H2MGROUP

Holzmacher, McLendon & Murrell, P.C. • H2M Associates, Inc.
H2M Construction Management, Inc. • H2M Labs, Inc.

ACEC Member
Supporting Excellence
In Engineering

575 Broad Hollow Road, Melville, NY 11747-5076
(516) 756-8000 • Fax: (516) 694-4122

File 418

97-0235

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ENVIRONMENTAL CONSERVATION
RECEIVED
MAR 17 1997
REGIONAL DIRECTOR
REGION 1

March 13, 1997

Mr. John Grathwol
New York State Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-7010

Re: Rite-Off, Inc. Final Remedial Construction Report and Certification
1545 Fifth Industrial Court
Bay Shore, New York
Order on Consent Index # W1-0743-95-12
Site Code # 1-52-129
H2M No. RITE 96-01

MAR 2[illegible] 1997
DEC REGION 1

Dear Mr. Grathwol:

Please find four copies of the above-referenced report for your use.

Please call me at (516) 756-8000, Extension 611 with any questions or comments.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Richard J. Baldwin

Richard J. Baldwin, C.P.G.
Project Manager

Enclosures

cc: Robert Fardella, Esq.
John Helmeset, NYSDEC Project Manager
Raymond E. Cowan, NYSDEC Region I ✓
John F. Bryne, Esq., Sr. Attorney
Mr. Howard Rapps, President
Chittibabu Vasudevan, NYSDEC
Director, Bureau of Environmental Exposure Investigation, NYSDOH

FINAL REMEDIAL CONSTRUCTION REPORT

AIR SPARGE/SOIL VAPOR EXTRACTION SYSTEM

FOR RITE-OFF, INC.
BAY SHORE, NEW YORK
SUFFOLK COUNTY

NYSDEC SITE #1-52-129

MARCH 1997

Project Requested By: New York State Department of Environmental Conservation

Project Manager: Richard J. Baldwin, C.P.G.

Officer-in-Charge at H2M: Gary J. Miller, P.E., Vice President

H2M GROUP

Engineers • Architects • Scientists • Planners

HOLZMACHER, McLENDON & MURRELL, P.C.
575 Broad Hollow Road
Melville, New York 11747-5076

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Bay Shore, New York
Order on Consent Index # W1-0743-95-12
Site Code # 1-52-129
H2M No. RITE 96-01

Dear Mr. Grathwol:

The purpose of this report is to provide the New York State Department of Environmental Conservation (NYSDEC) with the final remedial construction documentation for the Air Sparge/Soil Vapor Extraction (AS/SVE) system installed at the above-referenced facility.

The following documentation has been attached:

- Plates 1 and 2 showing the final remedial design of the AS/SVE System. Pursuant to our discussions, the changes made during the system installation are indicated on the plates. Therefore, Plates 1 and 2 are As Builts for the AS/SVE system.

- Boring logs/well construction diagrams for the AS and SVE wells.

On January 14, 1997, H2M conducted start up testing to confirm radius of influence (ROI) for both the SVE and AS segments of the system. To evaluate the ROI of the AS system, air was injected into AS-4S. While air was being injected, the concentration of dissolved oxygen was measured in the groundwater from MW-4S which is located 22.5 feet from AS-4S. The initial DO concentration in the groundwater from MW-4S was 6.7 milligrams per liter (mg/l). After approximately 90 minutes, the DO concentrations in the groundwater from MW-4S was 13.4 mg/l indicating that the monitoring well was within the ROI of the AS well. Therefore, based upon this testing, the AS has a minimum ROI of

22.5 feet (the designed ROI was 15 feet) and no additional AS wells are required to meet project remediation goals.

To evaluate the ROI of the SVE system, H2M applied the designed vacuum (10 inches of water) on SVE-2. Pressure drops of 0.30 and 0.12 inches of water were measured in MW-4S (40 feet from SVE-2) and SVE-4 (60 feet from SVE-2), respectively. Therefore, the SVE had a minimum ROI of 60 feet (the designed ROI was 30 feet) and no additional SVE wells are required to meet project remediation goals.

Should you have any questions, please feel free to contact the undersigned at (516) 756-8000, Extension 611, or Gary Miller at Extension 620.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Gary J. Miller, P.E.
Vice President

Richard J. Baldwin, C.P.G.
Project Manager

Enclosures

cc: Robert Fardella, Esq.
John Helmeset, NYSDEC Project Manager
Raymond E. Cowan, NYSDEC Region I
John F. Bryne, Esq., Sr. Attorney
Mr. Howard Rapps, President
Chittibabu Vasudevan, NYSDEC
Director, Bureau of Environmental Exposure Investigation, NYSDOH

H2MGROUP

FINAL REMEDIAL CONSTRUCTION CERTIFICATION

AIR SPARGE/SOIL VAPOR EXTRACTION SYSTEM

FOR RITE-OFF, INC.
BAY SHORE, NEW YORK
SUFFOLK COUNTY

NYSDEC SITE #1-52-129

MARCH 1997

Certified that the remediation system described herein was constructed in conformance with the approved Plans and Specifications.

HOLZMACHER, McLENDON & MURRELL, P.C.

Gary J. Miller, P.E.
Vice President



BORING LOGS
&
WELL-CONSTRUCTION DIAGRAMS

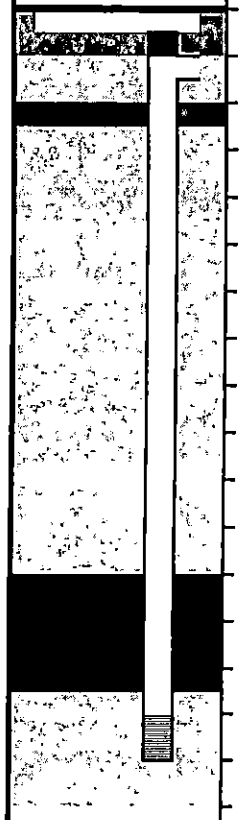
ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AIR SPARGE WELL AS-1

Client:	Job No.:	Depth to Water (ft. from measuring pt.)		Site Elevation Datum
H2M	1-52-129			Ground Elevation
Site Name:	Address:	Date	DTW	
Rite-Off Site	1545 Fifth Industrial Ct., Bayshore, NY	11/11/96	Not Measured	Not Surveyed
Drilling Company:	Method:			Measuring Point Elevation
Aquifer Drilling & Testing, Inc.	Hollow Stem Auger			Not Surveyed
Date Started:	Date Completed:			
11/11/96	11/11/96			
Completion Depth:	*ENVIROTRAC* Geologist:			
32'	Matthew R. Schneck			

AIR SPARGE WELL CONSTRUCTION (NTS) AS-1	DEPTH ft below grade)	SAMPLES Recovery (ft.)	SAMPLES Blow per 6 in.	OVM (ppm)	SOIL DESCRIPTION
AS-1	0			0	0-5' Light brown medium to coarse **SAND**, some gravel, dry, no odor
	2				
	4				
	6			0	5'-10' Same as above
	8				
	10			0	10'-15' Brown medium to coarse **SAND and GRAVEL**, dry, no odor
	12				
	14				
	16			0	15'-20' Light brown medium to coarse **SAND**, trace gravel, dry, no odor
	18				
	20			0	20'-25' Light brown medium to coarse **SAND**, dry, no odor
	22				
	24				
	26			0	25-30' Light brown medium to coarse **SAND**, wet, no odor
	28				
	30			NS	30-32.5 Same as above
	32				
	34				



LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: 32'
Screen Zone: 32-30'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 29-24', 4-2'(chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale NS - Not Screened DTW - Depth to Water

ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AS/SVE CLUSTER WELL 2

Client: H2M	Job No.: 1-52-129	Depth to Water (ft. from measuring pt.)	Site Elevation Datum: Ground Elevation
Site Name: Rite-Off Site	Address: 1545 Fifth Industrial Ct., Bayshore, NY	Date: 11/12/96 — DTW: Not Measured	Not Surveyed
Drilling Company: Aquifer Drilling & Testing, Inc.	Method: Hollow Stem Auger		Measuring Point Elevation: Not Surveyed
Date Started: 11/12/96	Date Completed: 11/12/96		
Completion Depth: AS=32', SVE=20'	*ENVIROTRAC* Geologist: Matthew R. Schneck		

AIR SPARGE WELL CONSTRUCTION (NTS) SVE/AS-2	DEPTH ft below grade)	SAMPLES: Recovery (ft.)	SAMPLES: Blow per 6 in.	SAMPLES: OVM (ppm)	SOIL DESCRIPTION
SVE-2 AS-2	0				0-1' Asphalt, blend
	2			0	1-5' Light brown medium to coarse **SAND**, dry, no odor
	4				
	6			0	5'-10' Light brown medium to coarse **SAND**, trace gravel, dry, no odor
	8				
	10			0	10'-15' Same as above
	12				
	14				
	16			0	15'-20' Same as above
	18				
	20			0	20'-25' Same as above, moist
	22				
	24				
	26			0	25-30' Same as above, wet
	28				
	30				30-32.5 Same as above
	32				
	34				

LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: AS=32', SVE=20'
Screen Zone: AS=32-30', SVE=20-10'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 28-25', 8-6'(chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale

DTW - Depth to Water

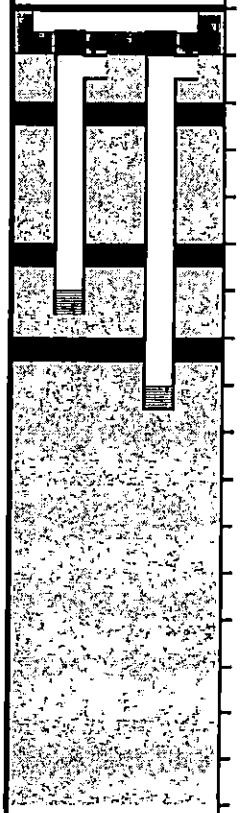
ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AS/AS CLUSTER WELL 3

Client:	Job No.:	Depth to Water (ft. from measuring pt.)		Site Elevation Datum
H2M	1-52-129			Ground Elevation
Site Name:	Address:	Date	DTW	
Rite-Off Site	1545 Fifth Industrial Ct., Bayshore, NY	11/12/96	Not Measured	Not Surveyed
Drilling Company:	Method:			
Aquifer Drilling & Testing, Inc.	Hollow Stem Auger			Measuring Point Elevation
Date Started:	Date Completed:			
11/12/96	11/12/96			Not Surveyed
Completion Depth:	*ENVIROTRAC* Geologist:			
AS-3D=42', AS-3S=32'	Matthew R. Schneck			

AIR SPARGE WELL CONSTRUCTION (NTS) AS/AS-3	DEPTH ft below grade)	SAMPLES Recovery (ft.)	SAMPLES Blow per 6 In.	OVM (ppm)	SOIL DESCRIPTION
AS-3S AS-3D	0				0-1' Asphalt, blend
	5			26	1-5' Light brown medium to coarse **SAND**, trace gravel, dry, no odor
	10			478	5'-10' Same as above
	15			16	10'-15' Same as above
	20			38	15'-20' Same as above
	25			12	20'-25' Light brown medium to coarse **SAND**, wet, no odor
	30			6	25-30' Light brown medium to coarse **SAND**, trace gravel, wet, no odor
	35			16	30-35' Same as above
	40			0.5	35-40' Same as above
	45				40-43' Same as above



LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: AS-3D=42', AS-3S=32'
Screen Zone: AS-3D=42-40', AS-3S=32-30'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 38-36', 28-26', 8-6' (chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale

DTW - Depth to Water

ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AS/AS/SVE CLUSTER WELL 4

Client:	Job No.:	Depth to Water (ft. from measuring pt.)		Site Elevation Datum
H2M	1-52-129			Ground Elevation
Site Name:	Address:	Date	DTW	
Rite-Off Site	1545 Fifth Industrial Ct., Bayshore, NY	11/12/96	Not Measured	Not Surveyed
Drilling Company:	Method:			
Aquifer Drilling & Testing, Inc.	Hollow Stem Auger			Measuring Point Elevation
Date Started:	Date Completed:			
11/12/96	11/12/96			Not Surveyed
Completion Depth:	*ENVIROTRAC* Geologist:			
AS-4D=42', AS-4S=32', SVE-4=20-10'	Matthew R. Schneck			

AIR SPARGE WELL CONSTRUCTION (NTS) AS/AS/SVE-4	DEPTH ft below grade)	SAMPLES Recovery (ft.)	SAMPLES Blow per 6 In.	SAMPLES OVM (ppm)	SOIL DESCRIPTION
AS-4S AS-4D SVE-4	0				0-1' Asphalt, blend
	5			>2000 *	1-5' Light brown medium **SAND**, trace gravel, dry, no odor
	10			>2000 *	5'-10' Same as above
	15			>2000 *	10'-15' Same as above
	20			0	15'-20' Same as above
	25			0	20'-25' Light brown medium to coarse **SAND**, trace gravel, wet, no odor
	30			0	25-30' Same as above
	35			0	30-35' Same as above
	40			0.6	35-40' Same as above
	45				40-43' Same as above
					* **Note: No odor noted - Instrument may have malfunctioned**

LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: AS-3D=42', AS-3S=32'
Screen Zone: AS-3D=42-40', AS-3S=32-30'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 38-36', 28-26', 8-6' (chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale

DTW - Depth to Water

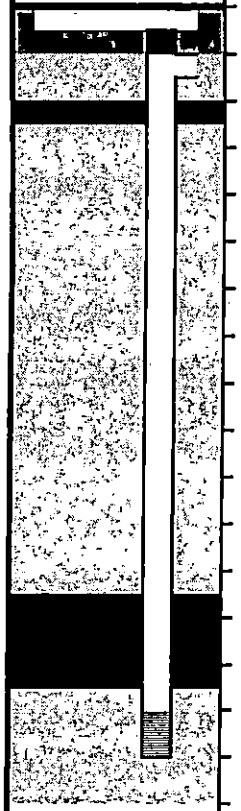
ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AIR SPARGE WELL AS- 5

Client: H2M	Job No.: 1-52-129	Depth to Water (ft. from measuring pt.)	Site Elevation Datum
Site Name: Rite-Off Site	Address: 1545 Fifth Industrial Ct., Bayshore, NY	Date: 11/11/96 / DTW: Not Measured	Ground Elevation: Not Surveyed
Drilling Company: Aquifer Drilling & Testing, Inc.	Method: Hollow Stem Auger		Measuring Point Elevation: Not Surveyed
Date Started: 11/11/96	Date Completed: 11/11/96		
Completion Depth: 32'	*ENVIROTRAC* Geologist: Matthew R. Schneck		

AIR SPARGE WELL CONSTRUCTION (NTS) AS-5	DEPTH ft below grade)	SAMPLES Recovery (ft.)	SAMPLES Blow per 6 in.	SAMPLES OVM (ppm)	SOIL DESCRIPTION
AS-5	0			NS	0-1' Aspalt, blend
	2			NS	1-3' Dark brown medium **SAND**, some gravel, dry, no odor
	4			0	3-5' Light brown medium to coarse **SAND**, dry, no odor
	6			0	5'-10' Same as above
	8				
	10			0	10'-15' Same as above
	12				
	14				
	16			0	15'-20' Light brown medium to coarse **SAND**, trace gravel, dry, no odor
	18				
	20			0	20'-25' Same as above
	22				
	24				
	26			0	25-30' Same as above
	28				
	30			NS	30-32.5 Same as above
	32				
	34				



LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: 32'
Screen Zone: 32-30'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 29-25', 4-2'(chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale NS - Not Screened DTW - Depth to Water

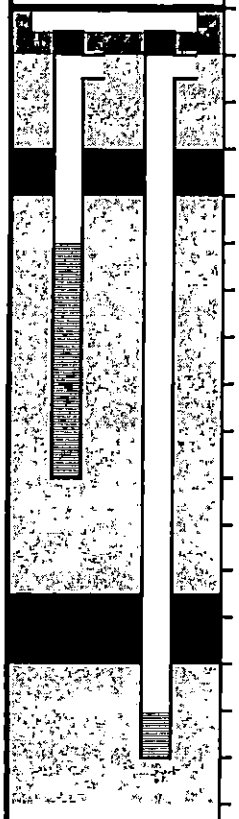
ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AS/SVE CLUSTER WELL 6

Client:	Job No.:	Depth to Water (ft. from measuring pt.)		Site Elevation Datum
H2M	1-52-129			Ground Elevation
Site Name:	Address:	Date	DTW	
Rite-Off Site	1545 Fifth Industrial Ct., Bayshore, NY	11/13/96	Not Measured	Not Surveyed
Drilling Company:	Method:			Measuring Point Elevation
Aquifer Drilling & Testing, Inc.	Hollow Stem Auger			
Date Started:	Date Completed:			Not Surveyed
11/13/96	11/13/96			
Completion Depth:	*ENVIROTRAC* Geologist:			
AS=32', SVE=20'	Matthew R. Schneck			

AIR SPARGE WELL CONSTRUCTION (NTS) SVE/AS-6	DEPTH ft below grade)	SAMPLES Recovery (ft.)	SAMPLES Blow per 6 in.	SAMPLES OVM (ppm)	SOIL DESCRIPTION
SVE-6 AS-6	0				0-1' Asphalt, blend
	2			3.2	1-5' Light brown medium to coarse **SAND**, trace gravel, dry, no odor
	4				
	6			1	5'-10' Same as above
	8				
	10			15	10'-15' Same as above
	12				
	14			3	15'-20' Same as above
	16				
	18				
	20			14	20'-25' Same as above, wet
	22				
	24			33	25-30' Same as above, wet
	26				
	28				
	30				30-32.5 Same as above
	32				
	34				



LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: AS=32', SVE=20'
Screen Zone: AS=32-30', SVE=20-10'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 28-25', 8-5' (chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale

DTW - Depth to Water

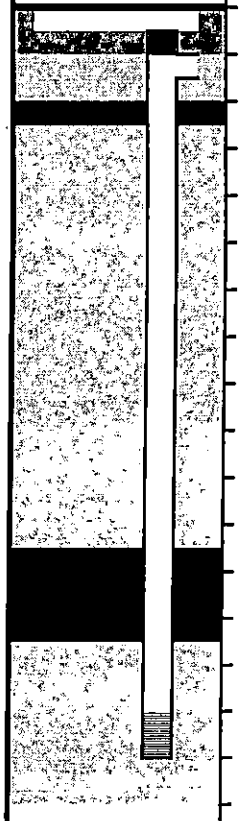
ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AIR SPARGE WELL AS-7

Client:	Job No.:	Depth to Water (ft. from measuring pt.)		Site Elevation Datum
H2M	1-52-129			Ground Elevation
Site Name:	Address:	Date	DTW	
Rite-Off Site	1545 Fifth Industrial Ct., Bayshore, NY	11/11/96	Not Measured	Not Surveyed
Drilling Company:	Method:			Measuring Point Elevation
Aquifer Drilling & Testing, Inc.	Hollow Stem Auger			Not Surveyed
Date Started:	Date Completed:			
11/11/96	11/11/96			
Completion Depth:	*ENVIROTRAC* Geologist:			
32'	Matthew R. Schneck			

AIR SPARGE WELL CONSTRUCTION (NTS) AS-1	DEPTH ft below grade)	SAMPLES Recovery (ft.)	SAMPLES Blow per 6 in.	SAMPLES OVM (ppm)	SOIL DESCRIPTION
AS	0				0-1' Asphalt, blend
	2				1-3' Brown coarse to medium **SAND and GRAVEL**, dry, no odor
	4			0	3-5' Light brown medium to coarse **SAND**, little gravel, dry, no odor
	6			0	5'-10' Same as above
	8				
	10			0	10'-15' Same as above
	12				
	14			0	15'-20' Same as above
	16				
	18				
	20			0	20'-25' Same as above
	22				
	24			0	25-30' Light brown medium to coarse **SAND**, wet, no odor
	26				
	28				
	30				30-32.5 Same as above
	32				
	34				



LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: 32'
Screen Zone: 32-30'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 27-23', 4-2'(chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale

DTW - Depth to Water

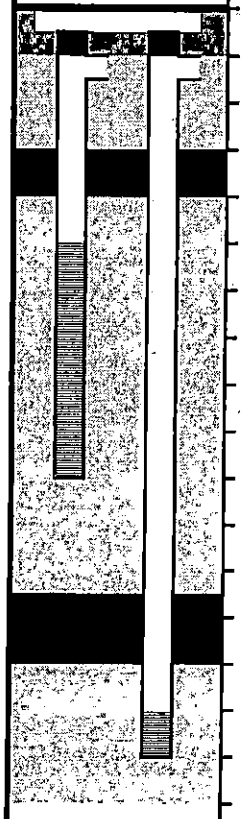
ENVIROTRAC

561P Acorn Ave., Deer Park, New York 11729

LOG OF AS/SVE CLUSTER WELL 8

Client: H2M	Job No.: 1-52-129	Depth to Water (ft. from measuring pt.)		Site Elevation Datum
Site Name: Rite-Off Site	Address: 1545 Fifth Industrial Ct., Bayshore, NY	Date: 11/13/96	DTW: Not Measured	Ground Elevation: Not Surveyed
Drilling Company: Aquifer Drilling & Testing, Inc.	Method: Hollow Stem Auger			Measuring Point Elevation: Not Surveyed
Date Started: 11/13/96	Date Completed: 11/13/96			
Completion Depth: AS=32', SVE=20'	*ENVIROTRAC* Geologist: Matthew R. Schneck			

AIR SPARGE WELL CONSTRUCTION (NTS) SVE/AS-8	DEPTH ft below grade)	SAMPLES Recovery (ft.)	SAMPLES Blow per 6 in.	OVM (ppm)	SOIL DESCRIPTION
SVE-8 AS-8	0				0-1' Asphalt, blend
	2			1688	1-5' Light brown medium to coarse **SAND**, some gravel, dry, slight odor
	4				
	6			1224	5'-10' Same as above
	8				
	10			>2000	10'-15' Same as above
	12				
	14				
	16			1686	15'-20' Same as above
	18				
	20			1756	20'-25' Same as above, wet
	22				
	24				
	26			38	25-30' Light brown medium to coarse **SAND**, some gravel, wet, no odor
	28				
	30				30-32.5 Same as above
	32				
	34				



LEGEND:

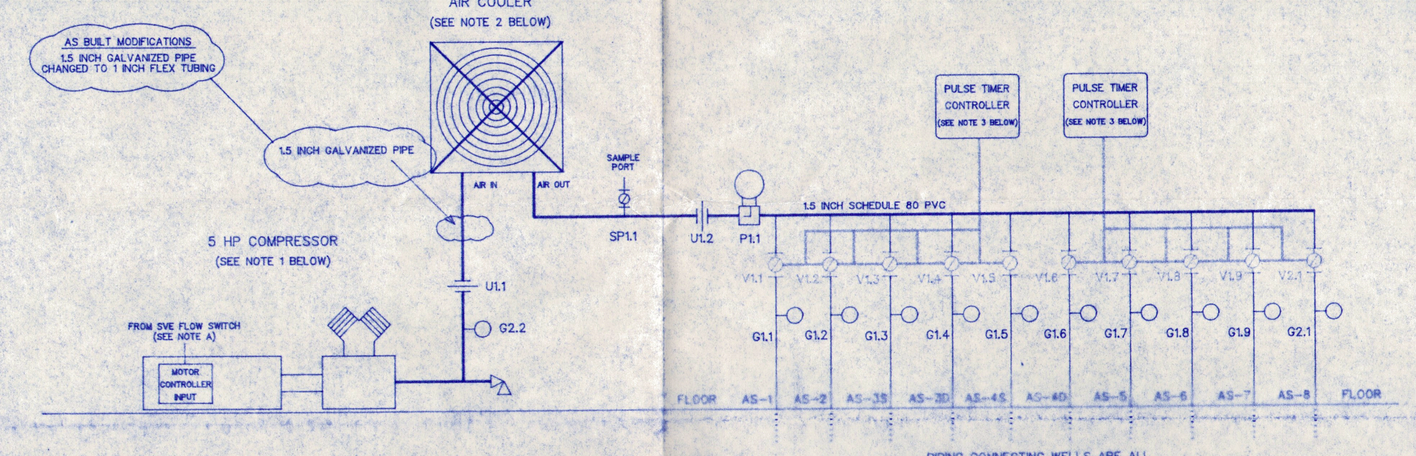
- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top cap

Well Construction Details
Bottom of Well: AS=32', SVE=20'
Screen Zone: AS=32-30', SVE=20-10'
Screen material: # 10 slot, schedule 40 PVC
Casing material: schedule 40 PVC
Sand Pack: morie #2
Bentonite Seal: 28-25', 8-5' (chips)
Cement Surface Seal: 1.0-grade (flush mount)

NTS - Not to scale

DTW - Depth to Water

AIR-SPARGE SYSTEM



PIPING CONNECTING WELLS ARE ALL BELOW-GRADE UNTIL FLOOR PENETRATION

NOTE 1:
MANUFACTURER: GAST OR EQUIVALENT
MODEL #: 6066-P122-T339 OR EQUIVALENT
TYPE: 5 HP AIR-SPARGE COMPRESSOR
COMPRESSOR: OILLESS ROTARY VANE
ELECTRIC: 25 AMPS @ 230 VAC / 60Hz
MAX PRESSURE: 15 PSI
MAX FLOW: 45 CFM

NOTE 2:
MANUFACTURER: AMERICAN PRECISION INDUSTRIES
MODEL #: 10429, 761-0401
TYPE: 1/6 HP AIR-COOLER
ELECTRIC: 3 AMPS @ 115 VAC / 60Hz
MAX PRESSURE: 250 PSI
MAX FLOW: 100 CFM
COOLING: 400 DOWN TO 68 DEG F @ 60 CFM

NOTE 3:
MANUFACTURER: HARDIE OR EQUIVALENT
MODEL #: SLIM-DIAL 6 OR EQUIVALENT
TYPE: BALL VALVE CONTROLLER
ELECTRIC: 1 AMP @ 24 VAC / 60Hz

NOTES ON BALL VALVES V1.1 - V2.1:
MANUFACTURER: HARDIE OR EQUIVALENT
MODEL #: 216-B OR EQUIVALENT
TYPE: SOLENOID ACTUATED
ELECTRIC: 0.2 AMP @ 24 VAC / 60Hz

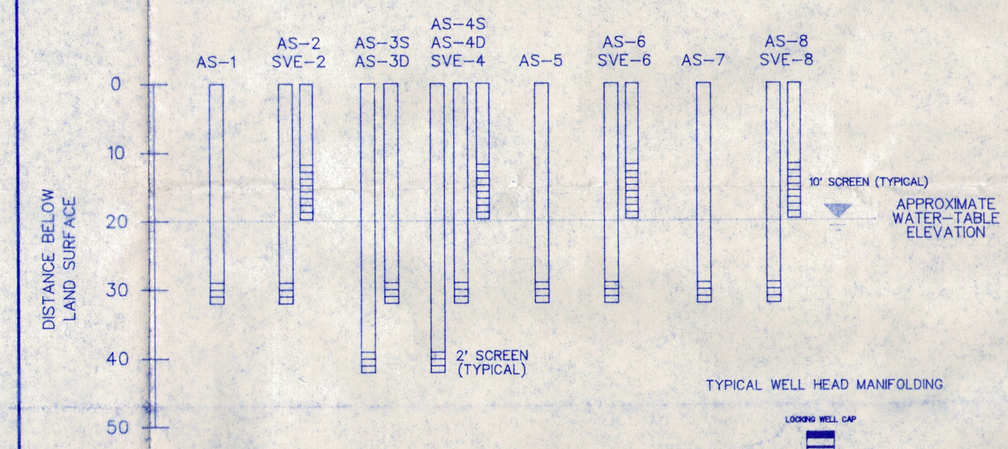
NOTE A:
SVE FLOW CONTROL SWITCH WILL SHUT DOWN AIR-SPARGE SYSTEM IN THE EVENT OF AN SVE BLOWER FAILURE

NOTES ON SYSTEM OPERATION:
AIR-SPARGE CONTROLLER WILL PROVIDE OUTDOOR VISUAL INDICATION OF SYSTEM FAILURE AND/OR OPERATION.

ALL AIR-SPARGE SYSTEM DESIGN AND CONTRUCTION DETAILS ARE SUBJECT TO FIELD MODIFIDATIONS/ALTERATIONS THAT WILL MEET OR EXCEED ORIGINAL DESIGN SPECIFICATIONS.

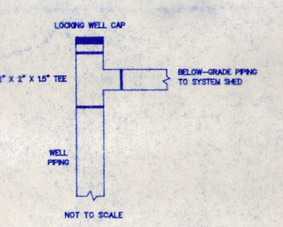
SYSTEM LEGEND:
- PRESSURE OR TEMPERATURE GAUGE
- SOLENOID VALVE
- FLOWMETER
- PITOT TUBE
- RELIEF VALVE
- UNION

GENERAL CONSTRUCTION OF SOIL-VAPOR EXTRACTION (SVE) AND AIR-SPARGE (AS) WELLS



NOTE: SLOTTED AREAS ARE SCREENED INTERVALS

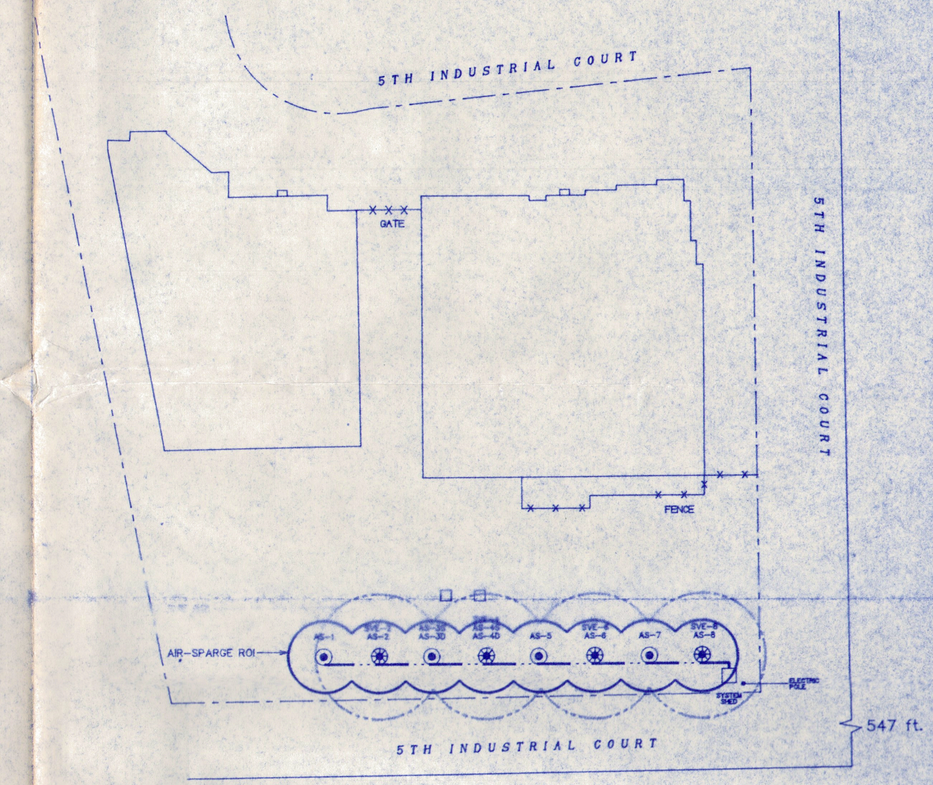
TYPICAL WELL HEAD MANIFOLDING



LEGEND:
AS = AIR-SPARGE WELL
SVE = SOIL-VAPOR EXTRACTION WELL

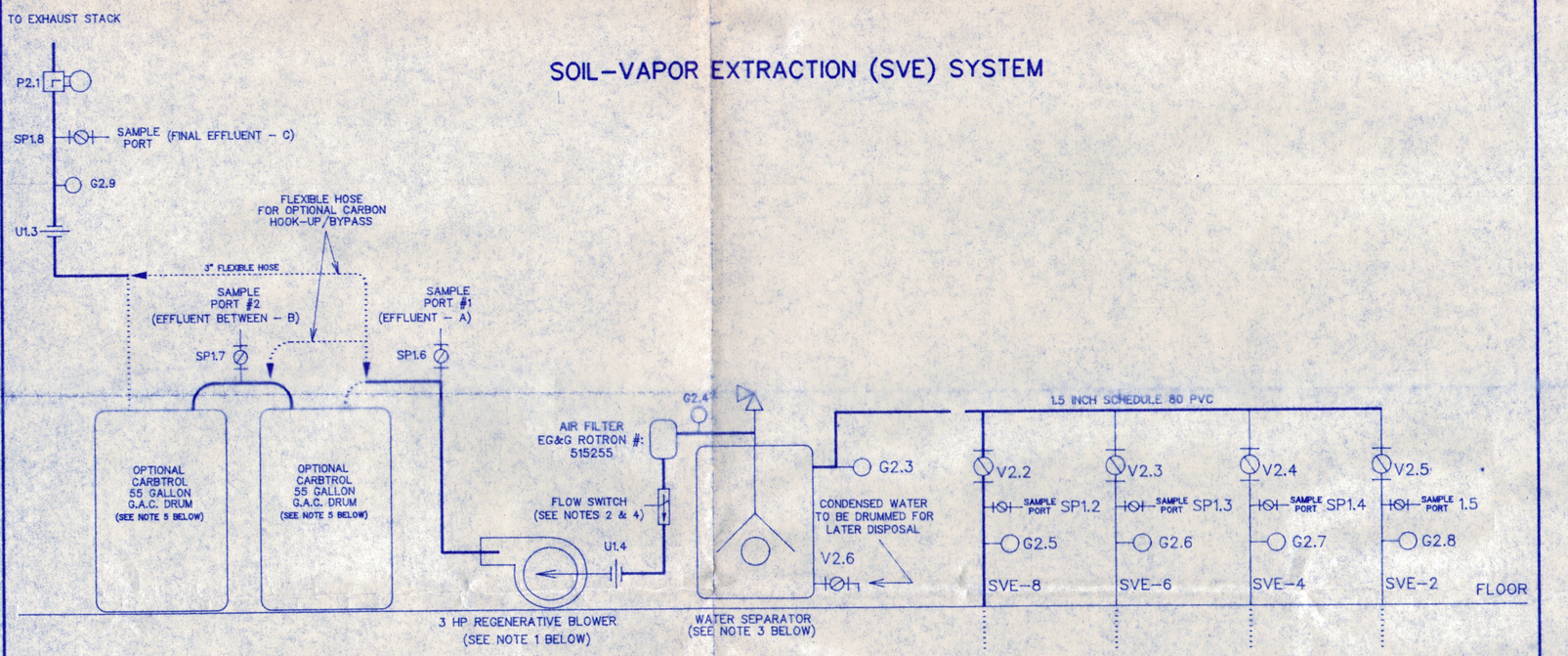
WELL PVC WILL BE FLUSH-JOINT THREADED.
ALL OTHER PVC PIPING USED WILL BE COUPLED USING SOLVENT PVC CEMENT.

0 40 FT. 80
APPROXIMATE HORIZONTAL SCALE
WELLS ARE NOT TO SCALE



LEGEND:
- SOIL-VAPOR EXTRACTION /AIR-SPARGE CLUSTER WELL
- AIR-SPARGE (SINGLE OR CLUSTER) WELL
- SYSTEM LINES
- DRY WELL

SOIL-VAPOR EXTRACTION (SVE) SYSTEM



PIPING CONNECTING WELLS ARE ALL BELOW-GRADE UNTIL FLOOR PENETRATION

NOTE 1:
MANUFACTURER: GAST OR EQUIVALENT
MODEL #: R6130Q-50 OR EQUIVALENT
TYPE: REGENERATIVE BLOWER
ELECTRIC: 16.3 AMPS @ 230 VAC
MAX VACUUM: 70" H2O
MAX FLOW: 215 SCFM

NOTE 2:
MANUFACTURER: DWYER OR EQUIVALENT
MODEL #: V8 OR EQUIVALENT
TYPE: AIR FLOW SWITCH
CONTACTS: 1 NORMALLY OPEN (N.O.) 1 NORMALLY CLOSED (N.C.) 1 COMMON (C)
MATERIAL: BRASS

NOTE 3:
MANUFACTURER: EG & G ROTRON OR EQUIVALENT
MODEL #: MS300D OR EQUIVALENT
TYPE: MOISTURE SEPARATOR
LIQUID CAPACITY: 10 GALLONS
MATERIAL: STEEL

NOTE 4:
SVE FLOW CONTROL SWITCH WILL SHUT DOWN AIR-SPARGE SYSTEM IN THE EVENT OF AN SVE BLOWER FAILURE

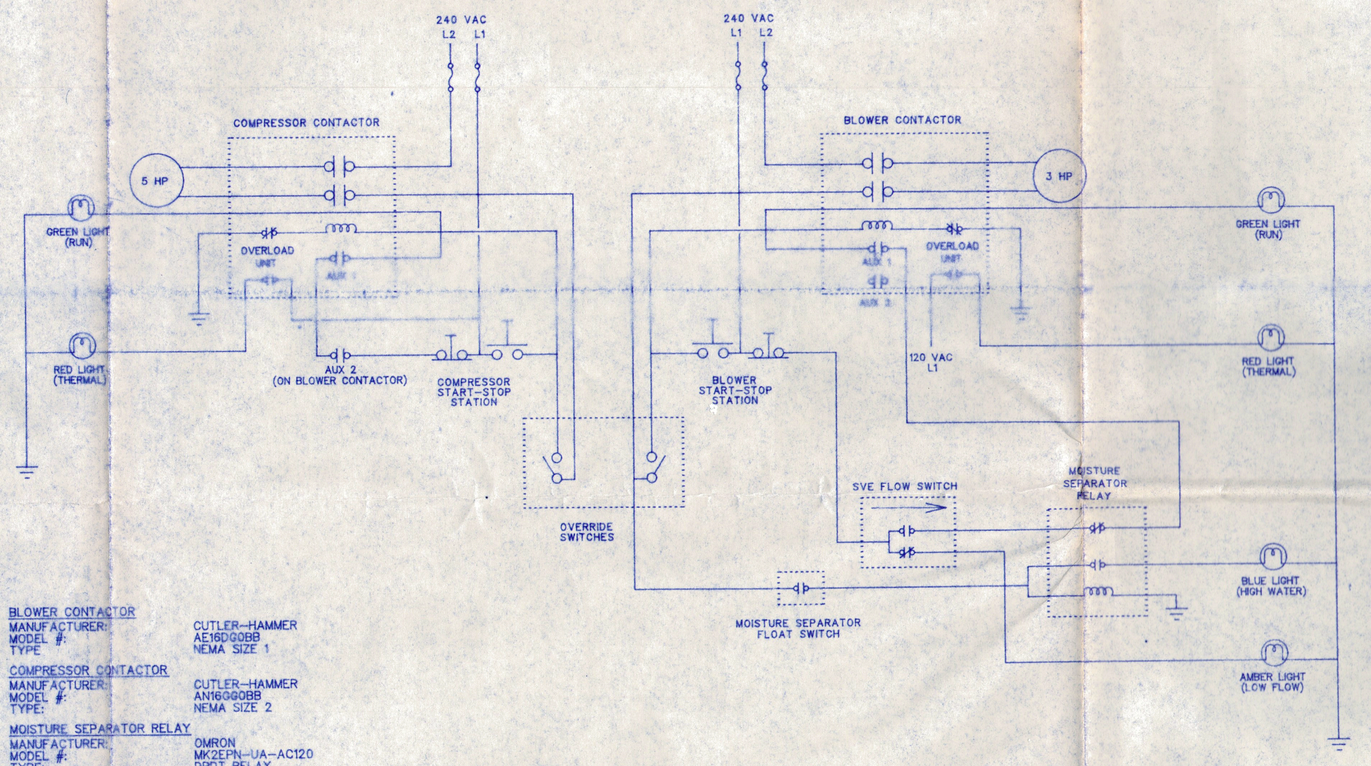
NOTE 5:
MANUFACTURER: CARBTROL
MODEL #: G-2
TYPE: GRANULAR ACTIVATED CARBON (G.A.C.)
CAPACITY: 170 LBS.

NOTES ON SVE SYSTEM OPERATION:
SVE BLOWER CONTROLLER WILL PROVIDE OUTDOOR VISUAL INDICATION OF SYSTEM FAILURE AND/OR OPERATION.

ALL SVE SYSTEM DESIGN AND CONTRUCTION DETAILS ARE SUBJECT TO FIELD MODIFIDATIONS/ALTERATIONS THAT WILL MEET OR EXCEED ORIGINAL DESIGN SPECIFICATIONS.

SYSTEM LEGEND:
- VACUUM OR TEMPERATURE GAUGE
- BALL VALVE
- FLOWMETER
- PITOT TUBE
- RELIEF VALVE
- UNION

ELECTRICAL SCHEMATIC



BLOWER CONTACTOR
MANUFACTURER: CUTLER-HAMMER
MODEL #: AE9DQ08B
TYPE: NEMA SIZE 1

COMPRESSOR CONTACTOR
MANUFACTURER: CUTLER-HAMMER
MODEL #: AN16Q08B
TYPE: NEMA SIZE 2

MOISTURE SEPARATOR RELAY
MANUFACTURER: OMRON
MODEL #: MK2EPN-UA-AC120
TYPE: DPDT RELAY

FLOW SWITCH
MANUFACTURER: DWYER
MODEL #: V8 FLOTECT
TYPE: SPDT REED

FLOAT SWITCH
MANUFACTURER: DWYER
MODEL #: L8 FLOTECT
TYPE: SPDT REED

OVERRIDE SWITCHES
MANUFACTURER: LEVITON
MODEL #: 1451-WCP
TYPE: SINGLE POLE TOGGLE

LIGHTS
MANUFACTURER: ALLEN-BRADLEY
MODEL #: 800T-QT0
TYPE: NEMA TYPE 4, 13

ALL SYSTEM ELECTRIC DESIGN AND CONTRUCTION DETAILS ARE SUBJECT TO FIELD MODIFIDATIONS/ALTERATIONS THAT WILL MEET OR EXCEED ORIGINAL DESIGN SPECIFICATIONS.

REVISED BY: OL
REVISION DATE: DECEMBER 9, 1996

FIGURE: 1

DESIGN PLATE

REMEDIATION SYSTEM
INTERIOR PROCESS & INSTRUMENTATION
WELL CONSTRUCTION, SITE MAP AND
ELECTRICAL DESIGN SCHEMATIC

RITE-OFF, INC.
BAYSHORE, NEW YORK
NYS DEC # 1-52-129

PREPARED FOR:
H2M GROUP
MELVILLE, NEW YORK

SYSTEM ADDITIONS MADE BY:
EnviroTrac Ltd.
Joanne C. Klouda, P.E.
N.Y.S. LICENSE #070967-1

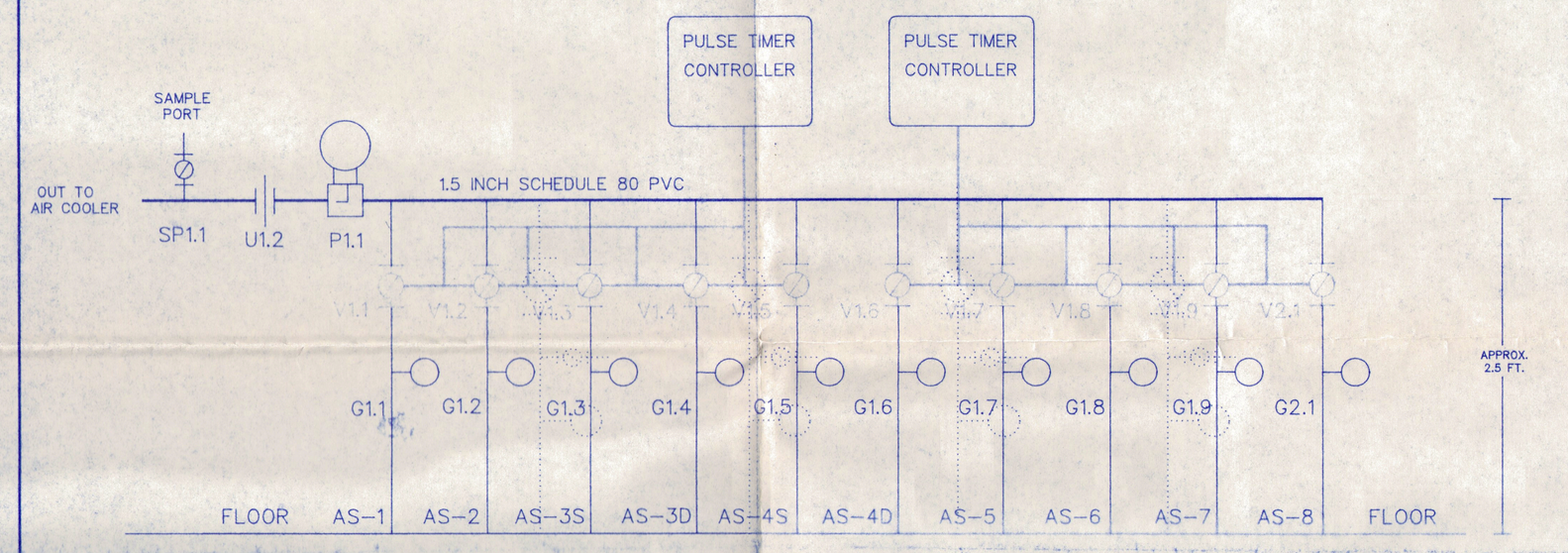
X Joanne C. Klouda

IT IS ILLEGAL AND A DIRECT VIOLATION OF THE NEW YORK STATE EDUCATION LAW TO ALTER THESE PLANS IN ANY WAY UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. FURTHERMORE, THE ALTERATIONS SHALL BE MADE IN ACCORDANCE WITH ARTICLE 145 - SUBSECTION 7209 OF THE NEW YORK STATE EDUCATION LAW.

EnviroTrac
561 P ACORN STREET
DEER PARK, NEW YORK 11729
PHONE (516) 586-1800 FAX (516) 586-1879

EAST WALL VIEW

AIR-SPARGE SYSTEM PIPING
(WITH SVE MANIFOLD IN BACKROUND)



SYSTEM LEGEND:

- PRESSURE OR TEMPERATURE GAUGE
- SOLENOID VALVE
- FLOWMETER
- PITOT TUBE
- RELIEF VALVE
- UNION

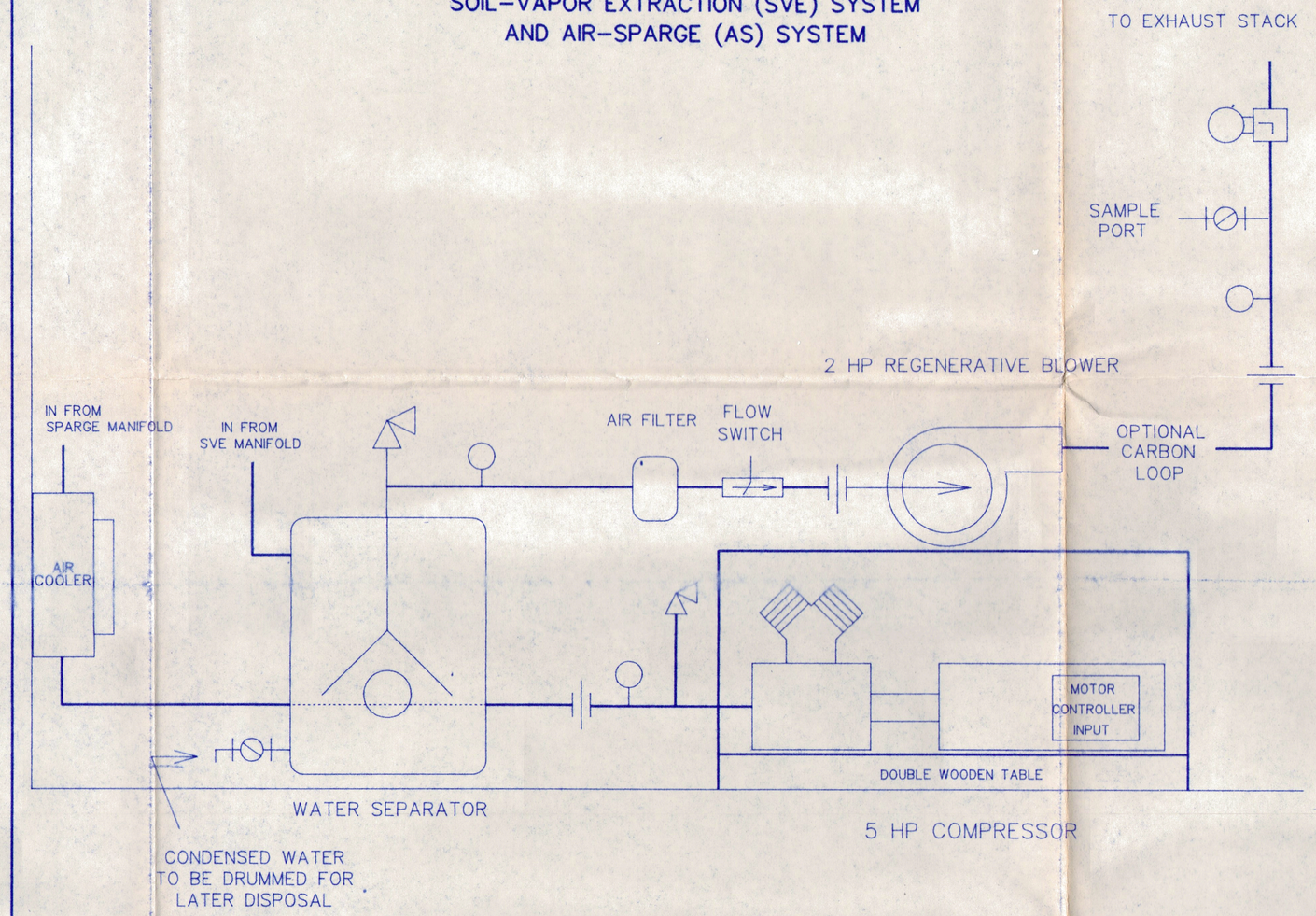
NOTES ON SYSTEM OPERATION:

AIR-SPARGE CONTROLLER WILL PROVIDE OUTDOOR VISUAL INDICATION OF SYSTEM FAILURE AND/OR OPERATION.

ALL AIR-SPARGE SYSTEM DESIGN AND CONTRUCTION DETAILS ARE SUBJECT TO FIELD MODIFIDATIONS/ALTERATIONS THAT WILL MEET OR EXCEED ORIGINAL DESIGN SPECIFICATIONS.

WEST WALL VIEW

SOIL-VAPOR EXTRACTION (SVE) SYSTEM AND AIR-SPARGE (AS) SYSTEM

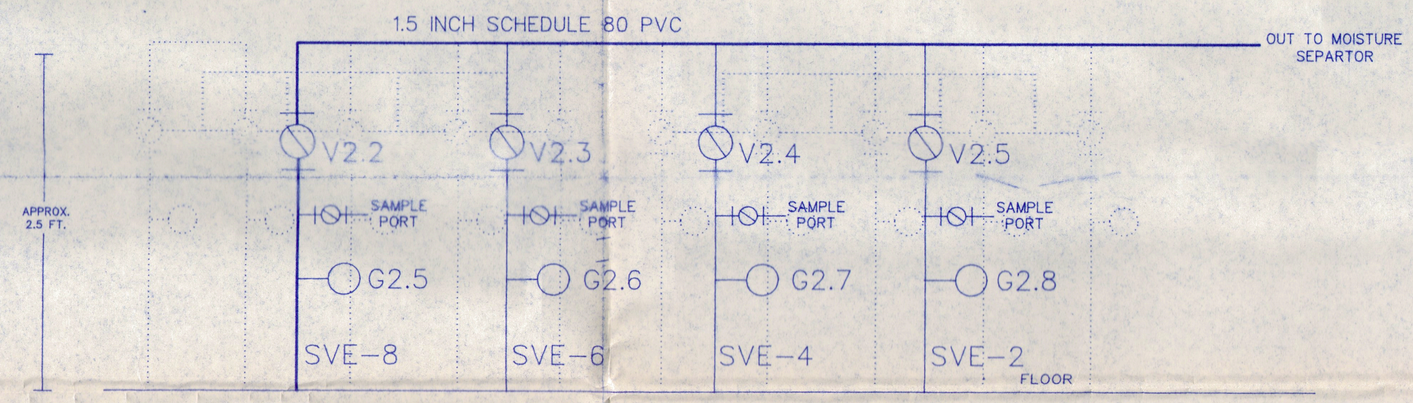


SYSTEM LEGEND:

- PRESSURE, TEMP., OR VACUUM GAUGE
- SOLENOID VALVE
- BALL VALVE
- FLOWMETER
- PITOT TUBE
- RELIEF VALVE
- UNION

EAST WALL VIEW

SOIL-VAPOR EXTRACTION (SVE) SYSTEM PIPING
(WITH AIR-SPARGE MAINFOLD IN BACKROUND)



SYSTEM LEGEND:

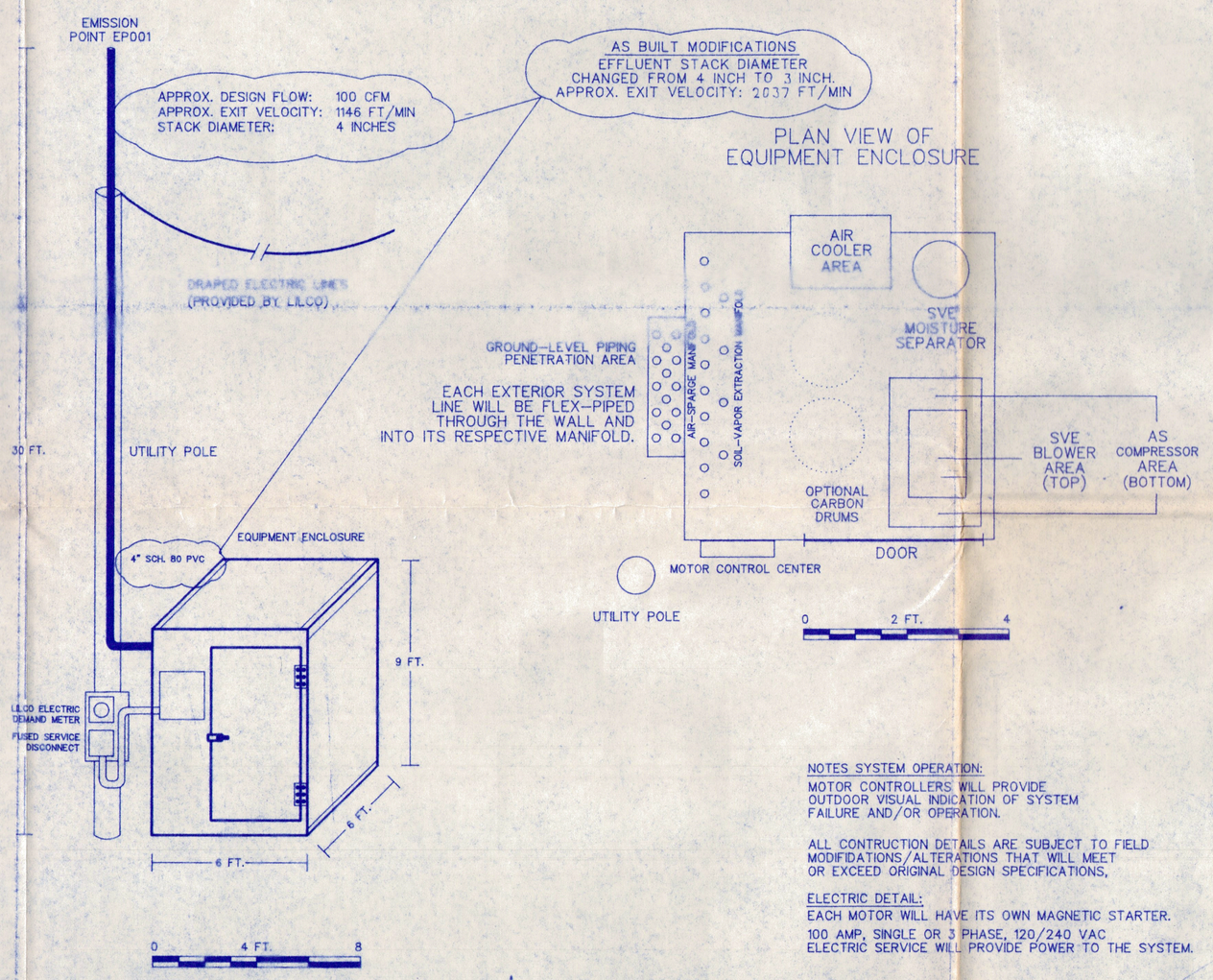
- VACUUM OR TEMPERATURE GAUGE
- BALL VALVE
- FLOWMETER
- PITOT TUBE
- RELIEF VALVE
- UNION

NOTES ON SVE SYSTEM OPERATION:

SVE BLOWER CONTROLLER WILL PROVIDE OUTDOOR VISUAL INDICATION OF SYSTEM FAILURE AND/OR OPERATION.

ALL SVE SYSTEM DESIGN AND CONTRUCTION DETAILS ARE SUBJECT TO FIELD MODIFIDATIONS/ALTERATIONS THAT WILL MEET OR EXCEED ORIGINAL DESIGN SPECIFICATIONS.

GENERAL SHED CONSTRUCTION & LAYOUT WITH STACK & UTILITY POLE



NOTES SYSTEM OPERATION:

MOTOR CONTROLLERS WILL PROVIDE OUTDOOR VISUAL INDICATION OF SYSTEM FAILURE AND/OR OPERATION.

ALL CONTRUCTION DETAILS ARE SUBJECT TO FIELD MODIFIDATIONS/ALTERATIONS THAT WILL MEET OR EXCEED ORIGINAL DESIGN SPECIFICATIONS.

ELECTRIC DETAIL:

EACH MOTOR WILL HAVE ITS OWN MAGNETIC STARTER.

100 AMP, SINGLE OR 3 PHASE, 120/240 VAC ELECTRIC SERVICE WILL PROVIDE POWER TO THE SYSTEM.

REVISED BY: OL
REVISION DATE: DECEMBER 9, 1996

FIGURE: 2

DESIGN PLATE

REMEDIATION SYSTEM
INTERIOR PIPING LAYOUT
AND SHED EXTERIOR VIEW

RITE-OFF, INC.
BAYSHORE, NEW YORK
NYS DEC # 1-52-129

PREPARED FOR:
H2M GROUP
MELVILLE, NEW YORK

SYSTEM ADDITIONS MADE BY:
EnviroTrac Ltd.
Joanne C. Klouda, P.E.
N.Y.S. **070967-1**

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