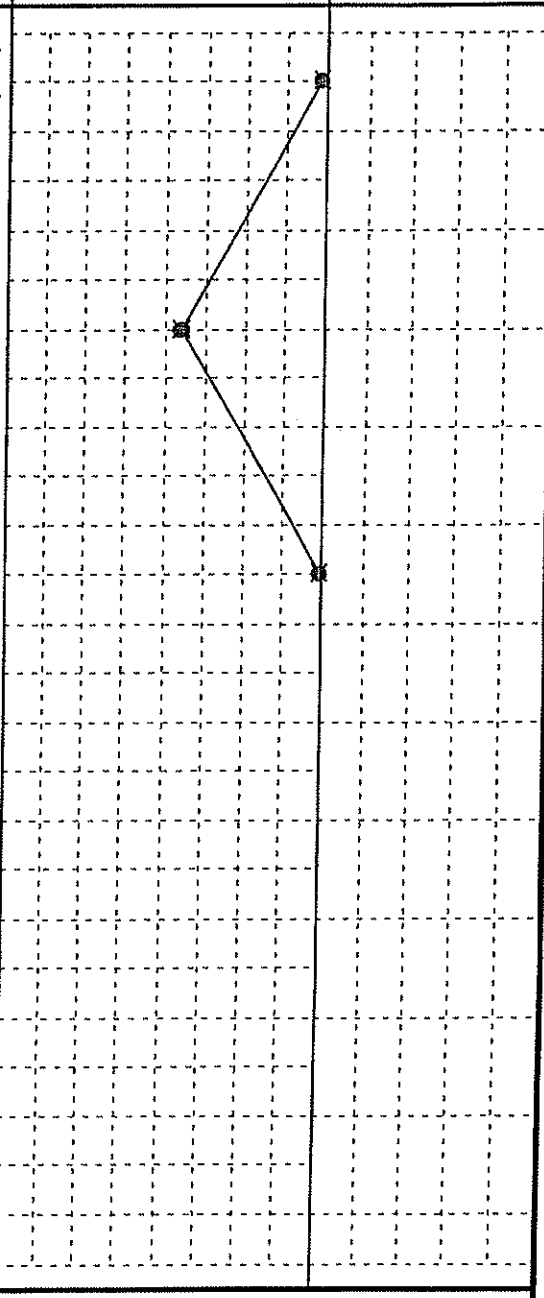
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-26

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	0.5	69	36 41 28 20
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	34	18 18 16 16
		NO RECOVERY, SS AND PA REFUSAL 10.0'	-10	3	SS	n/r	100	100
		End of Borehole						



Completion Depth: 10.0'
Drill Date: 02/16/06
Water Level: 5.8'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-27

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	76	42 39 37 38
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 6.0'	-5 / -6	2	SS	1.0	91	37 41 50
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 11.5'	-10 / -11.5	3	SS	1.0	86	40 41 45 50
		BROWN SILTY CLAY	-15 / -17	4	SS	1.5	75	30 26 49 3
		End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp |-----0-----| Wl 20 40 60 80

Completion Depth: 17.0'
Drill Date: 02/21/06
Water Level: 7.2'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-28

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.3	76	43 39 37 40
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	79	35 39 40 42
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 11.1'	-11.1	3	SS	0.9	101	43 51 50
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 15.4'	-15.4	4	SS	0.4	80	80
		End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60
Water Content % Wp |——0——| Wl 20 40 60 80

Completion Depth: 15.4'
Drill Date: 02/23/06
Water Level: 12.1'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-29

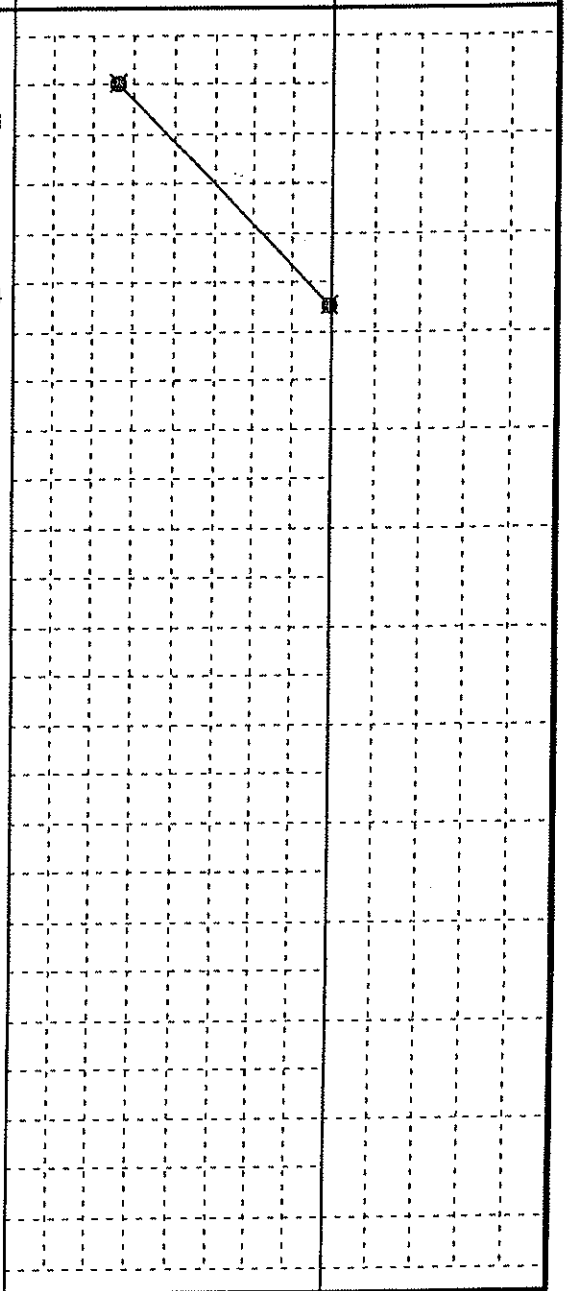
Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	16	6 7 9 11
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROCK END OF SS, SS REFUSAL 5.4'	-5	2	SS	0.3	84	84
		PA REFUSAL 10.0'	-10					
		End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60

Water Content % Wp |——0——| Wl 20 40 60 80



Completion Depth: 10.0'
Drill Date: 02/22/06
Water Level: 8.3'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-29a

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
10	3	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 10.3'	-10	1	SS	0.3	100	100
15		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 16.0'	-15	2	SS	1.0	80	40 80
16	5	End of Borehole	-16					

Standard Penetration Test: SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows: X blows/6 in. X 0 10 20 30 40 50 60
Water Content %: Wp |——0——| Wl 20 40 60 80

Completion Depth: 16.0'
Drill Date: 02/22/06
Water Level: 8.3'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-30

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	68	42 35 33 29
		PA REFUSAL 3.5'	-3.5					
		End of Borehole						

Standard Penetration Test SPT (N) ● 0 10 20 30 40 50 60 ●

Split Spoon Blows blows/6 in. X 0 10 20 30 40 50 60 X

Water Content % Wp 20 40 60 80 Wl

Completion Depth: 3.5'
Drill Date: 02/16/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-30a

Station:
Offset:

Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows	Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
0	Ground Surface	0							
5	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE END OF SS, SS REFUSAL 5.4'	-5	1	SS	0.4	80	80		
6.5	PA REFUSAL 6.5'	-6.5							
	End of Borehole								

Completion Depth: 6.5'
Drill Date: 02/16/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-31

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.0'	-1	1	SS	1.0	95	
		PA REFUSAL 5.0'	-5					
		End of Borehole						

Standard Penetration Test SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % Wp |——0——| Wl 20 40 60 80

Completion Depth: 5.0'
Drill Date: 02/22/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-31a

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	86	38 40 46 47
		-5					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS AND PA REFUSAL 6.0'	-6	2	SS	0.9	100	70 100
	End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 6.0'
Drill Date: 02/22/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

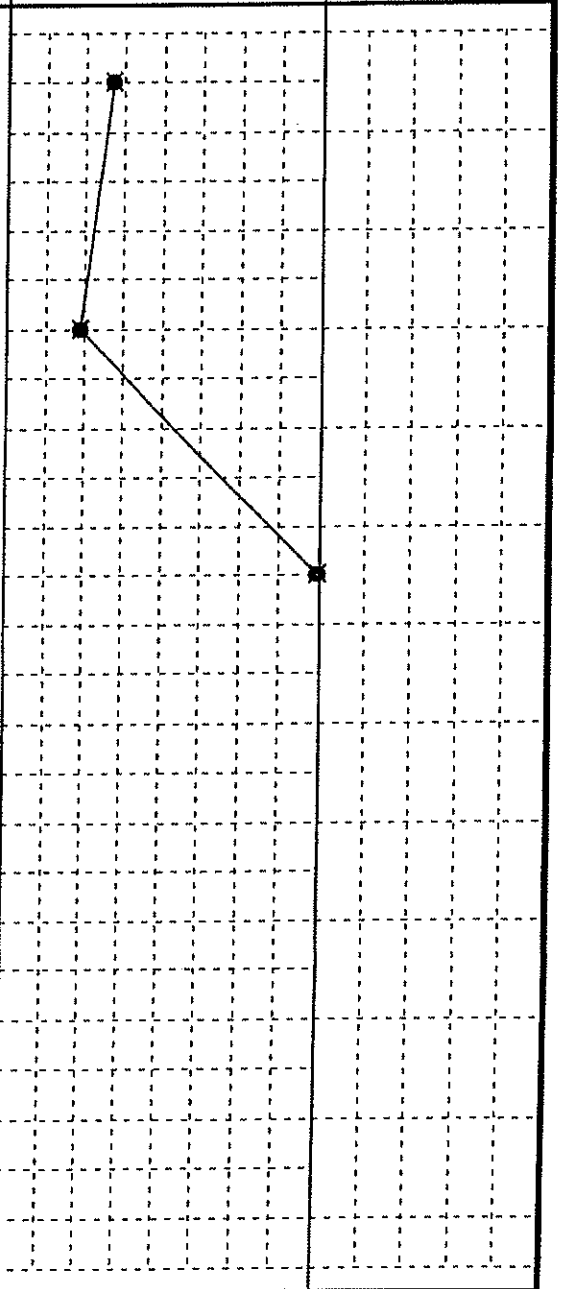
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-32

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	0.5	17	11 9 8 6
		-5					
	NO RECOVERY	-7	2	SS	n/r	9	6 3 6 6
		-10					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, COBBLES, ROCK FRAGMENTS, SS REFUSAL 11.5'	-11.5	3	SS	1.0	129	22 37 52 50
	PA REFUSAL 13.5'	-13.5					
	End of Borehole						



Completion Depth: 13.5'
Drill Date: 02/16/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-33

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. X 0 10 20 30 40 50 60 X	Water Content % Wp |——0——| Wl 20 40 60 80
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0 / 0	Ground Surface	0							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, COBBLES, SS REFUSAL 1.5'	-1.5	1	SS	1.0	16	6 8 8 50		
		-5							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, COBBLES, SS AND PA REFUSAL 6.5'	-6.5	2	SS	0.6	161	58 61 100		
	End of Borehole								

Completion Depth: 6.5'
Drill Date: 02/16/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-34

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.1'	-1.1	1	SS	0.5	98	39 48 50
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 5.3'	-5	2	SS	0.3	80	80
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 11.1'	-10 / -11.1	3	SS	0.5	91	38 41 50
		NO RECOVERY, SS REFUSAL 15.3'	-15	4	SS	n/r	80	80
		BROWN SILTY CLAY	-20 / -22	5	SS	1.5	12	3 5 7 11
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 22.0'
Drill Date: 02/20/06
Water Level: 18.8'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

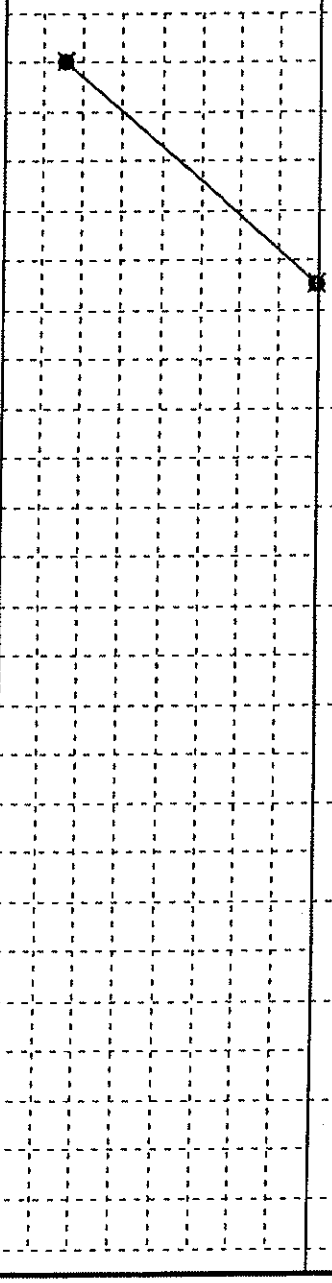
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-35

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	6	3 3 3 3
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS AND PA REFUSAL 5.0'	-5	2	SS	n/r	100	50
		End of Borehole						

Standard Penetration Test
SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows blows/6 in. X 0 10 20 30 40 50 60 X



Water Content %
Wp |——0——| Wl
20 40 60 80

Completion Depth: 5.0'
Drill Date: 02/22/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-35a

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	67	28 31 36 30
		NO RECOVERY, SS REFUSAL 5.0'	-5	2	SS	n/r	100	50
		PA REFUSAL 6.0'	-6					
		End of Borehole						

Standard Penetration Test: SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows: X blows/6 in. X 0 10 20 30 40 50 60
Water Content %: Wp |——0——| Wl 20 40 60 80

Completion Depth: 6.0'
Drill Date: 02/22/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-35b

Station:
Offset:

SUBSURFACE PROFILE				SAMPLE					Standard Penetration Test ● SPT (N) ● 0 10 20 30 40 50 60 / Split Spoon Blows X blows/6 in. X 0 10 20 30 40 50 60	Water Content % Wp |——0——| Wl 20 40 60 80
Depth (ft / m)		Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0 / 0		Ground Surface	0							
1										
2										
3 / 1										
4										
5			-5							
6		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL		1	SS	0.5	63	24 30 33 36		
7 / 2			-7							
8										
9										
10 / 3			-10							
11		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS AND PA REFUSAL 11.6'	-11.6	2	SS	0.1	97	35 47 50 50		
12										
13 / 4										
14										
15			-15							
16 / 5		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL		3	SS	1.0	101	40 51 50 5		
17			-17							
18		PA REFUSAL 18.0'	-18							
19		End of Borehole								
20 / 6										
21										
22										
23 / 7										
24										
25										

Completion Depth: 18.0'
Drill Date: 02/22/06
Water Level: 12.7'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

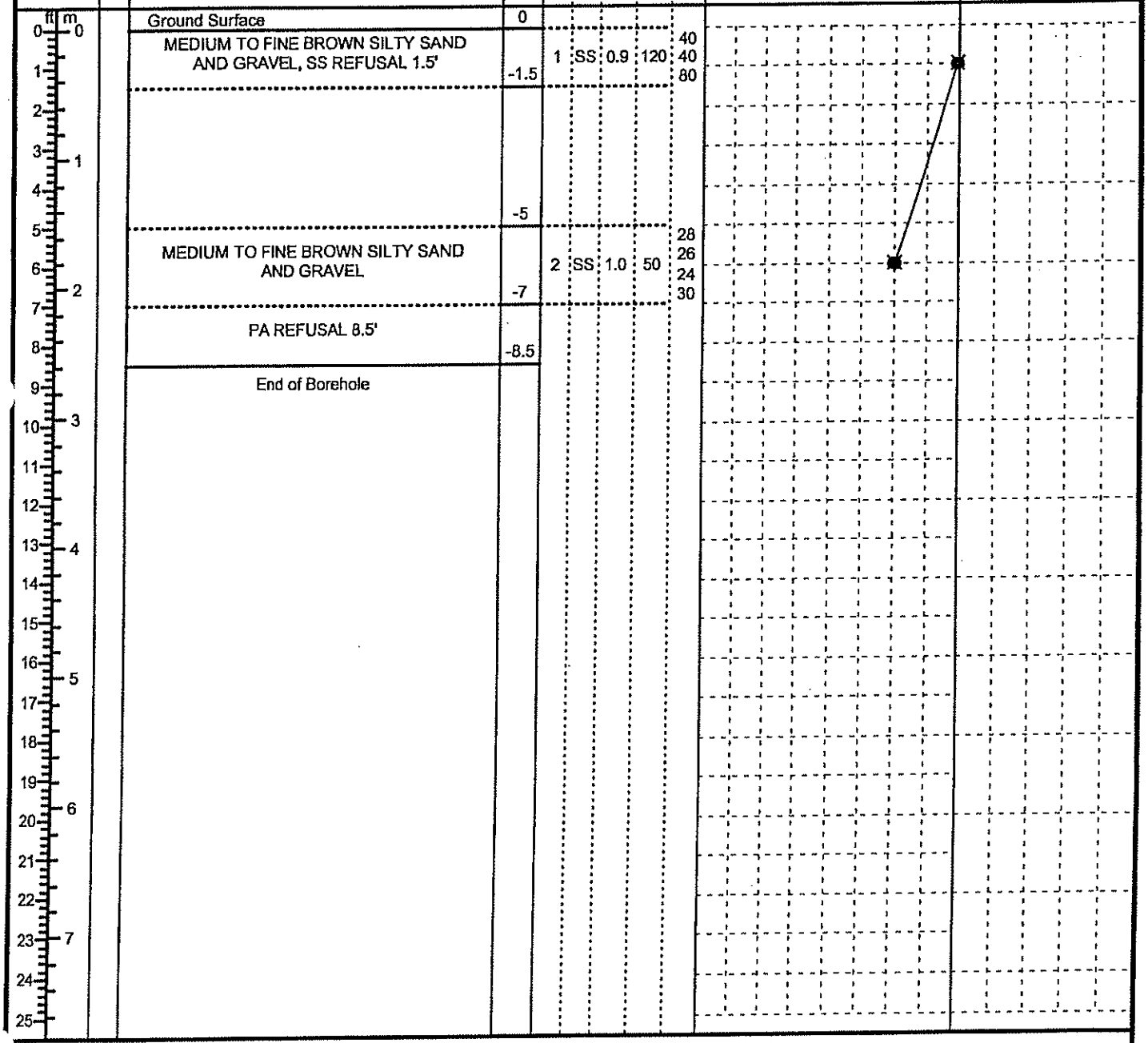
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-36

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.5'	-1.5	1	SS	0.9	120	40 40 80
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	50	28 26 24 30
		PA REFUSAL 8.5'	-8.5					
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80



Completion Depth: 8.5'
Drill Date: 02/23/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-36a

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
10	3	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 11.1'	-10 / -11.1	1	SS	1.0	94	40 44 50
15	5	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-15 / -17	2	SS	1.0	9	10 2 7 11
17		End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60

Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 17.0'
Drill Date: 02/23/06
Water Level: 14.3'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

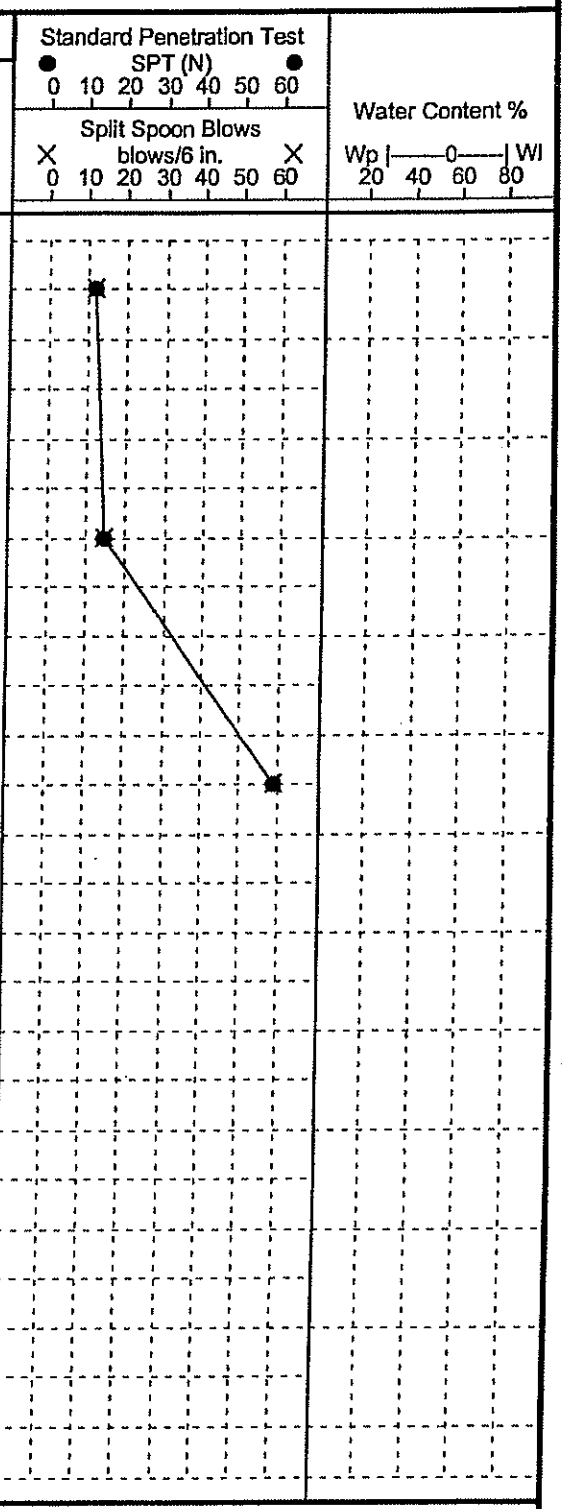
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-37

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	12	7 7 5 6
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.1	15	7 7 8 8
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-12	3	SS	1.1	59	24 28 31 40
	PA REFUSAL 12.5'	-12.5					
	End of Borehole						



Completion Depth: 12.5'
Drill Date: 02/22/06
Water Level: 9.5'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

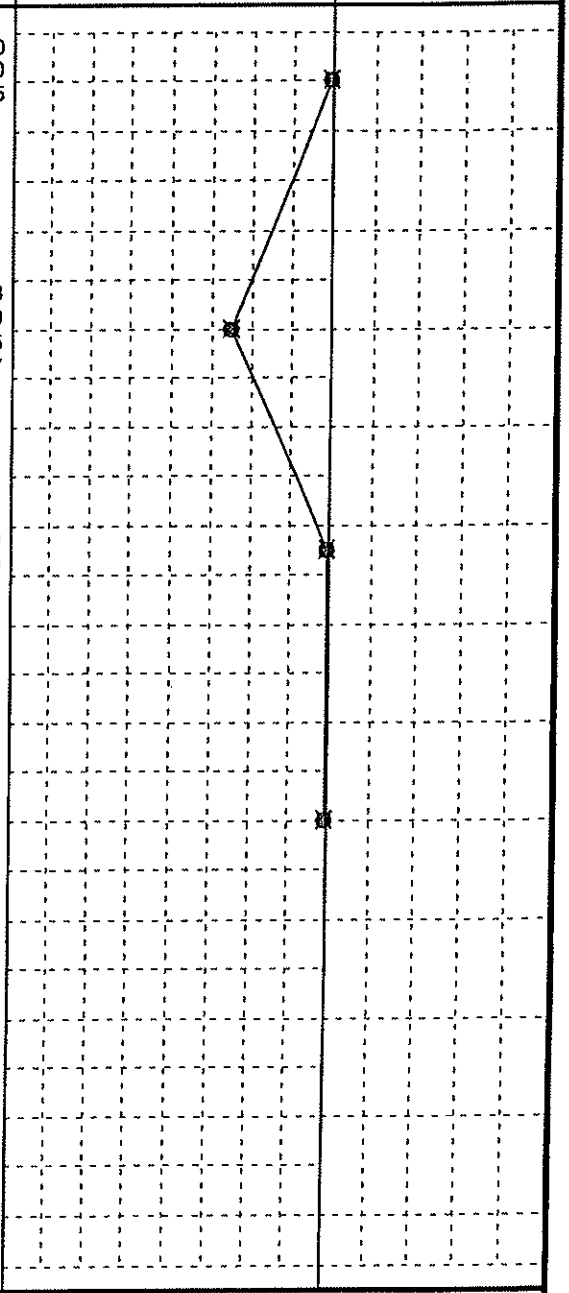
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-39

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.5'	-1.5	1	SS	1.0	135	50 60 75
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-5 -7	2	SS	1.0	45	38 30 15 17
	NO RECOVERY, SS REFUSAL 10.6'	-10 -10.6	3	SS	n/r	160	69 80
	NO RECOVERY	-15 -17	4	SS	n/r	180	80 93 87 70
	End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60
Water Content % Wp |——0——| Wl 20 40 60 80



Completion Depth: 17.0'
Drill Date: 02/14/06
Water Level: 14.5'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

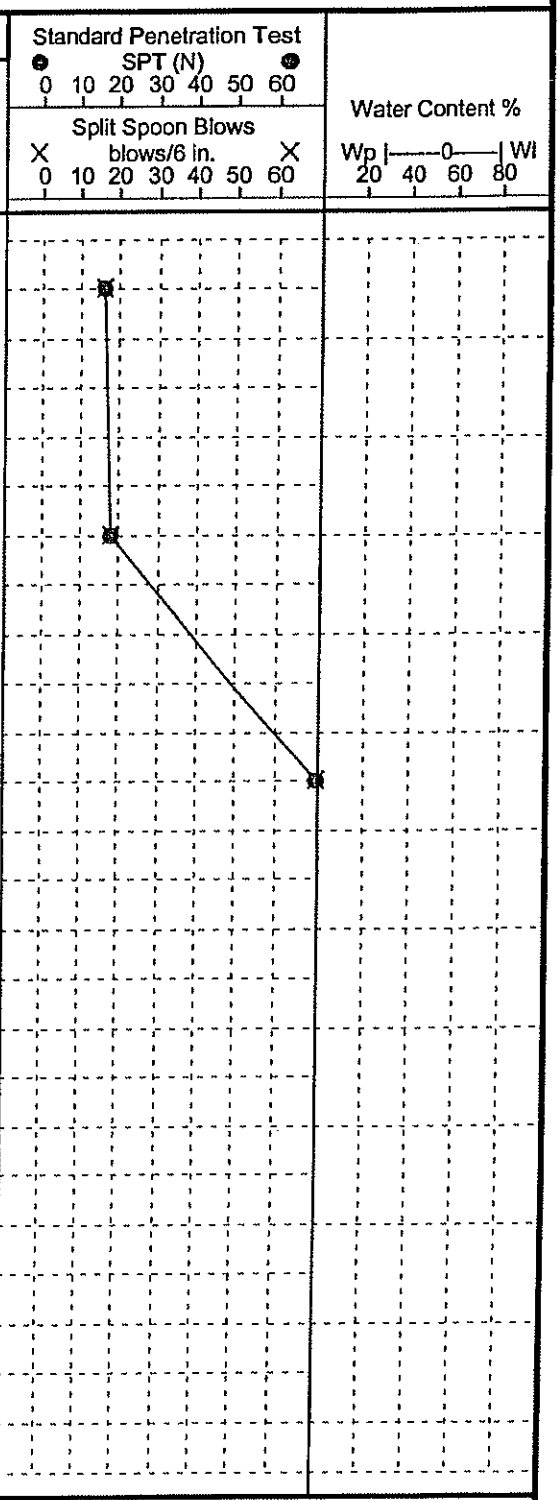
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-40

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		FINE TO MEDIUM BROWN SAND AND GRAVEL	-2	1	SS	1.0	16	4 8 8 5
		FINE TO MEDIUM BROWN SAND AND GRAVEL	-7	2	SS	1.0	18	6 11 7 6
		FINE TO MEDIUM BROWN SAND AND GRAVEL, STONE END OF SS, SS REFUSAL 11.0'	-11	3	SS	0.9	75	50 75
		End of Borehole						



Completion Depth:
Drill Date: 02/10/06
Water Level: 10.0'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

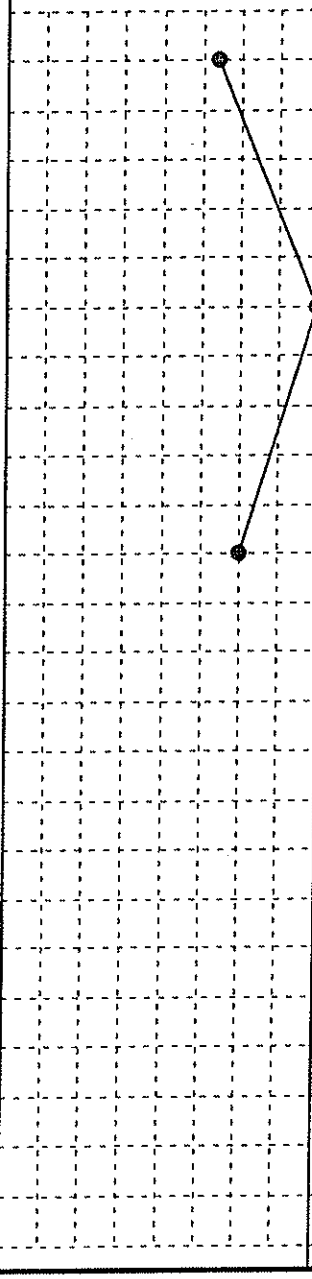
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

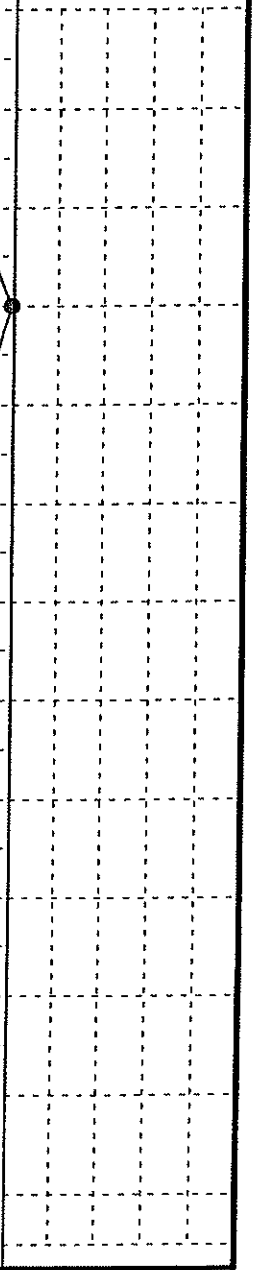
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-41

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
0–2		MEDIUM TO FINE BROWN SILTY SAND	-2	1	SS	1.0	44	28 24 20 17
5–6		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE END OF SS, SS REFUSAL 6.0'	-5 / -6	2	SS	0.5	105	40 55 50
10		SS REFUSAL 10.0'	-10	3	SS	0	50	50
13–16.5		PA REFUSAL 16.5'	-16.5					
16.5		End of Borehole						





Completion Depth: 16.5'
Drill Date: 12/21/05
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

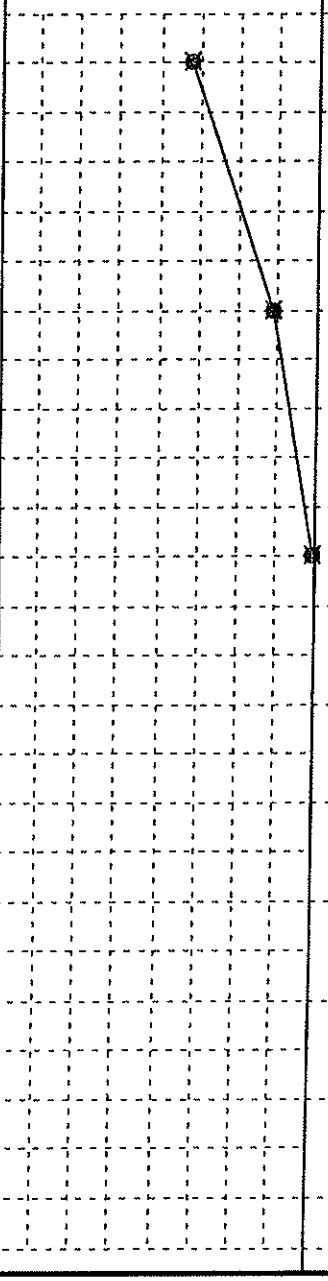
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-42

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND	-2	1	SS	0.9	38	28 20 18 17
	MEDIUM TO FINE BROWN SILTY SAND	-7	2	SS	1.0	59	20 28 31 30
	MEDIUM TO FINE BROWN SILTY SAND	-12	3	SS	1.0	162	60 79 83 65
	End of Borehole						

Standard Penetration Test
SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows
blows/6 in. X 0 10 20 30 40 50 60 X



Water Content %
Wp |——0——| Wl
20 40 60 80

Completion Depth: 12.0'
Drill Date: 02/09/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-43

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test ● SPT (N) ● 0 10 20 30 40 50 60 / Split Spoon Blows X blows/6 in. X 0 10 20 30 40 50 60	Water Content % Wp |——0——| Wl 20 40 60 80
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0 / 0	Ground Surface	0							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	61	30 33 28 29		
1 / 1		-5							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	44	26 24 20 17		
2 / 2	PA REFUSAL 8.0'	-8							
	End of Borehole								
3 / 3									
4 / 4									
5 / 5									
6 / 6									
7 / 7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

Completion Depth: 8.0'
Drill Date: 02/24/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-43a

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
10	3	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10 / -12	1	SS	1.1	20	10 10 10 11
15	5	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-15 / -17	2	SS	1.1	22	7 11 11 13
20	6	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-20 / -22	3	SS	1.5	59	30 31 28 25
		End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 22.0'
Drill Date: 02/24/06
Water Level: 17.0'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

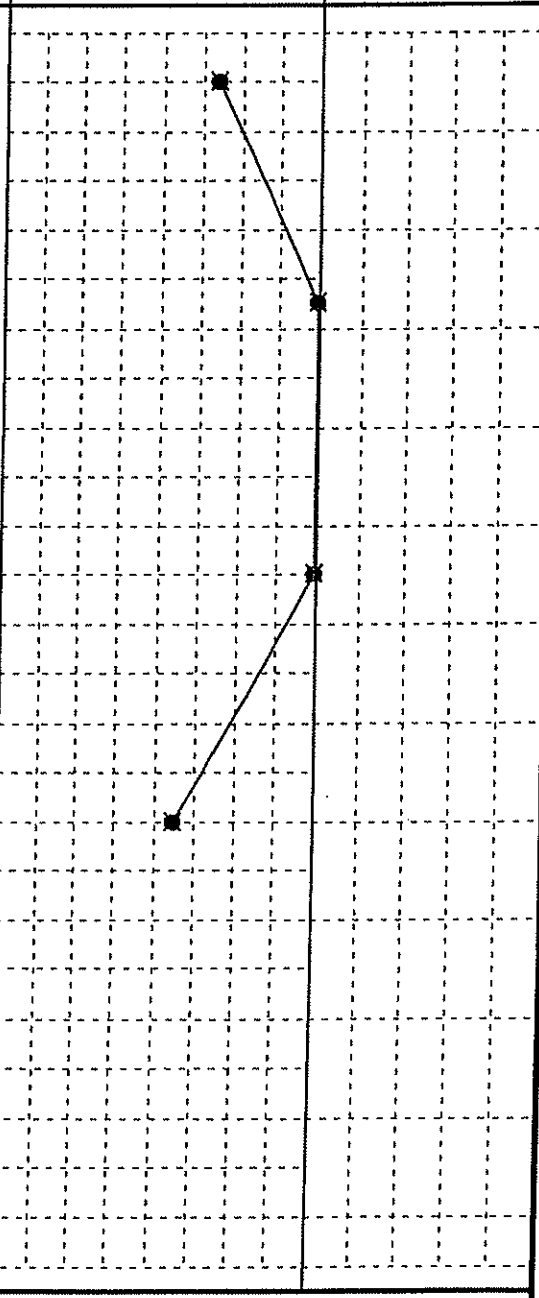
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-44

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	44	31 26 18 15
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE END OF SS, SS REFUSAL 6.0'	-5 / -6	2	SS	0.5	160	55 80
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10 / -12	3	SS	0.9	160	50 70 90 93
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-15 / -17	4	SS	1.0	35	15 17 18 24
	End of Borehole						



Completion Depth: 17.0'
Drill Date: 02/14/06
Water Level: 5.0'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-45

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test	Water Content %
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows	SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Wp |——0——| Wl 20 40 60 80
0	Ground Surface	0							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	14	5 7 7 7		
		-5							
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	40	4 20 20 18		
	End of Borehole								

Completion Depth: 7.0'
Drill Date: 02/10/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-45a

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
10	BROWN GLACIAL TILL	-10	1	SS	1.0	32	10 17 15 15
		-12					
13	BROWN GLACIAL TILL	-13	2	SS	1.2	110	24 30 80 87
		-15					
15	End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 15.0'
Drill Date: 02/10/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-46

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
0–2	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	0.5	20	6, 8, 12, 12
2–5	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 5.4'	-5	2	SS	0.4	90	90
5–10	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE AND OF SS	-10	3	SS	1.1	89	53, 46, 43, 45
10–15	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-15	4	SS	1.0	69	40, 44, 25, 50
15–19.5	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 19.5'	-19.5	5	SS	1.0	152	69, 72, 80
19.5	End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 19.5'
Drill Date: 02/09/06
Water Level: 13.0'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-47

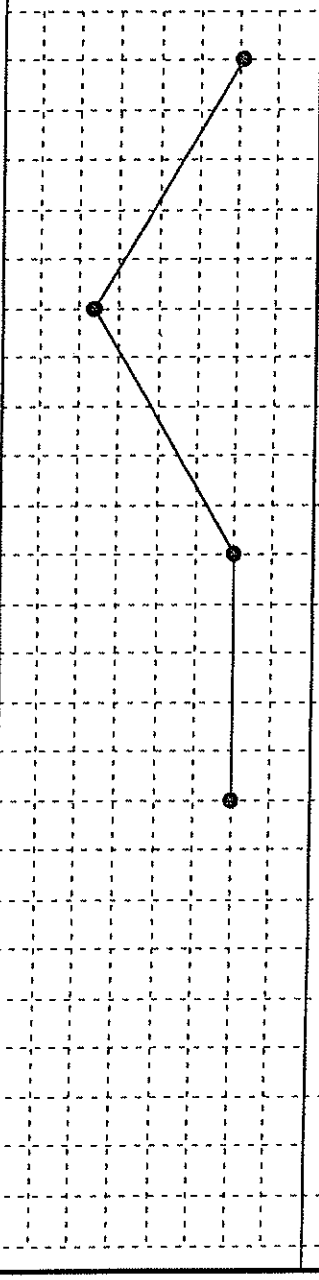
Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND, ASPHALT	-2	1	SS	1.0	51	36 26 25 25
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-5 -7	2	SS	1.1	14	6 6 8 9
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL (WET) SS REFUSAL 10.9'	-10 -10.9	3	SS	0.5	50	55 50
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 15.5'	-15	4	SS	0.5	50	60 50
		PA REFUSAL 17.0'	-17					
		End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60

Water Content % Wp 20 40 60 80 Wl



Completion Depth: 17.0'
Drill Date: 12/21/05
Water Level: 9.9' WD
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-48

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	50	43 30 20 22
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE END OF SS, S REFUSAL 5.5'	-5	2	SS	0.3	100	100
	PA REFUSAL 9.0'	-9					
	End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 9.0'
Drill Date: 02/14/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

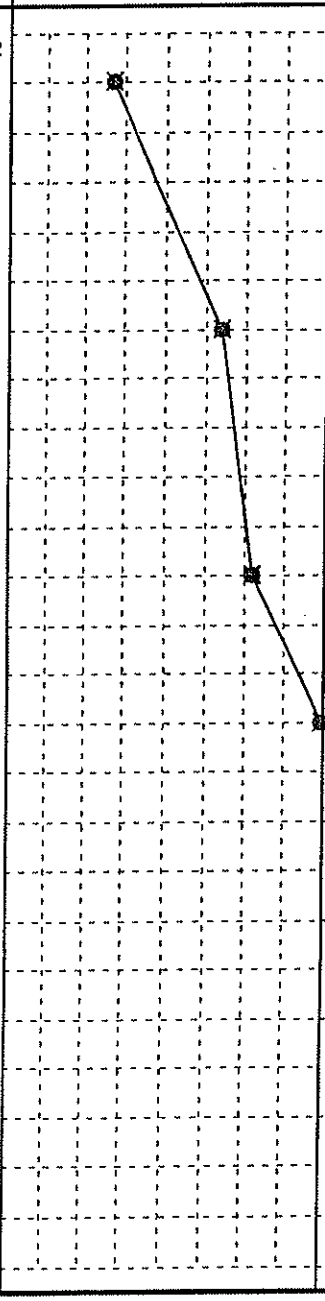
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-50

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE END OF SS	-2	1	SS	0.5	17	12 9 8 8
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.5	44	39 23 21 16
		BROWN GLACIAL TILL	-12	3	SS	1.0	52	30 27 25 36
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-15	4	SS	0.5	73	73 43 30 30
		End of Borehole						



Completion Depth: 15.0'
Drill Date: 02/10/06
Water Level: 5.4'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

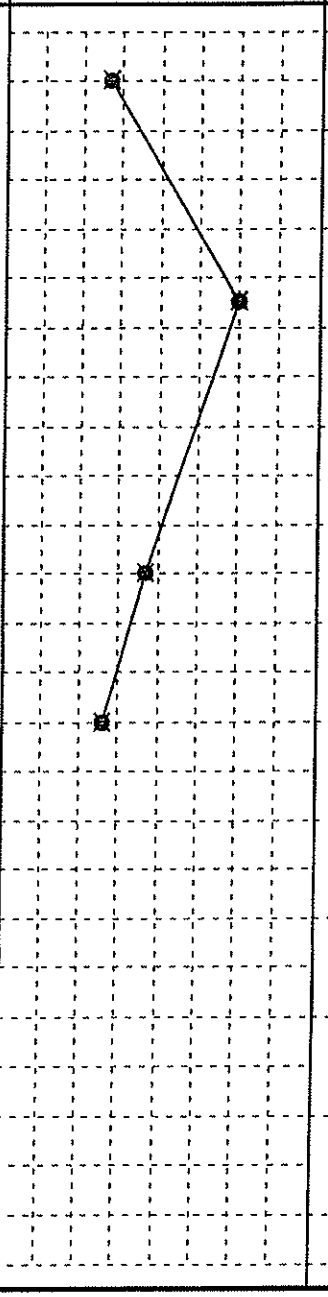
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

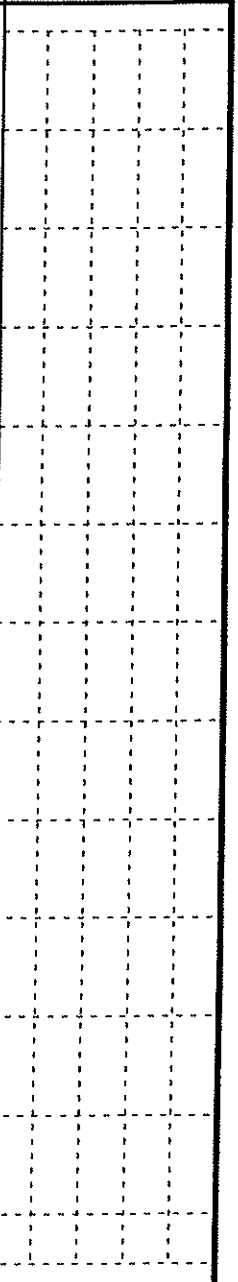
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-51

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	17	6 8 9 17
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROCK END OF SS, SS REFUSAL 5.5'	-5	2	SS	0.4	50	29 50
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10	3	SS	0.5	27	17 20 7 9
		BROWN SILTY CLAY	-12	4	SS	1.3	16	6 7 9 9
		End of Borehole	-13					
			-15					





Completion Depth: 15.0'
Drill Date: 02/10/06
Water Level: 6.8'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-52

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	11	5 5 6 9
		PA REFUSAL 4.0'	-4					
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 4.0'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-52a

Station:
Offset:

SUBSURFACE PROFILE			SAMPLE					Standard Penetration Test SPT (N) 0 10 20 30 40 50 60 / Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60	Water Content % Wp 20 40 60 80 Wl
Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows		
0 / 0	Ground Surface	0							
	PA REFUSAL 4.0'	-4							
	End of Borehole								

Completion Depth: 4.0'
Drill Date: 02/21/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-52b

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 6.0'	-5 / -6	1	SS	1.0	101	48 51 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10 / -12	2	SS	1.1	84	45 46 38 50
	BROWN SILTY CLAY	-15 / -17	3	SS	1.5	14	4 5 9 9
	End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp 20 40 60 80 Wl

Completion Depth: 17.0'
Drill Date: 02/21/06
Water Level: 17.0'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

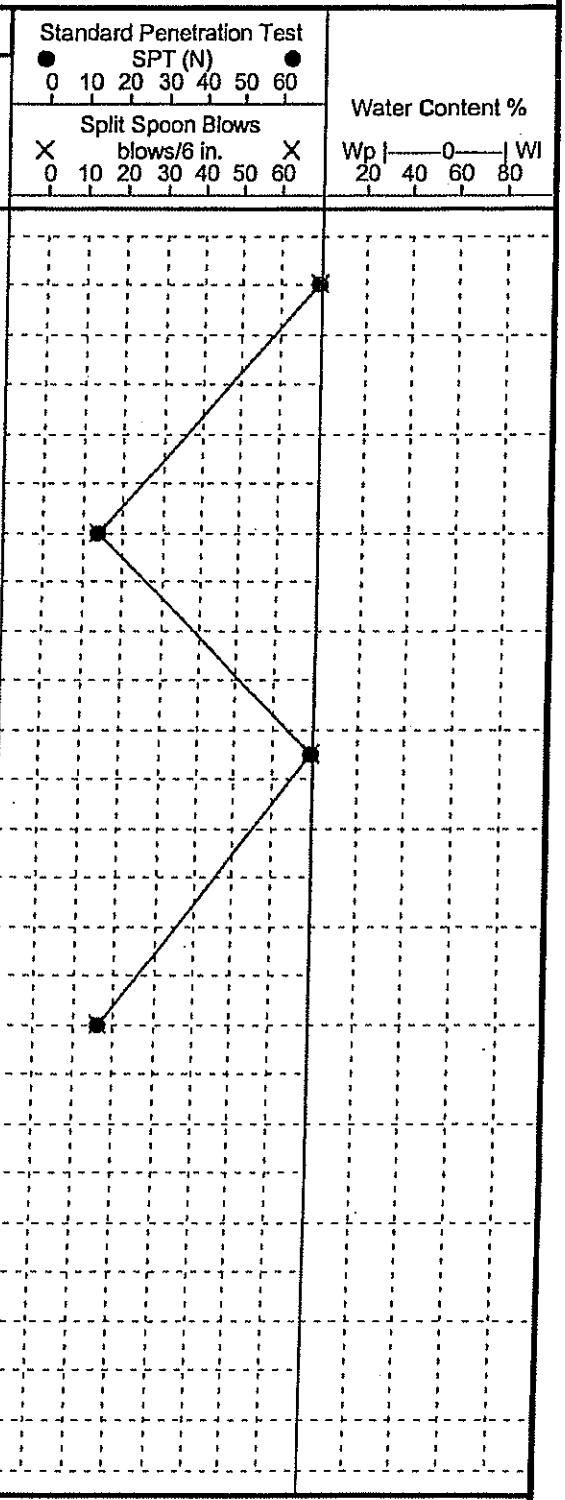
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-53

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	111	40 51 60 58
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.1	14	5 7 7 8
		NO RECOVERY, SS REFUSAL 10.5'	-10	3	SS	n/r	80	40
		BROWN SILTY CLAY	-17	4	SS	2.0	16	7 7 9 8
		End of Borehole						



Completion Depth: 17.0'
Drill Date: 02/14/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

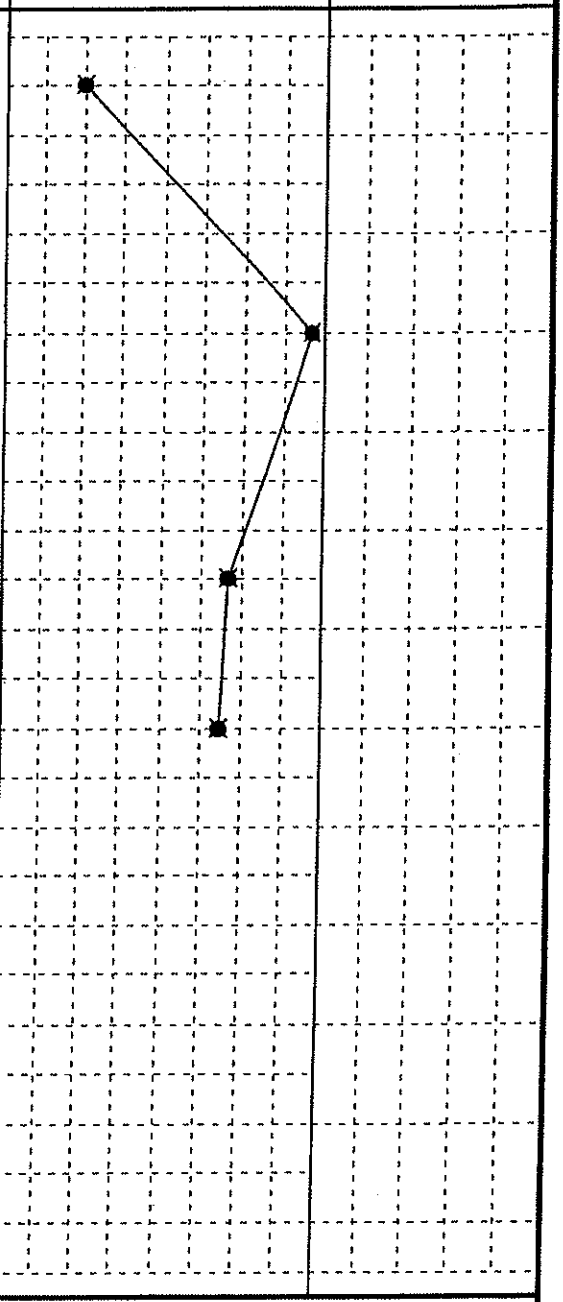
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-54

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	10	4 6 4 4
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-5	2	SS	1.0	67	40 40 27 30
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	3	SS	1.1	47	35 28 19 17
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL (WET)	-10	4	SS	1.1	45	22 20 25 23
		End of Borehole	-12					
			-13					
			-15					

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X



Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 15.0'
Drill Date: 02/10/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-55

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.0'	-1	1	SS	0.9	90	38 40 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-5	2	SS	1.1	35	4 7 28 50
	PA REFUSAL 8.0'	-7					
	End of Borehole	-8					

Standard Penetration Test: SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows: X blows/6 in. X 0 10 20 30 40 50 60
Water Content %: Wp |——0——| Wl 20 40 60 80

Completion Depth: 8.0'
Drill Date: 02/21/06
Water Level: 6.6'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-57

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	24	13 12 12 10
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	78	30 37 41 40
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-12	3	SS	1.0	94	34 43 51 60
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS AND PA REFUSAL 16.0'	-16	4	SS	0.9	80	65 80
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 16.0'
Drill Date: 02/21/06
Water Level: 14.4'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

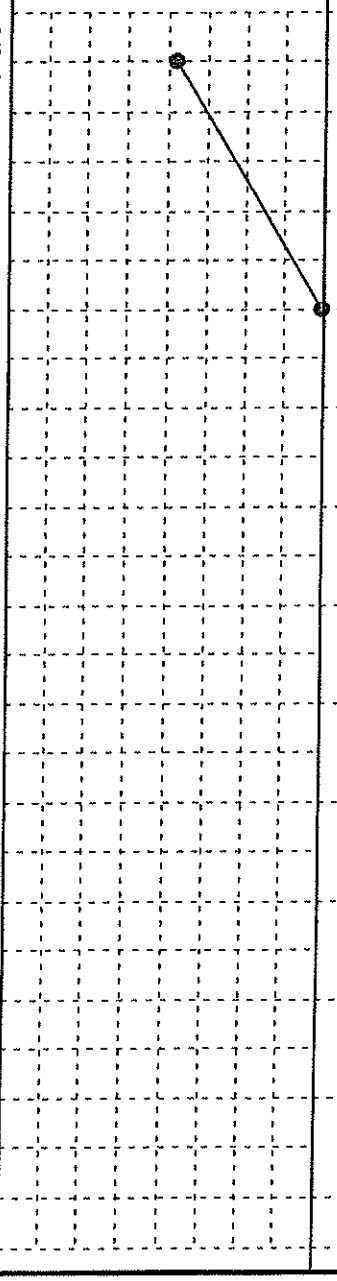
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-58

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		BLACK FINE SILTY SAND, ASHES	-2	1	SS	0.9	32	18 16 16 41
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 6.5'	-5 / -6.5	2	SS	1.0	102	6 43 59 50
		PA REFUSAL 8.5'	-8.5					
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — X blows/6 in. X 0 10 20 30 40 50 60



Water Content % — Wp |-------0-------| Wl 20 40 60 80

Completion Depth: 8.5'
Drill Date: 12/21/05
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-59

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	47	12 23 24 30
		FINE TO MEDIUM BROWN SILTY SAND AND GRAVEL	-7	2	SS	0.5	58	19 26 32 44
		FINE TO MEDIUM BROWN SILTY SAND AND GRAVEL, STONE END OF SS, SS REFUSAL 10.7'	-10.7	3	SS	0.3	80	44 80
		FINE BROWN SILTY SAND (WET)	-17	4	SS	1.5	36	30 17 19 20
		FINE BROWN SILTY SAND (WET)	-20	5	SS	1.0	49	20 20 29 32
		End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp |-------0-------| Wl 20 40 60 80

Completion Depth: 20.0'
Drill Date: 12/22/05
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

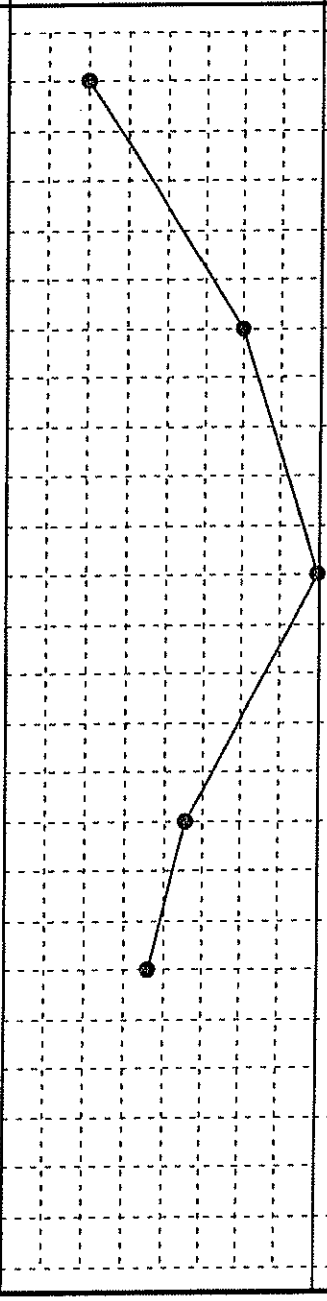
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

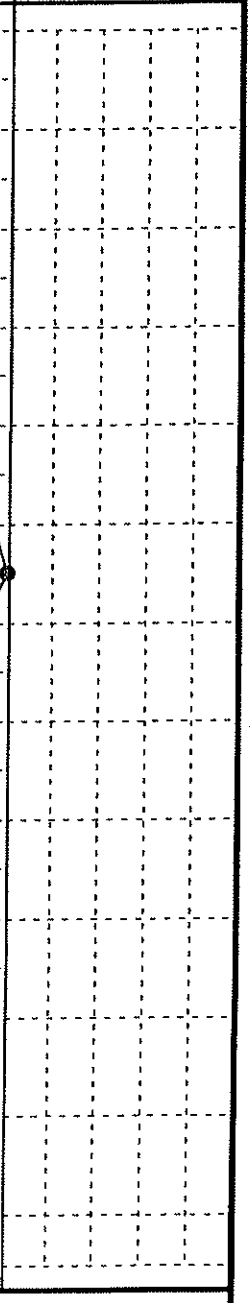
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-60

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	FINE BROWN SILTY SAND, ROOTS	-2	1	SS	1.0	10	3 5 5 5
	FINE TO MEDIUM BROWN SILTY SAND, STONE END OF SS, SS REFUSAL 5.7'	-5.7	2	SS	0.5	50	31 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 11.0'	-11	3	SS	0.6	150	48 100 50
	FINE BROWN SILTY SAND	-17	4	SS	1.2	36	15 18 18 20
	BROWN SILTY CLAY	-20	5	SS	1.3	26	11 12 14 17
	End of Borehole						





Completion Depth: 20.0'
Drill Date: 12/22/05
Water Level: 19.0' WS
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-61

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	0.5	10	3 4 6 10
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	45	20 20 25 18
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE AND OF SS	-12	3	SS	0.6	35	20 18 17 15
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-17	4	SS	1.0	73	40 45 28 21
		BROWN SILTY CLAY	-20	5	SS	1.5	27	16 13 14 16
		End of Borehole						

Standard Penetration Test — SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows — blows/6 in. 0 10 20 30 40 50 60
Water Content % — Wp 20 40 60 80 Wl

Completion Depth: 20.0'
Drill Date: 02/09/06
Water Level: 8.7'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

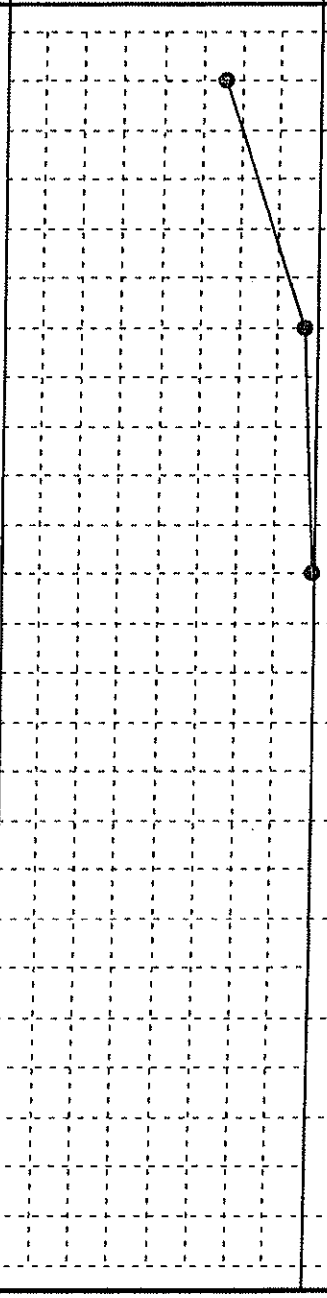
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

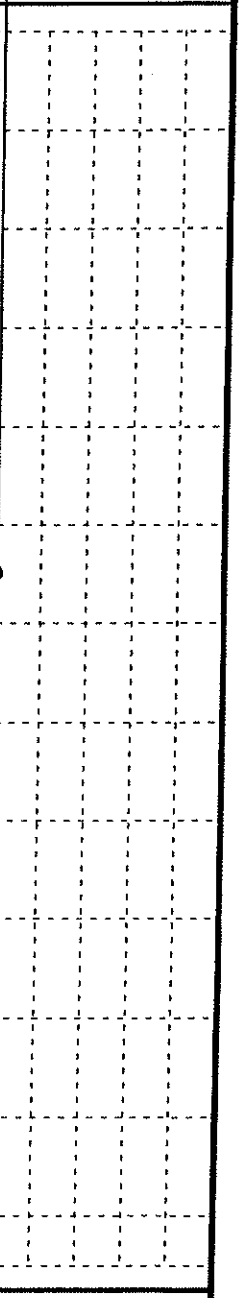
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-62

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
0–2	FINE BROWN SILTY SAND	-2	1	SS	1.0	46	20, 22, 24, 27
2–7	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	1.0	67	27, 28, 39, 46
7–11	MEDIUM TO FINE BROWN SILTY SAND, SS REFUSAL 11.0'	-11	3	SS	0.9	98	40, 48, 50
11–15.5	PA REFUSAL 15.5'	-15.5					
15.5	End of Borehole						





Completion Depth: 15.5'
Drill Date: 12/21/05
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-63

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND	-2	1	SS	1.1	6	3 3 3 3
	MEDIUM TO FINE BROWN SILTY SAND	-7	2	SS	1.3	39	6 16 23 25
	MEDIUM TO FINE BROWN SILTY SAND, SS REFUSAL 10.9'	-10.9	3	SS	0.9	80	38 80
	BROWN SILTY SAND	-17	4	SS	0.5	20	9 9 11 13
	BROWN SILTY SAND (WET)	-20	5	SS	1.0	24	8 12 12 15
	End of Borehole						

Standard Penetration Test
SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60

Water Content %
Wp |——0——| Wl
20 40 60 80

Completion Depth: 20.0'
Drill Date: 12/22/05
Water Level: 19.0' WS
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

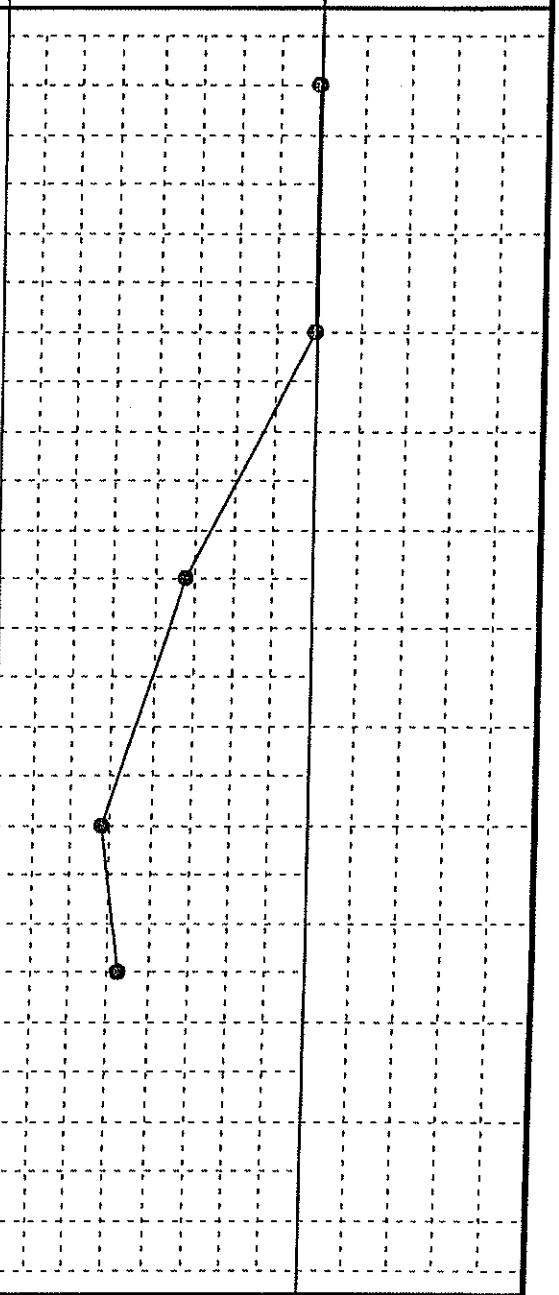
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-64

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.6'	-1.6	1	SS	1.0	100	3 48 52 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-5 / -7	2	SS	1.0	72	54 40 32 27
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10 / -12	3	SS	1.0	38	23 22 16 25
	FINE BROWN SILTY SAND (WET)	-15 / -17	4	SS	1.5	18	5 7 11 13
	FINE BROWN SILTY SAND (WET)	-18 / -20	5	SS	2.0	23	12 10 13 12
	End of Borehole						



Completion Depth: 20.0'
Drill Date: 12/22/05
Water Level: 10.0' WS
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

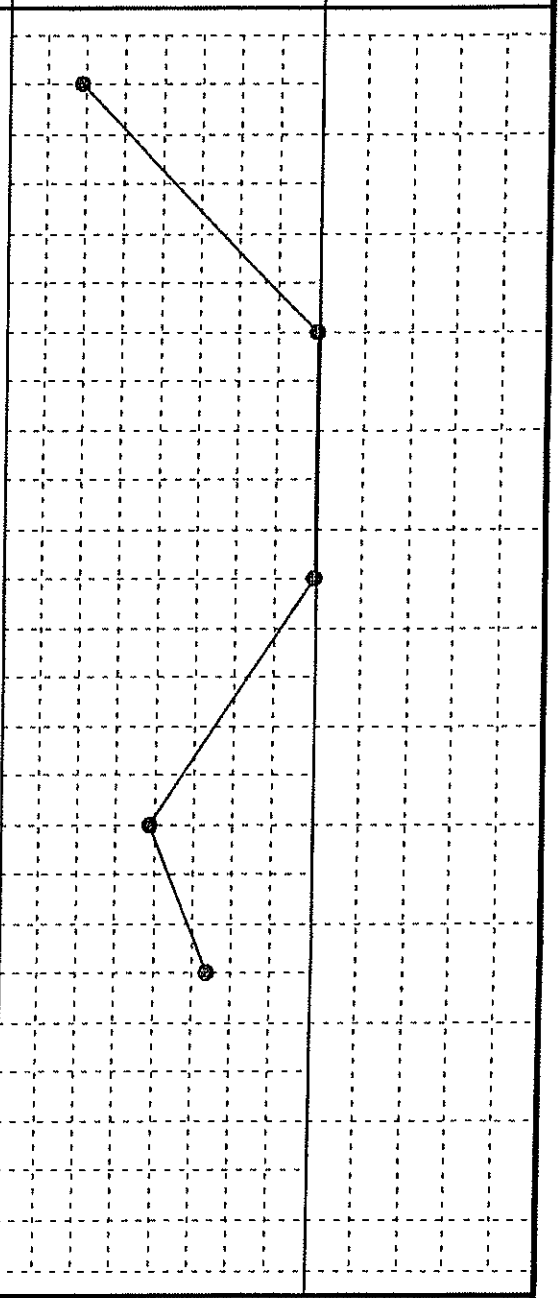
Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-65

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	9	3, 3, 6, 6
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 6.4'	-5, -6.4	2	SS	1.0	122	35, 42, 80
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10, -12	3	SS	1.0	83	37, 40, 43, 51
		FINE BROWN SILTY CLAY	-15, -17	4	SS	1.0	29	28, 15, 14, 14
		FINE BROWN SILTY CLAY	-18, -20	5	SS	1.0	44	26, 24, 20, 15
		End of Borehole						



Completion Depth: 20.0'
Drill Date: 12/21/05
Water Level: 19.0' WS
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-75a

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
1–2	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, ROOTS	-2	1	SS	1.0	32	7 15 17 21
5–7	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL WITH MEDIUM GRAVEL	-7	2	SS	1.5	70	40 36 34 28
10–11	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 10.5'	-10	3	SS	0.5	90	90
15–17	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-15 / -17	4	SS	0.3	168	70 83 85 87
17	End of Borehole						

Standard Penetration Test SPT (N) 0 10 20 30 40 50 60

Split Spoon Blows blows/6 in. 0 10 20 30 40 50 60

Water Content % Wp 20 40 60 80 Wl

Completion Depth: 17.0'
Drill Date: 02/14/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-75b

Station:
Offset:

Depth (ft)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 1.0'	-1	1	SS	0.5	111	45 61 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 6.1'	-5 / -6.1	2	SS	0.9	97	38 47 50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 10.2'	-10	3	SS	0.1	100	50
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 15.2'	-15	4	SS	0.2	100	50
	End of Borehole						

Standard Penetration Test: SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows: X blows/6 in. X 0 10 20 30 40 50 60
Water Content %: Wp |——0——| Wl 20 40 60 80

Completion Depth: 15.2'
Drill Date: 02/20/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

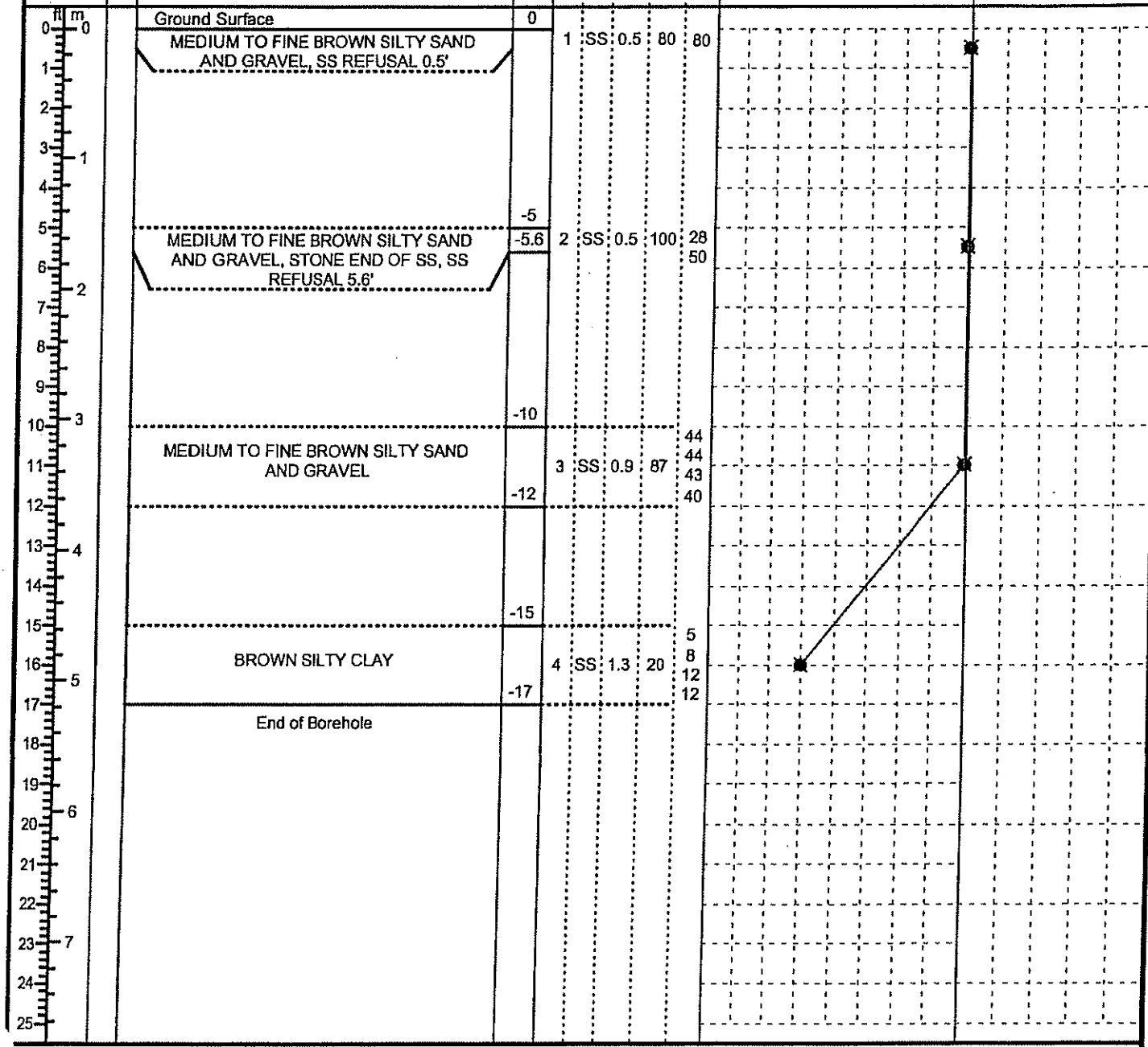
Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-76a

Station:
Offset:

Depth (ft / m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	Ground Surface	0					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, SS REFUSAL 0.5'		1	SS	0.5	80	80
		-5					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL, STONE END OF SS, SS REFUSAL 5.6'	-5.6	2	SS	0.5	100	28 50
		-10					
	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-12	3	SS	0.9	87	44 44 43 40
		-15					
	BROWN SILTY CLAY	-17	4	SS	1.3	20	5 8 12 12
	End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — X blows/6 in. X 0 10 20 30 40 50 60
Water Content % — Wp |——0——| Wl 20 40 60 80



Completion Depth: 17.0'
Drill Date: 02/20/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-77

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-2	1	SS	1.0	18	5 7 11 11
		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-7	2	SS	0.9	38	14 17 21 30
		PA REFUSAL 8.0'	-8					
		End of Borehole						

Standard Penetration Test — SPT (N) ● 0 10 20 30 40 50 60 ●
Split Spoon Blows — blows/6 in. X 0 10 20 30 40 50 60 X
Water Content % — Wp |——0——| Wl 20 40 60 80

Completion Depth: 8.0'
Drill Date: 02/24/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-77a

Station:
Offset:

SUBSURFACE PROFILE				SAMPLE					Standard Penetration Test	Water Content %
Depth (ft / m)		Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows	SPT (N) ● 0 10 20 30 40 50 60 ● Split Spoon Blows blows/6 in. X 0 10 20 30 40 50 60 X	Wp |——0——| Wl 20 40 60 80
0 / 0		Ground Surface	0							
		PA REFUSAL 5.0'	-5							
		End of Borehole								

Completion Depth: 5.0'
Drill Date: 02/24/06
Water Level: Not Encountered
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Project: WWTP and Sanitary Collection System
Location: Town Of Shandaken, New York
Client: Delaware Engineering
Project No.: 5961

Log of Borehole: SB-77b

Station:
Offset:

Depth (ft)	Depth (m)	Description	Elevation	Number	Type	Recovery	SPT (N)	SS Blows
0	0	Ground Surface	0					
10	3	MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-10	1	SS	1.0	110	45, 50, 60, 72
12			-12					
15		MEDIUM TO FINE BROWN SILTY SAND AND GRAVEL	-15	2	SS	1.1	110	30, 40, 70, 100
17		End of Borehole	-17					

Standard Penetration Test: SPT (N) 0 10 20 30 40 50 60
Split Spoon Blows: blows/6 in. 0 10 20 30 40 50 60
Water Content %: Wp 20 40 60 80 Wl

Completion Depth: 17.0'
Drill Date: 02/24/06
Water Level: 10.8'
Datum:

SOIL AND MATERIAL TESTING, INC.
57 South Main Street
Castleton, New York 12033

Casing Size: 3.25" HSA
Hammer Wt. (lbs.): 140
Drop (in.): 30
Sheet: 1 of 1

Exhibit 9.2.A

Original Draft State Pollutant Discharge Elimination System
(SPDES) Discharge Permit

New York State Department of Environmental Conservation
Division of Environmental Quality, Region 3
100 Hillside Avenue Suite 1W White Plains, New York 10603-2860
Phone: (914) 428-2505 • FAX: (914) 428-0323
Website: www.dec.state.ny.us

Commissioner

FAX SHEET

DATE: 4/12/11

TO: Julie Borown

Company: Lomont Engineers

Phone:

Fax: (518) 234-4613

FROM: Armand De Angelis

RE: Phoenicia draft permit

Number of Pages (Including Cover Sheet) 12

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES)
DISCHARGE PERMIT

Form3.99

Industrial Code:	4952	SPDES Number:	NY- 0272426
Discharge Class (CL):	07	DEC Number:	3-5150-00443/00001
Toxic Class (TX):	N	Effective Date (EDP):	EDP
Major Drainage Basin:	13	Expiration Date (ExDP):	ExDP
Sub Drainage Basin:	07	Modification Dates:	
Water Index Number:	H-171		
Compact Area:	Catskill		

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et.seq.)(hereinafter referred to as "the Act").

PERMITTEE NAME AND ADDRESS

Name: **Town of Shandaken** Attention: **Robert Cross Jr., Town Supervisor**
Street: **PO Box 134**
City: **Shandaken** State: **NY** Zip Code: **12480**

is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name: **Phoenicia Wastewater Treatment Plant**
Location (C,T,V): **Shandaken (T)** County: **Ulster**
Facility Address: **NY State Route 28 and Kinsey Road**
City: **Phoenicia** State: **NY** Zip Code: **12464**
NYTM -E: NYTM - N:
From Outfall No.: **001** at Latitude: **42 ° 03 ′ 58 ″** & Longitude: **74 ° 18 ′ 32 ″**
into receiving waters known as: **Unnamed trib to Esopus Creek** Class: **A(TS)**
and: (list other Outfalls, Receiving Waters & Water Classifications)

in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth this permit; and 6 NYCRR Part 750-1.2(a) and 750-2.

DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name: **Town of Shandaken**
Street: **PO Box 134**
City: **Shandaken** State: **NY** Zip Code: **12480**
Responsible Official or Agent: **Robert Cross Jr., Town Supervisor** Phone: **(845) 688-7165**

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:

Permit Coordinator, Bureau of Water Permits (3505)
L. Meyerson/E. Zicca (White Plains)
J. Gratz - EPA, Region II
NYCDEP (Valhalla)
Ulster County Health Department
R. Sammons - EFC

Permit Administrator: Alexander F Cieslik, Jr.	
Address: 21 South Putt Corners Road New Paltz, New York 12561-1696	
Signature:	Date: / /

PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS

OUTFALL	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
	This cell describes the type of wastewater authorized for discharge. Examples include process or sanitary wastewater, storm water, non-contact cooling water.	This cell lists classified waters of the state to which the listed outfall discharges.	The date this page starts in effect. (e.g. EDP or EDPM)	The date this page is no longer in effect. (e.g. ExDP)

PARAMETER	MINIMUM	MAXIMUM	UNITS	SAMPLE FREQ.	SAMPLE TYPE
e.g. pH, TRC, Temperature, D.O.	The minimum level that must be maintained at all instants in time.	The maximum level that may not be exceeded at any instant in time.	SU, °F, mg/l, etc.		

PARA-METER	EFFLUENT LIMIT	PRACTICAL QUANTITATION LIMIT (PQL)	ACTION LEVEL	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE
	Limit types are defined below in Note 1. The effluent limit is developed based on the more stringent of technology-based limits, required under the Clean Water Act, or New York State water quality standards. The limit has been derived based on existing assumptions and rules. These assumptions include receiving water hardness, pH and temperature; rates of this and other discharges to the receiving stream; etc. If assumptions or rules change the limit may, after due process and modification of this permit, change.	For the purposes of compliance assessment, the analytical method specified in the permit shall be used to monitor the amount of the pollutant in the outfall to this level, provided that the laboratory analyst has complied with the specified quality assurance/quality control procedures in the relevant method. Monitoring results that are lower than this level must be reported, but shall not be used to determine compliance with the calculated limit. This PQL can be neither lowered nor raised without a modification of this permit.	Type I or Type II Action Levels are monitoring requirements, as defined below in Note 2, that trigger additional monitoring and permit review when exceeded.	This can include units of flow, pH, mass, Temperature, concentration. Examples include µg/l, lbs/d, etc.	Examples include Daily, 3/week, weekly, 2/month, monthly, quarterly, 2/yr and yearly.	Examples include grab, 24 hour composite and 3 grab samples collected over a 6 hour period.

Note 1: DAILY DISCHARGE: The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.

DAILY MAXIMUM: The highest allowable daily discharge. DAILY MINIMUM: The lowest allowable daily discharge.

MONTHLY AVERAGE: The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

7 DAY ARITHMETIC MEAN (7 day average): The highest allowable average of daily discharges over a calendar week.

30 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

7 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar week.

RANGE: The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown.

Note 2: ACTION LEVELS: Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If the additional monitoring requirement is triggered as noted below, the permittee shall undertake a short-term, high-intensity monitoring program for the parameter(s). Samples identical to those required for routine monitoring purposes shall be taken on each of at least three consecutive operating and discharging days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the additional monitoring requirement was triggered. Results may be appended to the DMR or transmitted under separate cover to the same address. If levels higher than the Action Levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits. The permittee is not authorized to discharge any of the listed parameters at levels which may cause or contribute to a violation of water quality standards. TYPE I: The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results in excess of the stated Action Level. TYPE II: The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results that show the stated action level exceeded for four of six consecutive samples, or for two of six consecutive samples by 20 % or more, or for any one sample by 50 % or more.

FINAL PERMIT LIMITS AND MONITORING

OUTFALL No.	LIMITATIONS APPLY:	RECEIVING WATER	EFFECTIVE	EXPIRING
001	[X] All Year	unnamed Trib of Esopus Creek	EDP	ExDP

PARAMETER	EFFLUENT LIMIT					MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Inf.	Location Eff.	
Flow	30 Day Arithmetic Mean	0.185	mgd			continuous	recorder		X	
$CBOD_5$	Daily Maximum	5.0	mg/l	7.71	lbs/d	1/month	24-hr. comp.	X	X	(1)
Solids, Suspended	Daily Maximum	10	mg/l	15.43	lbs/d	1/month	24-hr. comp.	X	X	(1)
Solids, Settleable	Daily Maximum	0.1	ml/l			1/day	grab	X	X	
pH	Range	6.5-8.5	SU			1/day	grab	X	X	
Nitrogen, Ammonia (as NH_3)	Daily Maximum	1.1	mg/l			1/month	24-hr. comp.		X	(4)
Nitrogen, Ammonia (as NH_3)	Daily Maximum	2.2	mg/l			1/month	24-hr. comp.		X	(5)
Phosphorus, Total (as P)	Daily Maximum	0.5	mg/l			1/month	24-hr. comp.		X	
Temperature	Daily Maximum	70	Deg F			1/day	grab	X	X	(4)
Temperature	Daily Maximum	Monitor				1/day	grab	X	X	(5)
Oxygen, Dissolved	Daily Minimum	7.0	mg/l			1/day	grab		X	
Effluent Disinfection required: [X] All Year										
Coliform, Fecal	30 Day Geometric Mean	200	No./ 100 ml			1/month	grab		X	(2)
Coliform, Fecal	7 Day Geometric Mean	400	No./ 100 ml			1/month	grab		X	(2)
Chlorine, Total Residual	Daily Maximum	0.1	mg/l			1/day	grab		X	(2) (3)

FOOTNOTES:
(1) and effluent shall not exceed 15 % and 15 % of influent concentration values for $CBOD_5$ & TSS respectively.
(2) The operator/permittee shall physically inspect the disinfection equipment daily to insure it is operating properly and must maintain a written log of the inspections.
(3) If chlorine is used for disinfection.
(4) Limits apply June 1 to October 31
(5) Limits apply November 1 to May 31
(6) All effluent limtis, including pathogen reduction, shall be "monitor only" for the first 6 months of operation of the wastewater treatment facility. To begin receiving discharge monitor reports, this office shall be notified 60 days in advance of expected start-up.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR PATHOGEN REDUCTION IN THE NEW YORK CITY WATERSHED

OUTFALL No.	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
001	Municipal	unnamed trib of Esopus Creek	EDP	ExDP

The discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations Monthly Avg.	Units	Minimum Monitoring Requirements Measurement Frequency	Sample Type
Outfall 001				
Giardia Lamblia, Cysts	(Note 1)	NA	NA	NA
Enteric Viruses	(Note 1)	NA	NA	NA
Turbidity	(Note 2)	NTU	Continuous	Recorder
Chlorine Residual	(Note 3)	mg/l	1/day	Grab

Note 1 - The facility must be capable of achieving a 99.9% removal and/or inactivation of giardia lamblia cysts and enteric viruses. The capability shall be demonstrated by maintaining the turbidity and chlorine levels specified and operating the microfiltration unit and the disinfection system on a continuous basis, in accordance with the provisions set forth in the WWTP's Operation and Maintenance Manual.

Note 2 - The turbidity levels shall be maintained at less than or equal to 0.5 NTU in 95% of the measurements taken each month and an instantaneous maximum of 5.0 NTU shall not be exceeded.

Note 3 - When chlorine is used for disinfection, a minimum residual of 0.2 mg/l shall be maintained in the chlorine contact tank prior to dechlorination.

DISCHARGE NOTIFICATION REQUIREMENTS

a) The permittee shall, except as set forth in (c) below, maintain the existing identification signs at all outfalls to surface waters, which have not been waived by the Department in accordance with 17-0815-a. The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in such a manner to pose minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have minimum dimensions of eighteen inches by twenty four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT

SPDES PERMIT No.: NY_____

OUTFALL No. :____

For information about this permitted discharge contact:

Permittee Name: _____

Permittee Contact: _____

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address :

NYSDEC Division of Water Regional Phone: ( ) - ### -####

b) For each discharge required to have a sign in accordance with a), the permittee shall provide for public review at a repository accessible to the public, copies of the Discharge Monitoring Reports (DMRs) as required by the **RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS** page of this permit. This repository shall be open to the public, at a minimum, during normal daytime business hours. The repository may be at the business office repository of the permittee or at an off-premises location of its choice (such location shall be the village, town, city or county clerk's office, the local library or other location as approved by the Department). In accordance with the **RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS** page of your permit, each DMR shall be maintained on record for a period of five years.

c) If, upon November 1, 1997, the permittee has installed signs that include the information required by 17-0815-a(2)(a), but do not meet the specifications listed above, the permittee may continue to use the existing signs for a period of up to five years, after which the signs shall comply with the specifications listed above.

d) The permittee shall periodically inspect the outfall identification signs in order to ensure that they are maintained, are still visible and contain information that is current and factually correct.

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the location(s) specified below:

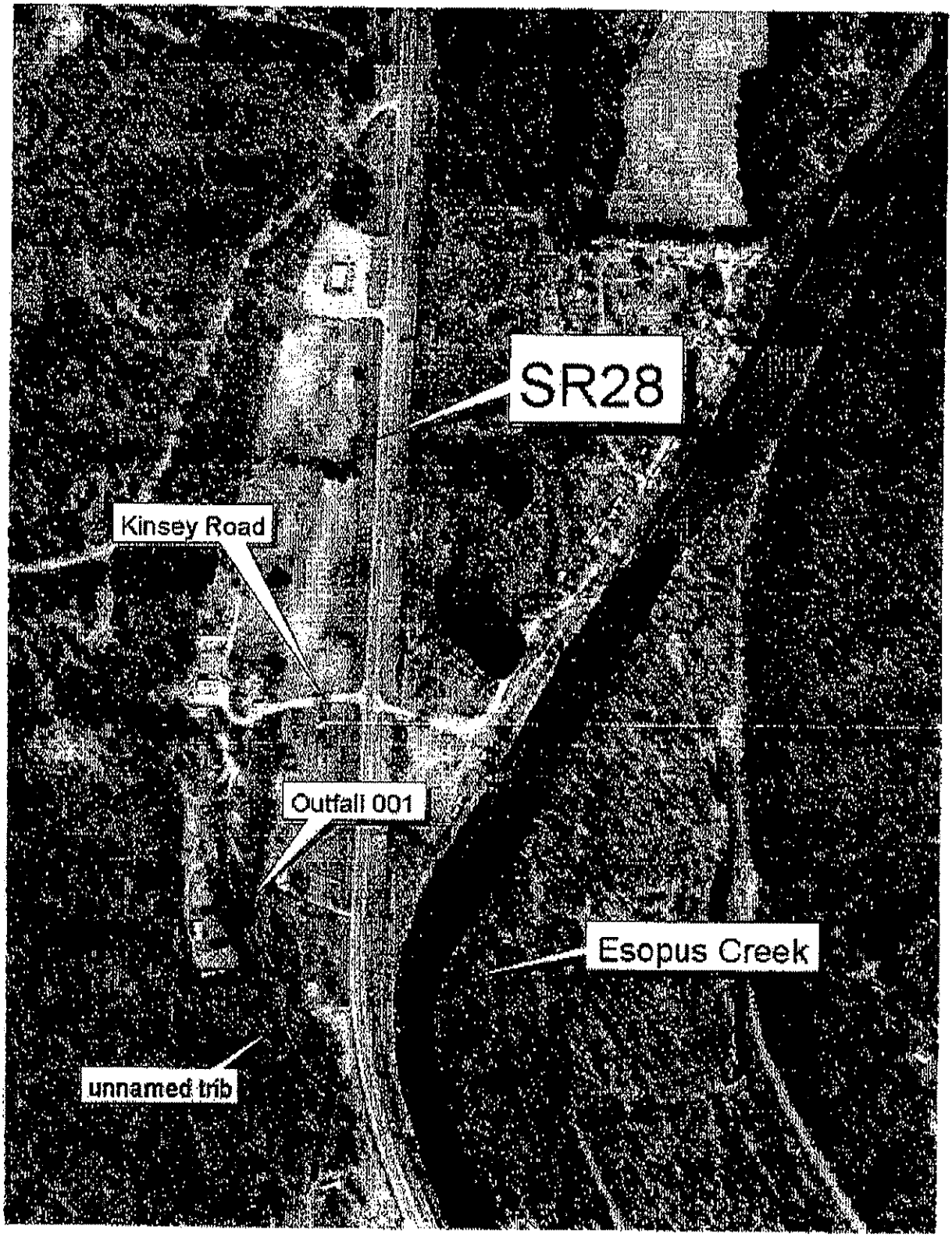


Figure 2 Town of Shandaken WWTP

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

a) The permittee shall also refer to 6 NYCRR Part 750-1.2(a) and 750-2 for additional information concerning monitoring and reporting requirements and conditions.

b) The monitoring information required by this permit shall be summarized, signed and retained for a period of at least five years from the date of the sampling for subsequent inspection by the Department or its designated agent. **Also, monitoring information required by this permit shall be summarized and reported by submitting:**

[X] (if box is checked) completed and signed Discharge Monitoring Report (DMR) forms for each __1__ month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

[ ] (if box is checked) an annual report to the Regional Water Engineer at the address specified below. The annual report is due by February 1 and must summarize information for January to December of the previous year in a format acceptable to the Department.

[X] (if box is checked) a monthly "Wastewater Facility Operation Report..." (form 92-15-7) to the:
[X] Regional Water Engineer and/or [X] County Health Department or Environmental Control Agency specified below

Send the **original** (top sheet) of each DMR page to:

Department of Environmental Conservation
Division of Water
Bureau of Water Compliance Programs
625 Broadway
Albany, New York 12233-3506

Phone: (518) 402-8177

Send the **first copy** (second sheet) of each DMR page to:

Department of Environmental Conservation
Regional Water Engineer, Region 3
100 Hillside Avenue Suite 1W
White Plains, NY 10603-2860

Phone: (914) 428-2505

Send an **additional copy** of each DMR page to:

Ulster County Health Department
300 Flatbush Avenue
Kingston, NY 12401

NYC DEP
Suite 350
465 Columbus Avenue
Valhalla, NY 10595

c) Noncompliance with the provisions of this permit shall be reported to the Department as prescribed in 6 NYCRR Part 750-1.2(a) and 750-2.

d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

e) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculations and recording of the data on the Discharge Monitoring Reports.

f) Calculation for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

g) Unless otherwise specified, all information recorded on the Discharge Monitoring Report shall be based upon measurements and sampling carried out during the most recently completed reporting period.

h) Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section five hundred two of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be sent to the Environmental Laboratory Accreditation Program, New York State Health Department Center for Laboratories and Research, Division of Environmental Sciences, The Nelson A. Rockefeller Empire State Plaza, Albany, New York 12201.

SPDES PERMIT FACT SHEET NARRATIVE
Town of Shandaken WWTP
SPDES No.:NY 027 2426
January 2007

On January 24, 2006, the Town of Shandaken (the Town) submitted a Form 2-A SPDES permit application for a new wastewater treatment plant to serve the Hamlet of Phoenicia. Treated wastewater from the treatment facility will be discharged to an unnamed tributary of the Esopus Creek through outfall 001.

SPDES PERMIT FACT SHEET: Wastewater Data, Receiving Water Data, and, Permit Limit Derivation.

(see last pages of fact sheet for explanatory notes).

Date	January 3, 2007
Permit Writer	Francis Zagorski
WQ Engineer	Charles St.Lucia
Page	2 of 4

(1) General Permittee Data:

Permit Number	Permittee Name	Facility Name	Location (C, T, V)	County	Industrial Code	Major/Sub Basin
NY0272426	Town of Shandaken	Phoenicia WWTP	Shandaken (T)	Ulster	4952	13/07

(2) Summary of Final Outfall Flow Rate(s) and Receiving Water Data:

Outfall Information					Receiving Water Information									
	Latitude	Longitude	Flow Rate (MGD)					*For use by WQ Engineer* - Critical Data						
Outfall #	°,',"	°,',"	Average	Design	Name	Class	Water Index Number	7Q10 (MGD)	30Q10 (MGD)	Dilution/ Mixing	pH (SU)	Temp (°F)	Hardness (mg/l)
001	42,03,58	74,18,32		0.185	Unnamed trib to Esopus Creek	A(TS)	H-171			(acute)			
										(chronic)			

MUNfs2.99 (2/99)

SPDES PERMIT FACT SHEET Permit Number NY 0272426 , page 3 of 4 , Date 1/03/07

(3) Individual Outfall Data Summaries and Permit Limit Development:

Outfall 001

Type of Treatment:	Screening, grit removal, sequencing batch reactors, filtration, post aeration, disinfection
and	
Sludge Handling:	aeration, filter press

Effluent Parameter (Units) (concentration units - mg/l, ug/l or ng/l; mass units - lbs/d or g/d)	Existing Effluent Quality				Technology Based Effluent Limit				Water Quality Based Effluent Limit				Permit Basis (T or WQ)
	concentration		mass						AWQC	Effluent			
	Avg	Max	Avg	Max	conc.	mass	Type	Basis	conc.	conc. ug/l	mass	Type	
~~Whole Effluent Toxicity (WET) TESTING~~									~~Recommended~~		~~YES~~		
Flow Rate, units = MGD	Average 0.185		Maximum 0.3		0.185			BPJ, TOGS 1.3.3					T
pH (SU)					6.5-8.5		Range	40 CFR 102(c)					T
$CBOD_5$, mg/l, lbs/day					5	7.71	DM	40 CFR 102, 40 CFR 133.101(f) & 40 CFR 133.105					T
TSS, mg/l, lbs/day					10	15.43	DM	40 CFR 102, 40 CFR 133.101(f) & 40 CFR 133.105					T
Solids, Settleable, ml/l					0.1		DM	BPJ, TOGS 1.3.3					T
Phosphorus, Total, mg/l					0.5		DM	BPJ, TOGS 1.3.3					T
Ammonia (as NH3), mg/l, Summer					1.1		DM	BPJ, TOGS 1.3.3					T
Ammonia (as NH3), mg/l, Winter					2.2		DM	BPJ, TOGS 1.3.3					
Dissolved Oxygen, mg/l					7.0		Dm						
Temperature, F, Summer					70		DM						
Temperature, F, Winter					monitor		DM						
Effluent Disinfection: [X] All Year [ ] Seasonal from 5/15 to 10/15													
Fecal Coliform (30 day/7 day), #/100 ml					200/400		GM	6NYCRR 703.4					T
Chlorine, Total Residual, mg/l					0.1		DM	TOGS 1.3.3					WQ

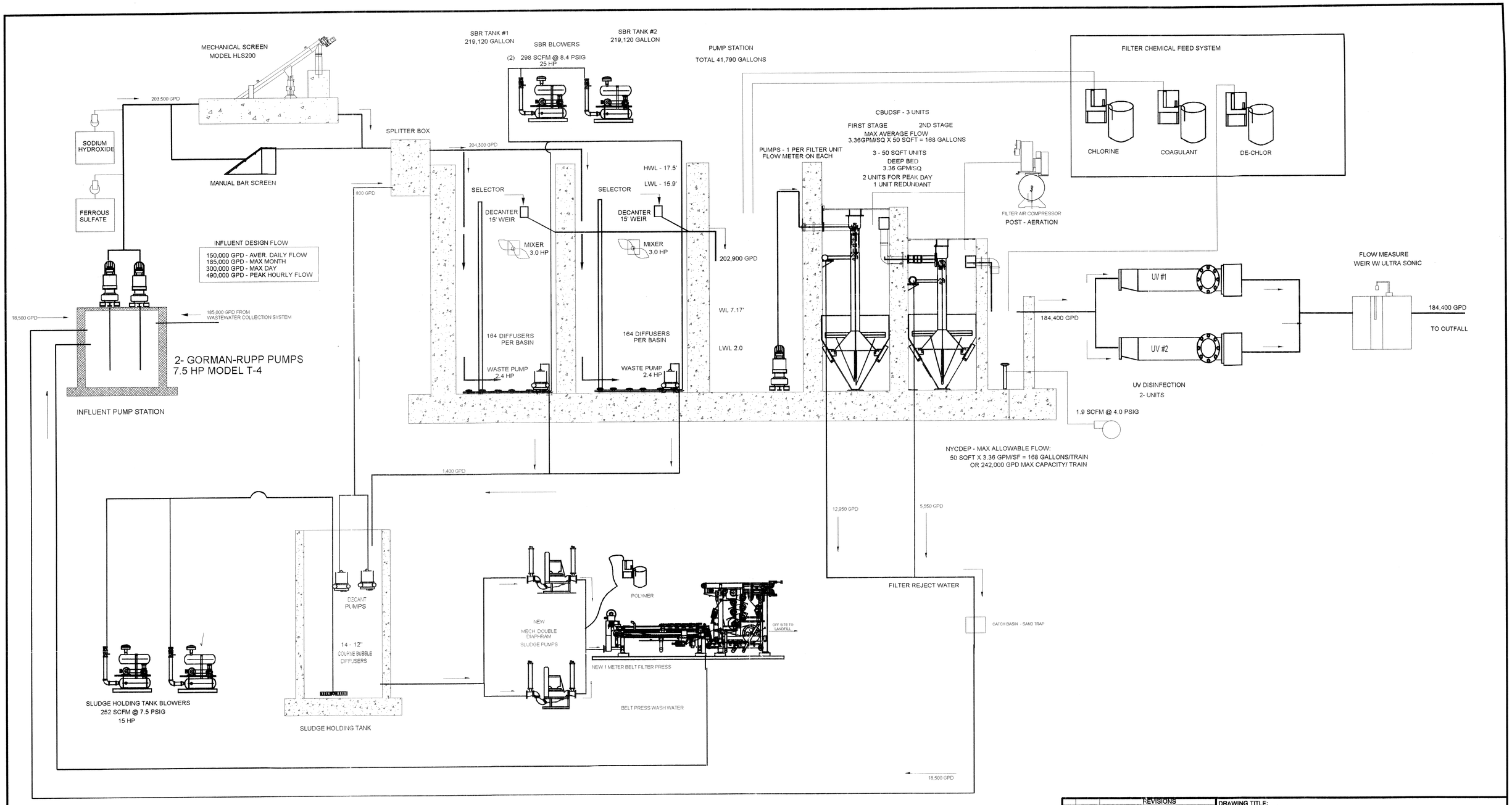
(4) Explanatory Notes:

Please note that some of these terms are not applicable to every fact sheet.

AL -	Action level calculated in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs). See the permit for a complete definition.
AVG or Av -	Average. The arithmetic mean.
AWQC -	Ambient water quality criteria for the receiving water. The applicable standard, guidance value or estimated value in accordance with TOGS 1.1.1, TOGS 1.3.1 and 6NYCRR 700-705.
Basis -	The technical analysis, internal guidance, regulation and/or law upon which an effluent limit or monitoring requirement is proposed.
BAT -	Best Available Technology Economically Achievable in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs), 40 CFR 125, 6NYCRR 750, ECL 17-0811 and the Clean Water Act.
BCT -	Best Conventional Control Technology in accordance with TOGS 1.3.4, 40 CFR 125, 6NYCRR 750, ECL 17-0811 and the Clean Water Act.
BPJ -	Best Professional Judgement in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs), 40 CFR 122 and 125, 6NYCRR 750, ECL 17-0811 and the Clean Water Act.
BPT -	Best Practicable Control Technology in accordance with TOGS 1.2.1, 40 CFR 125, 6NYCRR 750, ECL 17-0811 and the Clean Water Act.
Conc. -	Concentration in units of mg/l, ug/l or ng/l.
DA -	Daily Average. The total discharge during a month divided by the number of days in the month or the summation of total discharge divided by the number of samples taken during the month.
DAM -	___ Day Arithmetic Mean
DM -	Daily Maximum. The highest total discharge of a calendar day within a month..
Design Flow -	Treatment system design capacity as noted in an approved engineering report.
Final -	Final permit period requirements. A level of performance that must be achieved according to a schedule specified in either the permit or a consent order.
g/d -	Grams per day discharged.
GM -	Geometric Mean
GW -	Groundwater effluent limitation developed in accordance with TOGS 1.2.1 (nonPOTWs), TOGS 1.3.3 (POTWs), TOGS 1.1.2 and 6NYCRR 703.
Ind -	Indicated parameter. See definition in section (4).
Interim -	Interim permit period requirements. A level of performance that must be achieved while improvements are being implemented in order to achieve final permit period requirements.
lbs/d or #/d -	Pounds per day discharged.
Mass -	Mass discharge in units of #/d or g/d discharge.
x or Mx -	The maximum value.
MGD -	Million gallons per day.
mg/l -	Milligrams per liter.
Dilution/Mixing -	Used to determine dilution available in receiving waters. For lakes, estuaries and slowly flowing rivers and streams, mixing zone dilution is generally assumed to be 10:1 unless data is available to indicate otherwise.
Model -	Calibrated water quality model applied in accordance with TOGS 1.3.1.
Mon -	Monitor only.
NA -	The characteristics of this parameter and the reported discharge levels do not justify routine monitoring or a limit. Also indicates "not applicable".
ng/l -	Nanograms per liter. 1000 ng/l = 1 ug/l = 0.001 mg/l.
PQL -	The DEC published or site specific practical quantitation limit; the concentration in wastewater at which analytical results are thought to be accurate to within approximately plus or minus thirty percent.
R -	"Rolled Over", i.e. the specific requirement in this permit is equivalent to the previous permit. R(T) is roll over of a technology based requirement and R(WQ) is roll over of a WQBEL.
Range -	The discharge is limited to a range of effluent values, e.g. a pH limit of (6.0-9.0) SU.
RREL -	EPA's Risk Reduction Engineering Laboratory treatability database.
T -	Technology based effluent limit or requirement.
TOGS -	Technical and Operational Guidance Series. Internal guidance to permit drafters used by the NYSDEC Division of Water to aid in permit drafting. Copies of these guidance documents may be obtained from the internet at http://www.dec.state.ny.us/website/dow/togs/index.htm.
ug/l -	Micrograms per liter. 1000 ug/l = 1 mg/l.
WET-	Whole Effluent Toxicity (testing). See TOGS 1.3.2.
WQ -	Water quality.
WQBEL -	Water quality-based effluent limit. See information in section (4).
7Q10 -	The minimum average 7 consecutive day flow at a recurrence interval of 10 years. Applicable to evaluations involving aquatic health based AWQC.
30Q10 -	The minimum average 30 consecutive day flow at a recurrence interval of 10 years. Applicable to evaluations involving human health based AWQC.
95% -	The 95th percent confidence interval for the historical effluent data used to draft the permit.
99% -	The 99th percent confidence interval for the historical effluent data used to draft the permit.
133 -	Secondary treatment requirements in accordance with TOGS 1.3.3, 40 CFR 133, 6NYCRR 750, ECL 17-0509 and the Clean Water Act.
* -	These parameters represent scans. Detections vary among the compounds which are included in the scans. The listed value represent the maximum detected level of any compound in the scan.

Exhibit 9.2.a.A

Drawing PR-1 Process Schematic by Delaware Engineering, PC.



REVISIONS		
NO.	DATE	DESCRIPTION

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

DRAWING TITLE:

PROCESS SCHEMATIC

CONTRACTS: TS1-G-05; TS1-P&HVAC; TS1-E-05

CLIENT:

TOWN OF SHANDAKEN
NYC WATERSHED INFRASTRUCTURE
WASTEWATER TREATMENT FACILITY

DELAWARE ENGINEERING, P.C.
CIVIL AND ENVIRONMENTAL ENGINEERING
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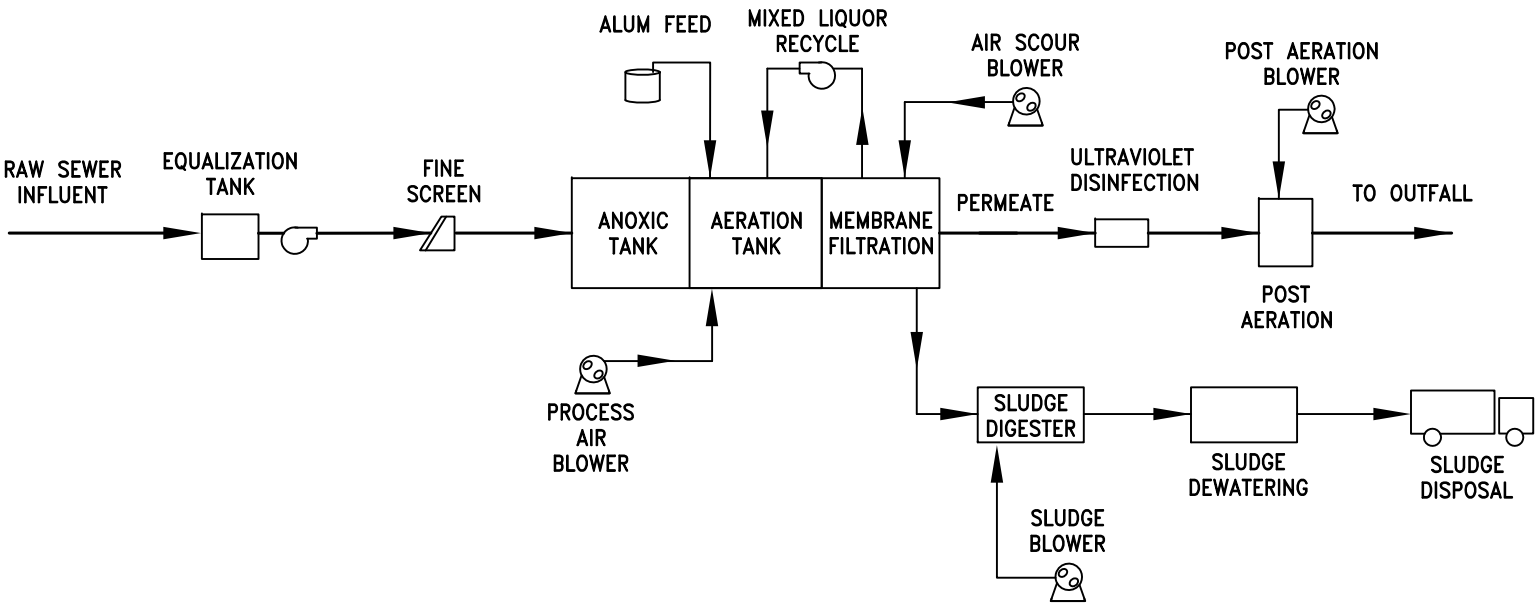
CHECKED BY:
APPROVED BY:
STATE OF NEW YORK · JAMES F. SUOZZO · 97185 · LICENSED PROFESSIONAL ENGINEER
GRAPHIC SCALE 0 4 8 12
SCALE: NTS
DATE: APRIL 2006
FILENAME:
SHEET NO. PR-1

Exhibit 9.2.c.i.A

Membrane Bioreactor (MBR) WWTP Process Flow Schematic



DATE 6/14/11	PROJECT NO. 2010050	MEMBRANE BIOLOGICAL REACTOR (MBR) PROCESS FLOW SCHEMATIC EXHIBIT 9.2.c.i.A
SCALE NOT TO SCALE	DRAWN DIP	

Lamont Engineers
ENGINEERS · PLANNERS · FACILITY OPERATIONS

Exhibit 9.2.c.i.B

Membrane Bioreactor (MBR) Manufacturer's Information

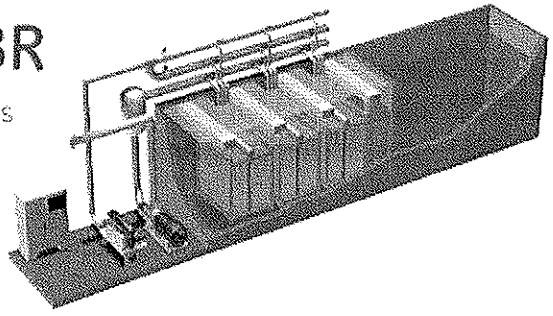
imagination at work

GE Power & Water
Water & Process Technologies

Membrane Bioreactor (MBR)

ZeeWeed* MBR

ZeeWeed membrane bioreactors (MBR) produce effluent for discharge or reuse that far exceeds the world's most stringent regulations.



Efficient, cost-effective wastewater treatment

With membrane bioreactor installations totalling over 450 MGD** of treatment capacity, GE Water & Process Technologies reinforced hollow fiber membranes are the trusted membrane platform. You're investing in peace of mind as well as technology.

ZeeWeed membrane bioreactor systems combine proven ultrafiltration technology with biological treatment for municipal, commercial and industrial wastewater treatment and water reuse applications. The membrane bioreactor system incorporates reinforced hollow fiber membranes specifically designed to meet the requirements of wastewater treatment. Membrane bioreactor systems replace conventional treatment and combine clarification, aeration and filtration into a simple and cost-effective process that reduces capital and operating costs. The result is consistent, high quality effluent suitable for any discharge or reuse application.

From small and simple membrane bioreactor systems to the world's largest and most dependable, GE has the most system / process engineering and operating experience.

Considering a Membrane Bioreactor Plant?

Learn more about design considerations that will ensure the best value for your dollar, smart features that guarantee trouble-free performance, and operational strategies to handle unexpected situations.

Membrane Bioreactor Design Considerations »

GE offers real world membrane bioreactor knowledge with industry leading design teams and long-term

Case Studies:

- Cauley Creek Water Reclamation Facility
- Australian Golf Course Recycles Municipal Wastewater with Onsite ZeeWeed MBR
- Vancouver Convention & Exhibition Centre
- Johns Creek Environmental Campus
- Corona Wastewater Treatment Plant

Related Technology:

- Zeeweed 500 Ultrafiltration Membrane

CONTACT US

Contact us to learn more about what we can do for you.

operating experience which ensures that our customers receive reliable and trouble-free MBR solutions for:

- Plant retrofits
- Cold climate operation
- Bio-phosphorus removal
- Bio-nitrogen removal
- Reverse osmosis pretreatment
- Direct reuse
- Direct discharge
- Aquifer recharge
- Small, medium and large plants

**peak daily flow rates. This includes membrane bioreactor plants in design, construction or operating as of December 31/04.

Membrane Bioreactor (MBR) Process

The ZeeWeed membrane bioreactor (MBR) process is a GE technology that consists of a suspended growth biological reactor integrated with an ultrafiltration membrane system, using the ZeeWeed hollow fiber membrane. Essentially, the ultrafiltration system replaces the solids separation function of secondary clarifiers and sand filters in a conventional activated sludge system.

ZeeWeed ultrafiltration membranes are immersed in an aeration tank, in direct contact with mixed liquor. Through the use of a permeate pump, a vacuum is applied to a header connected to the membranes. The vacuum draws the treated water through the hollow fiber ultrafiltration membranes. Permeate is then directed to disinfection or discharge facilities. Intermittent airflow is introduced to the bottom of the membrane module, producing turbulence that scours the external surface of the hollow fibers. This scouring action transfers rejected solids away from the membrane surface.

ZeeWeed membrane bioreactor technology effectively overcomes the problems associated with poor settling of sludge in conventional activated sludge processes. ZeeWeed MBR technology permits bioreactor operation with considerably higher mixed liquor solids concentrations than conventional activated sludge systems that are limited by sludge settling. The ZeeWeed MBR process is typically operated at a mixed liquor suspended solids (MLSS) concentration in the range of 8,000 to 10,000 mg/L. Elevated biomass concentrations allow for highly effective removal of both soluble and particulate biodegradable material in the waste stream. The ZeeWeed MBR process combines the unit operations of aeration, secondary clarification and filtration into a single process, producing a high quality effluent, simplifying operation and greatly reducing space requirements.

ZeeWeed Membrane Bioreactor Features and Benefits

- **Physical ultrafiltration (UF) barrier**

Produces a high quality effluent suitable for direct reuse

- **Unmatched fiber ruggedness**

  Ensures a longer membrane life in harsh wastewater operating environments

- **Hollow fiber geometry**

  Provides a greater filtration surface area which reduces plant footprint and effectively distributes cleaning solutions

- **Effective backpulse cleaning**

  Maintains long-term, peak system performance and provides a simple, rapid method of recovery in the event of a plant upset

- **Automated in-situ cleaning**

  Simplifies system operation and maintenance, while reducing operating costs

- **"Self-healing" fibers**

  No catastrophic membrane failures means that your plant keeps working

- **Compact design**

  Smaller plant footprint reduces capital costs

- **Proven system performance**

  Successful track record of operation in hundreds of municipal and industrial applications provides you with peace of mind

ZeeWeed Membrane Bioreactor Treatment Results

BOD	< 2 mg/L
TSS	< 0.5 mg/L
NH3-N	< 0.5 mg/L
TN	< 3 mg/L**
TP	< 0.05 mg/L**
Turbidity	< 0.2 NTU
Fecal Coliform	< 10 CFU/100 mL
Transmisivity	> 75%

**with appropriate biological design and/or chemical addition

Reinforced Membranes for Membrane Bioreactor Applications

Reinforced membranes™ are preferred for membrane bioreactor (MBR) applications because it's never a perfect world.

The reinforced hollow fiber membrane design philosophy benefits users today and in the future. You may never need to use the built-in safety features such

as the ability to effectively backpulse, but if you do, you'll be glad the security is there.

- Unmatched ruggedness results in a longer membrane life and lower plant life cycle costs
- "Self-healing" fibers mean no catastrophic membrane failures and no plant shutdowns
- Effective back-pulse cleaning ensures long-term, peak system performance and a simple method to recover the membrane permeability in the event of a plant upset
- Compact design means smaller plants and reduced capital and operating costs.

The rugged membranes have a proven track record for operating in all types of demanding environments, including municipal/commercial/industrial wastewater and landfill leachate applications.

* Trademarked in one or more countries

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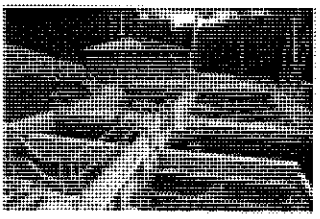
imagination at work

GE Power & Water
Water & Process Technologies

Membrane Bioreactor (MBR) Design Considerations

GE is pleased to present the "12 Golden Rules to Maximize MBR Value." You will find many unique insights that you can immediately take advantage of to make more informed membrane bioreactor decisions. Learn more about design considerations that will ensure the best value for your dollar, smart features that guarantee trouble-free performance, and operational strategies to handle unexpected situations.



Membrane bioreactor systems are increasingly being specified as the best available technology for virtually all wastewater treatment applications—from greenfield plants, to retrofits to water reclamation projects. Membrane bioreactor systems offer several operational and economic advantages over conventional Wastewater Treatment Plants (WWTPs) including extremely compact footprints, simplified operation and consistently higher quality effluent—all for a comparable life-cycle cost.

VALUE is what guides prudent city administrators, plant owners and consulting engineers to choose membrane bioreactor technology. Each of these decision makers knows that maximizing long-term system value extends beyond the initial capital cost and includes a membrane bioreactor vendor's experience, commitment to membrane technology, and service. All are key in ensuring that you have access to the best available wastewater technology today and well into the future.

Plan for the Unexpected

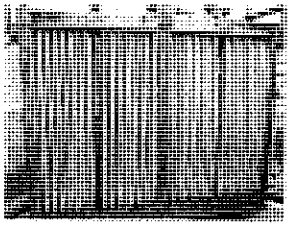
Increasingly stringent discharge and reuse regulations leave no margin of error in plant operations. Membrane bioreactor design should incorporate the appropriate level of redundancy to mitigate operating risk. System and process redundancy is one of the most effective ways to safeguard your membrane bioreactor against unpredictable circumstances such as prolonged peak flows, unseasonably wet weather and equipment failures.

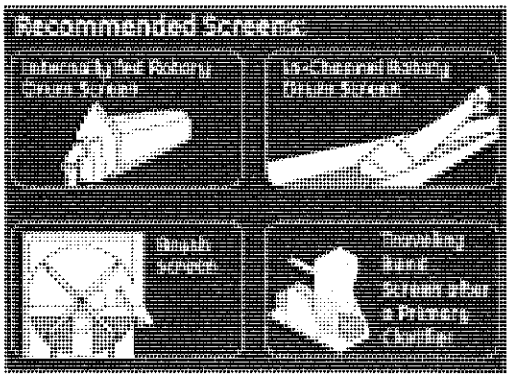
Design Tip

Levels of redundancy can vary significantly. Small-scale membrane bioreactor plants may be able to rely on equalization, large-scale membrane bioreactor plants don't have that luxury.

Protect Your Membrane Bioreactor Investment

Fine screening for a membrane bioreactor system is an essential pretreatment step to prevent unwanted solids in the waste stream from entering the membrane tank. This prudent design measure minimizes solids accumulation and protects the membranes from damaging debris and particles, resulting in extended membrane life, reduced operating costs, higher quality sludge and trouble-free operation.





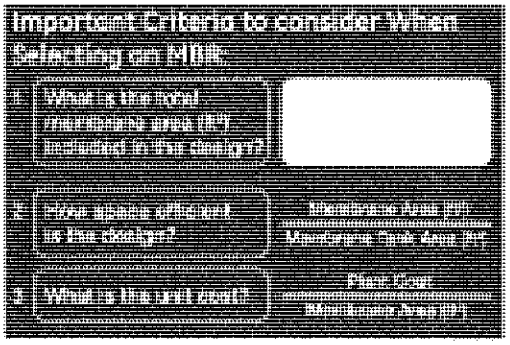
Proper screening is critical for membrane bioreactor systems as shown in the above membrane cassette which has been operating for nearly 2 years at a major North American installation.

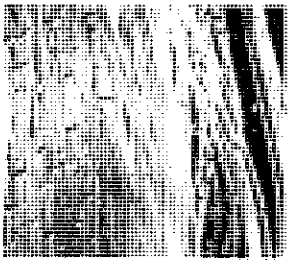
Design Tip

Screens with perforated panels between 1 mm and 2 mm provide the optimal level of protection.

Get More for Less

Hollow fiber membrane systems pack the largest filtration area into each square foot of process train, resulting in more capacity within a smaller membrane footprint. This reduces capital and operating costs of a membrane bioreactor system. Modular cassettes further optimize the filtration area, eliminating the need for stacking, and ensuring simple, safe and easy access to the membranes at all times.





ZeeWeed Hollow Fiber Ultrafiltration Membranes

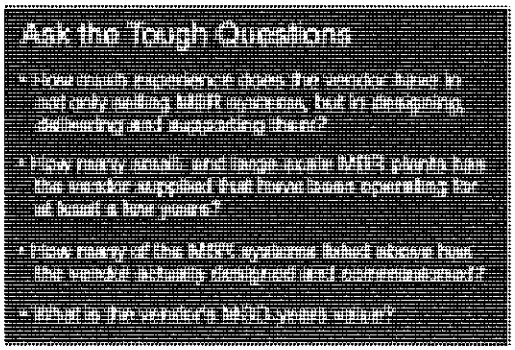
Design Tip

The only way to compare what you are getting for your MBR dollar is to evaluate the unit costs.

Track Membrane Bioreactor Vendor Experience

Take the time to carefully examine the membrane bioreactor vendor's track record of plant performance, reliability and client satisfaction. A partnership with GE provides access to over 25 years of membrane bioreactor leadership during the design, construction and operational stages of a membrane bioreactor plant.

Through such collaborative efforts, GE has set the standard for membrane bioreactor projects around the world with achievements ranging from the world's largest membrane bioreactor plants to simple, cost-effective packaged plants that can be quickly set up in virtually any location.



Design Tip

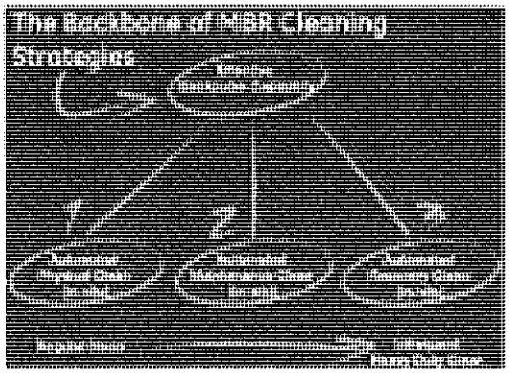
The MGD-years rating is the best way to evaluate vendor value. It is a basic calculation:

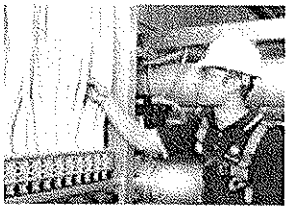
PLANT CAPACITY x YEARS OF OPERATION

For example, an MBR plant with an ADF of 3 MGD, operating for 3 years represents a value of 9 MGD-years

Keep it Clean

Clean membranes (inside and outside) ensure high quality effluent and a high state of system readiness to handle peak flows or recover quickly from an upset. Different cleaning scenarios require different tools to ensure the quickest and most cost-effective cleaning. Hollow fiber membranes have an inherent advantage as they can withstand backpressure of 8 psi and conduct an effective backpulse cleaning, which distributes cleaning solutions more effectively.





Inspection of ZeeWeed 500 reinforced hollow fiber membranes

Design Tip

Backpulsing is not required as part of the day-to-day operation of most membrane bioreactor plants. In fact, you may never need this built-in safety feature, but if you do, you'll be glad it's there as it will save you time and money.

Read the Fine Print

Membrane warranties should protect the client, and the membrane bioreactor manufacturer. Review warranties carefully with vendors and make sure that the warranty is not overly restrictive and provides reasonable terms for items including membrane replacement, guaranteed replacement costs, and conditions which may void warranty coverage such as duration and number of peak flow events.

Key Membrane Bioreactor Warranty Considerations:

- Who is providing the process and membrane warranty - the original membrane manufacturer or sales agent?
- What are the limitations of your warranty and are they overly restrictive?
- Is the membrane replacement price guaranteed by the original membrane manufacturer?

Design Tip

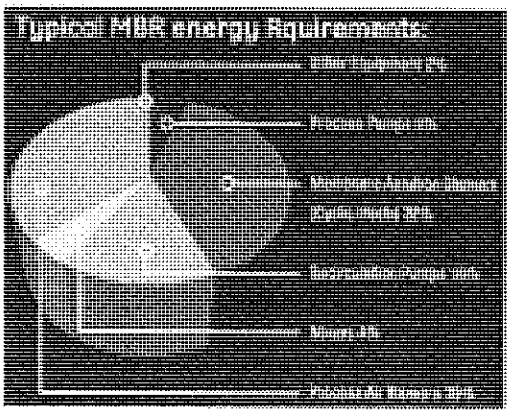
Technical support, system enhancements and replacement membranes may be required during the life of your membrane bioreactor. Working with the original membrane manufacturer ensures that you receive the best available solutions over the long term.

Don't be Power Hungry

Energy costs are skyrocketing; look for efficiencies wherever possible. For example, continuous membrane aeration can consume over 50% of a membrane bioreactor plant's total energy demand. However, the patented GE cyclic aeration process can trim this energy demand by up to 75%, significantly reducing overall operating costs.

Design Tip

Compare energy consumption of different membrane bioreactor systems at the average daily flow rate.



Avoid Plant Burn-out

Responsible flux assumptions are critical to designing an membrane bioreactor plant that will operate smoothly under all conditions and withstand wastewater variability or increasing flows. ZeeWeed® MBR designs incorporate a thorough 20-year lifecycle analysis based on actual full-scale plant operating data to ensure that each plant meets expectations well into the future, and provides reliable, cost-effective operation.

Understand Your Membrane Bioreactor Design Parameters:

- Is the design flux based on short-term pilot data or long-term operating membrane bioreactor data?
- Is the design flux from a plant of similar size?
- Ensure that sample flux data is tied to MLSS concentrations and temperatures.

Design Tip

Even though it may be appealing to select a high initial design flux to reduce capital costs, it may end up costing much more over the long term.

Get with the Program

Membrane bioreactor plant automation simplifies process control, reduces staffing requirements, and streamlines maintenance procedures. ZeeWeed® MBR incorporates several layers of automated controls including advanced PLC capabilities, exclusive ZENOTrac™ monitoring system, and the industry's most advanced automated cleaning toolkit to ensure simple, troublefree operation.

Design Tip

Computers are all around us and simplify our lives. Take advantage of membrane bioreactor automation and reduce plant operating costs.

Only the Strongest Survive

Reinforced membranes provide the highest degree of durability for withstanding the harsh operating environment of a membrane bioreactor. Membrane bioreactors that incorporate reinforced fibers are inherently more reliable and also benefit from longer membrane life, lower operating costs and avoid catastrophic membrane failures-which means that your plant keeps working.

Design Tip

Hollow fiber membranes offer a wider PSI operating spectrum. This means that you can do more with them, from increasing throughput and membrane life to backpulsing-you get more value.

Don't Lose Control

Separate tanks for the bioreactor and the membranes ensure that tight control can be maintained over the membrane bioreactor processes, while offering a great deal of flexibility for plant operation and maintenance. By providing a separate tank for the membranes, a membrane bioreactor plant can better optimize coarse bubble scouring of the membranes, implement a broader range of cleaning methods without removing membranes or adversely affecting biological activity, and handle fluctuations in bioreactor volume and MLSS concentration more effectively.

This Membrane Bioreactor Configuration is Critical for:

- Enhanced Nutrient Removal (ENR)
- Biological Removal of Nitrogen and Phosphorous (BNR)

Design Tip

Computer-based dynamic process models are excellent tools for the design of ENR/BNR membrane bioreactor plants.

Keep it Simple

The ideal membrane bioreactor system should provide a high degree of simplicity in design, operation and maintenance. Keeping a membrane bioreactor system simple provides numerous benefits that reduce costs and result in highly efficient systems that provide years of trouble-free operation. Key features to look for include:

- Membrane modules that easily allow for inspection and maintenance.
- Membrane cassettes that include built-in permeation and aeration equipment.
- Minimum number of connections between the membrane cassette and process tank.
- Proper amount of space between membrane modules.

Design Tip

Ensure the membrane cassette connections are accessible from the top of the tank. This will allow you to remove a single cassette without having to shut down an entire train or drain the tank.

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OVIVO
Bringing water to life™

Enviroquip® MBR

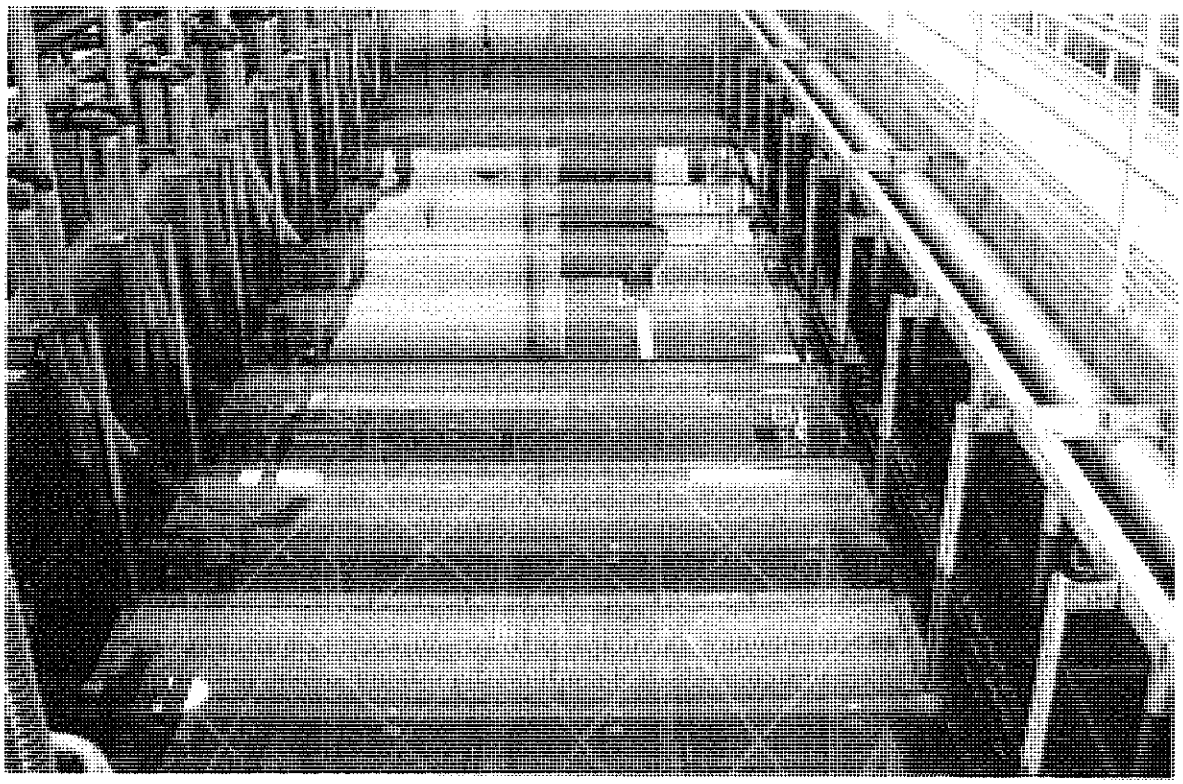
Submerged Membrane Bio-Reactor (MBR) Systems for wastewater treatment and reuse

Key features & benefits

- Fully integrated, complete solutions
  Supplied as modular skid mounted units, ready for installation
- Demonstrated proven field reliability
  Extensive field experience
- Substantially smaller solution than conventional activated sludge solutions, allowing for simplified retrofitting
- Technologies flexible to deliver customised solutions

How we create value

- Based on more, more Membrane Bioreactor experience than any other company
- Delivering solutions using proven, integrated design and automation technologies
- Developed energy saving technologies and control strategies
- Offering short flow conditions and sure safe designs
- Providing 24/7 customer support
  Experienced, well-trained service technicians and a network of local contractors

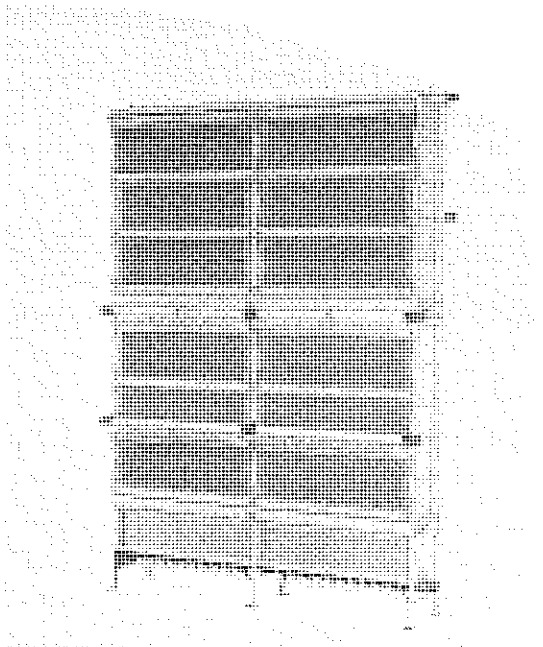


Enviroquip® MBR

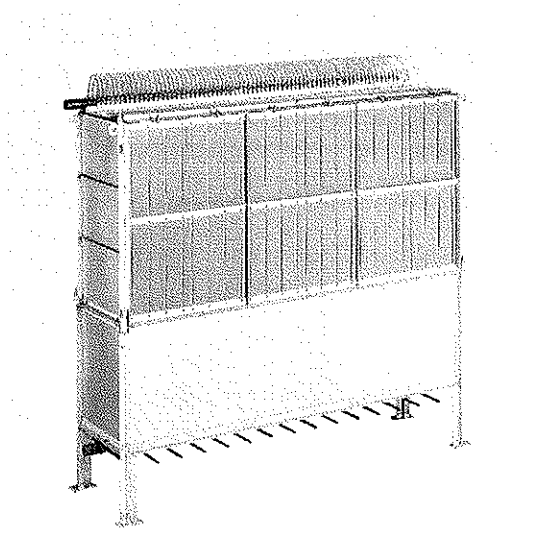
MBR Systems

Membrane Bioreactors have been used for the successful treatment of municipal, commercial and industrial wastewaters for discharge and reuse since the 1980s. With thousands of installations operating worldwide, MBR technology is shaping the way we view wastewater treatment and water conservation across the globe.

Submerged within each MBR are membranes that physically reject pathogens and other suspended solids. Additional biological processes are required to removal contaminants such as Biochemical Oxygen Demand (BOD), nitrogen and phosphorous. As such, MBRs have traditionally been just one part of a system designed for the biological treatment of wastewater. However, as a provider of complete Waste Water Treatment Plants (WWTPs), Ovivo understands that systems, not just components, must operate simply and reliably as a whole. That is why we offer complete MBR systems, not just their constituent parts, and supply the most user-friendly Submerged Membrane Unit (SMU) on the market today.



RW Submerged Membrane Unit



ES Submerged Membrane Unit

Enviroquip® MBR

How it works

The Membrane Bioreactor (MBR)
A membrane bioreactor is an activated sludge process that uses membranes to filter out suspended solids including harmful microorganisms such as viruses, bacteria and cysts. In an MBR, SMUs are connected via common permeate, air supply and diffuser cleaning pipes.

The Submerged Membrane Unit (SMU)
Each SMU is comprised of an integral air diffuser assembly and one or two membrane cassettes. The diffuser provides air for scouring, mixing and cellular activity. A membrane cassette contains between 25 and 200 membrane that are connected to, or form, a common permeate manifold. Multiple SMU are connected to a common header in each MBR.

The Membrane Cartridge
Each membrane cartridge is constructed by ultrasonically welding a sheet of thin polymeric metal to the front and back of a support panel. Between the panel and the membrane material is a porous spacer material that distributes water to a series of grooves that channel filtered water to the top of the cartridge.

Biofilms
In an Enviroquip® MBR system, flat sheet membranes are used to filter a concentrated mixture of organisms commonly referred to as mixed liquor. The microorganisms consume BOD, nutrients and refractory organic compounds such as NDMA. They also attach themselves to the membrane's surface to form a thin film called a biofilm. Within seconds, the biofilm begins to function as a dynamic membrane. Properly maintained, this biofilm protects membrane material from fouling and creates a second, densely packed barrier to pathogen breakthrough.

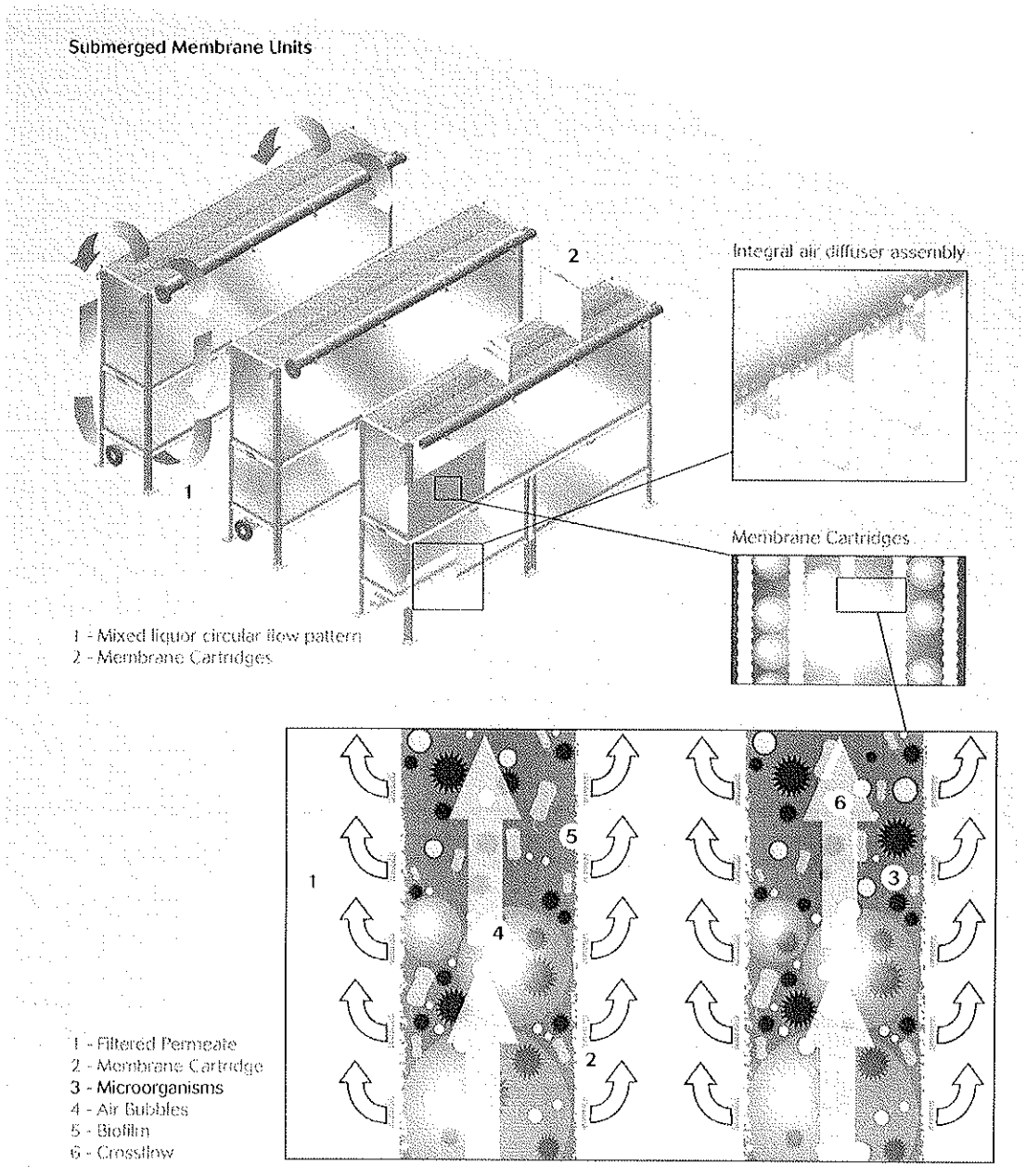
Biohydraulics
Irrespective of the type and shape of membrane, biofilms do most of the filtering and create the most resistance to water flow. Maintaining biofilm thickness and porosity through effective air scouring and proper biological process control is key to optimizing the hydraulic performance of any submerged membrane technology in MBR applications. The link between biological process conditions and membrane hydraulics referred to as biohydraulics.

Our SMU are engineered to maximize air-scouring efficiency and eliminate opportunities for hair and debris to accumulate. Efficient, even air-scouring dramatically reduces the pressure it takes to filter solids from treated wastewater, often referred to as transmembrane pressure (TMP).

Operating at a low TMP reduces the propensity for membrane fouling and eliminates the need for weekly chemical cleanings or backpulsing common to other systems, meaning that our flat sheet membranes last longer.

Submerged Membrane Units

Bottom: Multiple barriers – membranes and biofilms.



Enviroquip® MBR

The Enviroquip® MBR System

Enviroquip® MBR systems include multiple, proven technologies allowing for flexible, adaptable operation. The ability to operate over a range of different conditions improves overall system performance as compared to conventional treatment processes and MBRs that use hollow fiber membranes.

Enviroquip® MBR systems can include:

Headworks
Complete packages including roughing screens, fine screens and grit removal.

Proven Membrane Technology
Our SMUs are installed in more MBR plants around the world than any other MBR technology.

Digestion / Thickening
Membrane-based systems designed to digest and / or pre-thicken waste-activated sludge. Class B systems also available.

Ancillary Process Equipment
A full complement of proven components for a fully functioning MBR system including pumps, blowers, mixers etc.

Integration and Controls
Supervisory Control and Data Acquisition (SCADA) packages to reduce energy costs, maximize membrane performance and allow for remote plant control.

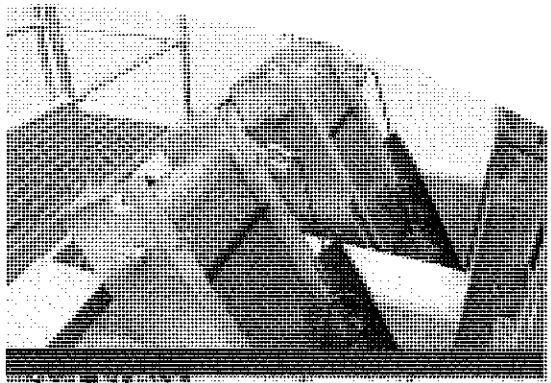
Pure Oxygen & Peak Flow Management Systems (Optional)
Pure oxygen systems (DOCS™ + SDOX™) and side-stream physical/chemical treatment technologies (using iSEP™) are available to achieve smaller footprints and reduce project costs.

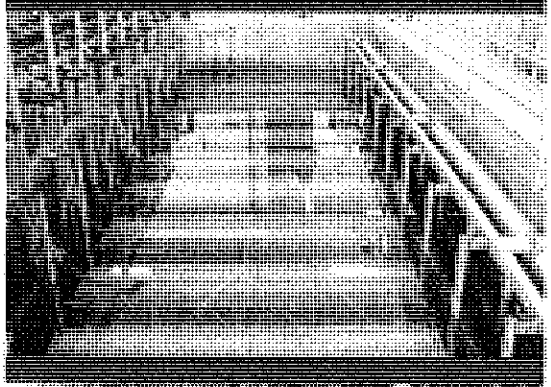
Enviroquip® MBR versus conventional treatment processes

- Fewer unit operations
- Smaller footprint
- Reduced life cycle costs
- Superior water quality

Enviroquip® MBR versus Active Sludge processes

- Better process control
- Easier to operate
- Smaller footprint
- No side-stream scrubbing
- Fewer recycle streams
- Reduced maintenance
- Higher peak flow capabilities





Enviroquip® Headworks, Membrane Equipment, Ancillary Process Equipment, Integration and Controls

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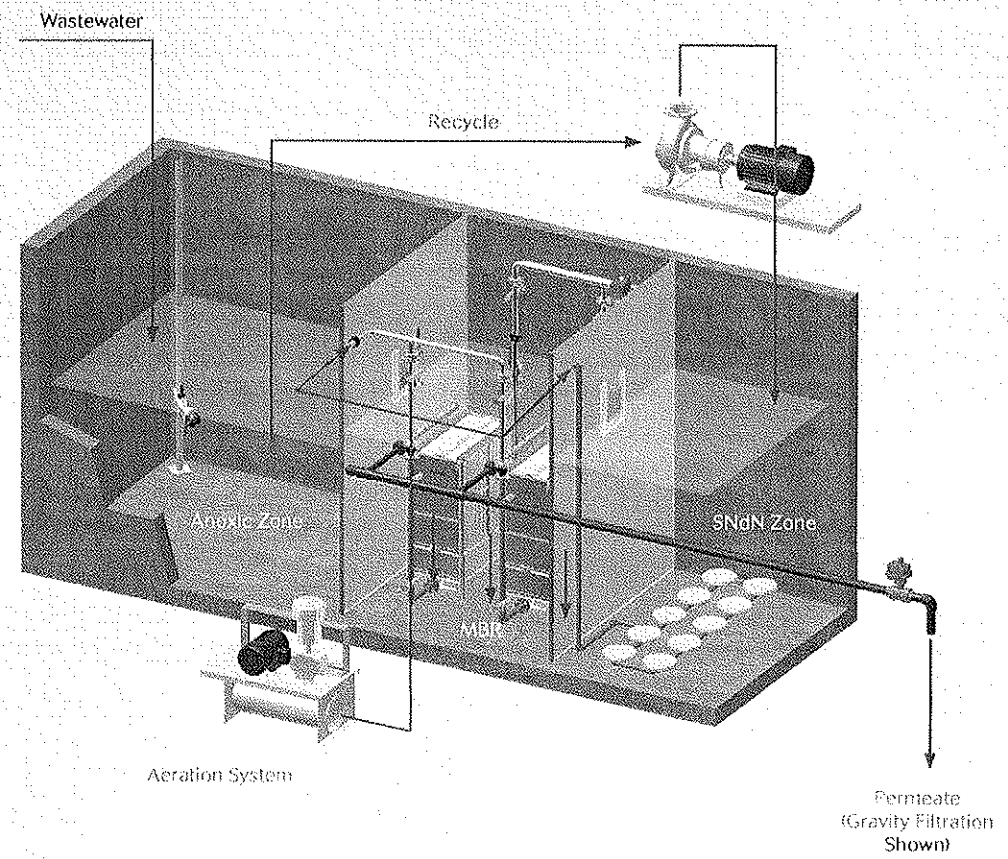
MBR Process Train (UNR®1)



Enviroquip® MBR

Features and Benefits

Single Source Responsibility

- Comprehensive integrated system for municipal wastewater
- Streamlined, private interface for MBR operation approved federal agency
- Minimizing human sludge handling (sludge-free)
- Eliminates secondary clarifiers and sand filters, reducing process footprint

Cost Effective, Green Solutions

- Competitive capital cost (and installed capital cost)
- Reduced operation, consumable, energy and chemical consumption
- Lower overall carbon footprint by [illegible]
- Solid waste management and post-sludge disposal

The Most Reliable Systems

- [illegible] of demonstrated
- [illegible] Adaptive management [illegible]
- [illegible] Proven [illegible]
- Minimal manual operation [illegible]
- [illegible]

Highest Effluent Quality

At the heart of an Enviroquip MBR system is a tailored biological process that virtually eliminates pollutants such as Biochemical Oxygen Demand (BOD), nitrogen and phosphorous that can cause fish kills and algae growth (eutrophication).

The UNR® Ultimate Nutrient Removal process has been developed to meet the most stringent nutrient limits. Different treatment levels, and their corresponding typical effluent qualities, are shown in the tables below.

Microorganisms (created during biological uptake of dissolved pollutants) are filtered through multiple protective barriers and reduced to levels that are generally undetectable by standard methods. Fecal coliform concentrations are normally non-detectable in MBR permeate before post-disinfection, as compared to 100,000 cfu / 100 ml in traditional secondary effluent.

Permeate Quality

Parameters	Typical Values	Achievable Values[a,c]
BOD_5	<2.0 mg/l	Non-Detect[b]
Ammonia	<1.0 mg/l	Non-Detect[b]
Total Nitrogen	<10.0 mg/l	<3.0 mg/l[e]
Phosphorus	<1.0 mg/l	<0.03 mg/l
TSS	<2.0 mg/l	Non-Detect[b]
Turbidity	<0.1 NTU	<0.05 NTU
Fecal Coliform	<2.2 CFU/100ml	Non-Detect[b,c]
SDI	<3	<2

a Contingent on plant design and operation.

b Assuming Standard Methods of detection.

c Requires UNR® Process.

d Post-disinfection may be required.

Typical Guarantee Limits[c,f]

UNR Level	BOD_5	Ammonia	Total Nitrogen	Phosphorous[g]
1	<5.0 mg/l	<1.0 mg/l	<10.0 mg/l	<1.0 mg/l
2	<5.0 mg/l	<1.0 mg/l	<7.0 mg/l	<.5 mg/l
3	<5.0 mg/l	<1.0 mg/l	<3.0 mg/l	<.1 mg/l

e Limits are a function of process design and are dependent on operating conditions.

e Assuming Standard Methods of detection and an average of a least four 24-hr composite samples.

g Assumes combination of enhanced biological phosphorus removal and chemical coagulation.

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Applications

Core MBR Technology

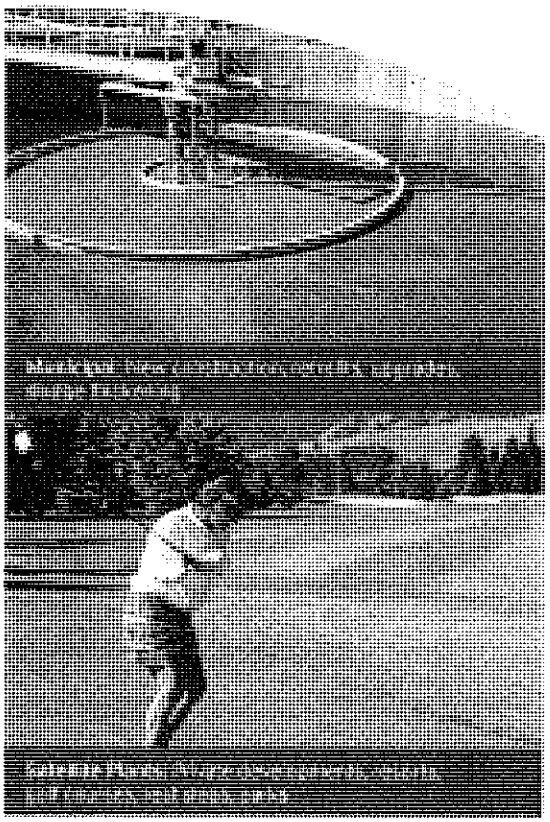
For over 15 years Ovivo has been supplying our core MBR technology to the world using widely accepted design guidelines and conventional diffused aeration technologies. We can offer simple membrane equipment packages to meet project specifications or complete solutions to wastewater treatment problems.

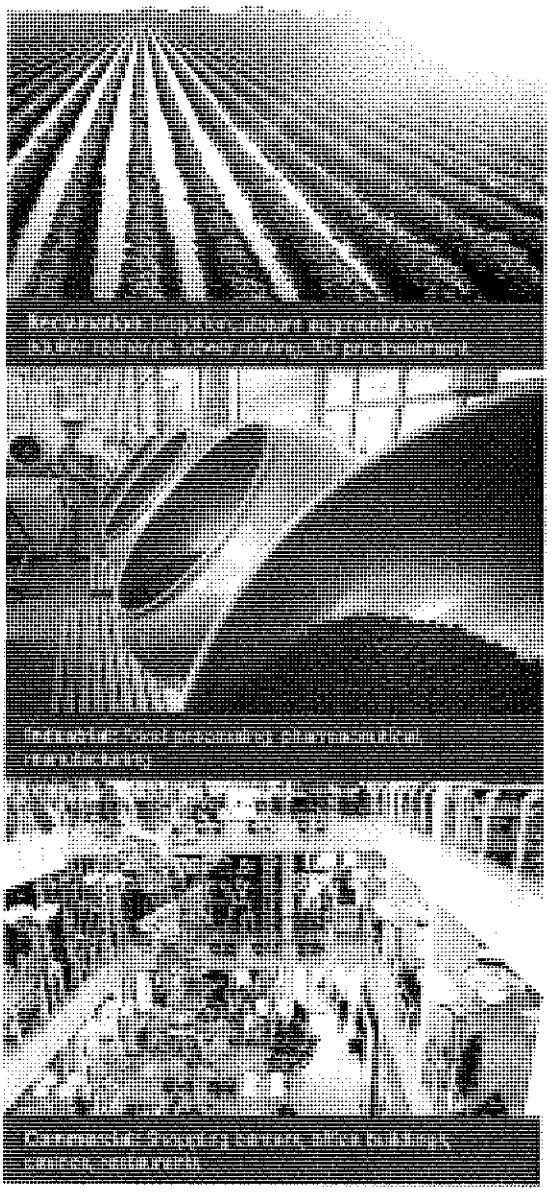
ECOBLOX™

The latest innovation from Ovivo in biological systems is our MBR System using high purity oxygen (HPO). Unlike other HPO based technologies, our patent pending method of saturating influent using oxygen generated onsite eliminates all safety, siting and regulatory concerns. These safe, easy to operate systems are based on military applications requiring extreme reliability in the most adverse conditions. ECOBLOX Systems are specifically designed for ease of operation but the biggest advantage to end users is ultimately reduced cost of ownership.

STORMBLOX™

The Achilles Heel of MBR Systems in general remains short-term, dilute peak flows that generally occur during storm events. In fact, peak flows in excess of three times the rated capacity of a plant can often make MBR technology cost prohibitive. Ovivo has recently developed a means of handling storm events using direct membrane filtration followed by activated carbon and zeolite; all known, proven commodities. Trimming off peak flows can dramatically simplify operations, reduce energy bills and create new funding opportunities given ease of future expansion.





Enviroquip® MBR

Our Expertise

Our multidisciplinary staff draws on over forty years of experience to integrate state-of-the-art technologies into custom plants or pre-engineered packages (MPAC®) to maximize energy efficiency, optimize process control and protect membrane equipment. Our goal is to provide customers with comprehensive solutions to their wastewater problems.

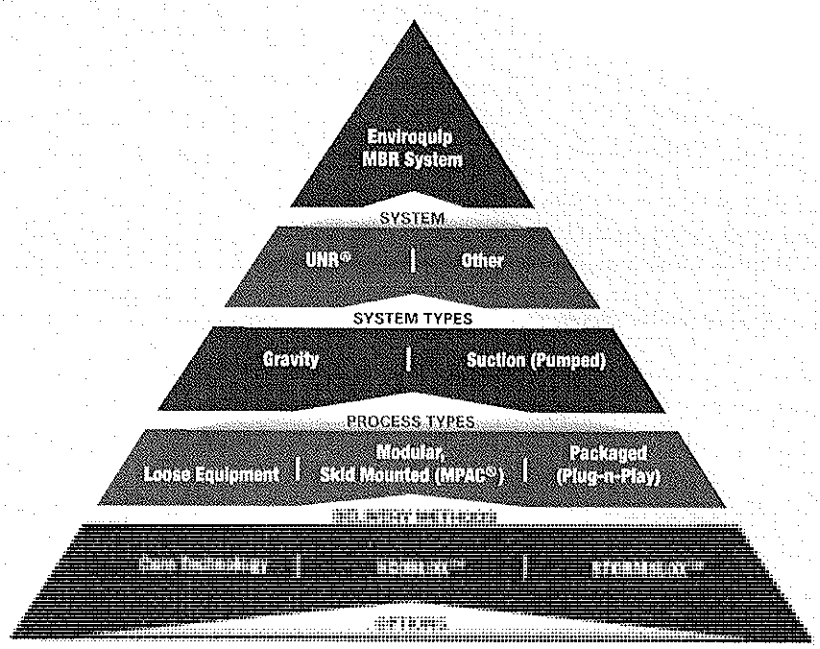
Starting with proven, reliable headworks technologies and ending with membrane-based solids handling systems, Ovivo can provide Single Source Responsibility (SSR) for your MBR system. SSR ensures the prompt, comprehensive support you need as part of the industry's best warranty plan.

Support and Aftermarket Care
We realize that our continued success depends on customer satisfaction and ultimately, plant performance. We take great pride in delivering superior design support during the engineering and construction phases of a project and in maintaining reliable after sales support.

Using advanced remote monitoring technologies, we stay in constant contact with our plant operators. We offer ongoing technical training through workshops and site visits, keeping our customers up-to-date and informed of the latest technical information.

Simple in design and easy to operate, an Enviroquip MBR System offers all the benefits of membrane technology without the usual complications. From point-of-use package plants (see the MPAC brochure) to custom municipal installations, our experienced, professional staff has supported the design and or commissioning of more than 250 MBR Systems.

Equipped to handle your specific requirements, we can help you to customize your plant using an array of different options as shown in the diagram below.



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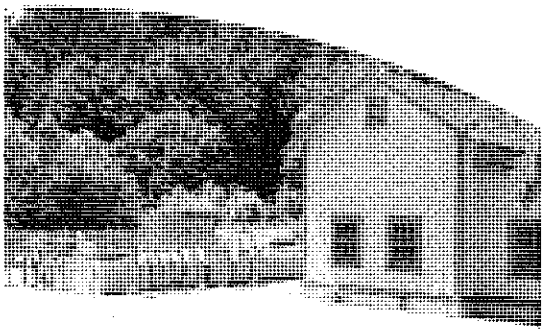
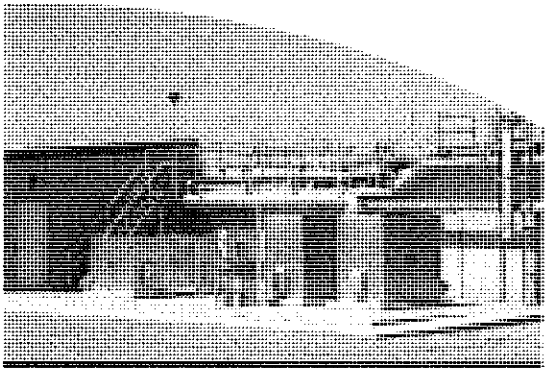
Enviroquip® MBR Installations and Customer Testimonials

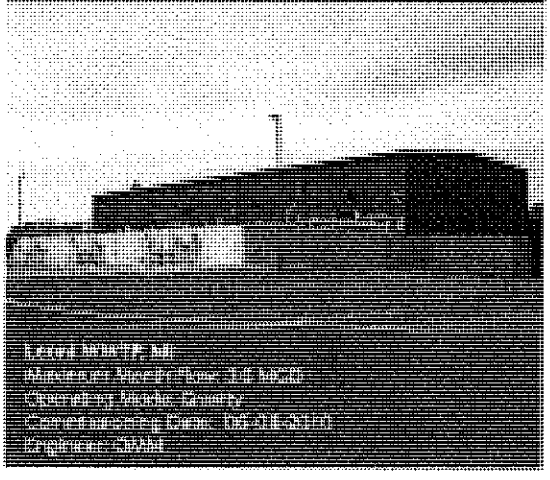
"There's just not a lot of moving parts on an Enviroquip® MBR System. It's a lot more forgiving than my SBR and [conventional] activated sludge systems."
Charlie Evans, Operator
Environmental Management Services

"It's amazing how easy it is to start up and operate one of these [MBR] plants."
Warren Felton, Superintendent
The Bandon Dunes WRF, Oregon

"During the snow melt, my MBR system handled higher than design flows at lower than expected temperatures for over a month. When it counted, the system performed."
Kevin Maughan, Lead Operator/Assistant Fire Chief
The Hyrum WRF, Utah







www.cambridge.org

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KRÜGER

1. Company Introduction

I. Kruger Inc. (Kruger) is a water and wastewater solutions provider specializing in advanced and differentiating technologies. Kruger provides complete processes and systems ranging from biological nutrient removal to mobile surface water treatment. The ACTIFLO® Microsand Ballasted Clarifier, BIOCON® Dryer, BIOSTYR® Biological Aerated Filter (BAF), NEOSEP® MBR and HYDROTECH Discfilters are just a few of the innovative technologies offered by Kruger. Kruger is a subsidiary of Veolia Water Solutions and Technologies (VWS), a world leader in engineering and technological solutions in water treatment for industrial companies and municipal authorities.

VWS, present throughout the world, develops a global approach responding to specific needs of customers at each of their production facilities. This has allowed VWS to become the world leader in design, project management, and execution of projects for water and wastewater treatment plants. The company also creates dedicated technology solutions to meet its customer's needs. Its unique portfolio of differentiating technologies, developed by the group's R&D centers, ensures unsurpassed innovation and control of each treatment line for public organizations and industries. Furthermore, a whole range of associated services is offered on each site to guarantee the technical efficiency and life expectancy of the installed solutions. VWS continually extends and enriches its offer, to guarantee expertise and competence at every step of the projects it undertakes.

Kruger prides itself for being a customer focused organization that provides solutions to challenges faced by municipalities and not just another equipment supplier. To achieve this, Kruger has gathered a force of process experts, trained sales staff, and project managers that share our vision and priorities.

2. Energy Focus

Kruger, along with Veolia Water Solutions & Technologies (VWS) is actively pursuing a strategy to deliver sustainable and innovative technologies and solutions.

We offer our customers integrated solutions which include resource-efficient technology to improve operations, reduce costs, achieve sustainability goals, decrease dependency on limited resource, and comply with current and anticipated regulations.

Veolia's investments in R&D outpace that of our competition. Our focus is on delivering

- neutral or positive energy solutions
- migration toward green chemicals or zero chemical consumption
- water-footprint-efficient technologies with high recovery rates

Our carbon footprint reduction program drives innovation, accelerates adoption and development of clean technologies, and offers our customers sustainable solutions.

Kruger is benchmarking its technologies and solutions by working with our customers and performing total carbon cost analysis over the lifetime of the installation.
By committing to the innovative development of clean and sustainable technologies and solutions worldwide, Kruger and VWS will continue to maximize the financial benefits for every customer.

3. Process Description

The NEOSEP system is an immersed flat sheet membrane bioreactor (MBR) system consisting of activated sludge bioreactors, aeration equipment, PLC-based control system, and flat sheet membrane modules. The flat sheet membranes are polyvinylidene fluoride (PVDF) and have an average pore size of 0.08 µm. The standard deviation is very small (0.03 µm); therefore, fluid is evenly distributed across the membrane during filtration. In addition, cleaning chemicals are evenly distributed during cleaning cycles, making the chemical cleaning more effective than that of other membranes.

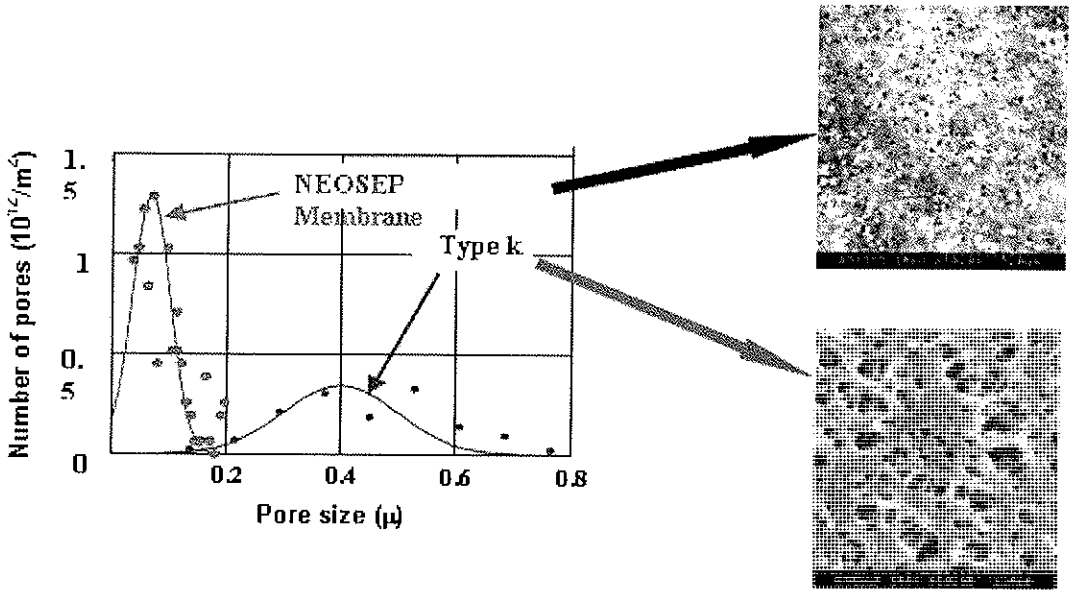


Figure 1 – Comparison of Pore Size Distribution and SEM photographs

The membrane material is placed on a PET non-woven fabric which acts as the membrane's support structure. The PVDF and PET material adheres to the element frame which is made of an ABS plastic. Each element provides 14.74 ft^2 (1.37 m^2) of membrane surface area.

Flat Sheet Membrane Module

One hundred and twenty (120) membrane elements are placed in a stainless steel housing made of 304SS. The 120 membrane elements provide 1,769 ft^2 (164 m^2) worth of effective membrane area for filtration.

The membrane elements are aligned in the stainless steel frame with a 7 mm gap between each of the sheets. To eliminate the risk of materials being trapped between the sheets, Kruger recommends a 3 mm or smaller perforated fine screen prior to the biological process.

An advantage of flat sheet membranes is the ability to stack two modules on top of one another. By stacking the modules you minimize the footprint required for the membrane tanks, utilize the scour air for both the bottom and top modules, and your oxygen transfer efficiency increases as the liquid level increases.

Membrane Operation

The operation of the membrane system is relatively simple. In order to reduce sludge cake formation-based fouling and maintain high permeability, the membrane system utilizes a "relaxation cycle" where the permeate water flow is stopped for 1 to 2 minutes during every 10 minute cycle, during which, the membranes are continuously aerated. This eliminates the need for cyclic aeration and backwashing of the membrane modules.

Membrane Cleaning Regime

Over the course of time you will see a decrease in the membrane performance. The Kruger MBR system utilizes both pressure transmitters on the suction side of the permeate pumps as well as magnetic flowmeters on the discharge. With these instruments the membrane permeability can be determined and periodic cleanings can be scheduled. The membranes are typically chemically cleaned 2 to 4 times per year. Cleaning solutions include NaOCl (0.2%), Oxalic acid and/or citric acid (0.5%).

Chemical Cleaning Procedure is described as below (Figure 4):

1. Check that the CIP isolation valve is closed and that the chemical transfer pump is at rest.
2. Feed the CIP solution tank with specified amounts of chemicals and add dilution water to make a 0.2% NaOCl or 0.5% citric acid solution.
3. Stop filtration and close the permeate valve (air diffusion should be continued).
4. Start the chemical transfer pump and make sure that the chemical solution is circulated between the CIP solution tank and the head tank.
5. Slowly open the CIP isolation valve to inject chemicals.
6. Feed required CIP solution into each module (5 Liters per element), stop the chemical transfer pump.
7. Leave the system in a relaxation mode (no filtration but air scouring blower is on) for 1 to 3 hours.
8. Close the CIP isolation valve, open the permeate valve and start permeate pump.
9. Send permeate back to the plant headworks for 2 or more permeation/relaxation cycles.
10. Send the permeate to the effluent

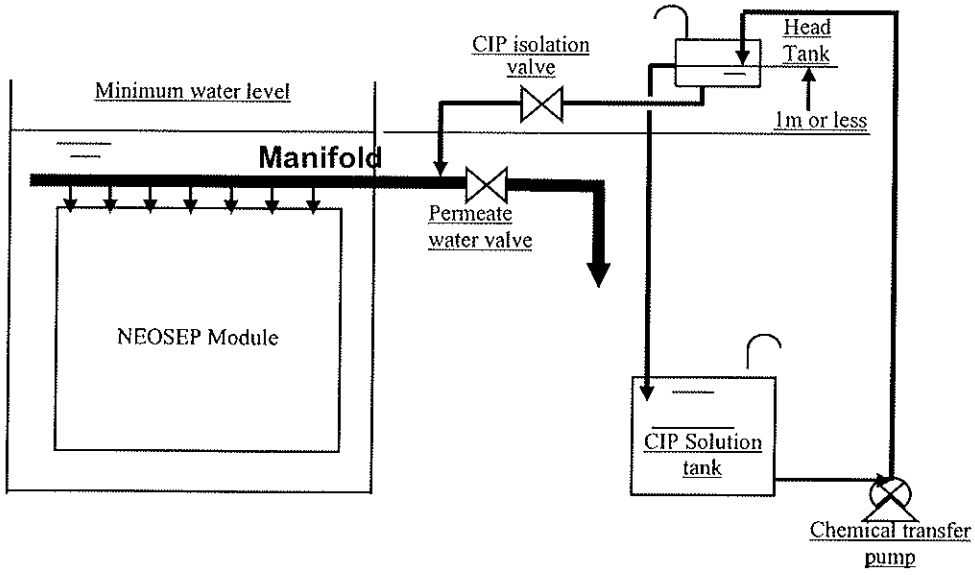


Figure 4 - Chemical Cleaning with CIP Tank Located Above MBR Tank

PLC Control and SCADA

Kruger Instrumentation and Controls group has been recognized for numerous awards for their efforts on both Activated Sludge and Filtration/Clarification plants. In addition to the PLC control system for this project, Kruger is also including an industrial PC to be mounted in the control cabinet. The industrial PC will function as a HMI and SCADA system. Figure 5 provides a sample of a Kruger MBR SCADA screen.

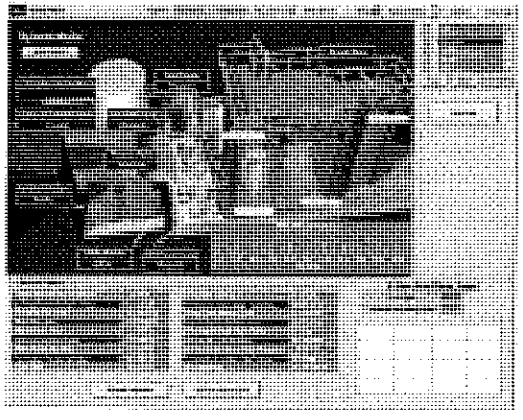
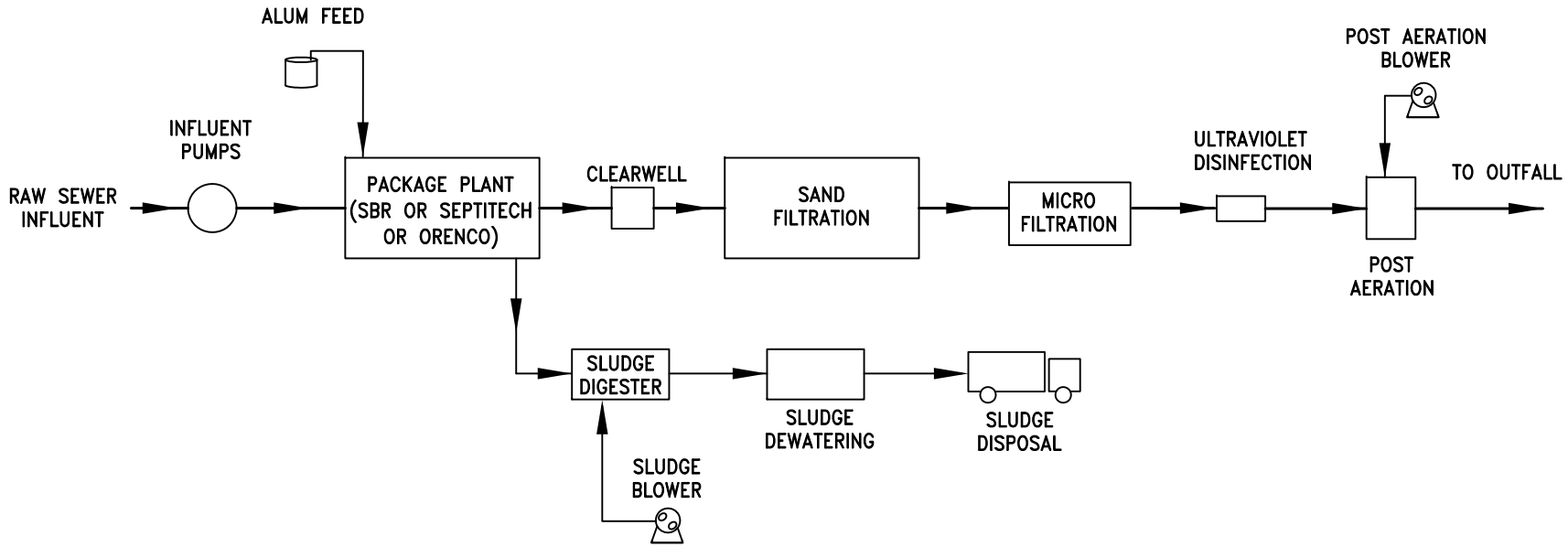


Figure 5 – Kruger MBR SCADA Screen Shot

Kruger also offers a service called KrugerLink. KrugerLink provides a client with SCADA monitoring service with a dedicated workstation at Kruger's head quarters in Cary, NC. A dedicated process engineer looks at the plants operation and can make suggestions to the operators on such items as cleaning cycles.

Exhibit 9.2.c.ii.A

Packaged WWTP Process Flow Schematic



PACKAGE WWTP OPTIONS:

SEPTITECH TREATMENT SYSTEM CONSISTING OF:

- FLOW SPLITTER
- SEPTIC TANK
- SEPTITECH UNITS

ORENCO TREATMENT SYSTEM CONSISTING OF:

PRIMARY SETTLING TANK
RECIRCULATION TANK
ORENCO AX-MAX UNITS

DATE 6/14/11	PROJECT NO. 2010050	PACKAGED WWTP PROCESS FLOW SCHEMATIC EXHIBIT 9.2.c.ii.A
SCALE NOT TO SCALE	DRAWN DIP	Lamont Engineers ENGINEERS · PLANNERS · FACILITY OPERATIONS

Exhibit 9.2.c.ii.B

SeptiTech Treatment System Manufacturer's Information

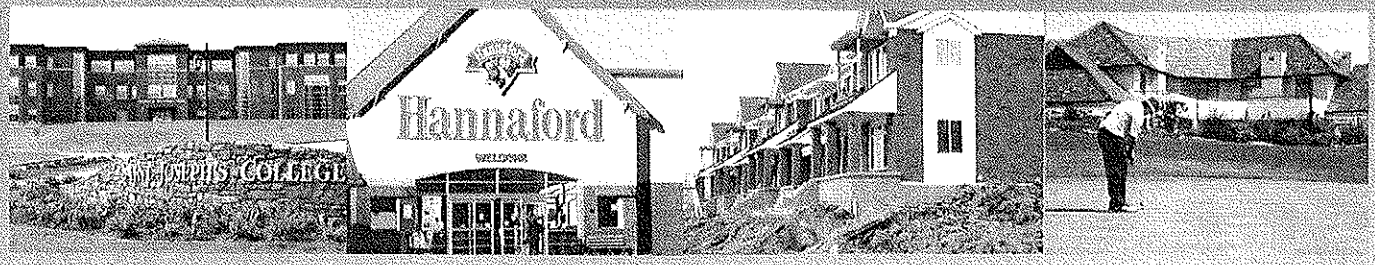
U.S. Patent #6,187,193

EPA ENVIRONMENTAL TECHNOLOGY INNOVATOR AWARD

SeptiTech®

www.septitech.com

Commercial & Engineered
Advanced Wastewater Treatment Systems



Systems and service designed to EXCEED your expectations!

ETV Certified

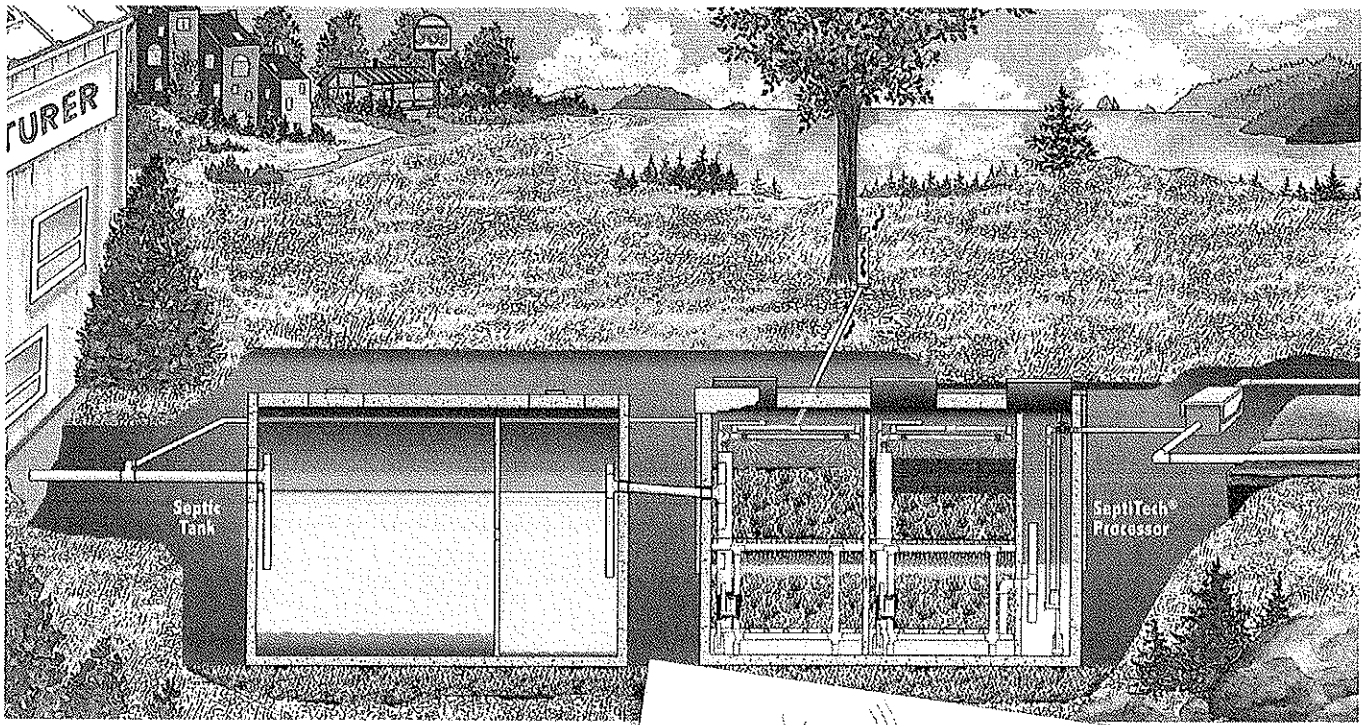
NSF

Certified to NSF/ANSI Standards 40 & 245

Our commitment...

DESIGN CONSULTATION, PROMPT QUOTES AND CUSTOMIZED SYSTEMS

- Site visits welcome
- Customized designs
- In-house design team
- Unlimited phone consultation
- Friendly, knowledgeable staff ready to help
- Creative solutions for difficult sites are our specialty



SeptiTech treatment processor(s) follow septic tank(s).

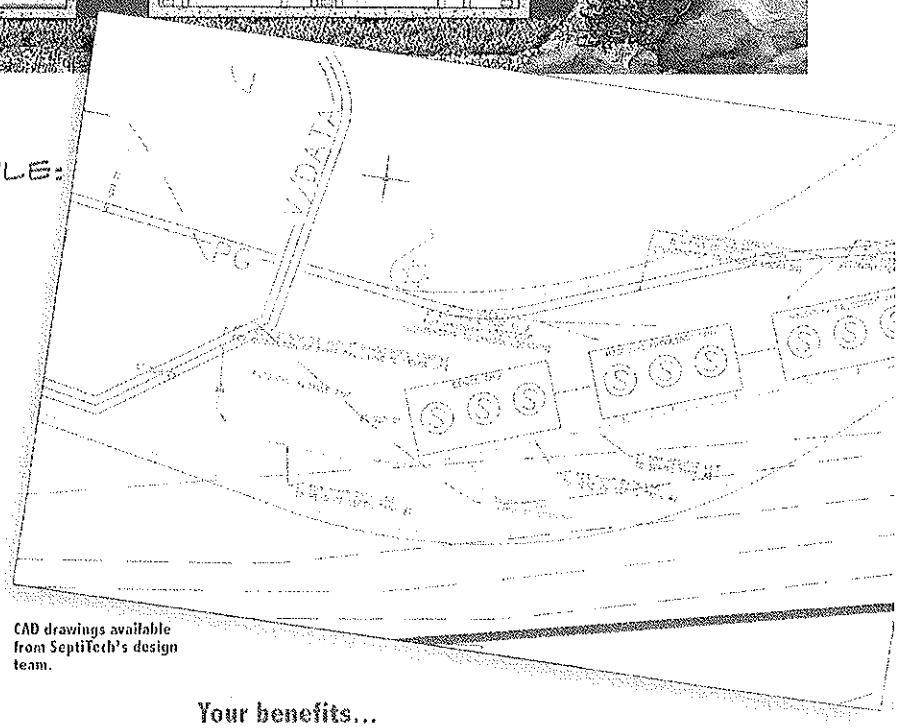
GETTING STARTED AND GETTING ANSWERS IS SIMPLE:

You provide us with...

- Design flow data
- Site layout, system location, elevation profiles
- Type of facility (eg. school, restaurant, etc.)
- Wastewater profile (domestic, restaurant, etc.)
- Wastewater test data if available
- Effluent requirements
- Existing or planned septic tank capacity
- Pumping requirements from system location to leachfield
- Special requirements (eg. H-20 rated tank loading)

We give you...

- System design and tank configuration
- Technical specifications
- Cost estimate and contract
- Lead time for delivery
- Detailed system information
- Scaled CAD drawings
- Controller customization plan (eg. telemetry)
- Production and delivery schedule



CAD drawings available from SeptiTech's design team.

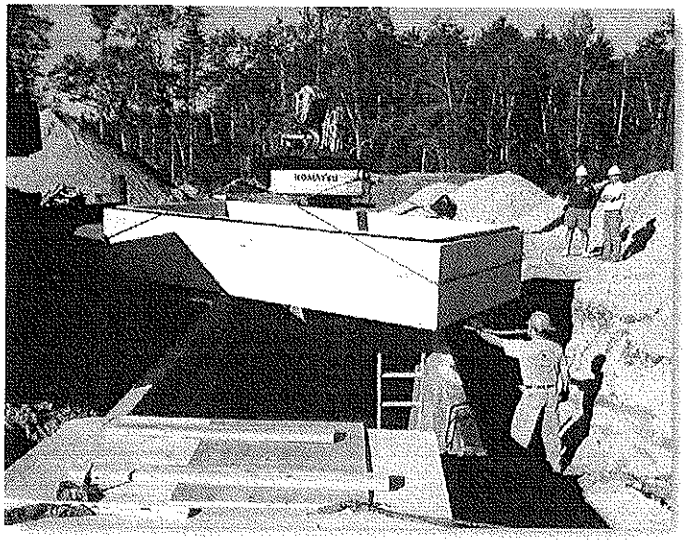
Your benefits...

- **Design and quotes available quickly for planning**
- **Turnkey system ready for insertion into plan**
- **Customized systems to meet your special needs**

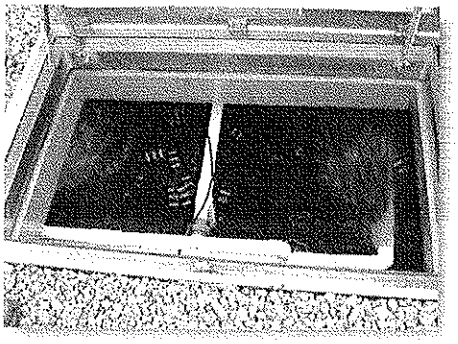
Our commitment...

ON-SITE INSTALLATION

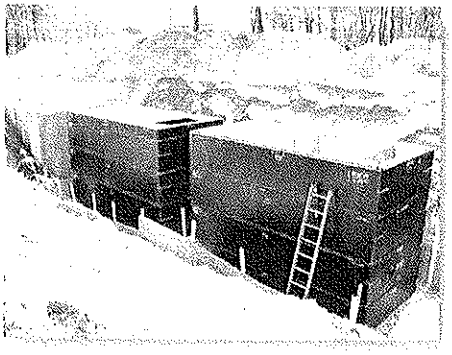
SeptiTech® works closely with your contractor to assure seamless installations. Once tanks are set and water tested, SeptiTech® technicians assemble shop fabricated components on-site.



A 3,300-gpd denitrification processor being installed for a fast food restaurant. Typical on-site time for construction of a SeptiTech Model M3000H is about 3 days.



SeptiTech commercial unit being tested. SeptiTech provides extensive on-site testing before signing off on final system start-up.



SeptiTech systems set in series are designed to treat larger flows, such as this system being installed for a new housing development in Cape Cod, Massachusetts.

Systems custom-designed to handle flows from small commercial facilities, such as this unit being installed for a state park visitor center, are a SeptiTech specialty.

Pre-assembled components make for efficient on-site installation.

Your benefits...

- **Hands-on oversight to be sure job is done correctly the first time**
- **Ability to make site-specific system adjustments**
- **You gain a professional partner with knowledge of system layout and operation**

PROVEN PROCESS SCIENCE FOR CONSISTENTLY HIGH QUALITY PERFORMANCE

Standard Treatment Process Summary

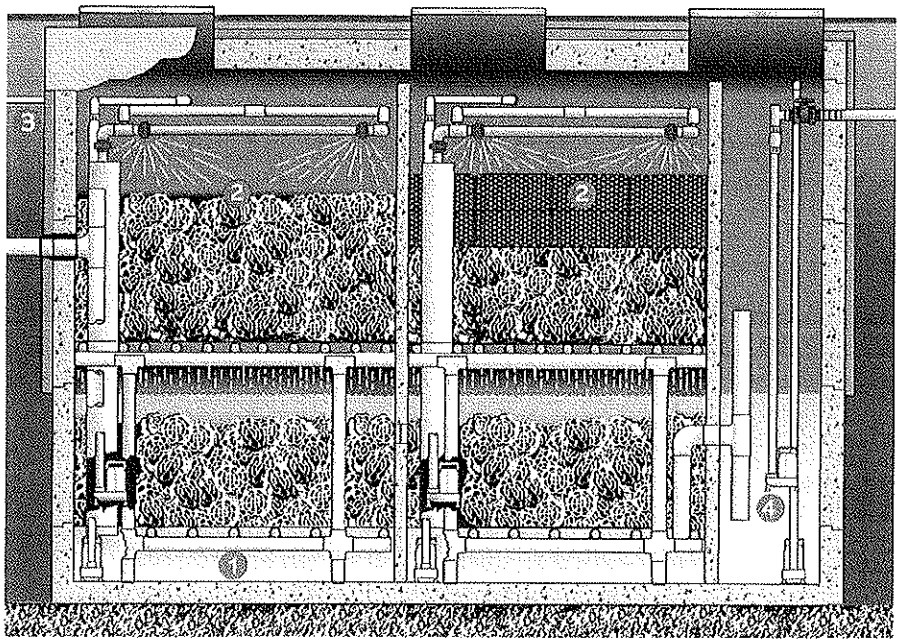
SeptiTech® commercial systems use an enhanced biological trickling filter system in a treatment process that is optimized to remove approximately 98 percent of BOD and TSS from wastewater. All system functions are controlled by a PLC, built and programmed in-house by SeptiTech® technicians.

1. After a minimum of 1-day residence time, settled effluent from primary septic tank(s) flows into the reservoir of the SeptiTech processor tank beneath the trickling filter media, mixing with treated water.

2. Wastewater is pumped up to the trickling filter area, passively drawing outside air (gray pipe) into the wastewater stream, and uniformly spraying a combination of oxygenated percolate and fresh wastewater to the top of the media (blue pipe). Most commercial systems use a combination of medias including SeptiTech's patented polystyrene bead media which entrains microbes within its pore spaces and breaks down pollutants in the wastewater as it migrates through the media and drains into the reservoir below. Under surge conditions, the PLC records the increased flow into the system and adjusts the treatment process to accommodate the accumulated surge while maintaining treatment effectiveness. If the PLC senses reduced flow, it will ratchet the system down, and after several days, enter "sleep mode" during which time the processor only operates long enough to maintain an active microbe culture.

3. Periodically, a portion of the wastewater in the reservoir is pumped back to the septic tank to remove excess biosolids and sludge from the processor tank (yellow pipe).

4. After completing the prescribed treatment in the processor, duplex pumps discharge treated effluent to the disposal field(s) in small, frequent doses to ensure optimal absorption by the soil. Discharge pumps are sized according to TDH and/or pressure dosing requirements.



ETV Testing by the Massachusetts Alternative Septic System Test Center, Barnstable, Mass.

Consistent high quality performance independently verified by ETV testing.

ETV

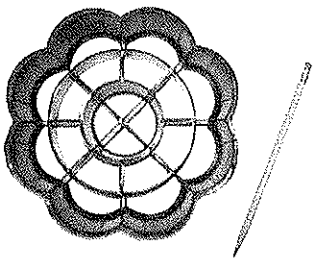
ETV Data Summary BOD/CBOD and TSS*

	BOD Influent	CBOD Effluent	Removal Percent	TSS Influent	TSS Effluent	Removal Percent
AVERAGE	250 mg/L	5.4 mg/L	98%	150 mg/L	3 mg/L	98%

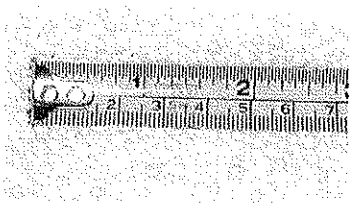
ETV Data Summary Nitrogen Removal*

	TKN Influent	TKN Effluent	Ammonia Nitrogen Influent	Ammonia Nitrogen Effluent	Total Nitrogen Influent	Total Nitrogen Effluent	Total Nitrogen Removal	Nitrate Effluent	Nitrite Effluent
AVERAGE	39 mg/L	6.8 mg/L	24 mg/L	5.1 mg/L	39 mg/L	14 mg/L	63%	6.7 mg/L	0.32 mg/L

*Average data based on 51 samples taken between June, 2001 and August, 2002



Plastic Bio-Ring Media



SeptiTech Patented Media

Your benefits...

- Systems you can count on to treat consistently and operate properly
- Effluent quality to meet regulatory requirements
- Consistent treatment assures long term health of leachfield
- Rapid start-up makes system ideal for seasonal applications

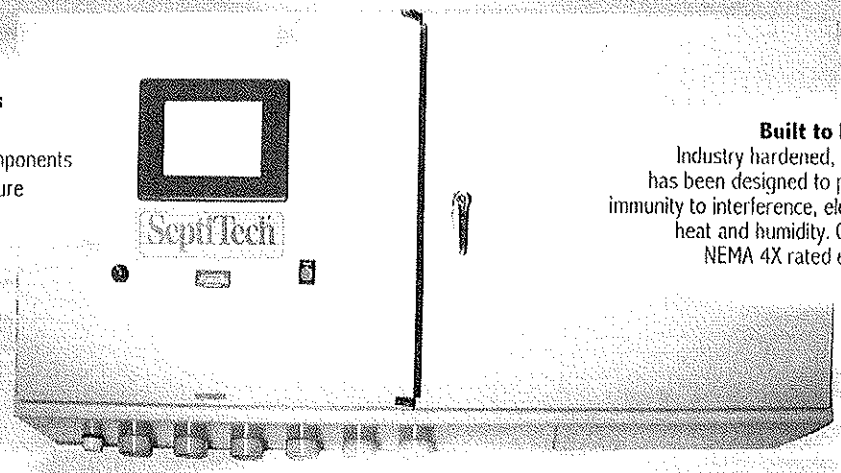
Our commitment...

PROGRAMMABLE LOGIC CONTROLLER (PLC) WITH AUTODIALER AND MODEM

SeptiTech® systems are designed to treat wastewater with minimal operator oversight. The SeptiTech® programmed PLC manages and monitors all system functions 24/7/365 and reports back to a SeptiTech® technician automatically if there is an alarm condition. SeptiTech® is able to download critical information via modem to analyze system operation, do diagnostic work and, at times, remotely make repairs and adjustments.

Touchscreen Operator Interface Terminal (OIT)
Allows easy access to information such as flow data, specific fault information and dosing volumes. Also provides means for onsite system tuning or adjustments.

This Logo Ensures Peace of Mind
Uncompromised quality components and proven design assure dependability and optimal treatment

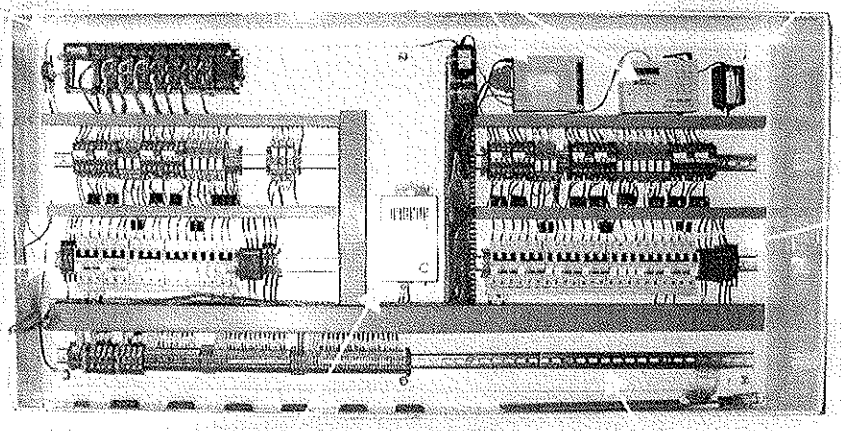


Built to Last
Industry hardened, our Controller has been designed to provide maximum immunity to interference, electrical power surges, heat and humidity. Constructed in NEMA 4X rated enclosures.

Our Programmable Logic Controller (PLC)
manages all system functions and ensures 24/7 dependability. A 90-day flow data report is stored in the PLC.

Remote Telecommunications Capability
In addition to an audio alarm, all SeptiTech commercial systems come with an autodialer and modem, (or wireless communication equipment) which allows for 24/7 remote monitoring and possible remote corrective action.

Battery backup to report power failure.



Individual pump protection.

Phase monitor for 3-phase applications.

Automatic panel heater allows for exterior mounting in colder climates.

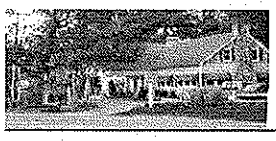
Modular design allows expansion if desired.

Your benefits...

- **Customized programming to meet your system and site needs**
- **Downloadable operation information available**
- **Remote system monitoring for SeptiTech® supervisory control**

Making SeptiTech® Work for You...

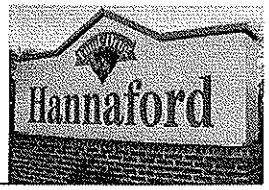
SEPTITECH® COMMERCIAL SYSTEMS



Site: Cape Neddick Inn Restaurant • Cape Neddick, Maine

Key Challenge: No room for system other than under parking lot. System requires H-20 rated tank loading.

SeptiTech Solution: Incorporate H-20 rated tank loading into design.



Site: Hannaford Grocery Store • Plattekill, New York

Key Challenge: Two leachfields of different sizes require customized dosing.

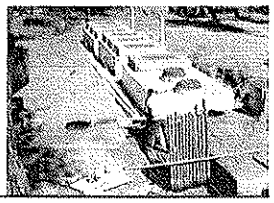
SeptiTech Solution: Program customized discharge profile into duplex discharge pumps.

Photo courtesy of Stable Homes

Site: The Fells, Residential Subdivision • Amherst, New Hampshire

Key Challenge: Developer wants wastewater treatment system to be built in phases to coordinate with subdivision build-out.

SeptiTech Solution: Phased system build-out with pre-set tanks and master controller.



Site: Dutch Joe Ranch Residential Development • Woods Canyon, Arizona

Key Challenge: New development in remote location designed for cellular communication. No analog line to tie into SeptiTech's system communication technology

SeptiTech Solution: Installation of SeptiTech's cellular telemetry communication package.

Site: Stinson Seafood • Prospect Harbor, Maine

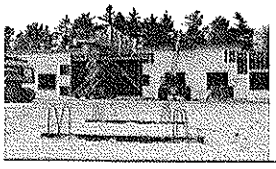
Key Challenge: Regulatory requirements specify post-treatment UV disinfection before overboard discharge.

SeptiTech Solution: Integrate commercial grade UV package into flow train.

Site: The Inn at Cedar Falls • Logan, Ohio

Key Challenge: System must accommodate spray irrigation and subsurface discharge modalities.

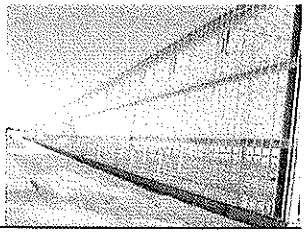
SeptiTech Solution: Incorporate SeptiTech high level treatment and discharge versatility into system designed for spray disposal in warm weather and subsurface disposal in cold.



Site: Planet Fitness • Windham, Maine

Key Challenge: Building permit contingent upon wastewater effluent meeting local nitrogen reduction standards.

SeptiTech Solution: SeptiTech commercial M3000D denitrification treatment system.



Site: Backyard Farms • Madison, Maine

Key Challenge: "Green" business culture that demands every facility system to be as environmentally friendly as possible.

SeptiTech Solution: Standard SeptiTech commercial system, which treats to single-digit BOD and TSS effluent levels and minimizes impact on the environment.

Your benefits...

When you work with SeptiTech® you are working with a company that will answer YOUR questions and work diligently to help solve YOUR problems—quickly and creatively.

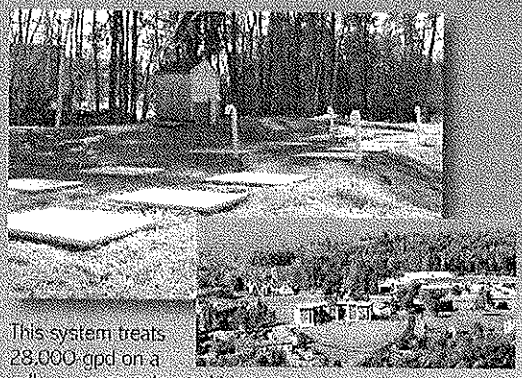
Our commitment...

EXPERIENCE

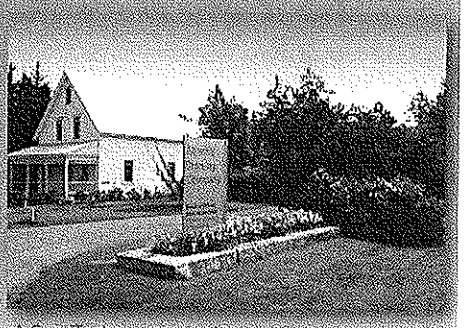
With SeptiTech® treatment systems serving thousands of people, SeptiTech® has proven experience with commercial systems. From schools to cluster systems serving housing developments, from restaurants to small towns, SeptiTech® can provide creative, practical and economical solutions to your wastewater needs.

SeptiTech's robust and versatile treatment and ease of operation are attractive to high traffic commercial establishments.

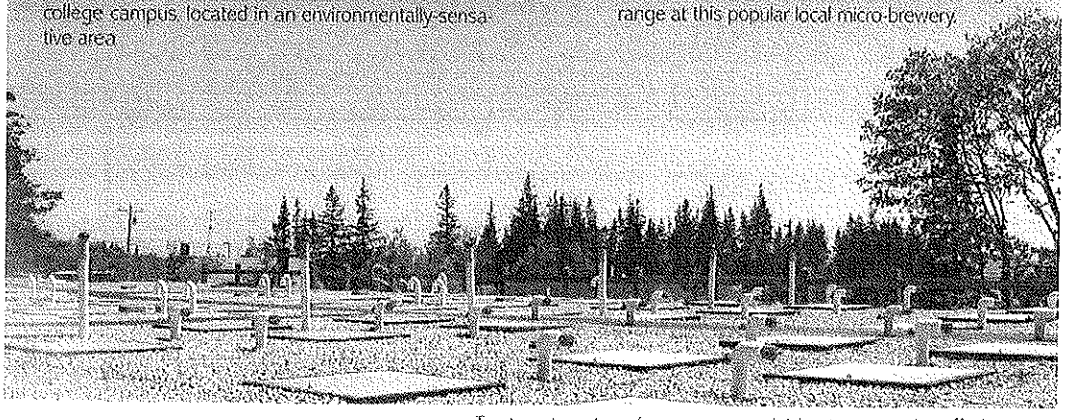
At-grade commercial systems are unobtrusive and aesthetically compatible with any site. This system serves a 2,500-gpd seafood restaurant.



This system treats 28,000-gpd on a college campus, located in an environmentally-sensitive area.



A SeptiTech custom-engineered system was required to treat influent BOD in the 2,700-mg/L range at this popular local micro-brewery.



Treatment system for a year-round island community off the coast of Maine designed to treat 76,000-gpd to single digit BOD and TSS numbers before UV disinfection and final ocean discharge.

SEPTITECH® COMMERCIAL SYSTEMS ARE INSTALLED IN...

- SCHOOLS
- INNS
- CONDOS
- OFFICE PARKS
- RESTAURANTS
- BREWERIES
- MOBILE HOME PARKS
- FAST FOOD RESTAURANTS
- ISLAND COMMUNITIES
- SUBDIVISIONS
- NATIONAL PARKS
- COLLEGE CAMPUSES
- NURSING HOMES
- MUSEUMS
- CAMPGROUNDS
- APARTMENTS
- STRIP MALLS
- YOUR PROJECT!

Your benefits...

Comfort that our system will perform to your specifications and standards

Specifications . . .

SEPTITECH COMMERCIAL SYSTEMS

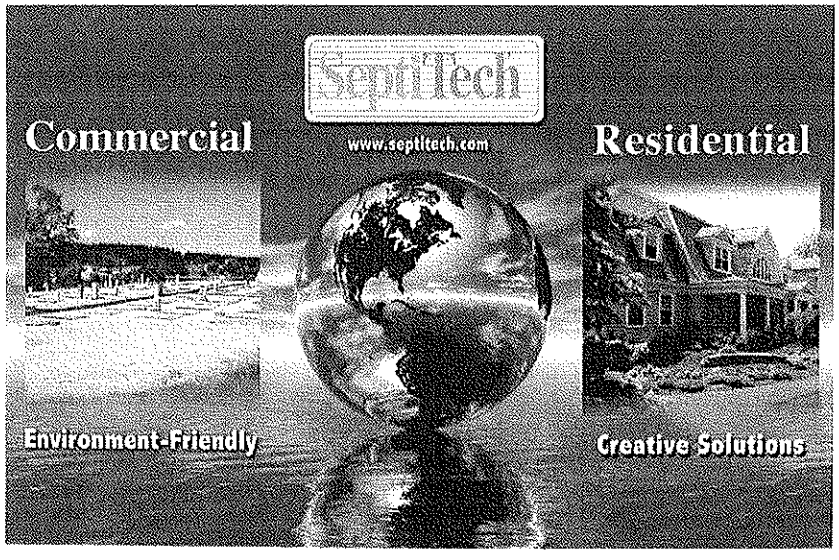
All precast tanks constructed of reinforced concrete. Fiberglass-reinforced plastic available in select markets.

Model	Hydraulic Capacity (gal/day)	Tank Volume[2]	Typical Tank Dimensions[2]	Access Ports	Discharge
M1200 M1200UV M1200D[1]	1200-gpd nominal	2000 gallons	10'6" x 6'4" x 6'2" (l x w x h)	3	Standard 12-feet @ 25 gpm (higher head pumps specified as required)
M1500 M1500UV M1500D[1]	1500-gpd nominal	4000 gallons	13' x 7' x 8' (l x w x h)	3	Standard 12-feet @ 25 gpm (higher head pumps specified as required)
M3000H M3000HUV M3000HD[1]	4500-gpd nominal	8000 gallons	17' x 8' x 12' 2" (l x w x h)	3	Standard 12-feet @ 25 gpm (higher head pumps specified as required)
ENGINEERED	Custom designed systems to handle larger flows and/or high strength waste streams. System specifications and quotes available promptly from SeptiTech® upon request.				

[1]SeptiTech denitrification units also incorporate a primary septic tank(s) in the nitrogen removal process. Please consult SeptiTech for design information

[2]Tank volumes and dimensions may vary from state to state. Please contact SeptiTech or your distributor for tank specifications in your area.

POWER REQUIREMENTS	Minimum 2 separate circuits (1 controller and alarm, 1 pump power). Systems can be built for single or 3-phase power.
POWER CONSUMPTION	10-15 kwH/1000-gallons
TELECOMMUNICATIONS	Conventional setup: Analog line with call routing hardware. Cellular connection available .
TANK LOADING CONFIGURATION	H-10 Standard. H-20 Available upon request.
WARRANTY	Two-year parts and labor. Extended warranty available.



SeptiTech®

CORPORATE OFFICE...
69 Holland Street
Lewiston, ME 04240
207-333-6940 – tel
207-333-6944 – fax
info@septitech.com
www.septitech.com

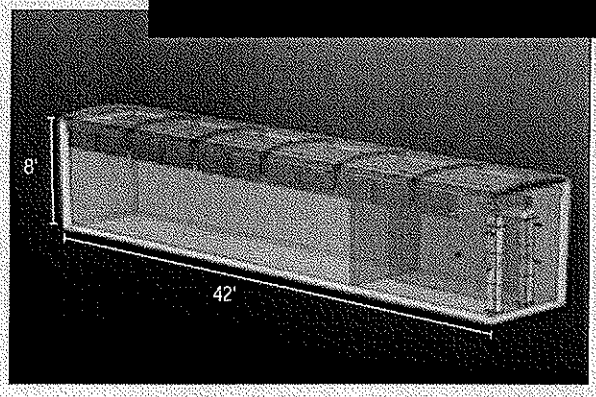
Please contact us for distributor location information.

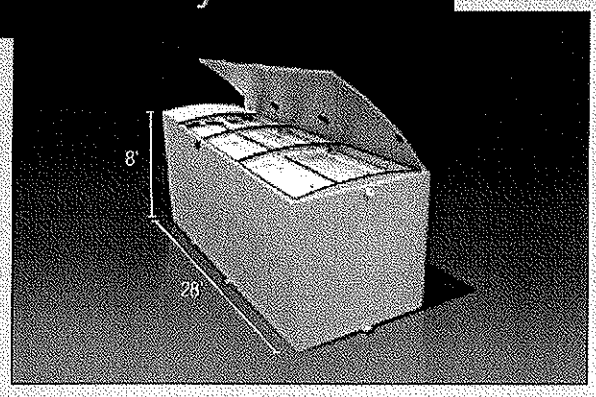
Exhibit 9.2.c.iii.A

Orenco Treatment System Manufacturer's Information

AdvanTex®-MAX™

Modular, Fully-Plumbed Wastewater Treatment System





A full-sized 42' long AdvanTex-MAX unit can be configured as a 15,000 gpd treatment system when receiving primary treated effluent from septic tank(s) or an effluent sewer. Alternatively, the same unit can be configured as a 5000 gpd system when receiving raw sewage. Smaller (shorter) units are available for smaller flows and mobile treatment systems.

Get energy-efficient wastewater treatment. ***Anywhere.***

Orenco Systems® — developers of the AdvanTex® line of high-performing textile treatment systems — is introducing the AdvanTex-*MAX*™ for commercial, residential, municipal, and mobile applications.

The AdvanTex-*MAX* is a complete, fully-plumbed, AdvanTex Wastewater Treatment Plant for decentralized applications with medium-to-large-flows (5000 gpd and up) and permits requiring secondary treatment or better.

The AdvanTex-*MAX* is built inside an insulated fiberglass tank that is durable, lightweight, and watertight. Tanks range from 20'-42' in length and they're easy to ship and set. Ship by truck, rail, cargo container, or helicopter. Our steel-framed version can be literally parachuted by helicopter into remote locations.

The AdvanTex-*MAX* can be installed below-ground or above, singly or in multi-tank arrays. In harsh climates, the AdvanTex-*MAX* can be purchased with an optional control room. Or a multi-tank array can be completely enclosed in a building.

Like all AdvanTex Treatment Systems, the AdvanTex-*MAX* is a recirculating textile filter that produces outstanding effluent quality, while using very little electricity: only 3 kWh per 1000 treated gallons. It can treat blackwater and graywater to re-use levels for dust control, surface discharge, or subsurface dispersal.

For more information, contact Orenco Systems®, Inc., **800-348-9843** or **+1 (541) 459-4449**. Ask for Tristian Bounds (tristianb@orenco.com) or any Engineered Systems engineer.

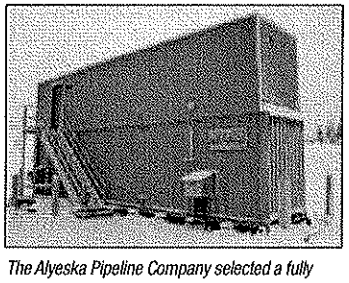
Applications:
- Commercial, residential, municipal, mobile

Technology:
- Recirculating packed bed filter

Effluent Quality:
- cBOD/TSS (low-to-moderate loading) = ~5 mg/L
- cBOD/TSS (higher loading) = 10-25 mg/L

Nitrogen Reduction:
- Without additional equipment: 60-70%
- With additional equipment: >90%

Control System:
- Timer-controlled pumps
- Remote telemetry control panel



The Alyeska Pipeline Company selected a fully self-contained AdvanTex system with optional control room for a remote site serving pipeline workers in central Alaska. Installed in 2009, the system is producing <5 mg/L BOD/TSS and fecals of <3 cfu/100 mL.

AdvanTex® Treatment Systems

Manufactured by **Orenco Systems®, Inc.**

Orenco Systems®, Inc. • 814 Airway Ave., Sutherlin, OR 97479
Toll-Free: 800-348-9843 • 541-459-4449 • www.orenco.com

AFL-ATX-MAX-1, Rev. 1.0, © 9/10

Exhibit 9.2.c.iv.A

NYCDEP Letter on Constructed Wetlands
11/20/2003

The City of New York
Department of Environmental Protection

hristopher O. Ward
ommissioner

ureau of Water Supply

chael A. Principe, Ph.D.
puty Commissioner

nda K. Drake, P.E.
pervisor
oject Review
st of Hudson

. Box 370
okan, NY 12481

(845) 657-2390
(845) 657-6708

November 20, 2003

Peter DiModica, Supervisor
Jane Todd, WWTP Committee Chairperson
Town of Shandaken
P.O. Box 134
Shandaken, New York 12481

Re: Town of Shandaken, WWTP for Phoenicia Using Constructed Wetlands, NIP WWTP, DEP Log # 3620-WW, Ulster County

Dear Mr. DiModica and Ms. Todd,

At your request, the New York City Department of Environmental Protection (DEP) has considered the option of utilizing constructed wetlands as the biological treatment process within a wastewater treatment plant (WWTP) in the NYC Watershed, and its compliance with the *Rules and Regulations for the Protection From Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources* (Watershed Regulations). Based upon the meeting on September 16th with Constructed Wetlands, LLC, the site visit to the constructed wetland in Lloyd on October 16th, DEP's review of constructed wetland data received from Glenn Gidaly of Constructed Wetlands, LLC and some of the cold weather data received from a similar constructed wetland WWTP in Vermont, DEP is providing the following requirements for constructed wetlands within the watershed:

1. The WWTP would require settling and flow equalization, since the WWTP may require additional settling at the wetland site that is above and beyond that provided by the individual septic tanks. Also, if individual septic tanks are to be used, they are not acceptable for the flow equalization. Flow equalization in separate units, and/or within the roughing cells of the reed beds, should be considered, and might be required.

2. The WWTP would still have to provide micro filtration or equivalent, (up flow sand filters) for surface discharge. Micro filtration or equivalent is not required for a subsurface discharge WWTP.

3. The WWTP, whether it has a surface or subsurface discharge, it will need phosphorous removal treatment to 0.5 mg/l. In our view, this is necessary to meet the intent of the Watershed Regulations, Section 18-36(a)(8), regardless if there will be a single or several discharge points.

4. The WWTP would need disinfection. Chlorine could be a problem if the WWTP discharges to the Esopus Creek. UV should be used to

disinfect the effluent from the WWTP instead of chlorine. Since the discharge would be greater than 30,000 gpd, disinfection would be required for both subsurface discharge and surface discharge in accordance with the Watershed Regulations, Section 18-36(e)(2)(iii).

5. Sludge treatment must be addressed, whether the sludge is from the individual septic tanks or a primary clarifier. From DEP's understanding, reed beds are not used for treating septage, only digested sludge. The pumping out and hauling of sludge from individual septic tanks would be maintenance costs that must be compared to the cost associated with the installation of a clarifier at the WWTP site. If individual septic tanks are to be used, the Town must insure that all the septic tanks are of the correct size, in good working order and watertight. If there are subsurface septic treatment systems without septic tanks, the correct size septic tanks must be installed. The Sewer Use Law for this sewer district should require all food service restaurants to have a grease trap. The Sewer Use Law should also establish a Septic Tank Maintenance Program if the Town is to utilize the individual septic tanks.

6. A subsurface discharging WWTPs may utilize a 25% increase in the soil application rate for the disposal area and a reserve area of 50% must be set aside for the subsurface disposal area per the Watershed Regulations Section 18-36 (f)(6)(i) and (ii).

7. The reed beds would be required to have 50% redundancy, so that one bed may be taken out of service for maintenance. Since the construction of the constructed wetlands is similar to sand filters with enhanced treatment, the constructed wetlands would meet the sand filter requirement of the Watershed Regulations Section 18-36(e)(2)(ii) and (iii).

8. In light of the limited cold weather performance data, approvable designs will have a maximum hydraulic application rate of 2 gpd/ft^2 total, where secondary treatment limits are to be obtained. Maximum hydraulic application rate of 1 gpd/ft^2 total will be required where nitrification is to be achieved. DEP believes these units potentially perform equal to or better than open intermittent sand filters. Therefore, DEP may approve higher loading rates when justified by the engineering submissions. Successful submissions would include data from similar constructed wetlands, or systems DEP judges analogous to the proposed constructed wetland.

9. The WWTP will still need stand-by power for all electrical components, including disinfection, micro filtration or the equivalent up flow sand filters, administration area and lab.

10. The WWTP will require a telemetry system, including an alarm that is serviced by a 24 hour manned station.

11. The WWTP design should also address the increase in wastewater volume that is to be treated by the micro filtration or equivalent and the other downstream units, due to infiltration onto the reed beds from rain and other possible sources.

Should the Town of Shandaken be serious about utilizing the constructed wetlands as a treatment process at their WWTP for Phoenicia, the DEP, Town of Shandaken and your design engineer should meet and discuss this option with Ulster County Department of Health (UCDOH) and the New York State Department of Environmental Conservation (NYSDEC) before proceeding with a full design.

If you have any questions, please feel free to contact me at (845) 657-2390.

Sincerely,

Brenda K. Drake, P.E.
Supervisor
Project Review

cc: Jeff Graf, NYCDEP

Exhibit 9.2.c.iv.B

NYCDEP Letter Withdrawing Support of
Constructed Wetlands Option
6/1/2009

The City of New York

DEPARTMENT OF
ENVIRONMENTAL
PROTECTION

June 10, 2009

Honorable Peter DiSclafani
Supervisor
Town of Shandaken
P.O. Box 134
Shandaken, NY 12481

Re: Preliminary Design Report
Vegetated Sand Bed Wastewater Treatment System
Hamlet of Phoenicia, Town of Shandaken, Ulster County
DEP Log # 2007-SC-0303, Ashokan Reservoir Basin

Dear Supervisor DiSclafani:

Steven W. Lawitts
Acting Commissioner

Bureau of Water Supply

ul V. Rush, P.E.
eputy Commissioner

Christopher L. Costello, P.E.
Civil Engineer II
Wastewater Design Review
West of Hudson

71 Smith Avenue
Kingston, NY 12401

Tel (845) 340-7235
Fax (845) 338-1371

The New York City Department of Environmental Protection (the Department) received and reviewed the Memorandum from Rennia Engineering Design, PLLC dated 4/30/09. The memorandum notes that it is a partial technical response and suggests that the Town authorize the engineer to provide a more detailed response and expanded study. Based on the review of the memorandum, the feasibility of a VSB based wastewater solution for Phoenicia is still in question. At this time, the concerns raised in the Department's April 2, 2009 letter are not adequately addressed. In particular, the Department offers the following comments.

1. Contrary to the assertions within the memorandum, phosphorous levels at the Staff Lighting facility in Highland would have exceeded Phoenicia's SPDES effluent limits in June of 2007, and again in September of 2007. In addition, the earlier data for Staff Lighting shows sporadic elevated levels of phosphorous and/or ammonia for 2001, 2002, 2003, 2004, and 2005. A new wastewater treatment facility will be expected to be operating completely within permit requirements within six months of startup. According to the memorandum, additional processes have been incorporated into the process to target ammonia and phosphorous. However the report was not modified to show how these processes would be incorporated, and only a means of dealing with phosphorous (not ammonia) was discussed.

2. The partial technical response does not show how the site would be configured with three trains at 50%. In regard to the innovative alternative of using common tanks for settling and digesting, no references to other facilities utilizing this configuration were provided as requested. The Department could not support this alternative without documentation of successful applications.

3. Peak flows, reject flows and precipitation must be considered in a

feasibility study. As previously mentioned, addressing these flows could have a significant impact on unit process sizing which will have ripple impacts on site layout as well as cost. Therefore, such an analysis is fundamental to a preliminary design report. The memorandum suggests evaluating these flows in an expanded report. Furthermore, the memorandum suggests that the CBUD units would be completely off line during periods of low flow. The Department is concerned about how quickly CBUD units can be put back on line and perform as expected. Typically, recirculation systems are employed when intermittent flows are applied to CBUD units.

4. The memorandum suggests that hydraulic retention time is the appropriate design basis for artificial wetland treatment systems. This is a significant shift from the surface area requirements initially established by the Department in its November 10, 2003 letter, and reaffirmed in our May 28, 2008 meeting. The resultant application rate significantly exceeds the 1-2 gpd/sf application rate previously established. Of the five referenced projects listed in the memorandum, one is the Staff Lighting facility, for which the Department has expressed concerns regarding the data, operation and design. Two of the facilities are for landfill leachate treatment systems which are not applicable to wastewater systems. The remaining two facilities lack effluent data, lack operational data and lack a detailed design basis for comparison. Without documentation from comparable VSBs operating in similar climates, the Department cannot relax the application rate requirements previously established.

The partial technical response provided within the memorandum is insufficient for establishing VSB feasibility. It appears that some of the concerns expressed by the Department cannot be satisfactorily addressed because of the limited existing VSBs operating in similar climates. At a minimum, the many issues left unaddressed or partially addressed will have significant impacts to the cost and layout. Considering the magnitude of the outstanding concerns and the responses received thus far, the Department does not support further expenditures in researching this technology.

The Department remains committed to assisting the Town in implementing an appropriate wastewater treatment solution for the Hamlet of Phoenicia. We are particularly encouraged to see the Town researching MBR technology and seriously encourage the Town to further pursue this technology.

Please provide a proposal for a wastewater treatment solution to the Department for review prior to July 31, 2009. I would be happy to setup a meeting with Department representatives, members of the Town Board and the Town engineer to further discuss any of these issues. Feel free to contact me at 845-340-7235.

Sincerely,

Christopher Costello, P.E

Exhibit 9.2.c.iv.C

Minoa Wetlands Visit E-mail Report

David Page

From:	Henry Lamont
Sent:	Tuesday, April 05, 2011 10:29 AM
To:	'Nate Hendricks'; 'Kevin Young'
Cc:	Julie Barown; Mike Harrington; David Page
Subject:	FW: visit to Minoa (V) constructed wetlands WWTP ; Phoenicia WW plan review and report 2010050
Attachments:	002e; Steve Giarrusso to H Lamont; Minoa (V) Constructed Wetlands WWTP; 4-24-2008.pdf; 001agr; Minoa (V) Envrn Rsrch Fac & SKD Envrn Systems, LLC Nondisclosure & Confidentiality Agreement.pdf; image003.jpg

Team:

To continue our efforts "to think outside the box" and to prepare to address the interest of Phoenicia residents and others in constructed wetlands wastewater treatment, Julie and I visited the Village of Minoa Wastewater Treatment Plant on March 31, 2011 to get information on a constructed wetlands plant that reportedly is achieving very good treatment results. We first learned of this facility through the attached unsolicited email.

When we arranged with WWTF Supervisor Steve Giarrusso to visit this plant, we were not informed of the need to sign the attached nondisclosure & confidentiality agreement. This was given to us when we arrived. We did not sign the document. I did not feel that we should sign it without the advice of an attorney. Also we were definitely there to learn what they did and potentially apply their techniques elsewhere.

We were told that we were the first folks that had been presented with the agreement, which Wastewater Treatment Facility Supervisor Giarrusso said he had received from the attorney, presumably the village attorney, just a half hour before we arrived.

Giarrusso described himself as a research biologist. Apparently the village and its supervising operator and two associate research scientists, who have formed their own environmental consulting business called SKD Environmental Systems, LLC, operate the Minoa (V) WWTP simultaneously as a treatment plant and as a research and teaching facility. They have obtained numerous grants for their research projects and work with Syracuse University as well on some of them. The operator informed us that they have several patents pending on their findings and techniques.

Despite the fact that we would not sign the agreement, Mr. Giarrusso agreed to show us the plant, but indicated that he could not show us the experiments nor explain some of the techniques being used because we did not sign the agreement.

I asked how another community or an engineering firm could obtain access to their knowledge and techniques. Mr. Giarrusso informed me that to do so, we would need to hire SKD Environmental Systems, LLC to work for us on troubleshooting and design. He claimed that they have learned to do many things through their experiments that are not done elsewhere. Among these are techniques for achieving treatment levels not generally thought to be possible, such as extensive nutrient removals in trickling filters, wetlands and SBRs, but also extreme reductions in biosolids generation, which Mr. Giarrusso attributes to layers of aerobic, anoxic, anaerobic, and obligate anaerobic bacteria zones in the wetlands. Mr. Giarrusso is clearly excited, even effusive, about the things that they are doing at Minoa. He said that his team does a fair amount of troubleshooting and redesign work. They are currently working with Hunt Engineering on rehabilitation of a constructed wetlands in Springwater, NY that Larson Engineering designed based on a visit to Minoa but that has subsequently failed miserably because of improper design.

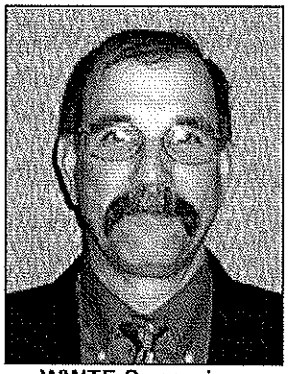
The Minoa(V) Wastewater Treatment Facility actually has three secondary treatment systems in use at this time, and this provides a great deal of flexibility and lots of opportunity for comparative studies. One secondary bioreactor is the constructed wetlands which receives about 130,000 gpd after a primary clarification. The second is an old trickling filter that also follows the primary clarification. The third is an extended aeration/sequencing batch reactor (SBR) that receives unclarified wastewater. We believe that the trickling filter and the SBR take all flows from the village of 3,345 people in excess of the 130,000 gpd that is directed to the constructed wetlands. The flow to the wetlands is thus very close to constant which is probably an enormous benefit to its treatment effectiveness and its treatment consistency despite the fact that wetlands are naturally less susceptible to flow variation than other bioreactors. This resiliency is partly due to the wastewater residence time of the Minoa constructed wetlands, which is more than 1 day. The constancy of flow at Minoa would be very hard to duplicate in a new wastewater management system without extensive flow equalization, though, again, this extreme in constancy may not be necessary for this technology. The constructed wetlands cells have a 14 year history of treating primary clarified wastewater from 90,000 to 130,000 gpd year round with no observable decrease in efficiency during the winter. However, Mr.Giarrusso did state that they have shut the flow off to the wetlands for upwards of 6 weeks in the summer with the level of the treatment immediately returning to pre-shutdown levels when put back into operation. They operate on a 24 hour cycle -- fill, active and discharge. The constructed wetlands are achieving better than secondary treatment with over 97 % removal of TSS and BOD, and they are providing substantial ammonia and total nitrogen nutrient removals as well as a modest phosphorus removal, though the results do not really qualify as tertiary treatment. The operators also said that they have evidence of a degradation of pharmaceuticals such as ibuprofen and of some hormones during normal operation of the wetlands.

The wetlands has been online for 15 years according to the operator, and no biosolids have ever been removed, not even harvesting of the phragmites which grow on top of the underground wetlands cells. We were told that the phragmites reeds just fall over and new ones grow up through the matt of stems, but we noticed that the layer of phragmites mulch over the top of the wetlands surface was surprisingly thin given that no material is ever removed. We were told that the wastewater treatment biosolids are being digested by a 2 inch layer of "extremely" obligate anaerobic bacteria within the wetlands cells.

- The community's WWTP website page follows: (link = www.villageofminoa.com)

Wastewater Treatment

Hours	7:00am - 3:30pm Mon. thru Fri. Summer Hours (memorial day-labor day): 7:00am - 4:30pm Mon. thru Thurs. 7:00am - 11:00pm Fridays
Phone	315-656-7539
Fax	315-656-0180
E-Mail	
Address	100 Kalin Drive, Minoa, NY 13116



WWTF Supervisor
Steve Giarrusso

Message from the Supervisor:

The Village of Minoa in its uniqueness of its self-sufficiency has its own wastewater treatment facility servicing a population of approximately 3,345 residents. It also receives flows from the ESM High School, Pine Grove Middle School, Woodland Elementary School, and the ESM Bus Garage that are outside the Village limits.

At first glance, the Minoa facility could simply be considered a small plant; however, it is in reality a very unique facility composed of three totally different kinds of biological reactors. The collection system consists of 28.5 miles of sewer and one main pump station. Several improvements have been made and we continually are improving the infrastructure of the Village. In 1997 the Village completed its construction upgrade of the plant. The project, spread out over several years, included installation of plastic media in the original trickling filters, construction of sequencing batch reactors (SBRs), and installation of three constructed wetlands. Since a large section of the collection system is built below groundwater levels, the wetlands were originally built to handle wet weather flows.

Since the upgrade was completed, the operators have found that the wetlands are tremendously efficient at removing pollutants. Each of these reactors has its own personality and temperament. For this reason, the operators have to be skilled in all aspects of the Minoa facility and its diversities.

Research is currently being conducted to better understand the workings of these reactors, enabling researchers to maximize their performance. Logistically, the plants permitted flow is 0.73 million gallons per day (mgd) for dry weather flow and 0.99 mgd for wet weather flow.

The Village of Minoa's wastewater facility is staffed by two certified 3A operators - Steven Giarrusso, Research Biologist, Chief Operator and Pat Meehan, Operator. For further information, please contact the Wastewater Treatment Facility at (315) 656-7539.

Despite the claims about the very high quality of the wastewater effluent from the wetlands and the trickling filters, the chlorine contact tanks were full of algae mats. Presumably no chlorine is being dosed at this time of year. When we observed that some source of food was necessary to grow or sustain these mats there and asked about them, the operator said that it was the result of an experiment. The trickling filters are being run with a dense algae mat on top which was explained to us as an experimental technique used to remove Phosphorus.

This wetlands is constructed of a pebble/cobble stone media inside isolating liners with grass or phragmites growing on top. We were told that the original design was done by Sherwood (Woody) Reed. Mr. Giarrusso stated that limestone should never be used in a wetland design and indicated that this was one of the problems in Springwater, NY.

I have asked Mr. Giarrusso for the public data on his facility and for a proposal to do study and design consulting for a constructed wetlands WWTP so we can get more of an idea what we are dealing with here.

Very Truly Yours,
Henry Lamont, PE
Principal Engineer

Lamont Engineers
ENGINEERS • PLANNERS • FACILITY OPERATIONS

548 Main Street, PO Box 610
Cobleskill, NY 12043
(518) 234-4028 office
(518) 234-4613 office fax
(518) 231-3052 cell
(518) 234-2757 home
hlamont@lamontengineers.com

Dedicated to Service... Committed to Excellence

Henry Lamont

From: PMFP is for community reps and technical assistance providers. [PMFPTALK@LISTSERV.SYR.EDU] on behalf of steve giarrusso [svcjg224@YAHOO.COM]

Sent: Thursday, April 24, 2008 8:23 AM

To: PMFPTALK@LISTSERV.SYR.EDU

Subject: Village of Minoa Wetlands

My name is Steve Giarrusso and I am a research Biologist working on a project located in the Village of Minoa in Minoa, New York.
The project: Using No electricity or chemicals, a natural system, in this case a subsurface constructed wetland and achieve 99% removals of BOD5 and NH3.
This goal is a reality, for over ten years I have been working on this system in Minoa. The systems flow is 130,000gpd of primary influent. It has a detention time of 1.2 days, and flows all year long.
The system effluent <2mg/l of BOD5 and for years a NH3 of 3-6mg/l but in the past 4 month I have made changes and now have the NH3 down to 0.22mg/l-<1mg/l.
I have never removed Biosolids in the system in over ten years making it quite a unique system.
For more information on this system you can E-mail me at svcjg224@yahoo.com or call my cell 315-952-9945

Thank you
Steve Giarrusso
Biologist
Village of Minoa

Be a better friend, newshound, and know-it-all with Yahoo! Mobile. Try it now.

MINOA - CLEANWATER ENVIRONMENTAL RESEARCH FACILITY

SKD ENVIRONMENTAL SYSTEMS, LLC

NONDISCLOSURE & CONFIDENTIALITY AGREEMENT

This Nondisclosure Agreement (the "**Agreement**") is dated and effective the ___ day of _____, 2011 and is hereby executed and delivered in favor and for the benefit of the Village of Minoa, 240 North Main Street, Minoa, New York 13116, Steven Giarrusso, P.O. Box 26, Minoa, New York 13116, Klaus Doelle, Ph.D., 421 Walters Hall, 1 Forest Drive, Syracuse, New York 13210, David L. Johnson, 419 Jahn Lab, 1 Forestry Drive, Syracuse, New York 13210, and SKD Environmental Systems, LLC, P.O. Box 26, Minoa, New York 13116, and Minoa Cleanwater Environmental Research Facility, their affiliated and/or partnered/joint ventured entities, their successors, successors in title and/ or assigns and their respective officers, employees and agents, together and severally (" **Disclosing Party**"), for good and valuable consideration by the undersigned person(s) for themselves individually and for such organizations and entities, and affiliates thereof, which they are a partner, shareholder, officer, director, member, employee and/or agent of, (such undersigned party(ies) being hereinafter referred to as the "**Receiving Party**"), and for the purpose of preventing the unauthorized disclosure of Confidential Information as defined below.

Receiving Party hereby acknowledges that the requirement of execution and delivery of this Agreement is an element of consideration required by Disclosing Party as a condition precedent to the disclosure to Receiving Party of certain Confidential Information and accordingly Receiving Party hereby agrees to and by this Agreement enters into a confidential relationship with respect to the disclosure of certain proprietary and confidential information ("**Confidential Information**"). For purposes hereof, Receiving Party shall be broadly construed and also be deemed to include those third parties (persons/entities) permitted hereunder to receive disclosure of Confidential Information from a Receiving Party, so as to ensure that such third parties, hereunder, and/or as may be provided under separate agreement, shall be subject to the same restrictions, limitations and prohibitions as Receiving Party.

1. **Definition of Confidential Information**. For purposes of this Agreement, "**Confidential Information**" shall include all information or material that has or could have commercial value or other utility in the business in which Disclosing Party is engaged. Confidential Information shall include any and all oral and/or written knowledge, information, drawings, plans, training material, blueprints, test procedures developed by or on behalf of Disclosing Party, product and/or apparatus samples, brochures, pamphlets, photos, advertising copy or copies or reproductions thereof, memorandums, narrative descriptions, narratives, schematics, specifications, letters, logs, diaries, texts, and the like (the foregoing specific listing of types and formats of Confidential Information intending to be all inclusive and not by way of limitation in any respect) whatsoever and wherever situate, and relating to work, structures, improvements, operations, experimentation, testing, and/or administration at the Village of Minoa Wastewater Treatment Plant (n/k/a Cleanwater Environmental Research Facility) ("**Facility**") and including without limitation respectively natural/manmade wetlands,

treatments, procedures and processes, alternative energy resources, wastewater treatment and the like, it being the intention of the parties that all such matters, operations and occurrences at the Facility prior to, on and from the date hereof, and/or otherwise disclosed by Disclosing Party as such work product are intended as Confidential Information. If Confidential Information is in written form, the Disclosing Party shall endeavor to label or stamp the materials with the word "Confidential" or some similar warning, however the failure to so designate same, shall not in and of itself mean that same is not Confidential Information. If Confidential Information is transmitted orally, the Disclosing Party shall endeavor to promptly or otherwise timely provide a writing indicating that such oral communication constituted Confidential Information, however the failure to do so shall not in and of itself mean that same is not Confidential Information.

2. **Exclusions From Confidential Information.** Receiving Party's obligation under this Agreement does not extend to information that is: (a) publicly known at the time of disclosure or subsequently becomes publicly known through no fault of the Receiving Party; (b) legally and legitimately discovered or created by Receiving Party before disclosure by Disclosing Party; (c) learned by Receiving Party through legal and legitimate means and other than from the Disclosing Party or Disclosing Party's representatives; or (d) disclosed by Receiving Party with Disclosing Party's prior written approval and only to such recipients as approved in writing by Disclosing Party. The foregoing exclusions shall be strictly construed and for the benefit of Disclosing Party.

3. **Obligations of Receiving Party.** Receiving Party shall hold and maintain the Confidential Information in strictest confidence for the sole and exclusive benefit of the Disclosing Party. Receiving Party shall carefully restrict access to Confidential Information to only those employees, contractors, and third parties as are, of necessity, required such access for their/its work as contemplated and legally permitted hereunder, or under separate agreement with Disclosing Party, and for the benefit of Disclosing Party. All such persons/parties shall acknowledge the existence of this Agreement in a signed writing and shall likewise be required to sign and deliver agreements with confidentiality and nondisclosure restrictions at least as protective as those in this Agreement, and Receiving Party shall have advised Receiving Party in writing of such persons, having transmitted Confidential Information to such third persons and having secured such an agreement substantially similar to this agreement and in favor of both Receiving and Disclosing Party. All such dissemination of Confidential Information by Disclosing Party, and/or any third parties (persons or entities) shall be kept to the minimum numbers of employees/other individuals necessary to perform such parties work as legally permitted hereunder or under separate agreement with Disclosing Party. Receiving party shall not, without prior written approval of Disclosing Party, use for Receiving Party's own benefit, publish, copy, or otherwise disclose to others or permit the use by others for their benefit or to the detriment of Disclosing Party, any Confidential Information. Receiving Party shall immediately and securely return to Disclosing Party any and all records, notes, and other written, printed, or tangible materials in its possession whatsoever, and without limitation, comprising, including or

otherwise pertaining to Confidential Information immediately if Disclosing Party requests it in writing.

4. **Time Periods.** The provisions of this Agreement shall be in effect for a Time Period (Term) of six (6) years from the date of execution, and in addition, shall otherwise, in any event, as relates to the non-disclosure and confidentiality provisions, survive the termination of this Agreement. Receiving Party's duty to hold Confidential Information in confidence shall remain in effect until the Confidential Information no longer qualifies as a trade secret or is otherwise protected or protectable, in any way, and including without limitation, as proprietary, patent protected or the like, or until Disclosing Party sends Receiving Party a signed written notice releasing Receiving Party and/or any third party from this Agreement, whichever occurs first.

5. **Relationships.** Nothing contained in this Agreement shall be deemed to constitute any party (as between Disclosing, Receiving and any third party recipient of Confidential Information) a partner, joint venture, or employee of the other party for any purpose.

6. **Illegality/Severability.** If any clause, sentence, paragraph, subdivision, section or part of this Agreement or the application thereof to any person, individual, corporation, firm, partnership, entity or circumstances is adjudged invalid or unconstitutional by any court of competent jurisdiction, such order or judgment shall be confined in its operation to the clause, sentence, paragraph, subdivision, section or part of this Agreement or in its application directly involved in the controversy in which such judgment shall have been rendered and shall not affect or impair the validity of the remainder of this Agreement or the application thereof to other persons or circumstances. Further, in adjudging such invalid provision, the court shall attempt to modify same to a provision which is not invalid or unconstitutional and which best achieves the intent of the invalid provision and of preserving Disclosing Party's rights and remedies relative to Confidential Information as best as legally permissible.

7. **Integration.** This Agreement expresses the complete understanding of the parties with respect to the subject matter and supersedes all prior proposals, agreements, representations, and understandings. This Agreement may not be amended except in a writing signed by both parties.

8. **Attorney's Fees.** In the event of any litigation concerning any controversy, claim or dispute between the parties hereto arising out of or relating to the enforcement of this Agreement by Disclosing Party or the breach hereof by Receiving Party, or the interpretation hereof, the Disclosing Party shall be entitled to recover from Receiving Party its reasonable expenses, attorney's fees and costs incurred therein, or in the enforcement of and/or collection of any order, judgment or award rendered therein.

9. **Waiver.** The failure to exercise any right provided in this Agreement shall not be a waiver of prior or subsequent rights.

10. **Breach/Remedies.** The parties acknowledge and agree that in the event of a breach hereof, or default hereunder by Receiving Party, or of any third party or entity deemed a Receiving Party (and as a result of further disclosure by Receiving Party), an award of money damages may be inadequate. Accordingly, the Disclosing Party shall be entitled to equitable relief, including temporary restraining order, preliminary or permanent injunction and specific performance, in the event of a breach, default, or threatened breach or default of this Agreement upon proof of same. The Receiving Party (as well as any third party or entity deemed a Receiving Party hereunder), further waives any requirement that the Disclosing Party post a bond in connection with obtaining any such equitable relief. In the event of a breach of this Agreement, such remedies shall be in addition to any other remedies available at law or equity.

11. **Governing Laws.** This Agreement shall be interpreted pursuant to and governed by the substantive laws of the State of New York. The state and federal courts within the State of New York shall have subject matter and procedural/personal jurisdiction in relation to same. Venue for any action or proceeding may be properly placed in the Supreme Court, Onondaga County or Federal District Court of the Northern District of New York.

This Agreement and Receiving Party's obligations hereunder shall be binding on the representatives, assigns, and successors of such party. Receiving Party acknowledges and represents that it has signed this Agreement in both its individual and authorized representative capacity.

RECEIVING PARTY:

Date: _____ _____

(Signature)

Print Name:

Exhibit 9.2.c.iv.D

Wastewater Treatment Data
Minoa (V) Constructed Wetlands

Village of Minoa WWTF

		Plant Influent						Plant Effluent						Wetland Effluent						
	Date	T-P	NH3	TKN	CBOD	TSS	BOD	T-P	NH3	TKN	CBOD	TSS	BOD	T-P	NH3	TKN	CBOD	TSS	BOD	
January	1/8/2010	4.1	16	31	130	150	190	0.78	0.28	1.1	<4	<4	<4	1.6	2.3	4.9	<4	<4	<4	
	1/12/2010	3.6	16	26	110	180	120	0.76	0.34	1.1	<4	<4	<4	2.0	5.2	5.4	<4	<4	5.3	
February	2/2/2010	3.4	13	24	140	130	110	0.47	0.40	1.0	<4	5	<4	1.4	4.2	4.6	<4	5	<4	
	2/9/2010	4.6	19	27	98	100	130	0.54	0.48	1.2	<4	<4	<4	1.7	4.8	5.6	4.3	<4	7.5	
March	3/3/2010	2.0	12	29	69	85	86	0.61	0.44	0.5	5.3	<4	<4	1.9	4.0	4.7	<4	<4	<4	
	3/10/2010	2.0	12	22	67	92	82	0.49	0.45	1.4	<4	<4	5.4	1.9	3.5	5.3	<4	<4	<4	
April	4/5/2010	4.6	13	26	83	130	97	0.59	0.71	2.0	<4	4	<4	1.3	1.0	1.6	<4	<4	<4	
	4/12/2010	3.4	17	31	80	130	97	0.66	0.51	1.3	<4	<4	5.8	1.4	0.3	1.8	<4	<4	<4	
May	5/4/2010	3.2	20	26	110	100	100	0.80	0.86	1.7	<4	<4	<4	2.2	0.3	1.0	<4	<4	<4	
	5/12/2010	4.0	18	28	130	170	160	0.75	0.46	1.3	<4	<4	<4	2.5	2.4	3.1	11	<4	12	Testing Cells
June	6/1/2010	3.6	21	41	110	310	100	0.88	0.97	2.3	<4	<4	<4	2.0	5.4	6.5	<4	<4	4.9	
	6/9/2010	3.6	24	32	160	270	140	0.87	0.74	1.7	<4	<4	<4	2.7	6.3	6.7	<4	4.5	4.5	
July	7/7/2010	3.8	22	30	120	130	100	0.99	0.62	1.3	<4	<4	<4	2.3	4.3	9.7	<4	<4	<4	
	7/12/2010	4.9	28	40	370	200	170	1.20	0.82	1.3	<4	<4	<4	5.3	4.6	4.2	<4	<4	<4	
August	8/4/2010	11.0	24	34	170	390	170	1.30	0.45	1.3	<4	<4	<4	2.7	5.3	6.1	<4	4	<4	
	8/10/2010	3.7	22	34	130	150	200	1.10	0.37	1.2	<4	<4	<4	2.6	4.7	5.6	<4	<4	4.3	
September	9/1/2010	4.3	22	64	170	140	150	0.88	0.43	1.3	<4	<4	<4	2.4	3.6	4.8	<4	<4	<4	
	9/8/2010	5.7	26	44	160	230	320	1.20	0.60	1.6	<4	<4	<4	2.9	5.1	6.7	<4	<4	4.1	
October	10/5/2010	2.3	12	25	65	78	76	0.90	0.44	1.6	<4	<4	<4	2.2	3.5	4.3	<4	6.5	4.6	
	10/12/2010	3.0	20	26	100	120	90	0.71	<.2	1.0	<4	<4	<4	1.9	4.4	4.4	<4	<4	<4	
November	11/4/2010	3.7	20	28	96	81	91	0.77	0.35	1.3	<4	<4	<4	1.7	1.4	2.6	4.6	<4	5.3	
	11/9/2010	3.3	20	32	88	110	100	0.54	0.26	1.3	<4	<4	<4	1.9	1.4	3.2	6	<4	7.9	
December	12/2/2010	1.2	7.7	23	47	47	52	0.29	0.39	1.2	<4	<4	<4	1.5	1.2	2.2	<4	<4	<4	
	12/6/2010	1.4	11	19	50	69	66	0.62	0.25	0.9	<4	<4	<4	1.3	0.6	0.96	<4	<4	<4	

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1000519-003
Location: 102 Kalin Dr.
Sampled: 01/12/10 9:15 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method Analyte	Result	Units	Prep Date	Analysis Date & Time		Analyst Initials
(1) EPA 365.1 Total Phosphorus						
Phosphorus, Total as P	2.0	mg/l	1/22/10	1/26/10		DRB
(1) EPA 350.1, Rev 2.0 Ammonia						
Ammonia as N	5.2	mg/l	1/21/10	1/26/10		DRB
(1) EPA 351.2 TKN as N						
Total Kjeldahl Nitrogen	5.4*	mg/l	1/22/10	1/25/10		DRB
*As per NELAC regulation, disclosure of the following condition is required; *The result of the laboratory control sample was less than the established limit.*						
(1) SM 18 5210B CBOD-5						
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		1/13/10	12:13	MM
(1) SM 18-20 2540D Total Suspended Solids						
Total Suspended Solids @ 103-105 C	<4	mg/l		1/14/10		MM
(1) SM 18-20 5210B BOD-5 Day						
Biochemical Oxygen Demand, 5 Day	5.3	mg/l		1/13/10	16:15	MM

Life Science Laboratories, Inc.

Date Printed: 1/26/10

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes, (6) LSL Brittonfield*

- - LABORATORY ANALYSIS REPORT - -

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1002121-003

Location: 102 Kalin Dr.

Sampled: 02/09/10 9:45 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method Analyte	Result	Units	Prep Date	Analysis Date & Time		Analyst Initials
(1) EPA 365.1 Total Phosphorus						
Phosphorus, Total as P	1.7*	mg/l	2/19/10	2/22/10		DRB
*As per NELAC regulation, disclosure of the following condition is required; *The result of the laboratory control sample was less than the established limit.*						
(1) EPA 350.1, Rev 2.0 Ammonia						
Ammonia as N	4.8	mg/l	2/19/10	2/23/10		DRB
(1) EPA 351.2 TKN as N						
Total Kjeldahl Nitrogen	5.6	mg/l	2/24/10	2/25/10		DRB
(1) SM 18 5210B CBOD-5						
Carbonaceous Biochemical Oxygen Demand	4.3*	mg/l		2/10/10	16:39	MM
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*						
(1) SM 18-20 2540D Total Suspended Solids						
Total Suspended Solids @ 103-105 C	<4	mg/l		2/15/10		MM
(1) SM 18-20 5210B BOD-5 Day						
Biochemical Oxygen Demand, 5 Day	7.5	mg/l		2/10/10	16:33	MM

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1003287-003

Location: 102 Kalin Dr

Sampled: 03/03/10 9:00 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method Analyte	Result	Units	Prep Date	Analysis Date & Time		Analyst Initials
(1) EPA 365.1 Total Phosphorus						
Phosphorus, Total as P	1.9	mg/l	3/8/10	3/11/10		DRB
(1) EPA 350.1, Rev 2.0 Ammonia						
Ammonia as N	4.0	mg/l	3/11/10	3/12/10		DRB
(1) EPA 351.2 TKN as N						
Total Kjeldahl Nitrogen	4.7*	mg/l	3/9/10	3/10/10		DRB
*As per NELAC regulation, disclosure of the following condition is required; *The method blank results associated with this analysis are greater than the method 's limit of 0.1mg/l.*						
(1) SM 18 5210B CBOD-5						
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		3/5/10	08:55	MM/KBB
(1) SM 18-20 2540D Total Suspended Solids						
Total Suspended Solids @ 103-105 C	<4	mg/l		3/8/10		MM
(1) SM 18-20 5210B BOD-5 Day						
Biochemical Oxygen Demand, 5 Day	<4	mg/l		3/5/10	08:55	MM/KBB

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1003769-003
Location: 102 Kalin Dr.
Sampled: 03/10/10 9:15 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.9	mg/l	3/18/10	3/22/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	3.5*	mg/l	3/19/10	3/23/10	DRB
*As per NELAC regulation, disclosure of the following condition is required; *The result of the laboratory control sample was less than the established limit.*					
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	5.3	mg/l	3/24/10	3/25/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4*	mg/l		3/10/10 17:00	MM
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		3/15/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		3/10/10 16:56	MM

Life Science Laboratories, Inc.

Date Printed: 3/25/10

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes, (6) LSL Brittonfield*

- - LABORATORY ANALYSIS REPORT - -

Minoa, Village of Minoa, NY

Sample ID: Trickling Filter Effluent - Composite **LSL Sample ID:** 1004990-003
Location: 102 Kalin Dr.
Sampled: 04/05/10 11:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.3	mg/l	4/13/10	4/16/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	1.0	mg/l	4/12/10	4/15/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	1.6	mg/l	4/14/10	4/15/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4*	mg/l		4/7/10 09:41	MM
*As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		4/11/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4*	mg/l		4/7/10 09:41	MM
*As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Trickling Filter Effluent - Composite **LSL Sample ID:** 1005507-003
Location: 102 Kalin Dr.
Sampled: 04/12/10 11:15 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.4	mg/l	4/23/10	4/26/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	0.34	mg/l	4/23/10	4/26/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	1.8	mg/l	4/20/10	4/22/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		4/14/10 10:29	MM
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		4/15/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		4/14/10 10:29	MM

- - LABORATORY ANALYSIS REPORT - -

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1007365-003
Location: 102 Kalin Dr.
Sampled: 05/12/10 9:00 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	2.5	mg/l	5/24/10	5/25/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	2.4	mg/l	5/24/10	5/24/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	3.1	mg/l	5/20/10	5/21/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	11*	mg/l		5/12/10 16:45	MM/JDB
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		5/17/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	12*	mg/l		5/12/10 16:37	MM/JDB
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*					

Sample ID: SBR Chlorine Tank - Grab **LSL Sample ID:** 1007365-004
Location: 102 Kalin Dr.
Sampled: 05/12/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		5/12/10 13:20	CVB

Sample ID: Trickling Filter Chlorine Tank - Grab **LSL Sample ID:** 1007365-005
Location: 102 Kalin Dr.
Sampled: 05/12/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		5/12/10 13:20	CVB

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1009126-003
Location: 102 Kalin Dr.
Sampled: 06/09/10 8:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	2.7	mg/l	6/23/10	6/23/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	6.3*	mg/l	6/21/10	6/22/10	DRB

*As per NELAC regulation, disclosure of the following condition is required; *The result of the laboratory control sample was greater than the established limit. A trace amount of this analyte was found in the laboratory preparation blank.*

(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	6.7	mg/l	6/21/10	6/22/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		6/9/10 16:35	MM
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	4.5	mg/l		6/15/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	4.5	mg/l		6/9/10 16:44	MM

Sample ID: SBR Chlorine Tank - Grab **LSL Sample ID:** 1009126-004
Location: 102 Kalin Dr.
Sampled: 06/09/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		6/9/10 14:15	JB/CVB

Sample ID: Trickling Filter Chlorine Tank - Grab **LSL Sample ID:** 1009126-005
Location: 102 Kalin Dr.
Sampled: 06/09/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		6/9/10 14:15	JB/CVB

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes*

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1010973-003
Location: 102 Kalin Dr.
Sampled: 07/07/10 9:00 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	2.3	mg/l	7/21/10	7/22/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	4.3	mg/l	7/20/10	7/21/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	9.7	mg/l	7/16/10	7/19/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		7/9/10 08:00	MM/KB B
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		7/12/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		7/9/10 08:00	MM

Sample ID: SBR Chlorine Tank - Grab **LSL Sample ID:** 1010973-004
Location: 102 Kalin Dr.
Sampled: 07/07/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		7/7/10 12:20	CVB/JB

Sample ID: Trickling Filter Chlorine Tank - Grab **LSL Sample ID:** 1010973-005
Location: 102 Kalin Dr.
Sampled: 07/07/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		7/7/10 12:20	CVB/JB

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent - Grab **LSL Sample ID:** 1011279-003
Location: 102 Kalin Dr.
Sampled: 07/12/10 8:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	5.3	mg/l	7/23/10	7/23/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	4.6	mg/l	7/21/10	7/22/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	4.2	mg/l	7/23/10	7/26/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		7/14/10 08:01	MM
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		7/19/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		7/14/10 08:01	MM

Sample ID: SBR Chlorine Tank - Grab **LSL Sample ID:** 1011279-004
Location: 102 Kalin Dr.
Sampled: 07/12/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		7/12/10 13:50	CVB

Sample ID: Trickling Filter Chlorine Tank - Grab **LSL Sample ID:** 1011279-005
Location: 102 Kalin Dr.
Sampled: 07/12/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		7/12/10 13:50	CVB

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3, Effluent **LSL Sample ID:** 1013030-003
Location:
Sampled: 08/04/10 8:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	2.7	mg/l	8/16/10	8/17/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	5.3	mg/l	8/17/10	8/18/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	6.1	mg/l	8/13/10	8/16/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4*	mg/l		8/6/10 07:51	MM/KB
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*					B
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	4.0	mg/l		8/9/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		8/6/10 07:51	MM/KB B

Sample ID: SBR Chlorine Tank **LSL Sample ID:** 1013030-004
Location:
Sampled: 08/04/10 9:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		8/4/10 15:30	CVB

Sample ID: Trickling Filter Chlorine Tank **LSL Sample ID:** 1013030-005
Location:
Sampled: 08/04/10 9:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		8/4/10 15:30	CVB

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes*

- - LABORATORY ANALYSIS REPORT - -

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent **LSL Sample ID:** 1015070-003
Location: 102 Kalin Dr
Sampled: 09/01/10 9:00 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	2.4	mg/l	9/13/10	9/14/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	3.6	mg/l	9/7/10	9/14/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	4.8	mg/l	9/9/10	9/13/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		9/3/10 07:27	MM
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		9/6/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		9/3/10 07:27	MM

Sample ID: SBR Chlorine Tank **LSL Sample ID:** 1015070-004
Location: 102 Kalin Dr
Sampled: 09/01/10 9:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		9/1/10 14:50	CVB

Sample ID: Trickling Filter Chlorine Tank **LSL Sample ID:** 1015070-005
Location: 102 Kalin Dr
Sampled: 09/01/10 9:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		9/1/10 14:50	CVB

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes*

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent **LSL Sample ID:** 1015464-003
Location:
Sampled: 09/08/10 9:00 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	2.9	mg/l	9/17/10	9/22/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	5.1	mg/l	9/21/10	9/22/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	6.7	mg/l	9/16/10	9/17/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		9/8/10 15:04	JJC
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		9/14/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	4.1	mg/l		9/8/10 17:16	JJC

Sample ID: SBR Chlorine Tank **LSL Sample ID:** 1015464-004
Location:
Sampled: 09/08/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		9/8/10 14:55	CVB

Sample ID: Trickling Filter Chlorine Tank **LSL Sample ID:** 1015464-005
Location:
Sampled: 09/08/10 9:30 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	<10	cfu/100ml		9/8/10 14:55	CVB

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent **LSL Sample ID:** 1017680-003
Location:
Sampled: 10/12/10 9:00 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.9	mg/l	10/22/10	10/27/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	4.4	mg/l	10/22/10	10/26/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	4.4	mg/l	10/22/10	10/26/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		10/13/10 14:32	MM
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		10/19/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		10/13/10 16:14	MM

Sample ID: SBR Chlorine Tank **LSL Sample ID:** 1017680-004
Location:
Sampled: 10/12/10 9:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	40	cfu/ml		10/12/10 12:20	CVB

Sample ID: Trickling Filter Chlorine Tank **LSL Sample ID:** 1017680-005
Location:
Sampled: 10/12/10 9:45 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) SM 18 9222D Fecal Coliform, MF					
Fecal Coliforms, MF	110	cfu/ml		10/12/10 12:20	CVB

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent **LSL Sample ID:** 1019078-003
Location:
Sampled: 11/04/10 11:20 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.7	mg/l	11/15/10	11/15/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	1.4	mg/l	11/11/10	11/15/10	DRB
As per NELAC regulation, disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	2.6	mg/l	11/17/10	11/18/10	DRB
As per NELAC regulation, disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	4.6	mg/l		11/5/10 13:19	MM
As per NELAC regulation, disclosure of the following condition is required; The result of the quality control sample for this analyte was less than the established limit.					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		11/11/10	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	5.3	mg/l		11/5/10 13:10	MM
As per NELAC regulation, disclosure of the following condition is required; The result of the quality control sample for this analyte was less than the established limit.					

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1019270-003

Location:

Sampled: 11/09/10 8:30 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time		Analyst Initials
(1) EPA 365.1 Total Phosphorus						
Phosphorus, Total as P	1.9	mg/l	11/17/10	11/18/10		DRB
(1) EPA 350.1, Rev 2.0 Ammonia						
Ammonia as N	1.4	mg/l	11/12/10	11/16/10		DRB
(1) EPA 351.2 TKN as N						
Total Kjeldahl Nitrogen	3.2	mg/l	11/17/10	11/18/10		DRB
(1) SM 18 5210B CBOD-5						
Carbonaceous Biochemical Oxygen Demand	6.0*	mg/l		11/10/10	16:13	MM/BD
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*						
(1) SM 18-20 2540D Total Suspended Solids						
Total Suspended Solids @ 103-105 C	<4	mg/l		11/15/10		MM
(1) SM 18-20 5210B BOD-5 Day						
Biochemical Oxygen Demand, 5 Day	7.9*	mg/l		11/10/10	16:33	MM/BD
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*						

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1020396-003

Location:

Sampled: 12/02/10 8:15 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.5	mg/l	12/13/10	12/14/10	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	1.2	mg/l	12/5/10	12/8/10	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	2.2	mg/l	12/9/10	12/10/10	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4*	mg/l		12/2/10 16:33	MM
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		12/9/10	TER/MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4*	mg/l		12/2/10 16:40	MM
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*					

- - LABORATORY ANALYSIS REPORT - -

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1020509-003

Location:

Sampled: 12/06/10 8:45 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time		Analyst Initials
(1) EPA 365.1 Total Phosphorus						
Phosphorus, Total as P	1.3	mg/l	12/15/10	12/16/10		DRB
(1) EPA 350.1, Rev 2.0 Ammonia						
Ammonia as N	0.58	mg/l	12/10/10	12/13/10		DRB
(1) EPA 351.2 TKN as N						
Total Kjeldahl Nitrogen	0.96	mg/l	12/13/10	12/14/10		DRB
(1) SM 18 5210B CBOD-5						
Carbonaceous Biochemical Oxygen Demand	<4*	mg/l		12/8/10	08:03	MM/BD
**As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.*						
(1) SM 18-20 2540D Total Suspended Solids						
Total Suspended Solids @ 103-105 C	<4	mg/l		12/13/10		MM
(1) SM 18-20 5210B BOD-5 Day						
Biochemical Oxygen Demand, 5 Day	<4	mg/l		12/8/10	08:03	MM/BD

Life Science Laboratories, Inc.

Date Printed: 12/16/10

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes*

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1100430-003

Location:

Sampled: 01/11/11 9:00 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.3	mg/l	1/17/11	1/18/11	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	1.4	mg/l	1/20/11	1/20/11	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	2.2	mg/l	1/18/11	1/19/11	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		1/12/11 11:47	MM
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		1/17/11	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	6.0	mg/l		1/12/11 11:35	MM

- - LABORATORY ANALYSIS REPORT - -

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1101298-003

Location:

Sampled: 02/01/11 8:30 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.7	mg/l	2/9/11	2/10/11	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	3.1	mg/l	2/4/11	2/10/11	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	4.6	mg/l	2/3/11	2/4/11	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		2/2/11 16:19	MM/BD
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	4.5	mg/l		2/3/11	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	6.4	mg/l		2/2/11 16:32	MM/BD
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					

Life Science Laboratories, Inc.

Date Printed: 2/10/11

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes*

- - LABORATORY ANALYSIS REPORT - -

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1101729-003

Location:

Sampled: 02/09/11 9:00 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.7	mg/l	2/11/11	2/15/11	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	3.0	mg/l	2/13/11	2/15/11	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	4.5	mg/l	2/11/11	2/15/11	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	4.9	mg/l		2/11/11 08:07	MM
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		2/15/11	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	5.6	mg/l		2/11/11 08:07	MM

Life Science Laboratories, Inc.

Date Printed: 2/16/11

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes, (4) LSL Southern Tier, (5) LSL MidLakes*

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1102534-003

Location:

Sampled: 03/01/11 8:30 **Sampled By:** SG

Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.3	mg/l	3/4/11	3/8/11	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	2.1	mg/l	3/4/11	3/8/11	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	3.0	mg/l	3/9/11	3/10/11	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		3/2/11 12:12	MM
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	5.0	mg/l		3/7/11	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		3/2/11 12:20	MM
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					

-- LABORATORY ANALYSIS REPORT --

Minoa, Village of Minoa, NY

Sample ID: Cell #3 Effluent Grab **LSL Sample ID:** 1102908-003
Location:
Sampled: 03/08/11 9:00 **Sampled By:** SG
Sample Matrix: NPW

Analytical Method Analyte	Result	Units	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 365.1 Total Phosphorus					
Phosphorus, Total as P	1.3	mg/l	3/11/11	3/14/11	DRB
(1) EPA 350.1, Rev 2.0 Ammonia					
Ammonia as N	1.2	mg/l	3/15/11	3/18/11	DRB
(1) EPA 351.2 TKN as N					
Total Kjeldahl Nitrogen	1.8	mg/l	3/15/11	3/18/11	DRB
(1) SM 18 5210B CBOD-5					
Carbonaceous Biochemical Oxygen Demand	<4	mg/l		3/9/11 12:00	MM
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					
(1) SM 18-20 2540D Total Suspended Solids					
Total Suspended Solids @ 103-105 C	<4	mg/l		3/10/11	MM
(1) SM 18-20 5210B BOD-5 Day					
Biochemical Oxygen Demand, 5 Day	<4	mg/l		3/9/11 11:25	MM
As per NELAC regulation disclosure of the following condition is required; The result of the laboratory control sample was less than the established limit.					

Exhibit 9.2.c.iv.E

Forced Bed Aeration™
by
North American Wetland Engineering
(NAWE)

Technology:

Forced Bed Aeration™

North American Wetland Engineering

The Applications

Single homes to small towns

Industrial wastewater

Nitrification and denitrification

Agricultural Waste

Landfill Leachate

Airport Deicing

Food Processing

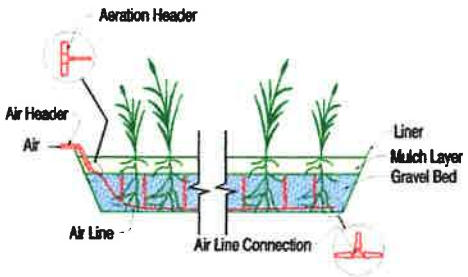
Cheese factories

Groundwater remediation

The Technology

Forced Bed Aeration™ wetlands reach a level of treatment performance unobtainable in earlier generations of treatment wetlands. Aeration of horizontal or vertical subsurface flow wetlands has multiple advantages:

- FBA™ wetlands can completely nitrify wastewater, something that passive wetlands cannot do.
- FBA™ wetlands can be much deeper than passive wetland, taking up half the area.
- FBA™ wetlands can be divided into aerobic and anoxic zones to both nitrify and denitrify.
- Plants thrive in FBA™ systems because the oxygen pumped prevents the formation of toxic products that can stunt plant growth in strongly anaerobic, passive systems.
- Treatment of many other organic compounds, such as benzene, is oxygen limited. FBA™ systems broaden the range of cost effective treatment for wetland treatment systems.



NAWE has patented FBA™ technology. But our mastery of wetland design goes beyond technology alone. We have designed over 200 wetland treatment systems, published wetland technical papers and a juried wetland design manual. Detailed knowledge of wetland microbiology, plants, hydrology, and ecology, coupled with experience in operations, construction observation, soils, aeration, and hydraulics provides us with a technical foundation in wetland design that is unmatched. With this strong foundation, NAWE confidently applies well accepted engineering principles to provide unique wetland-based solutions.

NAWE invented FBA™ technology to solve wastewater problems. Our continuing commitment to innovation and quality design will make your project a success.

30% Post Consumer

Ecological engineering providing practical, innovative solutions.

North American Wetland Engineering

4444 Centerville Road, Suite 140
White Bear Lake, MN 55127

Ph 651-255-5050
Fax 651-255-5060

www.nawe-pa.com

Exhibit 9.2.c.iv.F

Email Communications from Rick Wagner, Principal at Stantec Engineering

Henry Lamont

From: David Page
Sent: Wednesday, May 25, 2011 9:49 AM
To: Henry Lamont; Julie Barown; Mike Harrington
Cc: Wagner, Richard (Rick.Wagner@stantec.com)
Subject: FW: Wetland information

NWE's (Stantec's) response below. I followed up with a phone call to reiterate that a wetland would only be a component of the treatment process, and Rick said that with our limits, there is really no place for a wetland in our treatment plant. He would be glad to discuss his opinion over the phone with anyone else on the team.

Very Truly Yours,

David I. Page
Assistant Project Engineer

Lamont Engineers
ENGINEERING • PLANNING • FACILITY OPERATIONS

548 Main Street
Cobleskill, NY 12043
(518) 234-4028 • Fax: (518) 234-4613
www.lamontengineers.com

Dedicated to Service... Committed to Excellence

From: Wagner, Richard [mailto:Rick.Wagner@stantec.com]
Sent: Wednesday, May 25, 2011 9:28 AM
To: David Page
Subject: RE: Wetland information

Dave,

I have reviewed the effluent limits for the hamlet. These limits are not possible out of a wetland. Consistent BOD's out of a wetland are typically in the 10-15 range, fecals less than 200 can only be achieved with disinfection (UV or chlorine) and a phosphorus of 0.5 is not achievable.

An MBR is really the only way to get these results.

Rick Wagner
Stantec
stantec.com

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From: David Page [mailto:DPage@lamontengineers.com]
Sent: Tuesday, May 24, 2011 6:49 AM
To: Wagner, Richard
Cc: Julie Barown; Henry Lamont; Mike Harrington
Subject: RE: Wetland information

Rick,

Thanks for your time on the phone this morning. Attached are the design parameters for the project we discussed for the Hamlet of Phoenicia in the Town of Shandaken, NY. As discussed, please provide a design proposal for the wetland.

I also will be sending you design parameters for a brewery process wastewater (high strength waste) treatment plant that we would like to consider constructed wetlands for later this afternoon.

Thank you.

Very Truly Yours,

David I. Page
Assistant Project Engineer

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(518) 234-4028 • Fax: (518) 234-4613
www.lamontengineers.com

Dedicated to Service...Committed to Excellence

From: Wagner, Richard [mailto:Rick.Wagner@stantec.com]
Sent: Wednesday, May 18, 2011 6:16 PM
To: David Page
Subject: Wetland information

Dave,

I have gathered some wetland treatment information for you. Sorry for the delay, it is always feast and famine and for the last few days it has been a feast of work (although in this economy, I'm not complaining).

Please contact me with questions, comments, etc.

Thanks,

Rick Wagner
Stantec
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5055
612-709-0661 cell
stantec.com

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