From:	jburke@storbenv.com
To:	Fang, Sharon
Cc:	Crooks, Joshua; rapatel@pa.gov; Bryan Franey; Darryl Borrelli; John Storb
Subject:	FW: Agenda and Attachments for 960 Rittenhouse Road - Part 1
Date:	Friday, March 27, 2020 7:02:58 PM
Attachments:	Figure_2.pdf Figure_3.pdf Figure_4.pdf Figure_5.pdf Figure_6.pdf Figure_7.pdf

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Sharon,

as presented.

-----Original Message-----
From: "jburke@storbenv.com" <jburke@storbenv.com>
Sent: Friday, March 27, 2020 6:46pm
To: jocrooks@pa.gov, rdevan@pa.gov, rapatel@pa.gov, cdbrown@pa.gov, bmcclennen@pa.gov, jagrabusky@pa.gov, ahartzell@pa.gov, fang.sharon@pa.gov, "Darryl Borrelli" <dborrelli@mankogold.com>, "Bryan Franey" <bfraney@mankogold.com>, "John Storb" <jstorb@storbenv.com>
Subject: Agenda and Attachments for 960 Rittenhouse Road - Part 1

Hello,

Storb Environmental Inc., presents the agenda for the proposed meeting to discuss the entry into the Pennsylvania Act 2 Land Recycling Program for the 960 Rittenhouse Road Site. This is the first of several emails to ensure that all attachments are received.

Thank You.

NTRODUCTIONS

PRESENTATION

DATA REVIEW

- **Groundwater**
- **Soil**
- **Sub-Slab Soil Vapor**
- **Indoor Air**

PRELIMINARY CONCEPTUAL MODEL

A. Perched Zone Soil and Groundwater Impacts

- Perched groundwater is evident based on groundwater levels measured in monitoring wells MW-2 and MW-4.

- TCE-Impacted soil present in loading lock and embankment area to the top of bedrock (10-12 ft. bgs)

B. Bedrock Transition Zone Groundwater

- Begins at the top of the bedrock column at locations a distance away from the 960 Rittenhouse Road building.

- "Bedrock Transition Zone Groundwater" has been monitored on the Site property through monitoring wells MW-30S and MW-33S.

- The hydraulic characteristics of the bedrock transition zone appear to represent a "leaky aquitard".

C Vapor Intrusion from Perched Groundwater, Soil, and Bedrock Transition Zone Groundwater

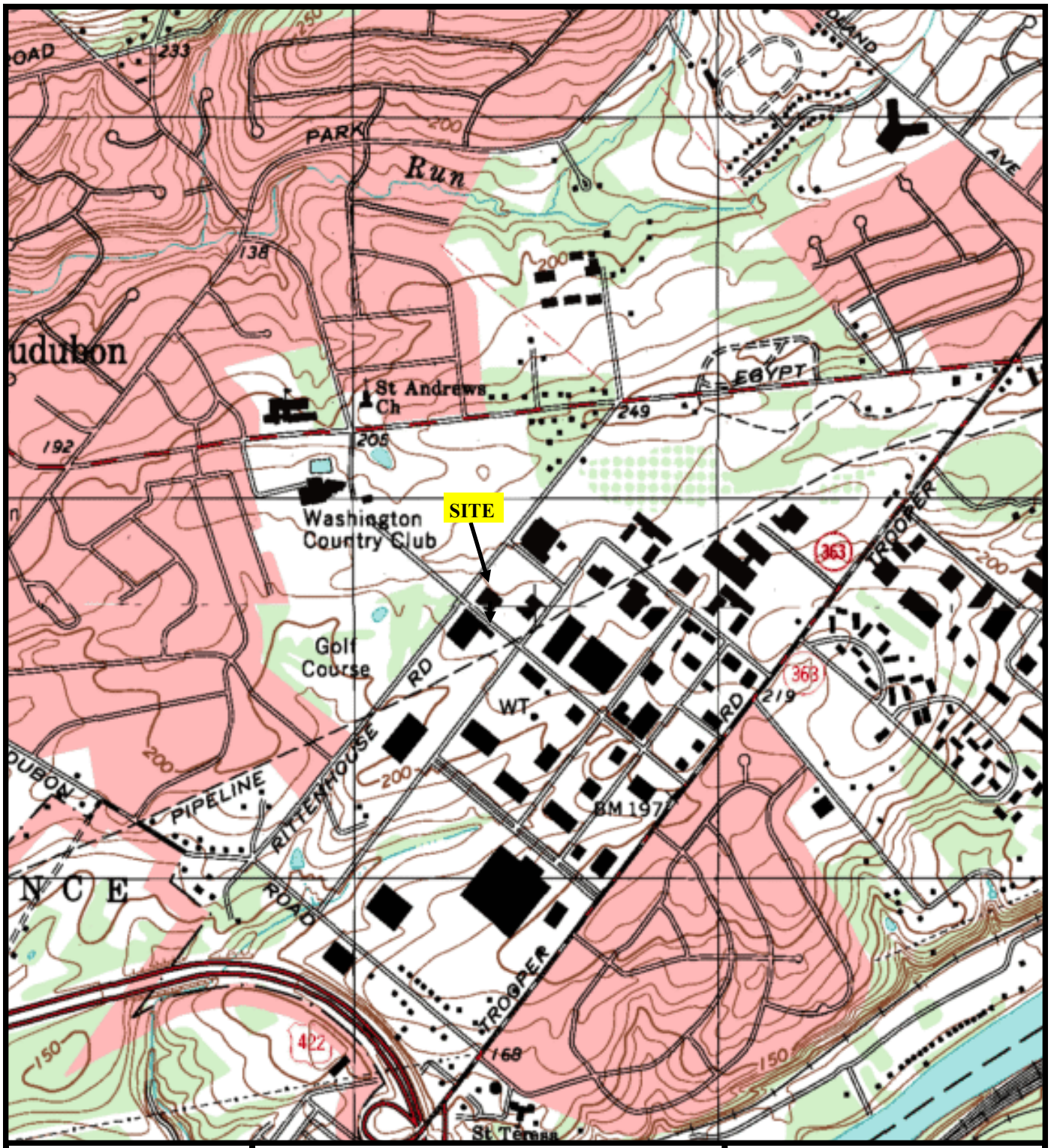
D Deep Groundwater

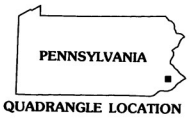
3. PROPOSED STRATEGY TO COMPLETE REMEDIAL INVESTIGATION

- Data collection to complete exposure assessment

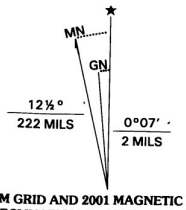
4. ACT 2 PATH FORWARD

- Risk Assessment and Pathway Elimination





QUADRANGLE LOCATION



UTM GRID AND 2001 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SITE LOCATION MAP

NORRISTOWN PA
71/2 QUADRANGLE
SCALE: 1" = 2000'

960 RITTENHOUSE ROAD PROPERTY
960 RITTENHOUSE ROAD
AUDUBON PENNSYLVANIA 19403

Environmental Consultants

STORB ENVIRONMENTAL INC.
410 NORTH EASTON ROAD
WILLOW GROVE, PA 19090
Tel: (215) 784-0950
Fax: (215) 784-0953

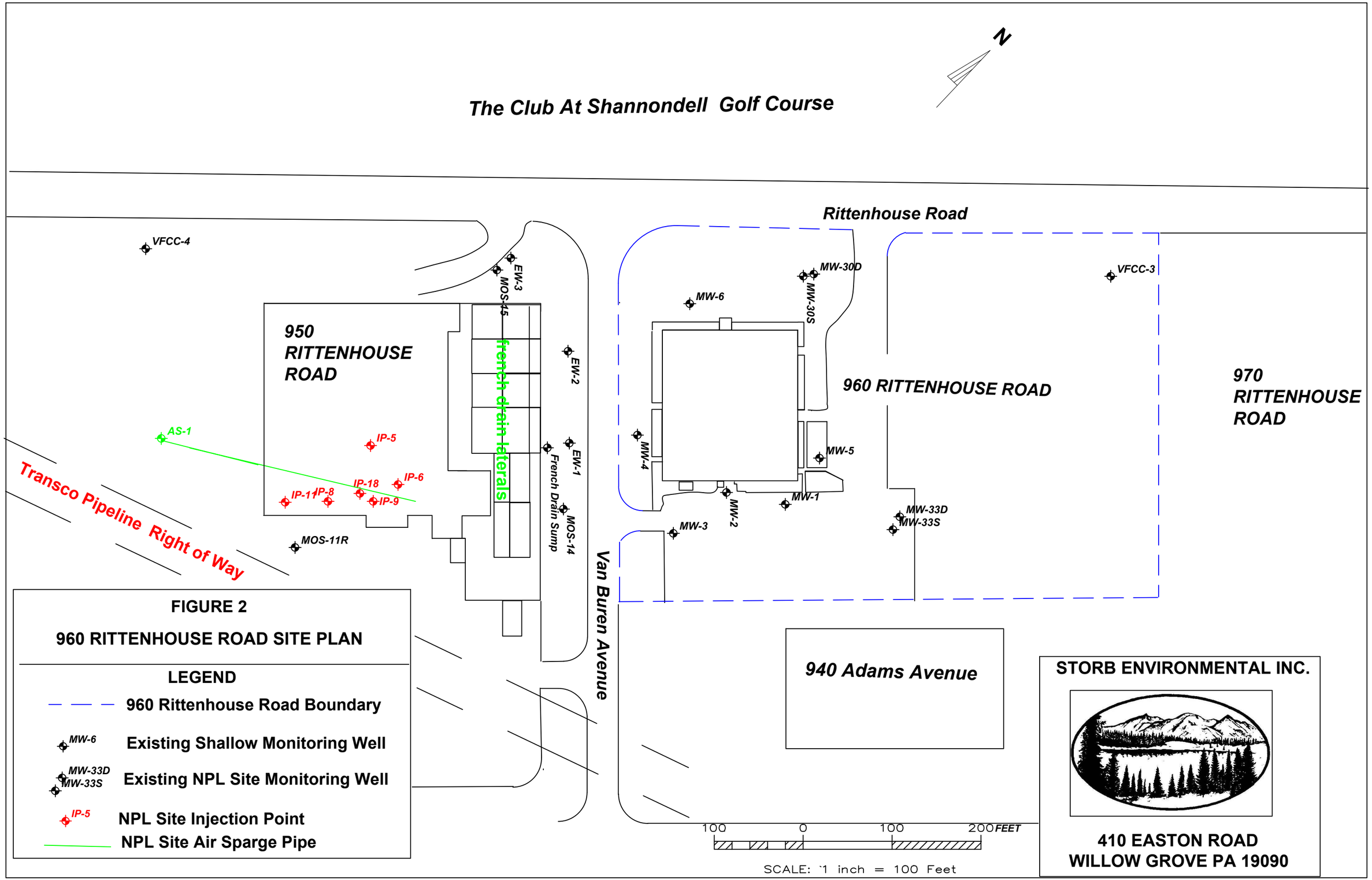


FIGURE 2

960 RITTENHOUSE ROAD SITE PLAN

LEGEND

960 Rittenhouse Road Boundary

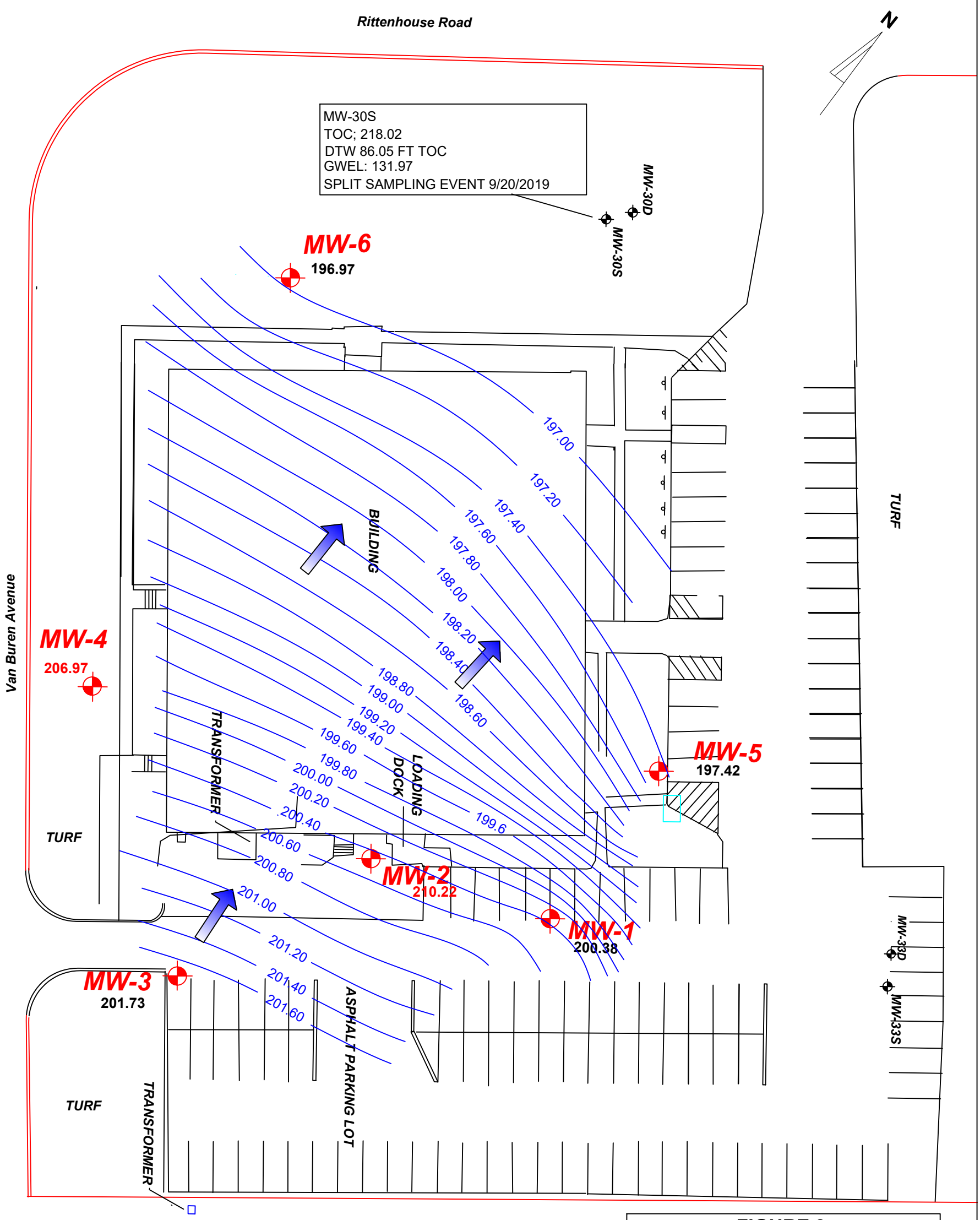
MW-6 Existing Shallow Monitoring Well

MW-33D MW-33S Existing NPL Site Monitoring Well

IP-5 NPL Site Injection Point

NPL Site Air Sparge Pipe

THE CLUB AT SHANNONDELL



LEGEND

PROPERTY BOUNDARY

MW-1 — MONITORING WELL

200.38 — GROUNDWATER ELEVATION (ft. MSL)

210.22 — GROUNDWATER ELEVATION (ft. MSL)
(Data from MW-2 and MW-4 Not Contoured)

GROUNDWATER EQUIPOTENTIAL CONTOUR LINE
(Contour Interval 0.2 ft)

DIRECTION OF GROUNDWATER FLOW

MW-30S — NPL MONITORING WELL

40 0 40 80 FEET

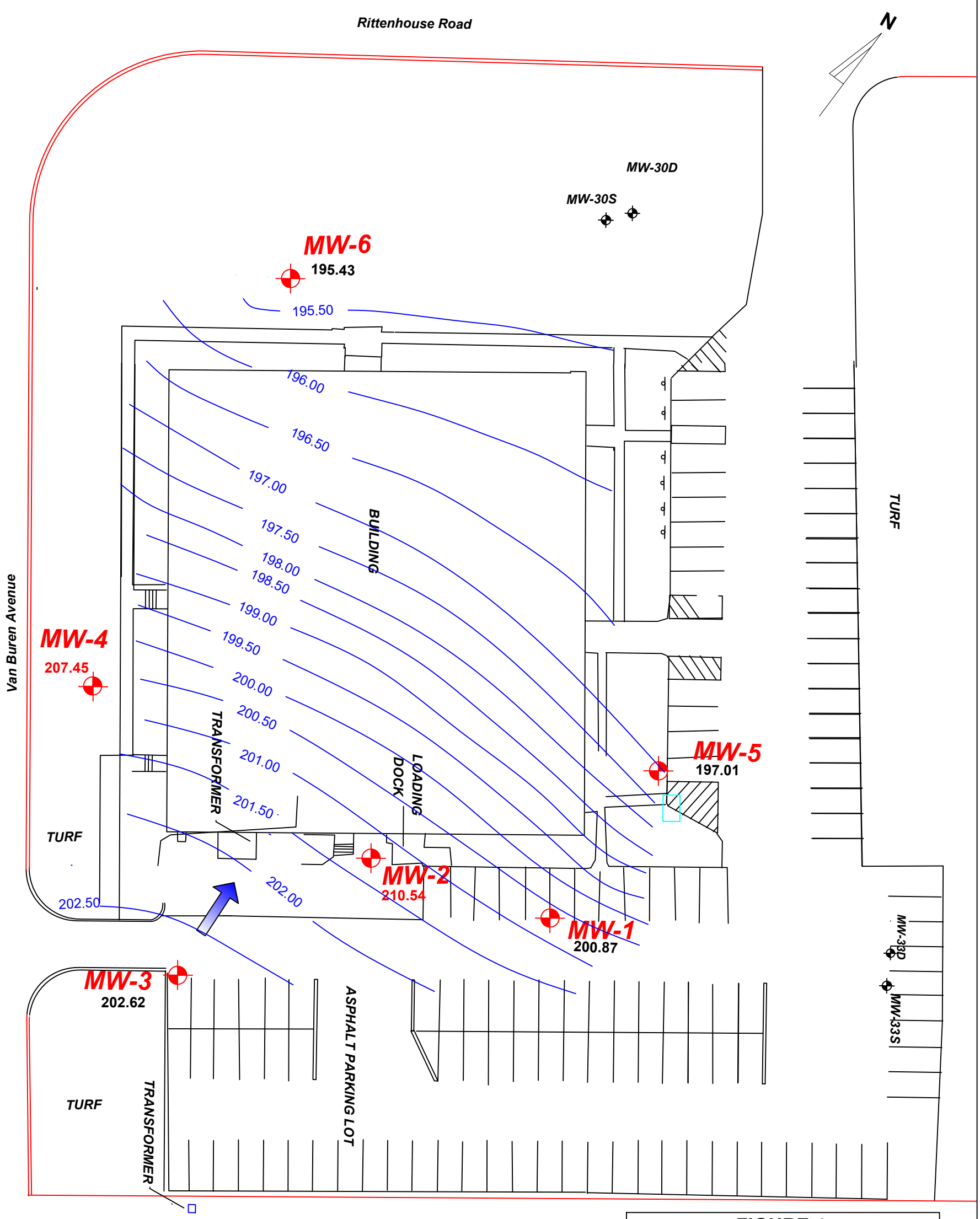
SCALE: 1inch =40 Feet

FIGURE 3
GROUNDWATER CONTOUR MAP
8/27/2019
960 RITTENHOUSE ROAD
AUDUBON, PA 19403
STORB ENVIRONMENTAL INC.

410 EASTON ROAD
WILLOW GROVE, PA 19090

BASED ON FIGURE 1 "PROPERTY MAP AND SAMPLE LOCATIONS"
BY ENVIRONMENTAL RESOURCES MANAGEMENT INC.
DATED 12-2-13

THE CLUB AT SHANNONDELL



LEGEND

	PROPERTY BOUNDARY
MW-1	MONITORING WELL
200.38	GROUNDWATER ELEVATION (ft. MSL)
210.22	GROUNDWATER ELEVATION (ft. MSL) (Data From MW-2 and MW-4 Not Contoured)
	GROUNDWATER EQUIPOTENTIAL CONTOUR LINE (Contour Interval 0.5 ft)
	DIRECTION OF GROUNDWATER FLOW
MW-30S	NPL MONITORING WELL

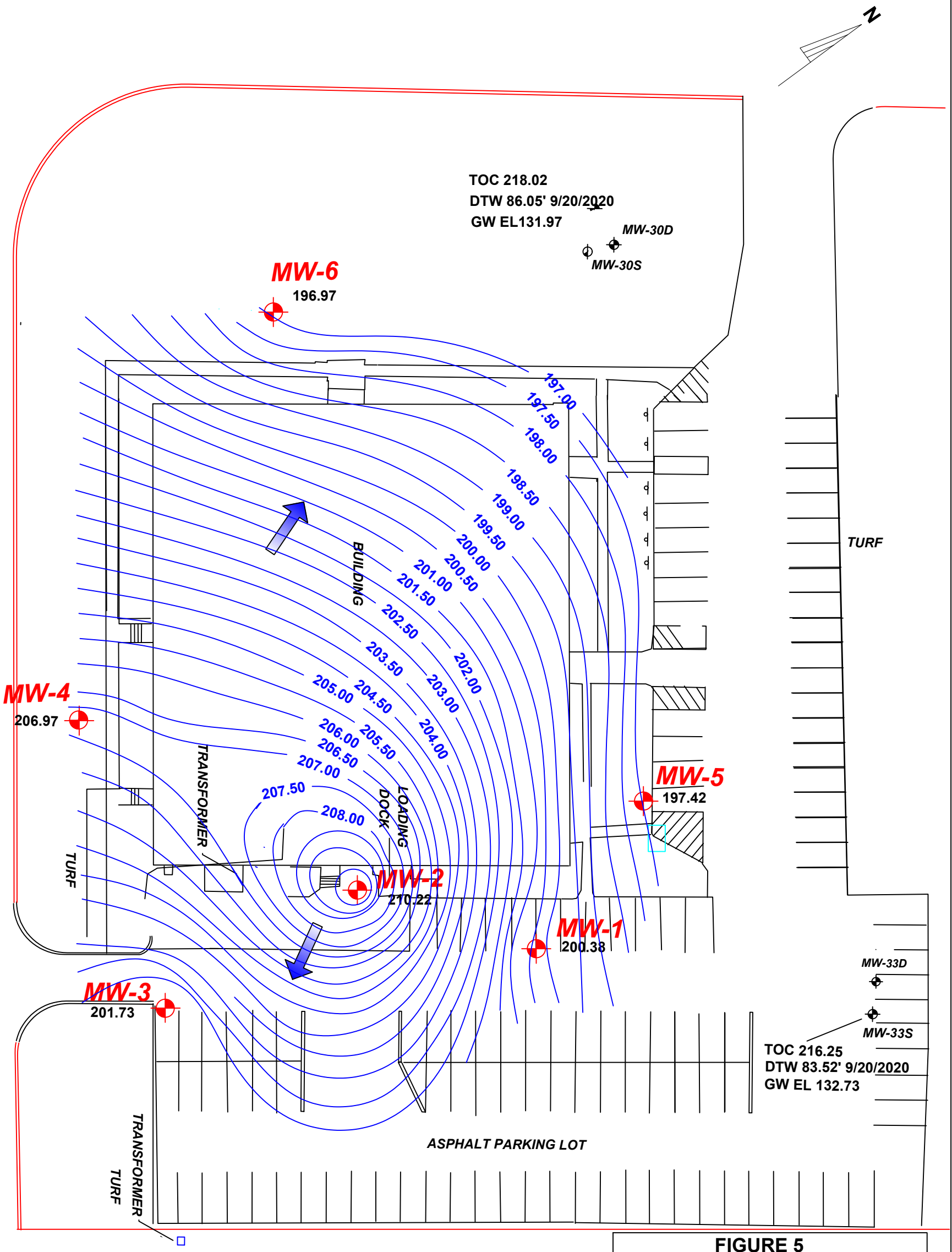
40 0 40 80 FEET

SCALE: 1inch =40 Feet

FIGURE 4
GROUNDWATER CONTOUR MAP
11/26/2019
960 RITTENHOUSE ROAD
AUDUBON, PA 19403
STORB ENVIRONMENTAL INC.

410 EASTON ROAD
WILLOW GROVE, PA 19090

BASED ON FIGURE 1 "PROPERTY MAP AND SAMPLE LOCATIONS" BY ENVIRONMENTAL RESOURCES MANAGEMENT INC. DATED 12-2-13



LEGEND

PROPERTY BOUNDARY

MW-1 — MONITORING WELL

200.38 — GROUNDWATER ELEVATION (ft. MSL)

GROUNDWATER EQUIPOTENTIAL CONTOUR LINE
(Contour Interval 0.5 ft)

DIRECTION OF GROUNDWATER FLOW

MW-30S — NPL MONITORING WELL

40 0 40 80 FEET

SCALE: 1inch =40 Feet

FIGURE 5

GROUNDWATER CONTOUR MAP
8/27/2019

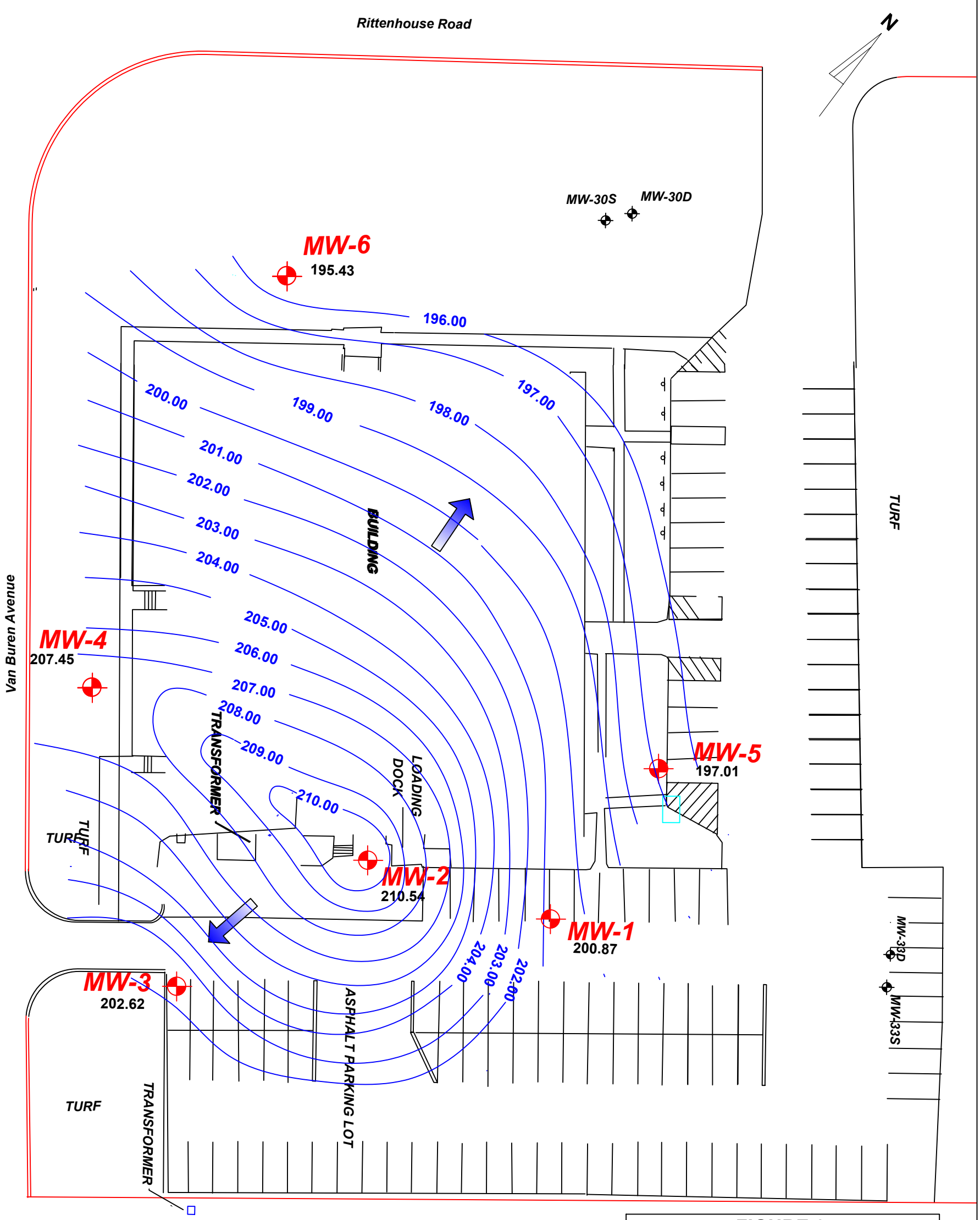
960 RITTENHOUSE ROAD
AUDUBON, PA 19403

STORB ENVIRONMENTAL INC.

410 EASTON ROAD
WILLOW GROVE, PA 19090

BASED ON FIGURE 1 "PROPERTY MAP AND SAMPLE LOCATIONS"
BY ENVIRONMENTAL RESOURCES MANAGEMENT INC.
DATED 12-2-13

THE CLUB AT SHANNONDELL



LEGEND

PROPERTY BOUNDARY

MW-1 — MONITORING WELL

200.87 — GROUNDWATER ELEVATION (ft. MSL)

GROUNDWATER EQUIPOTENTIAL CONTOUR LINE
(Contour Interval 1.0 ft)

DIRECTION OF GROUNDWATER FLOW

MW-30S — NPL MONITORING WELL

40 0 40 80 FEET

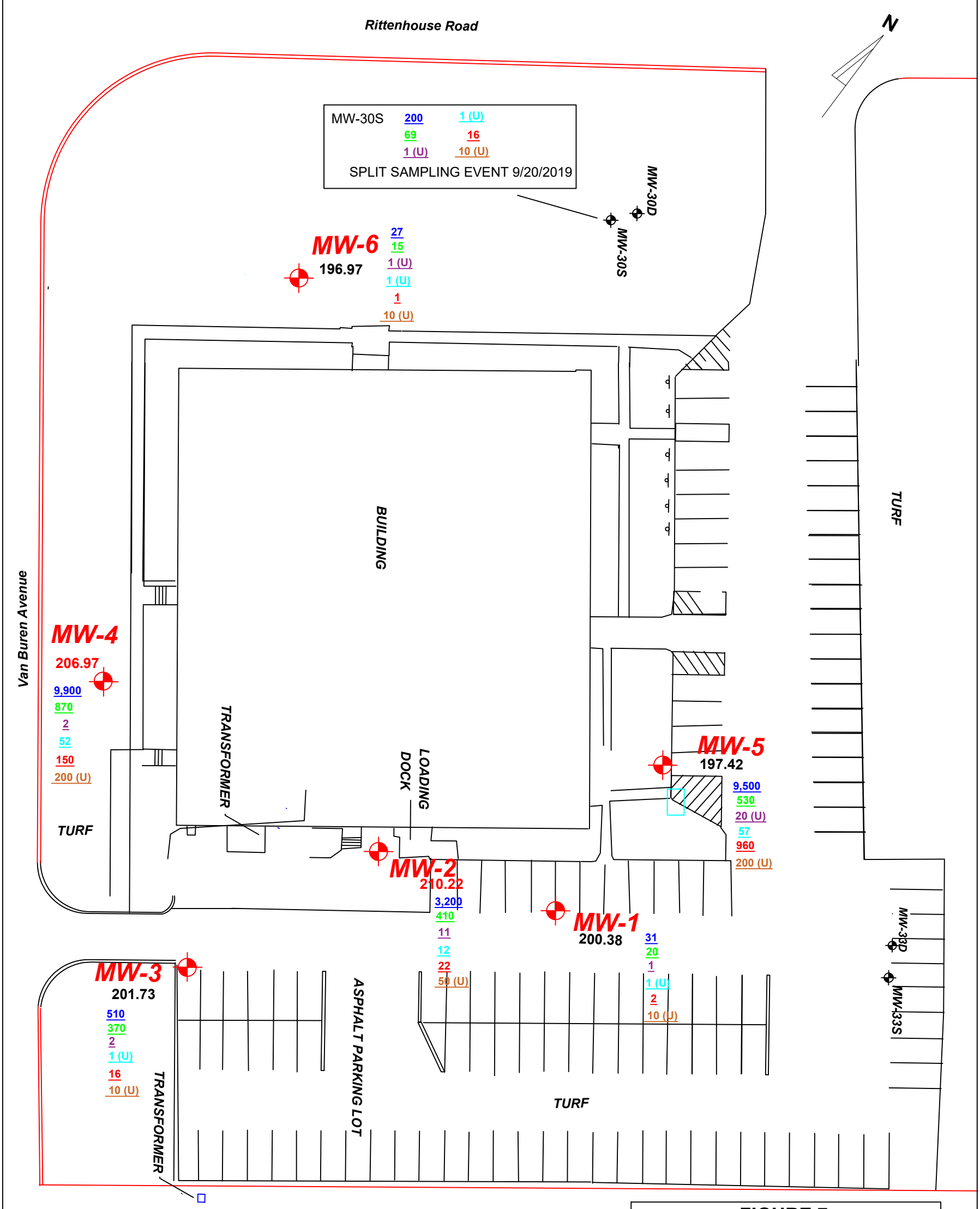
SCALE: 1inch =40 Feet

FIGURE 6
GROUNDWATER CONTOUR MAP
11/26/2019
960 RITTENHOUSE ROAD
AUDUBON, PA 19403
STORB ENVIRONMENTAL INC.

410 EASTON ROAD
WILLOW GROVE, PA 19090

BASED ON FIGURE 1 "PROPERTY MAP AND SAMPLE LOCATIONS"
BY ENVIRONMENTAL RESOURCES MANAGEMENT INC.
DATED 12-2-13

THE CLUB AT SHANNONDELL



LEGEND

PROPERTY BOUNDARY

MW-1 Monitoring Well

200.38 Groundwater Elevation (ft. MSL)

9,900 TCE (ug/l)

540 cis-1,2-DCE (ug/l)

12 Vinyl Chloride (ug/l)

12 1,1,1-TCA (ug/l)

960 1,1-DCE (ug/l)

0.5 Freon 113 (ug/l)

10 (U) Compound not detected at the indicated concentration

MW-30S NPL Site Monitoring Well

40 0 40 80 FEET

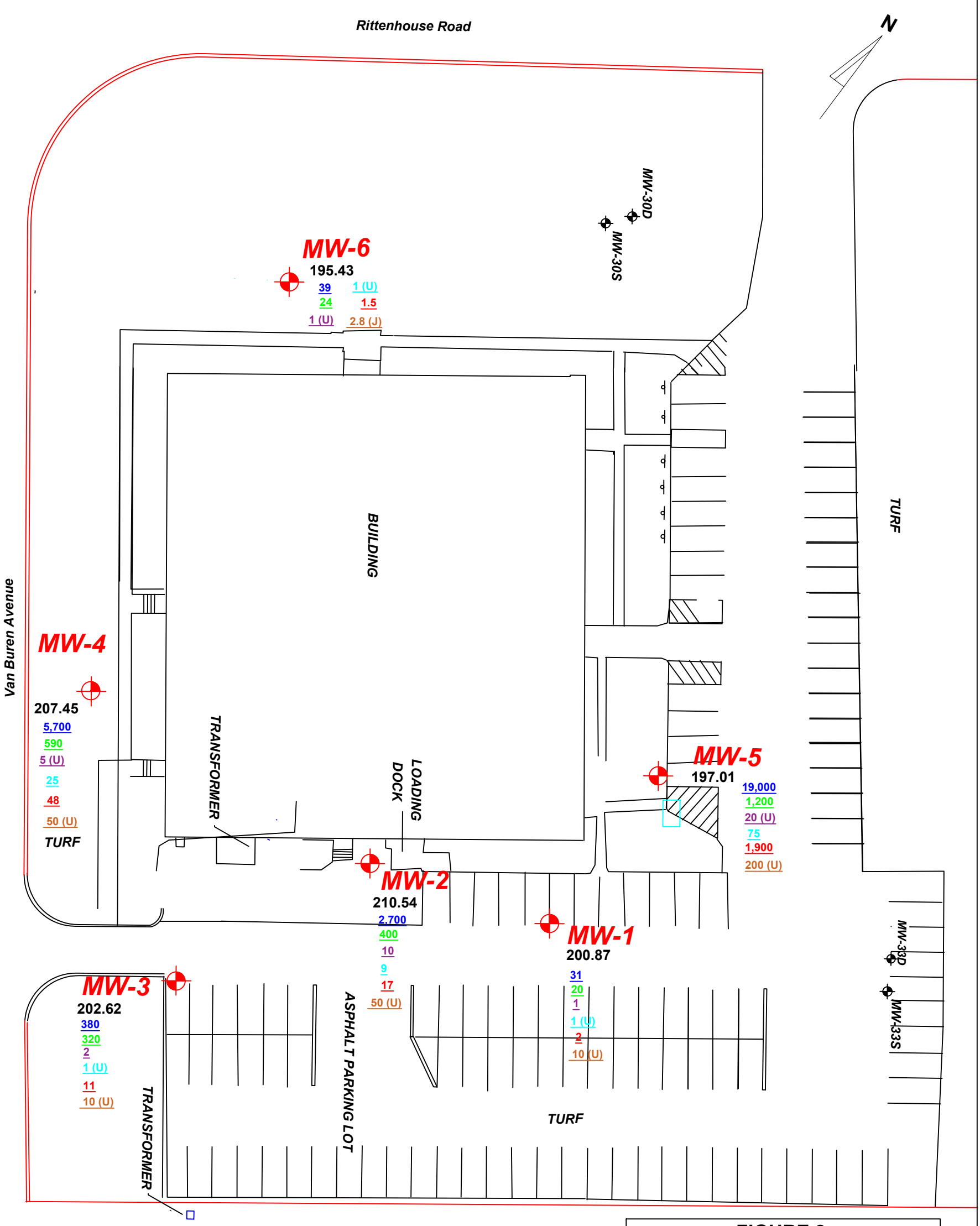
SCALE: 1inch =40 Feet

FIGURE 7
GROUNDWATER QUALITY MAP
8/27/2019
960 RITTENHOUSE ROAD
AUDUBON, PA 19403
STORB ENVIRONMENTAL INC.

410 EASTON ROAD
WILLOW GROVE, PA 19090

BASED ON FIGURE 1 "PROPERTY MAP AND SAMPLE LOCATIONS" BY ENVIRONMENTAL RESOURCES MANAGEMENT INC. DATED 12-2-13

THE CLUB AT SHANNONDELL



LEGEND

PROPERTY BOUNDARY

MW-1 Monitoring Well

200.38 Groundwater Elevation (ft. MSL)

9,900 TCE (ug/l)

540 cis-1,2-DCE (ug/l)

12 Vinyl Chloride (ug/l)

12 1,1,1-TCA (ug/l)

960 1,1-DCE (ug/l)

0.5 Freon 113 (ug/l)

10 (U) Compound not detected at the indicated concentration

MW-30S NPL Site Monitoring Well

40 0 40 80 FEET

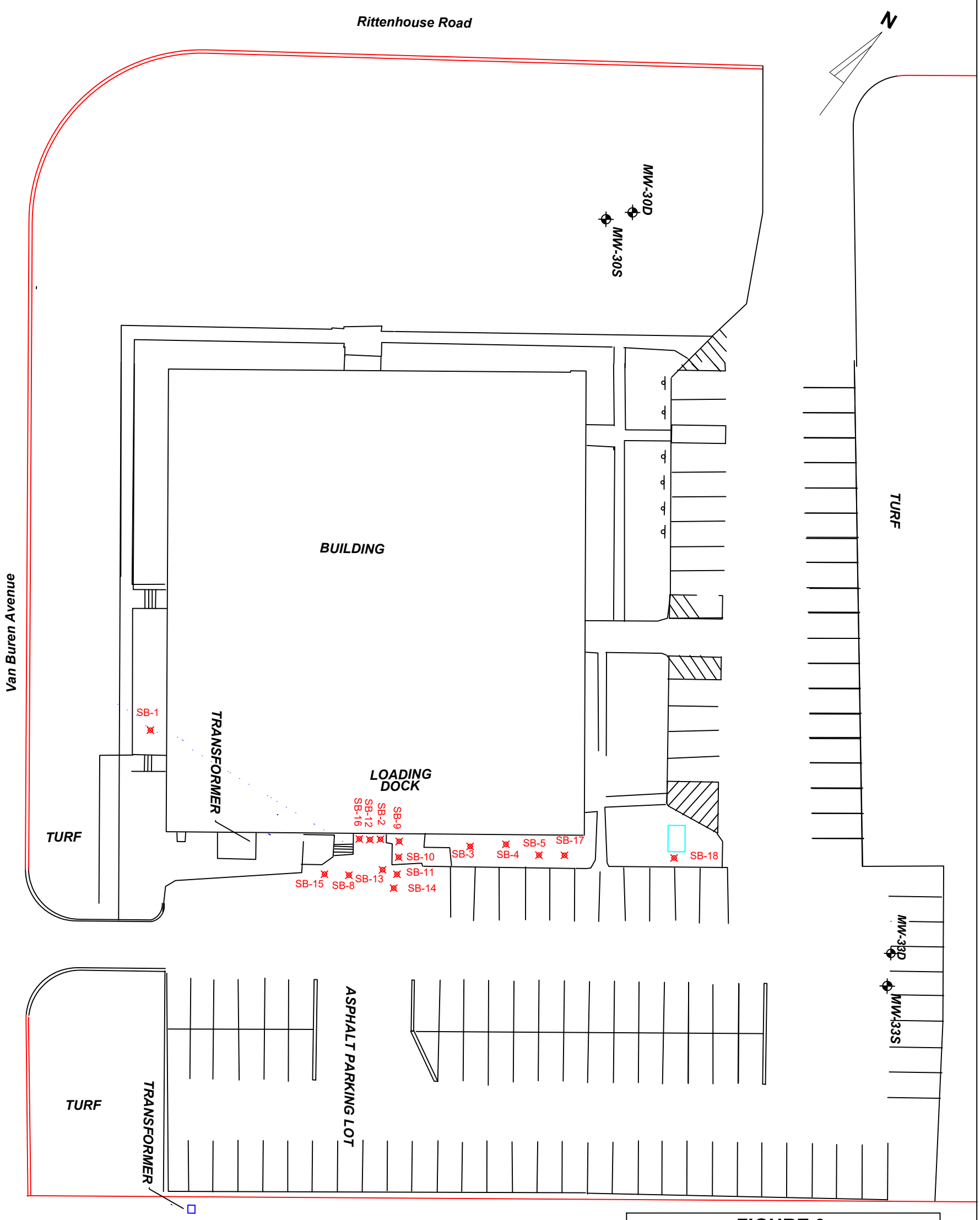
SCALE: 1inch =40 Feet

FIGURE 8
GROUNDWATER QUALITY MAP
11/26/2019
960 RITTENHOUSE ROAD
AUDUBON, PA 19403
STORB ENVIRONMENTAL INC.

410 EASTON ROAD
WILLOW GROVE, PA 19090

BASED ON FIGURE 1 "PROPERTY MAP AND SAMPLE LOCATIONS" BY ENVIRONMENTAL RESOURCES MANAGEMENT INC. DATED 12-2-13

THE CLUB AT SHANNONDELL



LEGEND

PROPERTY BOUNDARY

SB-6 SOIL BORING LOCATION DECEMBER/16-18, 2019

ROOF DRY WELL/FRENCH DRAIN

40 0 40 80 FEET

SCALE: 1inch =40 Feet

FIGURE 9
SOIL INVESTIGATION
960 RITTENHOUSE ROAD
AUDUBON, PA 19403
STORB ENVIRONMENTAL INC.

410 EASTON ROAD
WILLOW GROVE, PA 19090

BASED ON FIGURE 1 "PROPERTY MAP AND SAMPLE LOCATIONS" BY ENVIRONMENTAL RESOURCES MANAGEMENT INC. DATED 12-2-13

Table 1
Groundwater Monitoring Well Gauging Data
960 Rittenhouse Road
Audubon PA 19403
Lower Providence Township, Montgomery County

Storb Environmental Project No. 19-4232

Monitoring Well	TOC Elevation*	Date	Depth to Groundwater	Groundwater Elevation
MW-1	219.15	08/27/19	18.77	200.38
		11/26/19	18.28	200.87
MW-2	219.70	08/27/19	9.48	210.22
		11/26/19	9.16	210.54
MW-3	219.59	08/27/19	17.86	201.73
		11/26/19	16.97	202.62
MW-4	218.70	08/27/19	11.73	206.97
		11/26/19	11.25	207.45
MW-5	221.20	08/27/19	23.78	197.42
		11/26/19	24.19	197.01
MW-6	218.95	08/27/19	21.98	196.97
		11/26/19	23.52	195.43

Notes:

TOC Elevation - based on laser level survey for determining Top of Casing (TOC) Elevations based on TOC survey measurements from NPL Site Monitoring Wells MW-30S and MW-33S

Table 2

Groundwater Laboratory Analytical Results
960 Rittenhouse Road
Audubon, PA 19403
Storb Environmental Project 19-4232

Sample ID	**PADEP Groundwater MSC - Non-Residential, Used Aquifer (ug/L)**	**PADEP 1/10 Non-Residential SV_{GW} (ug/m3)**	**MW-1**				**MW-2**		**DUP (MW-2)**		**MW-2**	
EPA Sample No.			S7704		RITM1		S7701DL		S7703DL		RITM2	
Description												
Sample Date and Time			8/27/2019 @ 14:42		11/26/2019 @ 11:00		8/27/2019 @ 13:55		8/27/2019 @ 14:15		11/26/2019 @ 11:35	
			D.L.	Conc.	D.L	Conc.	D.L.	Conc.	D.L.	Conc.	D.L	Conc.
Trichloroethene (TCE)	5	11	1	**31**	1	**30**	50	**3,200 (D)**	50	**3,100 (D)**	50	**2700 (D)**
cis-1,2-Dichloroethene (cis-1,2-DCE)	70	NA	1	20	1	18	50	**410 (D)**	50	**390 (D)**	5	**400**
trans-1,2-Dichloroethene (trans-1,2-DCE)	100	760	1	0.2 (J)	1	1 (U)	50	50 (U)	50	50 (U)	5	3 (J)
Vinyl Chloride	2	5	1	1	1	0.9 (J)	50	50 (U)	50	50 (U)	5	**10**
1,1,1-Trichloroethane (1,1,1-TCEA)	100	10,000	1	1 (U)	1	12	50	11 (J) (D)	50	10 (J) (D)	5	9
1,1-Dichloroethene	7	380	1	2	1	2	50	22 (J) (D)	50	22 (J) (D)	5	**17**
1,1-Dichloroethane	31	160	1	0.4 (J)	1	0.3 (J)	50	50 (U)	50	50 (U)	5	1 (J)
Tetrachloroethene (PCE)	5	130	1	1 (U)	1	1 (U)	50	50 (U)	50	50 (U)	5	5 (U)
Freon 113	170,000	17,000	10	10 (U)	10	10 (U)	500	500 (U)	500	500 (U)	50	50 (U)
Chloroform	80	180	1	1 (U)	1	1 (U)	50	50 (U)	50	50 (U)	5	5 (U)
Toluene	1,000	43,000	1	1 (U)	1	1 (U)	50	50 (U)	50	50 (U)	5	5 (U)

Notes:
MW = Monitoring Well
D.L. = Detection Limit
MSC = Media-Specific Concentration for compound in a non-residential, used aquifer
SVGW = Vapor Intrusion Screening Value for Groundwater
ug/L = micrograms per liter
ug/m3 = micrograms per cubic meter
(U) = compound not detected at the value indicated
(J) = Estimated value, greater than the Detection Limit (D.L.) and less than the Limit of Quantitation (L.O.Q.)
(D) = Sample diluted in the laboratory due to the undiluted concentration exceeding the calibration range
Results in orange fill indicate an exceedance of the 1/10 Non-Residential SVGW
Results in bold font and orange fill Indicate an exceedance of the Non-Residential Groundwater MSC and the 1/10 Non-Residential SVGW
Results in bold font and green fill indicate an exceedance of the Non-Residential Groundwater MSC and no exceedance of the 1/10 SVGW

Table 2

Groundwater Laboratory Analytical Results
960 Rittenhouse Road
Audubon, PA 19403
Storb Environmental Project 19-4232

Sample ID	**PADEP Groundwater MSC - Non-Residential, Used Aquifer (ug/L)**	**PADEP 1/10 Non-Residential SV_{GW} (ug/m3)**	**MW-3**				**MW-4**			
EPA Sample No.			S7706DL		RIT-3		S7708DL		RIT-4	
Description										
Sample Date and Time			8/27/2019 @ 15:30		11/26/2019 @ 12:05		8/27/2019 @ 16:15		11/26/2019 @ 12:40	
			D.L.	Conc.	D.L.	Conc.	D.L.	Conc.	D.L.	Conc.
Trichloroethene (TCE)	5	11	10	**510 (D)**	10	**380 (D)**	200	**9,900 (D)**	50	**5700 (D)**
cis-1,2-Dichloroethene (cis-1,2-DCE)	70	NA	10	**370 (D)**	50	**250 (D)**	200	**850 (D)**	5	**590**
trans-1,2-Dichloroethene (trans-1,2-DCE)	100	760	10	10 (U)	50	40 (J)	200	200 (U)	5	47
Vinyl Chloride	2	5	10	10 (U)	1	2	200	200 (U)	5	5 (U)
1,1,1-Trichloroethane (1,1,1-TCEA)	100	10,000	10	10 (U)	1	1 (U)	200	40 (J) (D)	5	25
1,1-Dichloroethene	7	380	10	**11 (D)**	1	**11**	200	**200 (D)**	5	**48**
1,1-Dichloroethane	31	160	10	3 (J)	1	3	200	200 (U)	5	6
Tetrachloroethene (PCE)	5	130	10	10 (U)	1	1 (U)	200	200 (U)	5	4 (J)
Freon 113	170,000	17,000	100	100 (U)	10	10 (U)	2000	2000 U)	50	50 (U)
Chloroform	80	180	10	10 (U)	1	0.4 (J)	200	200 (U)	5	2 (J)
Toluene	1,000	43,000	10	10 (U)	10	10 (U)	200	200 (U)	5	5 (U)

Notes:
MW = Monitoring Well
D.L. = Detection Limit
MSC = Media-Specific Concentration for compound in a non-residential, used aquifer
SVGW = Vapor Intrusion Screening Value for Groundwater
ug/L = micrograms per liter
ug/m3 = micrograms per cubic meter
(U) = compound not detected at the value indicated
(J) = Estimated value, greater than the Detection Limit (D.L.) and less than the Limit of Quantitation (L.O.Q.)
(D) = Sample diluted in the laboratory due to the undiluted concentration exceeding the calibration range
Results in orange fill indicate an exceedance of the 1/10 Non-Residential SVGW
Results in bold font and orange fill Indicate an exceedance of the Non-Residential Groundwater MSC and the 1/10 Non-Residential SVGW
Results in bold font and green fill indicate an exceedance of the Non-Residential Groundwater MSC and no exceedance of the 1/10 SVGW

Table 2

Groundwater Laboratory Analytical Results
960 Rittenhouse Road
Audubon, PA 19403
Storb Environmental Project 19-4232

Sample ID	**PADEP Groundwater MSC - Non-Residential, Used Aquifer (ug/L)**	**PADEP 1/10 Non-Residential SV_{GW} (ug/m3)**	**MW-5**				**MW-6**			
EPA Sample No.			S7713DL		RIT-5		S7711		RIT-6	
Description										
Sample Date and Time			8/27/2019 @ 18.10		11/26/2019 @ 14:00		8/27/2019 @ 17:05		11/26/2019 @ 13:25	
			D.L.	Conc.	D.L.	Conc.	D.L.	Conc.		
Trichloroethene (TCE)	5	11	200	**9,500 (D)**	20	**19,000 (D)**	1	**27**	1	**39**
cis-1,2-Dichloroethene (cis-1,2-DCE)	70	NA	200	**480 (D)**	20	**1200**	1	**15**	1	**24**
trans-1,2-Dichloroethene (trans-1,2-DCE)	100	760	200	200 (U)	20	20 (U)	1	1	1	0.4 (J)
Vinyl Chloride	2	5	200	200 (U)	20	20 (U)	1	1 (U)	1	1 (U)
1,1,1-Trichloroethane (1,1,1-TCEA)	100	10,000	200	46 (J) (D)	20	75	1	1 (U)	1	1 (U)
1,1-Dichloroethene	7	380	200	**910 (D)**	20	**1,900**	1	1	1	1.5
1,1-Dichloroethane	31	160	200	200 (U)	20	17 (J)	1	0.6 (J)	1	0.8 (J)
Tetrachloroethene (PCE)	5	130	200	200 (U)	20	8.1 (J)	1	1 (U)	1	1 (U)
Freon 113	170,000	17,000	2000	2000 (U)	200	200 (U)	10	10 (U)	1	2.8 (J)
Chloroform	80	180	200	200 (U)	20	21	1	1 (U)	1	0.3 (J)
Toluene	1,000	43,000	200	200 (U)	20	20 (U)	1	1 (U)	1	1 (U)

Notes:
MW = Monitoring Well
D.L. = Detection Limit
MSC = Media-Specific Concentration for compound in a non-residential, used aquifer
SVGW = Vapor Intrusion Screening Value for Groundwater
ug/L = micrograms per liter
ug/m3 = micrograms per cubic meter
(U) = compound not detected at the value indicated
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Results in orange fill indicate an exceedance of the 1/10 Non-Residential SVGW
Results in bold font and orange fill Indicate an exceedance of the Non-Residential Groundwater MSC and the 1/10 Non-Residential SVGW
Results in bold font and green fill indicate an exceedance of the Non-Residential Groundwater MSC and no exceedance of the 1/10 SVGW

Table 3
Soil Laboratory Analytical Results December 16 - 18, 2019

960 Rittenhouse Road
Storb Environmental Project 18-4232

Soil Boring	**PADEP**	**PADEP**	**PADEP**	**SB-1**		**SB-2**		**SB-3**				**SB-4**				**SB-5**	
Soil Sample	**Soil MSC**	**Vapor Intrusion**	**Vapor Intrusion**	**S-1**		**S-2**		**S-3**		**S-4**		**S-5**		**S-6**		**S-7**	
Sample Depth	**Non-Residential**	**Non-Residential**	**Non-Residential**	10'		6.5'		7.5'		9.5'		5'		7.5'		9'	
PID Reading	**Used Aquifer**	**Screening value**	**1/10 Screening**	12.8		1462		220		75		50		500		53	
Lab Sample ID	**ug/kg**	**ug/kg**	**Value**	SW 1129341		SW 1229342		SW 1229343		SW 1229344		SW 1229345		SW 1229346		SW 1229347	
			ug/kg	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.
Trichloroethene (TCE)	500	170	17	5	**540**	2,200	**570,000 E**	500	**45,000 E**	260	**27,000 E**	790	**120,000 E**	370	**32,000 E**	330	**11,000**
cis-1,2-Dichloroethene	7,000	N/A	N/A	5	120	2,200	**14,000**	500	6,800	260	2,600	790	2,500	370	2,700	330	2,200
trans-1,2-Dichloroethene	10,000	2,300	230	5	0.5 (J)	2,200	ND	500	ND	260	ND	790	ND	370	ND	330	ND
Vinyl Chloride	200	27	2.7	5	ND	2,200	ND	500	ND	260	ND	790	ND	370	ND	330	ND
1,1,1 - Trichloroethane	20,000	7,400	740	5	1 (J)	2,200	ND	500	ND	260	ND	790	1,700	370	ND	330	ND
1,1 - Dichloroethene	700	190	19	5	4 (J)	2,200	ND	500	280 (J)	260	170 (J)	790	320 (J)	370	41 (J)	330	ND
1,1 - Dichlorethane	16,000	3,900	390	5	0.6 (J)	2,200	ND	500	69 (J)	260	37 (J)	790	ND	370	ND	330	ND
Tetrachloroethene	500	430	43	5	ND	2,200	**3,300**	500	ND	260	ND	790	**79 (J)**	370	ND	330	ND
1,4-Dioxane	3,200	5,900	590	270	ND	110,000	ND	25,000	ND	13,000	ND	40,000	ND	18,000	ND	17,000	ND
Acetone	10,000,000	4,700,000	470,000	5	24	8,800	ND	500	2,900	260	3,100	3,200	ND	370	1,100 (J)	1,300	ND
Benzene	500	130	13	5	ND	2,200	ND	500	ND	260	ND	790	ND	370	ND	330	ND
Ethylbenzene	70,000	46,000	4,600	5	ND	2,200	ND	500	ND	260	ND	790	75 (J)	370	ND	330	ND
Toluene	100,000	44,000	4,400	5	ND	2,200	ND	500	ND	260	ND	790	51 (J)	370	ND	330	ND
Total Xylenes	1,000,000	990,000	99,000	11	ND	4,400	ND	990	ND	520	96 (J)	790	420 (J)	740	ND	660	ND
2 - Butanone	400,000	1,100,000	110,000	5	3 (J)	4,400	ND	990	ND	520	ND	1,600	ND	740	ND	660	ND
Freon 113	10,000	10,000	1,000	11	ND	4,400	ND	990	ND	520	ND	1,600	ND	740	ND	660	ND
Moisture (%)	NA	NA	NA	N/A	14.2	N/A	17.1	N/A	21.5	N/A	16.4	N/A	16.1	N/A	16.1	N/A	18.0

Notes:
Conc = Concentration in micrograms per kilogram (ug/kg)
MDL = Method Detection Limit
(U) = compound not detected at the value indicated
(J) = Estimated value, greater than the Detection Limit (D.L.) and less than the Limit of Quantitation (L.O.Q.)
E = Estimated Value
Bolded values indicate exceedances of the non-residential used aquifer (soil-to-groundwater) MSC_S
Bolded and orange shaded values indicate exceedances of the non-residential used aquifer MSCS for soil **and** the Vapor Intrusion Non-Residential 1/10 Soil Screening Value
Orange shaded values indicate exceedances of the Vapor Intrusion Non-Residential 1/10 Soil Screening Value for soil
NA = Not Applicable

Table 3
Soil Laboratory Analytical Results December 16 - 18, 2019

960 Rittenhouse Road
Storb Environmental Project 18-4232

Soil Boring	**PADEP**	**PADEP**	**SB-6**		**SB-7**		**SB-8**				**SB-9**		**SB-10**		**SB-11**	
Soil Sample	**Soil MSC**	**Vapor Intrusion**	**S-8**		**S-9**		**S-10**		**S-11**		**S-12**		**S-13**		**S-14**	
Sample Depth	**Non-Residential**	**Non-Residential**	7.5'		6.5'		5.5'		9'		8'		5.5'		5.5'	
PID Reading	**Used Aquifer**	**Screening value**	500**		N/A		81		27		30		180		43	
Lab Sample ID	**ug/kg**	**ug/kg**	SW 1229349		SW 1229350		SW 1229351		SW 1229352		SW 1229353		SW 1229354		SW 1229355	
			MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.
Trichloroethene (TCE)	500	170	250	**13,000**	250	**5,300**	5	**480 E**	210	**100,000 E**	210	**60,000 E**	270	**4,700**	280	**6,300**
cis-1,2-Dichloroethene	7,000	N/A	250	2,900	250	**12,000**	5	1,700 E	210	2,400	210	5,000	270	**17,000 E**	280	5,900
trans-1,2-Dichloroethene	10,000	2,300	250	ND	250	ND	5	15	210	ND	210	ND	270	ND	280	ND
Vinyl Chloride	200	27	250	41 (J)	250	36 (J)	5	51	210	ND	210	90 (J)	270	ND	280	ND
1,1,1 - Trichloroethane	20,000	7,400	250	ND	250	ND	5	1 (J)	210	250	210	19 (J)	270	ND	280	ND
1,1 - Dichloroethene	700	190	250	140 (J)	250	69 (J)	5	4 (J)	210	ND	210	46 (J)	270	23 (J)	280	24 (J)
1,1 - Dichlorethane	16,000	3,900	250	ND	250	22 (J)	5	4 (J)	210	96 (J)	210	ND	270	ND	280	ND
Tetrachloroethene	500	430	250	ND	250	ND	5	0.8 (J)	210	440	210	290	270	ND	280	ND
1,4-Dioxane	3,200	5,900	13,000	ND	13,000	ND	240	ND	11,000	ND	10,000	ND	14,000	ND	14,000	ND
Acetone	10,000,000	4,700,000	1,000	ND	1,000	ND	5	24	850	ND	830	ND	1,100	ND	1,100	ND
Benzene	500	130	250	ND	250	ND	5	ND	210	ND	210	ND	270	ND	280	ND
Ethylbenzene	70,000	46,000	250	ND	250	ND	5	ND	210	ND	210	26 (J)	270	ND	280	ND
Toluene	100,000	44,000	250	ND	250	ND	5	ND	210	95 (J)	210	22 (J)	270	ND	280	ND
Total Xylenes	1,000,000	990,000	510	ND	250	ND	5	ND	430	ND	210	130 (J)	270	ND	550	ND
2 - Butanone	400,000	1,100,000	510	ND	500	ND	5	3 (J)	430	ND	420	ND	550	ND	550	ND
Freon 113	10,000	10,000	510	ND	500	ND	10	ND	430	ND	420	ND	550	ND	550	ND
Moisture (%)	NA	NA	N/A	18.2	N/A	19.0	N/A	14.9	N/A	15.1	N/A	17.6	N/A	18.1	N/A	15.9

Notes:
Conc = Concentration in micrograms per kilogram (ug/kg)
MDL = Method Detection Limit
(U) = compound not detected at the value indicated
(J) = Estimated value, greater than the Detection Limit (D.L.) and less than the
E = Estimated Value
Bolded values indicate exceedances of the non-residential used aquifer (soil-
Bolded and orange shaded values indicate exceedances of the non-resident
Orange shaded values indicate exceedances of the Vapor Intrusion Non-Resi
NA = Not Applicable

Table 3
Soil Laboratory Analytical Results December 16 - 18, 2019

960 Rittenhouse Road
Storb Environmental Project 18-4232

Soil Boring	**PADEP**	**PADEP**	**SB-12**		**SB-13**				**SB-14**		**SB-15**		**SB-16**		**SB-17**		**SB-18**	
Soil Sample	**Soil MSC**	**Vapor Intrusion**	**S-15**		**S-16**		**S-17**		**S-18**		**S-19**		**S-20**		**S-21**		**S-22**	
Sample Depth	**Non-Residential**	**Non-Residential**	6.5'		5.5'		9'		5.5'		6.5'		7'		9.5		9.5'	
PID Reading	**Used Aquifer**	**Screening value**	319		39		16.9		77		0.1		120		232		0	
Lab Sample ID	**ug/kg**	**ug/kg**	SW 1229356		SW 1229357		SW 1229358		SW 1229359		SW 1229360		SW 1229361		SW 1229362		SW 1229363	
			MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.
Trichloroethene (TCE)	500	170	250	**200,000 E**	290	**11,000**	240	**15,000**	5	**930 E**	5	**42**	240	**20,000 E**	4,900	**220,000**	4	**41**
cis-1,2-Dichloroethene	7,000	N/A	250	**15,000 E**	290	**18,000 E**	240	**8,100**	5	1,500 E	5	490 E	240	4,400	4,900	1,000 (J)	4	12
trans-1,2-Dichloroethene	10,000	2,300	250	ND	290	24 (J)	240	ND	5	3 (J)	5	9	240	ND	4,900	ND	4	ND
Vinyl Chloride	200	27	250	32 (J)	290	51 (J)	240	73 (J)	5	17	5	7	240	30 (J)	4,900	ND	4	ND
1,1,1 - Trichloroethane	20,000	7,400	250	ND	290	ND	240	ND	5	ND	5	ND	240	ND	4,900	ND	4	1 (J)
1,1 - Dichloroethene	700	190	250	33 (J)	290	34 (J)	240	24 (J)	5	6	5	3 (J)	240	ND	4,900	ND	4	2 (J)
1,1 - Dichlorethane	16,000	3,900	250	ND	290	26 (J)	240	ND	5	3 (J)	5	ND	240	ND	4,900	ND	4	ND
Tetrachloroethene	500	430	250	**4,200**	290	ND	240	ND	5	ND	5	ND	240	**230 (J)**	4,900	**1,500 (J)**	4	ND
1,4-Dioxane	3,200	5,900	12,000	ND	14,000	ND	12,000	ND	500	110 (J)	230	ND	12,000	ND	240,000	ND	220	ND
Acetone	10,000,000	4,700,000	990	ND	1,200	ND	940	ND	500	16 (J)	50	13 (J)	940	ND	19,000	ND	4	36
Benzene	500	130	250	ND	290	ND	240	ND	5	ND	5	ND	240	ND	4,900	ND	4	ND
Ethylbenzene	70,000	46,000	250	ND	290	ND	240	26 (J)	5	0.5 (J)	5	ND	240	ND	4,900	3400 (J)	4	ND
Toluene	100,000	44,000	250	43 (J)	290	52 (J)	240	75 (J)	5	1 (J)	5	ND	240	ND	4,900	ND	4	ND
Total Xylenes	1,000,000	990,000	250	120 (J)	580	ND	240	120 (J)	11	ND	9	ND	470	ND	4,900	18,000	9	ND
2 - Butanone	400,000	1,100,000	500	ND	580	ND	470	ND	5	2 (J)	5	2 (J)	470	ND	9,700	ND	4	3 (J)
Freon 113	10,000	10,000	500	ND	580	ND	470	ND	11	ND	9	ND	470	ND	9,700	ND	9	ND
Moisture (%)	NA	NA	N/A	16.8	N/A	17.3	N/A	15.3	N/A	16.1	N/A	14.6	N/A	15.6	N/A	16.3	N/A	18.6

Notes:
Conc = Concentration in micrograms per kilogram (ug/kg)
MDL = Method Detection Limit
(U) = compound not detected at the value indicated
(J) = Estimated value, greater than the Detection Limit (D.L.) and less than the
E = Estimated Value
Bolded values indicate exceedances of the non-residential used aquifer (soil-
Bolded and orange shaded values indicate exceedances of the non-resident
Orange shaded values indicate exceedances of the Vapor Intrusion Non-Resi
NA = Not Applicable

TABLE 4
Sub-Slab Vapor Intrusion Laboratory Analytical Results

960 Rittenhouse Road
Storb Environmental Inc. Project No. 19-4232

Sample ID **ELLE Sample No.** **Description** **Sample Date and Time**	**PADEP** **SV_{SS}** **Non-Residential** **ug/m^3**	**PADEP** **1/10 SV_{SS}** **Non-Residential** **ug/m^3**	**PV-SS-03 Air** AQ 1242858 **Sub-Slab Vapor (SV_{SS})** **1/16-17/2020**		**PV-SS-04 Air** AQ 1242859 **Sub-Slab Vapor (SV_{SS})** **1/16-17/2020**		**FA-SS-08 Air** AQ 1242860 **Sub-Slab Vapor (SV_{SS})** **1/16-17/2020**		**FA-SS-12 Air** AQ 1242861 **Sub-Slab Vapor (SV_{SS})** **1/16-17/2020**		**TC-SS-02 Air** AQ 1242863 **Sub Slab Vapor (SV_{SS})** **1/16-17/2020**	
			MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.
Trichloroethene (TCE)	1,100	110	1,900	**130,000**	19,000	**350,000**	97	**10,000**	0.97	ND	970	**30,000**
cis-1,2-Dichloroethene (cis-1,2-DCE)	NA	NA	950	140,000	9,500	1,800,000	48	9,100	0.5	1.3	480	85,000
trans-1,2-Dichloroethene (trans-1,2-DCE)	34,000	3,400	680	**3,400**	6,800	**36,000**	34	760	0.34	ND	340	2,100
Vinyl Chloride	1,700	170	610	ND (Q1)	6,100	ND (Q1)	31	ND	0.31	ND	310	ND
1,1,1-Trichloroethane (1,1,1-TCEA)	2,800,000	280,000	1,300	ND	13,000	ND	65	ND	0.65	ND	650	ND
1,1-Dichloroethene	110,000	11,000	1,100	**21,000**	11,000	ND	56	470	0.56	ND	560	3,100
1,1-Dichloroethane	9,800	980	650	**2,500**	6,500	ND	36	180	0.56	ND	360	550
Tetrachloroethene (PCE)	22,000	2,200	3,400	ND	34,000	**45,000**	170	290	1.7	ND	1,700	ND
Benzene	2,000	200	700	ND	7,000	ND	35	53	0.35	0.87	350	ND
Ethylbenzene	6,300	630	1,700	ND	17,000	ND	83	ND	0.83	ND	830	ND
Toluene	2,800,000	280,000	15,000	ND	150,000	ND	750	ND	7.5	ND	7,500	ND
m/p Xylene	56,000	5,600	2,300	ND	17,000	ND	110	ND	1.1	2.6	1,100	ND
o-Xylene			1,700	ND	17,000	ND	83	ND	0.83	0.90	830	ND
Acetone	17,000,000	1,700,000	24,000	ND	240,000	ND	1,200	2,100	12	19	12,000	ND
2-Butanone	2,800,000	280,000	1,200	ND	12,000	28,000	62	250	0.62	2.3	620	ND
1,4-Dichlorobenzene	110,000	11,000	2,000	ND (Q1)	20,000	ND (Q1)	100	ND	1.00	2.3	1,000	ND
Dichlorodifluoromethane (Freon 12)	56,000	5,600	1,300	ND	13,000	ND	64	ND	0.64	2.9	640	ND
Heptane	N/A	N/A	1,900	ND	19,000	ND	260	ND	0.94	ND	940	ND
Hexane	390,000	39,000	920	ND	9,200	**130,000**	46	1,100	0.46	4.5	460	940
Isooctane	N/A	N/A	1,200	ND	12,000	ND	61	ND	0.61	0.63	610	ND
Octane	N/A	N/A	3,700	ND	37,000	ND	190	ND	1.9	ND	1,900	ND
Pentane	N/A	N/A	770	ND	7,700	ND	38	82	0.38	2.6	380	ND
Trichlorofluoromethane (Freon 11)	390,000	39,000	1,700	ND	17,000	ND	84	ND	0.84	1.6	840	ND
1,2,4-Trimethylbenzene	3,900	390	2,800	ND	28,000	ND	140	ND	1.4	ND	1,400	ND

Notes:
ug/m^3 = micrograms per cubic meter
MDL = Method Detection Limit
SV_{IA} = Indoor Air Statewide Health Standard Screening Value
SV_{SS} = Sub-Slab Soil Gas Statewide Health Standard Vapor Intrusion Screening Value
1/10 SV_{SS} = Screening Value for Risk Assessment Under the Site Specific Standard
Bolded Numbers indicate a compound-specific exceedance of the 1/10 SV_{SS}
ND = compound not detected at or below the MDL.
Q1 = The recovery for a target analyte in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC summary of the Laboratory Analytical Report. Since the recovery is high and the target analyte(s) was not detected in the sample, the data was reported. - Eurofins Lancaster Laboratories Environmental.

TABLE 5
Indoor Air Laboratory Analytical Results

960 Rittenhouse Road
Storb Environmental Inc. Project No. 19-4232

Sample ID **ELLE Sample No.** **Description** **Sample Date and Time**	**PADEP** **SV_{IA}** **Non-Residential** **ug/m^3**	**PADEP** **1/10 SV_{IA}** **Non-Residential** **ug/m^3**	**PV-1A-1 Air** AQ 1242857 **Indoor Air (SV_{IA})** **11/16-17/2020**		**FA-I-2 Air** AQ 1242862 **Indoor Air (SV_{IA})** **1/16-17/2020**		**FA-I-4 Air** AQ 1242864 **Indoor Air (SV_{IA})** **1/16-17/2020**	
			MDL	Conc.	MDL	Conc.	MDL	Conc.
Trichloroethene (TCE)	8.8	0.88	0.97	**1.3**	0.97	ND	0.97	ND
cis-1,2-Dichloroethene (cis-1,2-DCE)	NA	NA	0.48	1.7	0.48	1.0	0.48	ND
trans-1,2-Dichloroethene (trans-1,2-DCE)	260	26	0.34	ND	0.34	ND	0.34	ND
Vinyl Chloride	14	1.4	0.31	ND	0.31	ND	0.31	ND
1,1,1-Trichloroethane (1,1,1-TCEA)	22,000	2,200	0.65	ND	0.65	ND	0.65	ND
1,1-Dichloroethene	880	88	0.56	ND	0.56	ND	0.65	ND
1,1-Dichloroethane	880	88	0.32	ND	0.36	ND	0.56	ND
Tetrachloroethene (PCE)	180	18	1.7	ND	1.7	ND	1.7	ND
Benzene	16	1.6	0.35	**2.2**	0.35	0.84	0.35	1.4
Ethylbenzene	49	4.9	0.83	2.5	0.83	ND	0.83	ND
Toluene	22,000	2,200	7.5	16	7.5	ND	0.65	ND
m/p Xylene	440	44	1.1	9.0	1.1	1.5	1.1	2.1
o-Xylene			0.83	3.1	0.83	ND	0.83	ND
Acetone	140,000	14,000	12	16	12	15	12	13
2-Butanone	22,000	2,200	0.62	2.7	0.62	1.7	0.62	2.6
1,4-Dichlorobenzene	880	88	1.0	3.0	1.0	1.3	1.0	1.5
Dichlorodifluoromethane (Freon 12)	440	44	0.64	2.8	0.64	2.8	0.64	2.7
Heptane	N/A	N/A	0.94	3.1	0.94	ND	0.94	1.8
Hexane	3,100	310	0.46	9.1	0.46	3.6	0.46	11
Isooctane	N/A	N/A	0.61	2.5	0.61	ND	0.61	2.6
Octane	N/A	N/A	1.90	1.9	1.9	ND	1.90	ND
Pentane	N/A	N/A	0.38	15	0.38	2.5	0.38	7.3
Trichlorofluoromethane (Freon 11)	3,100	310	0.84	1.5	0.84	1.5	0.84	1.3
1,2,4-Trimethylbenzene	31	3.1	1.4	**3.5**	1.4	ND	1.4	ND

Notes:
ug/m^3 = micrograms per cubic meter
MDL = Method Detection Limit
SV_{IA} = Indoor Air Statewide Health Standard Screening Value
1/10 SV_{IA} = Screening Value for Risk Assessment under the Site Specific Standard
Bolded Numbers indicate a compound-specific exceedance of 1/10th of the PADEP Non-Residential SV_{IA}