2017 Operations and Maintenance Report

Stauffer Management Company LLC Site
Town of Lewiston, New York

Stauffer Management Company

GHD | 285 Delaware Avenue Suite 500 Buffalo New York 14202

006488| 20| Report No 31 | March 13 2018

Executive Summary

This report summarizes the operation and maintenance (O&M) activities performed at the Stauffer Management Company LLC (SMC) Site (Site) in Lewiston, New York for the reporting period of January 1, 2017 through December 31, 2017. This report also summarizes significant modifications to remedial operations during the reporting period and presents data that can be used to evaluate the effectiveness of the remedial systems, and provides conclusions about these data.

The SMC Site is located in the Town of Lewiston, New York, immediately north of the forebay of the Robert Moses Power Plant and is a former chemical manufacturing facility owned and operated by Stauffer Chemical Company. All structures associated with the former plant were demolished in the early 1980s. Stauffer Management Company LLC (SMC) manages the overall Site remediation and GHD Services, Inc. (GHD) provided day-to-day operation of the remedial operations in 2017. The remedial work is being done in accordance with New York State Department of Environmental Conservation (NYSDEC) Consent Order (CO) #B9-0137-86-04 effective July 19, 1993.

Currently, the active remedial operations consist of a bedrock groundwater extraction and treatment system, including deep bedrock and shallow bedrock extraction wells. A soil vapor extraction (SVE) treatment system for Area A of the Site has been shut off with the approval of NYSDEC, but remains operable. Two other SVE systems were decommissioned in 2001 and 2004.

The major chemicals of concern in the groundwater at the Site have been identified in the Site-Specific Parameter List (SSPL) as follows:

1. carbon disulfide
2. carbon tetrachloride
3. chloroform
4. methylene chloride
5. tetrachloroethene
6. benzene
7. chlorobenzene
8. toluene
9. trichloroethene

The groundwater extraction network consists of two deep bedrock groundwater extraction wells, three intermediate/deep bedrock extraction wells, three shallow bedrock extraction wells, and three overburden/shallow bedrock wells in Area A. The locations of the extraction wells are shown on Figure 1.5. Underground force mains with secondary containment convey recovered groundwater from the extraction wells to the treatment building.

Extracted groundwater is treated in two granular activated carbon (GAC) beds located in the treatment building. The treated water from the GAC units is discharged through the outfall to the

New York Power Authority (NYPA) Forebay, located south of the Site. Treated water is discharged in accordance with effluent limits and sampling requirements set by NYSDEC. Due to the Site being operated under the CO, a State Pollutant Discharge Elimination System (SPDES) permit is not required.

Approximately 14.3 million gallons of groundwater were recovered from the Site in 2017 for subsequent treatment and discharge. This volume was approximately 4% lower than the amount extracted in 2016. Significant decreases in extraction rates at EW-2 and EW-3 offset increases in the extraction rates of EW-1, EW-5, and EW-6 and were responsible for the lower system total in 2017. The total mass removed by the groundwater extraction system in 2017 was estimated at 1,386 pounds, which is 50% lower than that of 2016 (2,758 pounds) and 12% lower than 2015 (1,580 pounds). Significant decreases in mass removal in extraction wells EW-6 and OW-3 were observed, primarily due to reduced concentrations of SSPLs. An increase in mass removal rate in EW-3 was due to significantly higher SSPL concentrations. Figures presenting groundwater potentiometric contours and chemical isocontours are presented in Section 7.0 for each water-bearing zone (WBZ) present at the Site, and are discussed in some detail in Sections 7.2 through 7.5. The figures indicate that the Site extraction wells are properly placed to contain, capture, and recover SSPLs present in the groundwater at the Site. The current configuration provides hydraulic capture across the Site and indicates that the extraction system continues to be effective at both hydraulic containment and mass removal.

No major updates were made to the groundwater treatment system in 2017.

For 2018, SMC will continue to focus remedial efforts on increased mass removal and removal efficiency (pound of VOC recovered per 1,000 gallons of groundwater extracted).

Table of Contents

Figure Index

Table Index

Appendix Index

1. Introduction

This report summarizes the operation and maintenance (O&M) activities performed at the Stauffer Management Company LLC (SMC) Site (Site) in Lewiston, New York for the reporting period of January 1, 2017 through December 31, 2017. This report also summarizes significant modifications to remedial operations during the reporting period. Finally, this report presents data that can be used to evaluate the effectiveness of the remedial systems, and provides conclusions about these data.

The O&M services were provided by GHD Services, Inc. (GHD) under contract to SMC. The O&M activities were performed in accordance with the "Operations and Maintenance Manual, Stauffer Management Company, Town of Lewiston, New York" (O&M Manual), dated August 2015.

1.1 Site Background

The SMC Site is located in the Town of Lewiston, New York, immediately north of the forebay of the Robert Moses Power Plant. Figure 1.1 presents the location of the Site, and Figure 1.2 presents the layout of the Site.

The Site is a former chemical manufacturing facility owned and operated by Stauffer Chemical Company. All structures associated with the former plant were demolished in the early 1980s. Stauffer Chemical Company was divested in 1987, and Atkemix Thirty Seven, a subsidiary of Stauffer Management Company, became the Site owner. In 2000, Stauffer Management Company and Atkemix Thirty Seven restructured into a limited liability company that is now known as SMC.

In 1995, in accordance with Consent Order (CO) #B9-0137-86-04, SMC initiated remedial construction for soil and groundwater. At that time, the Treatment Building was erected to house the Site groundwater treatment system and the soil vapor extraction (SVE) treatment system for Area A. A second SVE treatment system, Area C, was mounted in a trailer located off-Site, beyond the southeast corner of the Site property. SVE operations at Area C were discontinued in May 2004, and the Area C treatment system was decommissioned in July 2004. A third SVE system at Area T-4 was also installed in 1995, operated until 2000, and decommissioned in September 2001. Note that Area B was a historic landfill located beyond the southeast corner of the Site used for disposal of inert materials. Area B material was disposed off-Site and investigations determined no need for further remediation.

The major chemicals of concern in the groundwater at the Site have been identified in the Site-Specific Parameter List (SSPL) as follows:

1. carbon disulfide
2. carbon tetrachloride
3. chloroform
4. methylene chloride
5. tetrachloroethene

6. benzene
7. chlorobenzene
8. toluene
9. trichloroethene

These chemicals have historically been detected at varying concentrations in the groundwater, subsurface soils, seeps, and surface water run-off in the immediate vicinity of the Site.

1.2 Remedial Systems Descriptions

The remedial systems currently operable at the Site include:

1. Area A SVE system (Note that the Area A SVE system is currently turned off, but remains operable – see Section 2.1 below)
2. Bedrock groundwater extraction and treatment system, consisting of deep bedrock and shallow bedrock extraction wells

The SVE system located in Area T-4 was decommissioned in 2001, and the SVE system located in Area C was decommissioned in 2004.

The remedial systems are briefly described in the following sections.

1.2.1 Area A

Area A occupies approximately 136,500 square feet near the center of the property as shown on Figures 1.2 and 1.3. The remedial system at Area A is a combination of soil vapor and groundwater extraction and includes 39 SVE wells, 3 dual-phase groundwater/SVE wells, and a cover comprised of a polyvinyl chloride (PVC) geomembrane liner, a geotextile cushion, and stone.

Each SVE well is connected to one of four header pipes that each enter the Treatment Building and are connected to the vacuum blower housed in the north side of the building. The SVE piping is mounted on a uni-strut/pipe strap support system. The Area A SVE treatment system is comprised of a skid with a moisture separator tank, an in-line filter, a vacuum blower, a discharge silencer, and a condensate removal pump, all located in the Treatment Building. The heat exchanger and granular activated carbon (GAC) adsorption units are mounted separately on the concrete floor in the building.

1.2.2 Area C

Area C occupies approximately 19,350 square feet beyond the southeast corner of the Site property, as shown on Figures 1.2 and 1.4. Area C is the location of one of the landfills previously used by Stauffer Chemical Company.

Due to the success of the system and with the approval of New York State Department of Environmental Conservation (NYSDEC), operations at Area C were discontinued in May 2004, and the SVE system was decommissioned in July 2004. The SVE wells were plugged and abandoned in accordance with NYSDEC regulations in December 2004.

1.2.3 Area T-4

Area T-4 occupies approximately 11,500 square feet and is located southwest of the Treatment Building, as shown on Figure 1.2. The Area T-4 SVE system was decommissioned in September 2001 based on the success of the system and with the approval of NYSDEC.

1.2.4 Groundwater Extraction and Treatment System

The groundwater extraction network consists of two deep bedrock groundwater extraction wells (LR-66 and OW-3), three intermediate/deep bedrock extraction wells (EW-1, EW-2, and EW-3), three shallow bedrock extraction wells (EW-4, EW-5, and EW-6), and three shallow dual-phase wells in Area A (DPA-201, DPA-202, and DPA-203). The locations of the extraction wells are shown on Figure 1.5.

Underground force mains with secondary containment convey recovered groundwater from the extraction wells to the Treatment Building. The groundwater treatment system is currently housed in the south side of the original Treatment Building and in the northwest addition to the building.

All groundwater from each of the extraction wells is pumped into the on-Site treatment system. The major components of the treatment system are listed below:

1. Solids Settling Tank: a 1,500-gallon cone-bottom tank installed in 2009 to provide solids settling prior to the influent water entering the carbon treatment system. This tank replaced a Non-Aqueous Phase Liquid (NAPL) Separator tank that had deteriorated. Phase separation is not required at the Site, as no NAPL has been observed since beginning system operation.
2. Carbon Feed Tank: a process tank used to accumulate water from the solids settling tank.
3. Carbon Feed Pump: pumps water from the carbon feed tank through the rest of the treatment system.
4. Bag Filters: groundwater is pumped through thirteen 10-micron bag filters (consisting of an eight-bag round filter vessel and a separate five-bag unit) operated in parallel to prevent solids from plugging the GAC.
5. GAC Beds: after the bag filters, the groundwater passes through two 10,000-pound GAC adsorption vessels operated in series. Note that the 10,000-pound GAC vessels were installed in 2014 as replacements for two 20,000-pound GAC adsorption vessels.

The treated water from the GAC units is discharged through the outfall to the New York Power Authority (NYPA) Forebay, located south of the Site. Treated water is discharged in accordance with effluent limits and sampling requirements set by NYSDEC. Due to the Site being operated under the CO, a State Pollutant Discharge Elimination System (SPDES) permit is not required.

2. Area A Remedial System O&M Activities

2.1 Summary of Area A Operations For 2017

The Area A SVE system was turned off and did not operate in 2017.

As discussed in the 2013 Annual Operations & Maintenance Report, in 2013 through early 2014, SMC performed an evaluation of historical and current Area A performance. The evaluation concluded that the operation of the SVE system had achieved the maximum amount of soil vapor removal reasonably attainable, and that any residual vapor-phase volatile organic compounds (VOCs) are being contributed from the contaminated groundwater that exists within and below the Area A treatment field.

A letter report summarizing the evaluation and a recommendation to discontinue operation of the Area A SVE system was submitted to NYSDEC on June 6, 2014. The agency responded to the request in a June 19, 2014 letter to SMC indicating that preparation and submittal of an Environmental Easement (EE) would first be required. On August 4, 2014, NYSDEC visited the Site to discuss Area A and other remedial operations. During the visit, NYSDEC agreed that the Area A blower could be kept off while the EE process was pending. Therefore, the system has been turned off since August 2014.

The final EE was signed by SMC on April 28, 2015 and by NYSDEC on August 24, 2015. The EE was filed in Niagara County on September 4, 2015. Upon NYSDEC approval of the Site Management Plan (SMP) that was submitted in 2017, the Area A SVE system will be decommissioned. Note the SVE system is being maintained in operable condition.

2.2 Mass Removal – 2017

Since it was not operating, there was no contaminant mass removed from the Area A SVE system in 2017.

3. Area C Remedial System

Due to the success of the system, the former Area C SVE system was decommissioned in July 2004 with the approval of NYSDEC. The SVE wells were plugged and abandoned in accordance with NYSDEC regulations in December 2004.

4. Area T-4 Remedial System

Due to the success of the system, the former Area T-4 SVE system was decommissioned in September 2001 with the approval of NYSDEC.

Dual phase well T-4 (also known as DPT-261) was taken out of service as a SVE well in 2001. It remains as a monitoring well.

5. Groundwater Extraction System O&M Activities

5.1 2017 Extraction System Modifications

There were no extraction system modifications of note in 2017. Maintenance issues associated with each of the extraction wells are discussed in the sections that follow.

5.2 Summary of Operations – 2017

The bedrock groundwater extraction system operated in automatic mode throughout the reporting period, with visits to the Site two to three times per week to confirm pump operation, perform piping inspections, and complete other routine O&M activities.

Several maintenance activities were performed on the groundwater extraction system in 2017:

- A leak was detected in the containment piping of deep extraction well EW-3 during Q1 and the pump automatically shut down with no release to the environment. Troubleshooting indicated that the leak was due to corrosion at the point where the secondary piping entered the treatment building. The section of pipe was replaced and the pump put back in service. A second leak in the containment piping for EW-3 was detected 2 weeks later. The leak was located midway between the well and the building junction. The area was excavated and the leaking section of pipe was replaced. The well has been operating without issue since then.
- The carbon feed pump failed in Q2 and required replacement. The extraction system was shut down for 9 days while a replacement pump was ordered and installed.
- The pump at extraction well EW-1 was pulled and replaced during Q3. EW-1 was also disinfected at this time.
- Pump maintenance and cleaning/disinfection was completed in Q4 on extraction wells EW-1, EW-2, EW-3, EW-5, EW-6, OW-3, and LR-66. The system was down for 10 days during this effort.

In addition to the above, routine pump cleaning was performed on several other extraction wells throughout the course of the year.

5.3 Mass Removal – 2017

5.3.1 Extraction Wells EW-1 through EW-6

Mass removal calculations for extraction wells EW-1 through EW-6 are summarized in Tables 5.1 through 5.6, respectively.

The mass removal of VOCs from groundwater for each extraction well was calculated using the annual flow volume and the results of the analytical data for the annual Site-wide groundwater monitoring event. The volume of groundwater pumped from the six extraction wells is summarized below.

Total Volume of Groundwater Extracted (Gallons) 2017 EW-1 through EW-6					
Extraction Well	***First Quarter***	***Second Quarter***	***Third Quarter***	***Fourth Quarter***	***2017 Total***
EW-1	367,410	270,768	336,629	337,807	1,312,614
EW-2	742,914	677,132	621,259	567,366	2,608,671
EW-3	686,588	822,067	804,215	766,267	3,079,137
EW-4*	75,000	75,000	75,000	75,000	300,000
EW-5	1,443,584	1,142,216	1,162,638	1,267,734	5,016,172
EW-6	516,152	497,916	368,119	146,668	1,528,855
Total gallons pumped	3,831,648	3,485,099	3,367,860	3,160,842	13,845,449
*Extracted volumes are estimated based on historical flow rates					

The total mass, in pounds, removed by the six extraction wells in 2017 is summarized below.

Total VOCs Removed (Pounds) 2017 EW-1 through EW-6	
Extraction Well	***2017 Total***
EW-1	486
EW-2	48
EW-3	360
EW-4	1
EW-5	42
EW-6	339
Total Pounds of VOCs Removed	**1,276**

The 1,276 pounds of VOCs removed from groundwater by EW-1 through EW-6 in 2017 is a decrease of 983 pounds compared with 2016 (2,259 pounds of VOCs removed). The volume of groundwater extracted by EW-1 through EW-6 in 2017 (13.8 million gallons) was 4% lower than in 2016 (14.4 million gallons). The removal efficiency (pound of VOC recovered per 1,000 gallons of groundwater extracted) of the six extraction wells as a group decreased from 0.157 to 0.092 between 2016 and 2017. The decrease in removal efficiency in 2017 is due to lower SSPL concentrations at certain bedrock extraction wells, most notably at shallow bedrock extraction well EW-6. See Section 9.2 for a summary of mass removal by groundwater extraction on a year-to-year basis.

The three extraction wells responsible for the majority of the VOCs removed by the group are EW-1, EW-3 and EW-6, with EW-1 responsible for 38% of the mass removal. The mass of VOCs extracted by EW-1 in 2017 decreased from 549 pounds in 2016 to 486 pounds in 2017, a decrease of 11%. Some of this mass decrease can be explained by the reduction of concentrations of SSPLs observed in the groundwater. The removal efficiency of EW-1 decreased to 0.37 pound VOC/1,000 gallons extracted in 2017 versus 0.44 pound VOC/1,000 gallons extracted in 2016.

The removal efficiency of EW-2 remained the same between 2016 and 2017 (at 0.02 pound VOC/1,000 gallons extracted).

At EW-3, the removal efficiency increased between 2016 and 2017 (from 0.08 to 0.12 pound VOC/1,000 gallons extracted).

At EW-4, the removal efficiency decreased between 2016 and 2017 (from 0.01 pound to 0.003 pound VOC/1,000 gallons extracted).

The removal efficiency also decreased between 2016 and 2017 at EW-5 (from 0.01 pound to 0.008 pound VOC/1,000 gallons extracted).

The removal efficiency of EW-6 decreased significantly between 2016 and 2017, from 0.93 pound VOC/1,000 gallons extracted in 2016, to 0.22 in 2017. As mentioned above, the 2017 SSPL concentrations at EW-6 decreased significantly compared to 2016.

Compounds removed by EW-1 through EW-6 in 2017 consisted of carbon tetrachloride (545 pounds, 43% of the total removed), carbon disulfide (469 pounds, 37% of the total), chloroform (235 pounds, 18% of the total), methylene chloride (12 pounds), tetrachloroethene (9 pounds), and trichloroethene (7 pounds). The final three SSPLs make up approximately 2% of the total compounds removed by EW-1 through EW-6. Section 9.2 provides historical breakdowns of the compounds removed by groundwater extraction since 1999.

For the group of six extraction wells, the mass of carbon tetrachloride removed in 2017 decreased by 830 pounds compared with 2016, the mass of carbon disulfide removed in 2017 decreased by 75 pounds compared with 2016, and the mass of chloroform removed decreased by 64 pounds. The cumulative mass of chlorobenzene, tetrachloroethene, trichloroethene, and methylene chloride removed in 2017 reduced by approximately 30% from 2016.

5.3.2 Area A Dual Phase Wells DPA-201, DPA-202, and DPA-203

Mass removal calculations for VOCs removed from shallow groundwater by DPA-201, DPA-202, and DPA-203 are summarized in Tables 5.7 through 5.9, respectively.

The mass removal of VOCs from groundwater for each dual phase well was calculated using the annual flow volume and the results of the analytical data for the annual Site-wide groundwater monitoring event. Note that the flow data for dual phase wells DPA-201 and DPA-203 were estimated for 2017 based upon previous years' results and technician observations that the pumps are operating normally (i.e., removing all of the available groundwater). Also, DPA-201 was dry at the time of the annual sampling. The analytical data from 2016 was used for all mass removal calculations. The approximate volume of groundwater pumped from the three Area A dual wells is summarized below.

Total Volume of Groundwater Extracted (Gallons) 2017 DPA-201 through DPA-203					
Well No.	***1st Quarter***	***2nd Quarter***	***3rd Quarter***	***4th Quarter***	***System Total-2017***
DPA-201*	17,500	17,500	17,500	17,500	70,000
DPA-202	23,518	14,869	11,751	33,023	83,161
DPA-203*	4,500	8,000	7,000	7,000	26,500
				Total Gallons Pumped	179,661
*Extracted volumes are estimated based on observations and previous years' flows					

The above represents a 9% increase (15,481 gallons) in recovered groundwater by the dual phase wells between 2016 and 2017. DPA-202 was mainly responsible for the increase, as the volume extracted by the well in 2017 was approximately 23% higher than that removed in 2016 (67,680 gallons). All three of the DPA wells appear to be operating normally and removing the groundwater available to them.

The approximate total mass removed by the three dual wells is summarized below.

Total VOCs Removed (Pounds) 2017 DPA-201 through DPA-203	
Well No.	***2017 Total***
DPA-201	5
DPA-202	42.8
DPA-203	25.5
Total VOCs Removed in 2017 (pounds)	**73.3**

The 73.3 pounds of total VOCs recovered by DPA-201, DPA-202, and DPA-203 in 2017 represent a 16% decrease from 2016 (87.6 pounds recovered). The estimated removal efficiency of the three dual phase extraction wells as a group decreased, from 0.53 pounds VOC/1,000 gallons extracted in 2016 to 0.41 pounds VOC/1,000 gallons extracted in 2017.

The major compounds removed from groundwater by the three dual wells were carbon tetrachloride (61 pounds, 83% of the total recovered) and chloroform (9 pounds, 12% of total). Trace amounts of carbon disulfide, methylene chloride, tetrachloroethene, and trichloroethene made up the last 5% of VOCs removed.

5.3.3 Area T-4 Extraction Well DPT-261 (T-4)

Extraction well DPT-261 (T-4) did not operate during 2017 due to a lack of recoverable water. Although there was sufficient water to sample T-4 during the annual groundwater sampling event, the automatic air-driven pump did not recover any measurable amounts of water for the year. Well T-4 recovers less than 0.1 gallons per minute (GPM) when it operates.

5.3.4 Extraction Well OW-3

The mass of SSPL compounds removed from groundwater by OW-3 is summarized in Table 5.10. The estimated volume of groundwater pumped from OW-3 in 2017 was 88,113 gallons, a decrease of about 26% from 2017. A total of approximately 32.8 pounds of VOCs were removed from groundwater by OW-3 in 2017, a decrease of 378 pounds compared with 2016 (411 pounds). The difference is due to a significant reduction in the concentration of carbon disulfide in OW-3 between 2016 (380,000 µg/L) and 2017 (28,000 µg/L).

The 2017 removal efficiency of OW-3 was 0.375 pounds VOC/1,000 gallons extracted, compared with a removal efficiency of 3.5 pounds VOC/1,000 gallons extracted in 2016. The compounds removed were carbon disulfide (21 pounds, 63% of the total recovered), carbon tetrachloride (10 pounds, 29% of total), and chloroform (2.4 pounds, 7% of total).

5.3.5 Extraction Well LR-66

Former Lockport-Rochester monitoring well LR-66 was converted into a permanent groundwater extraction well in June 2005 and became operable on July 1, 2005.

The mass removal calculations for organic compounds removed from groundwater by LR-66 are summarized in Table 5.11. The estimated volume of groundwater pumped from LR-66 in 2017 was 180,000 gallons, consistent with 2016. A total of 4.7 pounds of VOCs was removed from groundwater by LR-66 in 2017, approximately 571% more than the amount removed in 2016 (0.7 pounds). The removal efficiency of LR-66 increased from 0.004 pound VOC/1,000 gallons extracted in 2016, to 0.03 in 2017. The compounds removed were carbon tetrachloride (3.8 pounds, 81% of the total recovered), chloroform (0.5 pounds, 11% of total), and carbon disulfide and tetrachloroethene (0.2 pounds, 4% of total).

5.4 Routine Maintenance

The operational status of the extraction and dual phase wells is monitored during the weekly visits to the Site. The flows from each of the wells are recorded weekly in the O&M logbook. If the submersible pumps are not maintaining the desired drawdown, or if the dual pumps are not cycling properly, pump maintenance is performed.

All of the extraction wells have been tied into one of two leak detection systems. A leak in the force main of any well on either system will shut off all of the pumping associated with the system. In 2017, a leak was detected in the EW-3 force main during the first quarter and it was promptly repaired with no release from the containment system.

6. Groundwater Treatment System

6.1 Summary of Operations – 2017

The groundwater treatment system operated in the automatic mode in 2017 with at least weekly visits to the Site to perform system monitoring, inspections, and other routine O&M activities.

No major updates were made to the groundwater treatment system in 2017.

6.2 Maintenance, Inspection, and Monitoring Activities

6.2.1 Routine Treatment System Maintenance

Routine inspection and maintenance of the groundwater treatment system is performed weekly during visits to the Site. Routine weekly inspections and maintenance include:

1. General visual inspection of the treatment equipment for leaks, overflows, or malfunctions
2. Inspection of process-indicating instruments
3. Inspection of aboveground SVE piping
4. Recording operating conditions in logbook
5. Correction of operational problems
6. Replacement of bag filters, as indicated by differential pressure across the filters
7. Repair or replacement of damaged parts

All inspections are recorded in the O&M logbook.

The treatment system is shut down periodically to perform routine maintenance on the system components. The periodic maintenance shutdowns involved cleaning and inspection of the following:

1. Cone-bottom tank
2. Carbon feed tank
3. Carbon feed pump
4. Bag filter housings

The carbon vessels are cleaned and inspected during routine carbon changeouts.

6.2.2 Treatment System Modifications

There were no treatment system modifications in 2017.

6.2.3 Groundwater Treatment System Process Monitoring

Samples for chemical analysis are collected routinely from the groundwater treatment system. Samples are collected weekly from the carbon interstage sampling point. The groundwater influent and system effluent are sampled monthly, at a minimum. Process monitoring sample analytical results are presented in Appendix A. Influent, carbon interstage, and effluent data are summarized in Tables A-1 to A-3, respectively.

The 2017 analytical data for the monthly influent groundwater samples are presented in Table A-1. The data indicate that typically only carbon tetrachloride, carbon disulfide, and chloroform are detected in high concentrations in the influent.

The 2017 analytical data for the weekly carbon interstage groundwater samples are presented in Table A-2. The data indicate that the results are generally non-detect or indicate low (< 50 ppb) total SSPLs except when breakthrough occurred.

Four carbon exchanges were performed in 2017, with one 10,000-pound bed exchanged each time, on the following dates:

- January 20, 2017
- March 10, 2017
- May 19, 2017
- September 14, 2017

Note that for each of the four carbon exchanges performed in 2017, the lead carbon bed was exchanged and the former lag bed became the lead bed.

The 2017 analytical data for effluent samples collected from the groundwater treatment system are presented in Table A-3. Effluent samples are collected and analyzed monthly for SSPLs (VOCs), at a minimum, except when SSPLs indicative of breakthrough are detected in the weekly interstage samples. When that occurs, effluent samples are generally collected weekly as a conservative measure. There were no SSPLs detected in any of the effluent samples collected during 2017.

6.2.4 Additional Monitoring of Treated Effluent

In addition to the monthly effluent sampling and analysis for SSPLs, groundwater treatment system effluent samples are also collected on a quarterly basis. The list of quarterly parameters and associated discharge limits were originally established in a SPDES permit issued by the NYSDEC Division of Water (DOW) in 1995 when Facility groundwater treatment operations were beginning.

Since that time, Facility operations have been conducted in accordance with a July 19, 1993 CO issued by NYSDEC as part of the New York State Superfund program, with oversight by the agency's Division of Environmental Remediation (DER). With respect to Facility effluent discharge, the DOW does not have regulatory authority over discharge from a State Superfund Site. Instead, the DER is responsible for ensuring compliance with Facility effluent criteria and for approval of all submittals. For the SMC facility, DER requires monthly effluent sampling for SSPL compounds and quarterly effluent sampling for a combined list of SSPL compounds and other SPDES parameters. To differentiate it from the Facility's monthly effluent sampling, the quarterly sampling event is known as the "SPDES sampling" event.

Appendix B presents the quarterly SPDES sample results for 2017. Note that since the monthly effluent samples include analyses of the SPDES SSPLs (the required list of VOCs) on a more frequent basis than quarterly, the VOC component of the SPDES requirements is met by the monthly results shown on Appendix A-3. As noted above, all VOC results were non-detect for 2017.

Appendix B presents the list of SPDES semi-volatile, metals and wet chemistry parameters, the associated discharge limits, and the analytical laboratory results of the 2017 quarterly SPDES sampling events for the Facility. Discharge limits are concentration-based with the exception of metals, for which mass limits have been established. To calculate average daily mass discharge

rates, the laboratory concentrations are multiplied by the daily average effluent flow for the treatment system (reported using Table 9.2 of this Report) and converted into pounds per day. For metals results that were non-detect, the mass is shown as "<" (less than) the calculated number, which was determined using the reported detection limit for each metal.

As noted in Appendix B, there were no parameters detected in excess of the established discharge limitations. All of the effluent analyses were non-detect throughout 2017, with the exception of de minimis concentrations of arsenic detected in June and November 2017, and zinc detected in June, August, and November.

6.2.5 Groundwater Treatment System Performance Monitoring – 2017

On August 16, 2016, NYSDEC approved an SMC request to eliminate the quarterly extraction well-only sampling events that had been performed since the 1990s. Sampling of the Site-wide monitoring well network and each extraction well continues to be performed on an annual basis. The purpose of the groundwater monitoring is to evaluate progress of the groundwater extraction system in removing the SSPL compounds from the groundwater. The groundwater sampling data are used to develop concentration trends over time.

Groundwater samples are collected in accordance with established procedures and protocols in the Site Operations and Maintenance Manual. The samples are shipped to Columbia Analytical Services for analysis following Chain of Custody procedures. The laboratory sends the analytical results to GHD. The results are reviewed, collated, put into tabular form, sent to SMC for review, and included in the quarterly status reports to NYSDEC.

The annual Site-wide groundwater sampling event was performed between June 19 and 25, 2017. The analytical results for the groundwater samples are presented in Appendix C.

6.2.6 Groundwater Treatment System Performance Monitoring – 2018

The currently scheduled annual sampling program for 2018 is:

1. Annual Sampling: During 2018, an annual sampling event is anticipated to be performed in May. Wells to be sampled include the 12 extraction wells plus the following 48 monitoring wells:

Site Monitoring Wells			
Upper Lockport Wells	***Lower Lockport Wells***	***Lockport/ Rochester Wells***	***Rochester Wells***
OW-11*	W-18L	W-19B	B-02
W-11	W-19A	LR-2*	R-16
W-16	W-23B*	LR-16	R-19
W-16L	W-48E	LR-67	R-68
W-17*	W-50L	LR-20	R-48
W-18R	W-60L*	LR-48	R-50
W-19D	W-65	LR-49	R-51

Site Monitoring Wells			
Upper Lockport Wells	***Lower Lockport Wells***	***Lockport/ Rochester Wells***	***Rochester Wells***
W-20	W-66L	LR-50	R-60
W-22	W-67L	LR-51	R-61*
W-23C	W-70L	LR-61	R-62
W-66		LR-62	R-66*
W-67		LR-69*	R-67
T-4*		OW-5	

Note: Wells marked with * will be removed from the annual groundwater sampling program.

Note that in a June 7, 2016 conference call with NYSDEC, GHD (on behalf of SMC) requested that a total of 9 monitoring wells be removed from the annual sampling schedule. On July 5, 2016, at the request of the agency, GHD provided NYSDEC with additional supporting documentation for the request. The wells proposed to be removed from the annual sampling event either do not respond to pumping of site extraction wells, are dry, or provide no meaningful information regarding plume delineation or contaminant distribution. Following several follow-up discussions and email correspondences, NYSDEC indicated in February 2017 that it is has completed its review of the GHD/SMC request and that correspondence concerning the request is being prepared. To date, no correspondence has been received.

6.2.7 Facilities, Structures, and Grounds Maintenance

The facilities, structures, and grounds are inspected and maintained regularly as specified in the O&M Manual. These inspections are carried out during routine Site visits. These routine inspection tasks include checking the appearance of the grass, driveways, walkways, fencing, and lighting and containment areas. Inspections and maintenance tasks inside the Treatment Building include checking the appearance of walls, floors, ceiling, doors, walkways, emergency equipment, lights, sumps, and equipment support structures. Any problems or deficiencies are noted in the O&M logbook.

6.2.8 Unscheduled Maintenance

Unscheduled maintenance was performed at the Site as required in 2017. Examples of unscheduled maintenance activities performed are:

1. Pump maintenance or replacement
2. Extraction well riser pipe replacement
3. Equipment repair or replacement

Section 5.2 provides an overview of the 2017 unscheduled maintenance related to the extraction wells.

6.2.9 Monitoring Well Inventory

An inventory/inspection of the Site monitoring wells was performed in August 2017. A copy of the well inventory is included as Appendix D. The well inventory indicates that the wells are in generally good condition.

Monitoring well LR-51 was identified in 2016 as having a protective casing in need of repair. This casing was replaced in July 2017.

7. Groundwater Level Monitoring and Chemistry – 2017

Depth-to-groundwater measurements were recorded for all wells in February, June, and August 2017. Table 7.1 presents the measured groundwater levels for the three events. The August 2017 data were used to prepare potentiometric surface contour maps for each of the four water-bearing zones (WBZs). The WBZs include the Upper Lockport, the Lower Lockport, the Lockport/Rochester, and the Rochester. In addition to the potentiometric surface contours, chemical isocontour figures were prepared for each WBZ using groundwater data obtained during the May 2017 event.

The potentiometric surface contour maps and chemical isocontour figures are discussed in the following sections.

7.1 General

7.1.1 Groundwater Potentiometric Contours

Potentiometric surface contours were prepared for each WBZ based on the measured depths to groundwater in the April 2017 monitoring event. Hydraulic containment was determined by evaluating the potentiometric contours, as well as considering the results of a detailed hydraulic monitoring program performed in 2000. The 2000 hydraulic monitoring program assessed the relationship between groundwater elevations in individual wells and their responses to pumping activity in the various Site WBZs using transducers installed in individual wells. The results of that program, including individual well hydrographs, were presented in the 2000 Annual Operations and Maintenance Report, March 2001.

Table 7.2 presents a summary of the monitoring wells and extraction wells classified by WBZ. The wells are classified under a specific WBZ if they are screened across or have open intervals in the specific WBZ. This classification was used to prepare the potentiometric surface contour maps for the April 2017 event.

During the preparation of potentiometric surface contours for the various WBZs, GHD noted that several monitoring wells did not appear to be hydraulically connected to the monitored WBZ. For example, well W-17 in the Upper Lockport formation, well W-23B in the Lower Lockport formation, well LR-69 in the Lockport/Rochester formation, and well R-66 in the Rochester formation exhibited anomalous water levels and, therefore, were not used to create groundwater contours. Well W-23B showed hydraulic response to Lower Lockport pumping in the 2000 hydraulic monitoring program,

while W-17, LR-69, and R-66 did not show response to pumping in their respective WBZs. A review of the stratigraphic logs for the latter two wells indicates that the Rochester WBZ at R-66 and the Lockport-Rochester WBZ at LR-69 are generally less fractured than in other areas of the Site; hence, hydraulic interconnection is lower at these two deep monitoring wells. The wells that are not used for contouring are noted on the various potentiometric contour figures.

In addition, water levels for the deep bedrock extraction wells (EW-1, EW-2, and EW-3, whose open intervals span the Lower Lockport, Lockport/Rochester, and Rochester WBZs) were adjusted to levels representative of the specific WBZ. This was done when the measured water level for the deep extraction well was significantly below the base of the designated WBZ (i.e. the Lower Lockport and Lockport/Rochester WBZs) or significantly below the water level elevations of the surrounding wells in a particular WBZ (i.e. the Rochester WBZ). The groundwater elevations in the immediate vicinity of the deep extraction wells are assumed to be at or near the base of the respective WBZ, since the WBZs at the extraction wells are essentially dewatered. However, for generating groundwater contours, these water levels were conservatively assumed to be lower than the lowest measured water level from the respective WBZs (but not lower than the base of the WBZ). This allows meaningful water level contours to be created for each WBZ in the regions around the deep extraction wells, while accounting for potential influences from extraction well operations and well and fracture efficiencies. These assigned values for EW-1, EW-2, and EW-3 have historically been assigned as indicated below. For 2017, no significant changes were observed in the aquifer levels (i.e., water level elevations in observation wells near an extraction well were not significantly lower than in previous years), so the historical values have again been used. The assigned values are:

Lower Lockport	545 feet above mean sea level (AMSL)
Lockport/Rochester	545 feet AMSL
Rochester	490 feet AMSL

Note that the assigned EW-1, EW-2, and EW-3 water level value for both the Lower Lockport and the Lockport/Rochester WBZs for purposes of plotting potentiometric contours is 545 feet MSL. This value reflects the fact that the lowest measured water level in both Lower Lockport and Lockport/Rochester WBZ hydraulically-connected monitoring wells was approximately 545 to 550 feet MSL.

For the Upper Lockport potentiometric contour maps, extraction wells EW-1, EW-2, and EW-3 were not used to generate contours, as these wells are not open in the Upper Lockport. Groundwater elevations for combined Upper and Lower Lockport extraction wells EW-4, EW-5, and EW-6 were adjusted to 570 feet MSL for contouring the Upper Lockport WBZ. The 570 feet MSL is a level very near the lowest measured water level in the Upper Lockport WBZ on Site. Actual water level elevations for EW-4, EW-5, and EW-6 were used for contouring the Lower Lockport WBZ.

7.1.2 Chemical Isocontours

Chemical isocontours for each WBZ were prepared using analytical data from the June 2017 semiannual groundwater monitoring event. Two figures were prepared for the June data: one for

carbon disulfide concentrations, and a second for the sum of carbon tetrachloride and chloroform concentrations[1]. A logarithmic scale was utilized for the isocontour plots.

Note that the June 2017 groundwater analytical results for carbon disulfide and for the sum of carbon tetrachloride and chloroform are also shown on the Groundwater Potentiometric Surface Contour figures for the four WBZs. The analytical results are listed below each well that is monitored in the specific WBZ.

7.2 Upper Lockport Water-Bearing Zone

The Upper Lockport WBZ is the shallowest water-bearing fracture zone at the Site. The Upper Lockport WBZ consists of the base of the overburden and approximately the top 25 feet of the Lockport bedrock. This zone is generally highly fractured. Existing Site information indicates that the Upper Lockport WBZ pinches out and is not present on the western portion of the Site. DPA-201, DPA-202, DPA-203, EW-4, EW-5, and EW-6 extract groundwater from the Upper Lockport WBZ.

7.2.1 Groundwater Potentiometric Contours

Figure 7.1 presents the Groundwater Potentiometric Surface Contours for the Upper Lockport WBZ for the April 2017 monitoring event. Based upon the groundwater potentiometric surface contours, Upper Lockport groundwater flow is generally east to west through the middle of the Site. There is a very localized response to pumping from extraction wells EW-4, EW-5, and EW-6, which are completed in both the Upper and Lower Lockport WBZ. The 2017 potentiometric surface contours for the Upper Lockport WBZ are generally consistent with historical conditions.

7.2.2 Chemical Isocontours

The chemical isocontour plots for the Upper Lockport WBZ for June 2017 are presented on Figures 7.2 and 7.3. A review of these contours indicates that the only elevated carbon disulfide concentrations exist in the groundwater around DPA-202, DPA-203, and W-17 (Figure 7.2) located within or adjacent to Area A. Elevated levels of carbon tetrachloride and chloroform are present at both DPA-202 and DPA-203 and at W-16, W-17, W-18R, W-22A, W-66, and W-67 (Figure 7.3). The mass loading calculations indicate that DPA-202 and DPA-203 were responsible for removing approximately 68 pounds of VOCs in 2017, primarily carbon tetrachloride and chloroform.

Note that there were only low-level detections of carbon disulfide below the groundwater criteria in Upper Lockport wells west of Area A. Only two Upper Lockport monitoring wells had detectable levels of carbon tetrachloride and chloroform above groundwater criteria west of Area A. The highest of the two (W-66) had a concentration of 430 ppb (sum of carbon tetrachloride and chloroform).

The chemical isocontour plots for the Upper Lockport WBZ illustrate that DPA-202 and DPA-203 are well-placed to address the areas of elevated concentrations of the two main Site contaminants. The mass loading data indicate that these pumping wells are effective in recovering VOCs from the Upper Lockport WBZ.

[1] Chemical concentrations of carbon tetrachloride and chloroform are combined (summed) for preparation of isocontour figures because chloroform is a breakdown (daughter) product of carbon tetrachloride.

A comparison of the 2017 Upper Lockport carbon disulfide isocontours (Figure 7.2) with those of 2016 indicates that the area of carbon disulfide-impacted groundwater stayed generally the same. The western lobe of carbon disulfide due to an isolated detection at W-66 is not present this year. Additionally, the concentrations in the center of the impacted area (specifically DPA-202 and DPA-203) decreased by about half. A comparison of the 2017 Upper Lockport carbon tetrachloride plus chloroform (CTET+CHL) isocontours (Figure 7.3) with those of 2016 also indicates that the size of the impacted groundwater was nearly identical for both years; however, concentrations in DPA-203, in the center of the impacted area, decreased in 2017.

7.3 Lower Lockport Water-Bearing Zone

The Lower Lockport WBZ is the second bedrock WBZ identified at the Site. The Lower Lockport WBZ generally includes groundwater in the fractured bedrock from about 50 to 75 feet below top of rock.

EW-1 through EW-6 extract groundwater from the Lower Lockport WBZ.

7.3.1 Potentiometric Surface Contours

Potentiometric surface contours for the Lower Lockport WBZ for April 2017 are presented as Figure 7.4.

The groundwater potentiometric contours indicate that the VOCs in the Lower Lockport WBZ are being contained, captured on Site, and recovered by the groundwater extraction system. There are pronounced cones of depression around EW-2/EW-4, EW-3, and EW-5.

7.3.2 Chemical Isocontours

Chemical isocontours were prepared for the Lower Lockport WBZ for carbon disulfide (Figure 7.5) and carbon tetrachloride and chloroform combined (Figure 7.6). The chemical isocontour maps for carbon disulfide indicate areas of elevated concentrations in the Lower Lockport WBZ around monitoring well W-16L and extraction wells EW-5 and EW-6. Hydraulic monitoring data indicate that W-16L is within the capture zone of combined Upper and Lower Lockport extraction well EW-5 and deep extraction well EW-3. EW-6 is near the center of the Lower Lockport capture zone at the Site.

The chemical isocontour map for carbon tetrachloride and chloroform combined indicates an area of elevated concentrations around EW-6, and to a lesser extent around W-18L. Other nearby wells with elevated concentrations include: W-67L, EW-5, EW-4, W-23B, and W-48E. Mass loading concentrations for EW-4, EW-5, and EW-6 indicate that approximately 350 pounds of carbon tetrachloride and chloroform were recovered from these wells in 2017. The 2000 hydraulic monitoring data indicate that Lower Lockport monitoring wells W-18L, W-23B, W-67L, and W-70L respond to pumping activity at the Site. The May 2017 surface contours and chemical isocontours illustrate that the existing groundwater extraction system is effective in containing and recovering SSPLs from the Lower Lockport WBZ.

A comparison of the 2017 Lower Lockport carbon disulfide isocontours (Figure 7.5) with that of 2016 indicates that the area of impacted groundwater stayed approximately the same in 2017 but that the concentrations in the center and northern edges of the area decreased slightly. A

comparison of the 2017 Lower Lockport CTET+CHL isocontours (Figure 7.6) with that of 2016 indicates that 2017 CTET and CHL concentrations decreased significantly in EW-6; however, there was no significant change in the size and shape of the impacted area.

7.4 Lockport/Rochester Water-Bearing Zone

The Lockport/Rochester WBZ is the third WBZ encountered in the bedrock at the Site. The Lockport/Rochester WBZ is a slightly fractured WBZ at the base of the Lockport bedrock, and is at or near the contact with the Rochester shale. EW-1 through EW-3 and LR-66 extract groundwater from the Lockport/Rochester WBZ.

7.4.1 Potentiometric Surface Contours

Potentiometric surface contours were prepared for the Lockport/Rochester WBZ for April 2017 (Figure 7.7). A review of the contours under pumping conditions indicates that EW-1, EW-2, and EW-3 have a dramatic effect on the groundwater in this WBZ. In addition, the effect of LR-66 on groundwater recovery is evident. The direction of flow is from the Site perimeter inward toward the extraction wells. The pumping contours indicate hydraulic capture across the entire Site.

7.4.2 Chemical Isocontours

Chemical isocontour maps of the Lockport/Rochester WBZ were prepared from the June 2017 groundwater sampling data. Chemical isocontours for carbon disulfide are presented on Figure 7.8. Chemical isocontours for carbon tetrachloride and chloroform combined are presented on Figure 7.9.

The chemical isocontour plot for carbon disulfide indicates an area of high concentration in groundwater around OW-5, with order of magnitude reductions around adjacent wells LR-62 and LR 67 and extending westward to LR-61 and LR-2. Hydraulic monitoring has shown that there is a strong inward gradient from these wells toward the middle of the Site. Previous hydraulic monitoring activities indicate that OW-5 and LR-67 respond to pumping activity.

The chemical isocontour plot for carbon tetrachloride and chloroform indicates that an area of high concentrations exists around monitoring wells LR-2, LR-48, LR-61, and W-19B. Extraction well LR-66 also exhibits elevated CTET+CHL concentrations. Previous hydraulic monitoring has shown that LR-2, LR-61, LR-48, and W-19B all respond to pumping activity, and are situated within the cone of depression of extraction wells EW-2 and EW-3.

The chemical isocontour maps confirm that the existing groundwater treatment system is effective at containing and recovering VOCs from the Lockport/Rochester WBZ.

A comparison of the 2017 Lockport/Rochester carbon disulfide isocontours (Figure 7.8) with that of 2016 indicates that carbon disulfide concentrations generally decreased to the east of Area A at LR-62, LR-67, and OW-5. Concentrations generally increased to the north and south/southwest of Area A at LR-16, LR-61, and LR-2. A comparison of the 2017 Lockport/Rochester CTET+CHL isocontours (Figure 7.9) with that of 2016 indicates that the concentrations of these two SSPLs increased at LR-2 and LR-61 near the center of the impacted area and at LR-66. The overall extent of the CTET+CHL impacted area generally decreased slightly in 2017.

7.5 Rochester Water-Bearing Zone

The Rochester WBZ is the fourth and deepest bedrock WBZ being remediated at the Site. EW-1 through EW-3 and OW-3 extract groundwater from the Rochester WBZ.

7.5.1 Potentiometric Surface Contours

The potentiometric surface contour for the Rochester WBZ is presented on Figure 7.10.

The potentiometric contours show a dramatic response to pumping with a strong inward gradient toward EW-1, EW-2, and EW-3. The pumping contours indicate that there is hydraulic containment within the Rochester WBZ across the Site.

7.5.2 Chemical Isocontours

Chemical isocontour maps of the Rochester WBZ were prepared from the June 2017 groundwater sampling data.

The carbon disulfide chemical isocontour map (Figure 7.11) shows two distinct areas of significantly elevated carbon disulfide in the Rochester WBZ Zone. The first area is around extraction well OW-3, which removed 21 pounds of carbon disulfide in 2017. Monitoring wells nearby OW-3 with elevated carbon disulfide concentrations are R-68, R-66, and R-50. All of these wells showed a response to pumping during the 2000 hydraulic monitoring program. The second area of elevated carbon disulfide is centered on monitoring wells R-67, R-61, and R-62 at the center and eastern side of the Site. These wells are all located relatively close to extraction well EW-3 and show a strong response to Rochester WBZ pumping.

As shown on Figure 7.12, carbon tetrachloride and chloroform are also found in very high concentrations around OW-3. OW-3 removed approximately 12 pounds of these two constituents during 2017. Other wells with high concentrations are R-68, R-66, R-50, B-02, and R-19. Each of these wells is in the capture zone, and the existing groundwater extraction has been demonstrated to be effective in removing VOCs from groundwater in the Rochester WBZ.

A comparison of the 2017 Rochester carbon disulfide isocontours (Figure 7.11) with that of 2016 indicates no significant changes in the size and shape of the impacted groundwater area, and no significant change in the concentrations of the carbon disulfide plume, with the exception of R-68 where concentrations of carbon disulfide increased. A comparison of the 2017 Rochester CTET+CHL isocontours (Figure 7.12) with those of 2016 indicates that concentrations in OW-3 decreased slightly compared with 2016, but concentrations at R-68 increased slightly. There were no significant changes in the concentrations of these two SSPLs at other Rochester WBZ monitoring wells. The general size and shape of the impacted groundwater area was also unchanged.

8. North Side Well Gas and Groundwater Sampling

As approved by NYSDEC, the North Side well sampling program was discontinued in June 2004. However, in order to confirm that there are no groundwater impacts in this area, Upper Lockport

bedrock monitoring well OW-11 continues to be sampled annually as part of the routine groundwater monitoring program. The results for OW-11 indicated low-level detections of carbon tetrachloride and chloroform (1.4 µg/L and 3.9 µg/L, respectively); however, all other SSPLs were non-detect in 2017 (see Appendix C-2). This is the first occurrence of detected levels of SSPLs at OW-11 since monitoring began in 1995. Figure 8.1 presents the locations of the North Side wells.

9. Summary of Mass Removal

Mass removals from groundwater have been reported for individual wells in previous sections of this report. This section presents combined mass removal estimates for the groundwater and SVE systems at the Site. It also compares the total estimated mass removed for soil vapor and groundwater extraction in previous years with that of 2017.

9.1 Summary of Mass Removal by Soil Vapor Extraction

Since the SVE system in Area A was shut down for calendar year 2017, there was no mass removed by the system.

SMC anticipates that the Area A remedial system will remain shut down and be permanently decommissioned following submission of the updated SMP in 2017 and the document's subsequent agency approval.

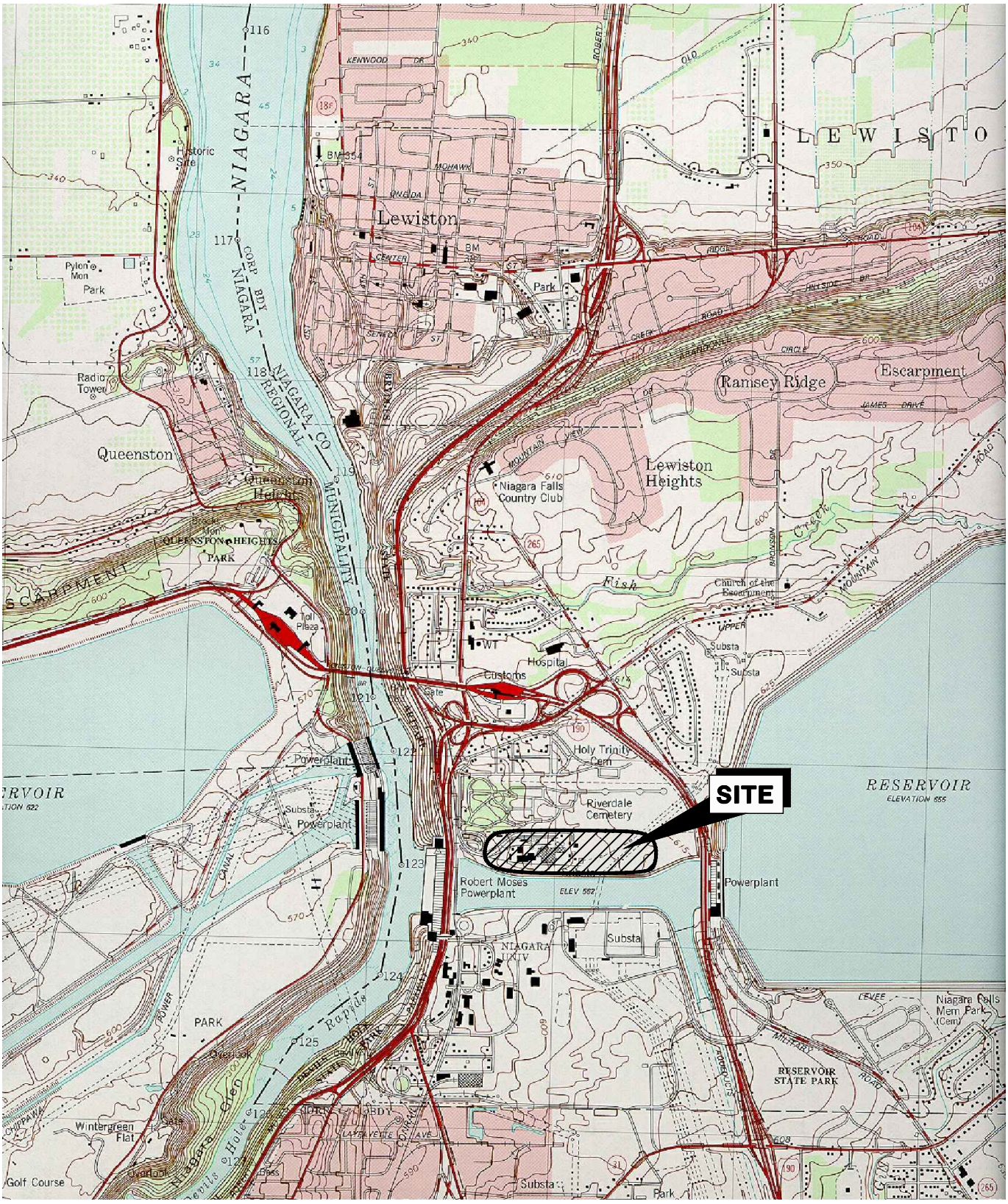
As a point of reference, Table 9.1 compares the compound-specific removal of SSPLs by the Area A SVE system between 2003 and 2014. Carbon tetrachloride and chloroform combined have comprised between 92 and 100% of the total vapor mass removed from Area A during this time. Tetrachloroethene has typically comprised the remainder of the mass removed.

9.2 Summary of Mass Removal by Groundwater Extraction

The mass removal of VOCs from groundwater by the eight bedrock groundwater extraction wells (EW-1 through EW-6, LR-66, and OW-3), and the dual wells (DPA-201, DPA-202, and DPA-203) was discussed in Section 5.0 of this report. The total volume of groundwater pumped from the Site in 2017 is summarized in Table 9.2. The total mass of VOCs removed from groundwater at the Site in 2017 is summarized in Table 9.3.

As Table 9.2 indicates, approximately 14.3 million gallons of groundwater were pumped from the Site and treated through the on-Site treatment system. This volume represents a 4% decrease compared to 2016 (14.8 million gallons).

Figures



SOURCE: USGS

N

0 1000'

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

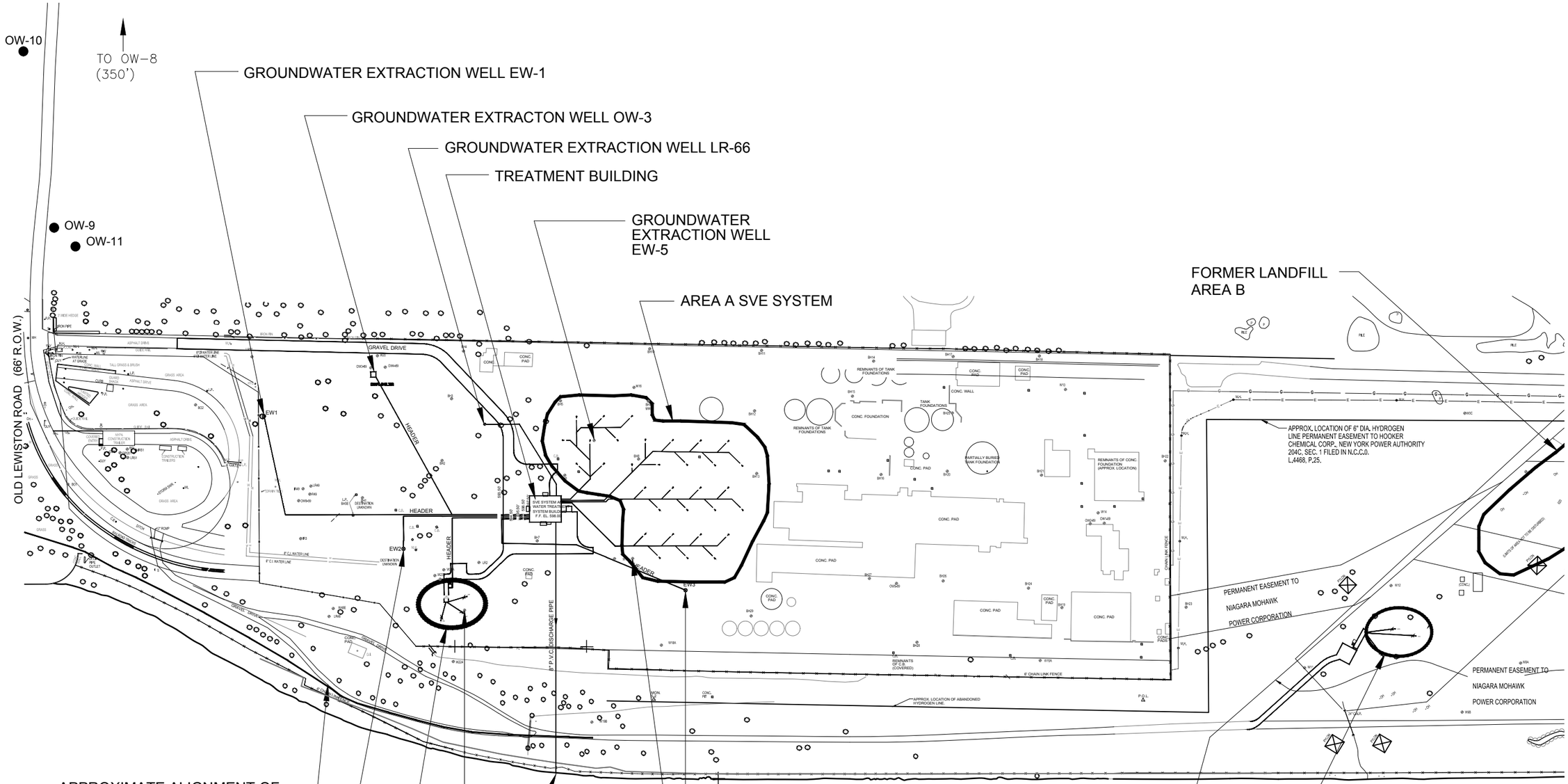
SITE LOCATION

Project No. **06488**
Report No. **031**
Date **MAR 18**

FIGURE 1.1

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 1.1 SITE LOCATION.dwg
Plot Date: 9 March 2018 - 11:28 AM

Source:



N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

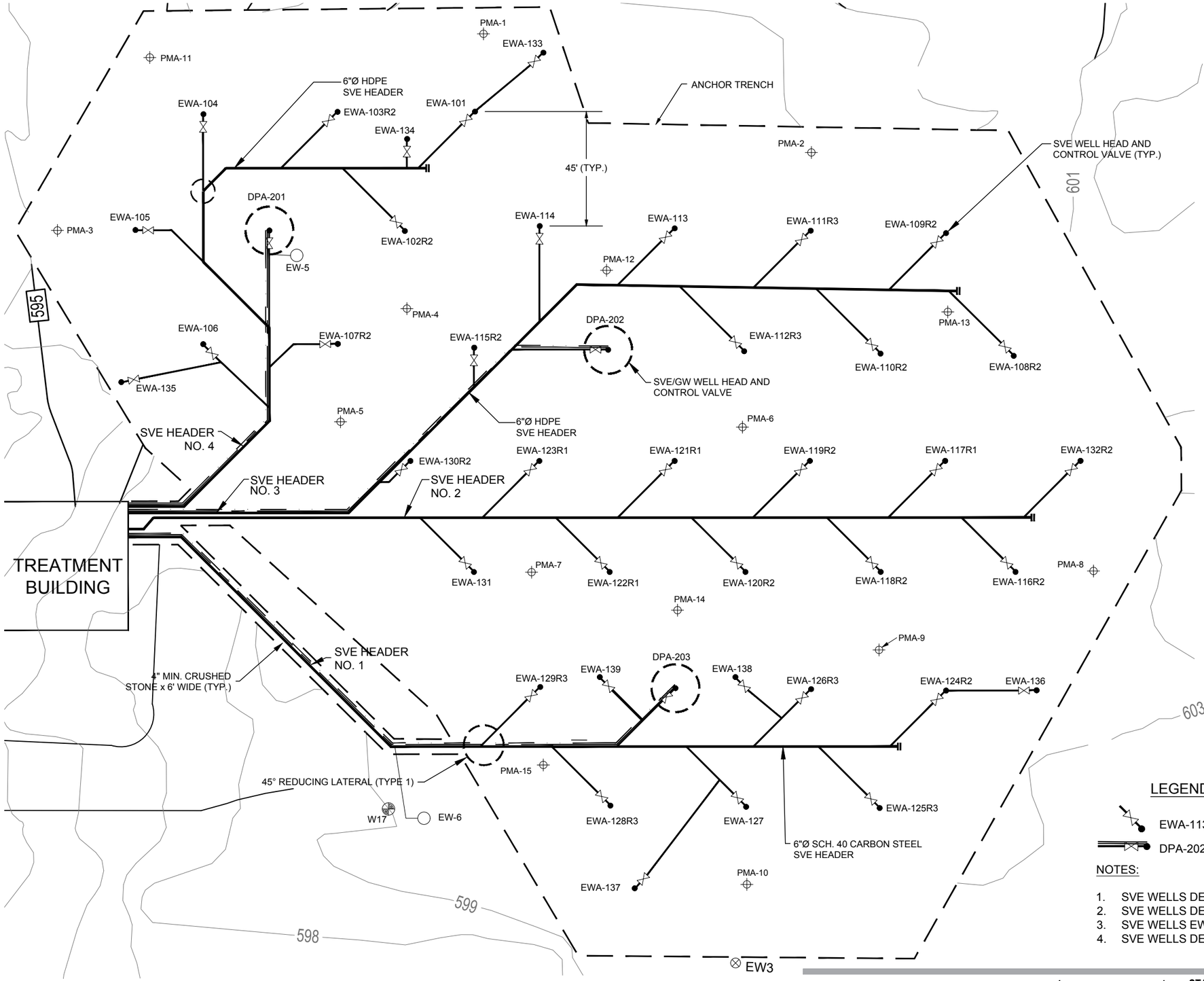
SITE LAYOUT

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 1.2

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 1.2 SITE LAYOUT.dwg
Plot Date: 9 March 2018 - 11:29 AM

Source:



LEGEND

EWA-113	AREA A SOIL VAPOR EXTRACTION WELL
DPA-202	AREA A DUAL PHASE EXTRACTION WELL

NOTES:

1. SVE WELLS DESIGNATED BY "R1" WERE REPLACED IN MAY 2000.
2. SVE WELLS DESIGNATED BY "R2" WERE REPLACED IN FEBRUARY 2003.
3. SVE WELLS EWA-133 THROUGH EWA-139 WERE INSTALLED IN JUNE 2006.
4. SVE WELLS DESIGNATED BY "R3" WERE REPLACED IN NOVEMBER 2010.

N

0 10' 20'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

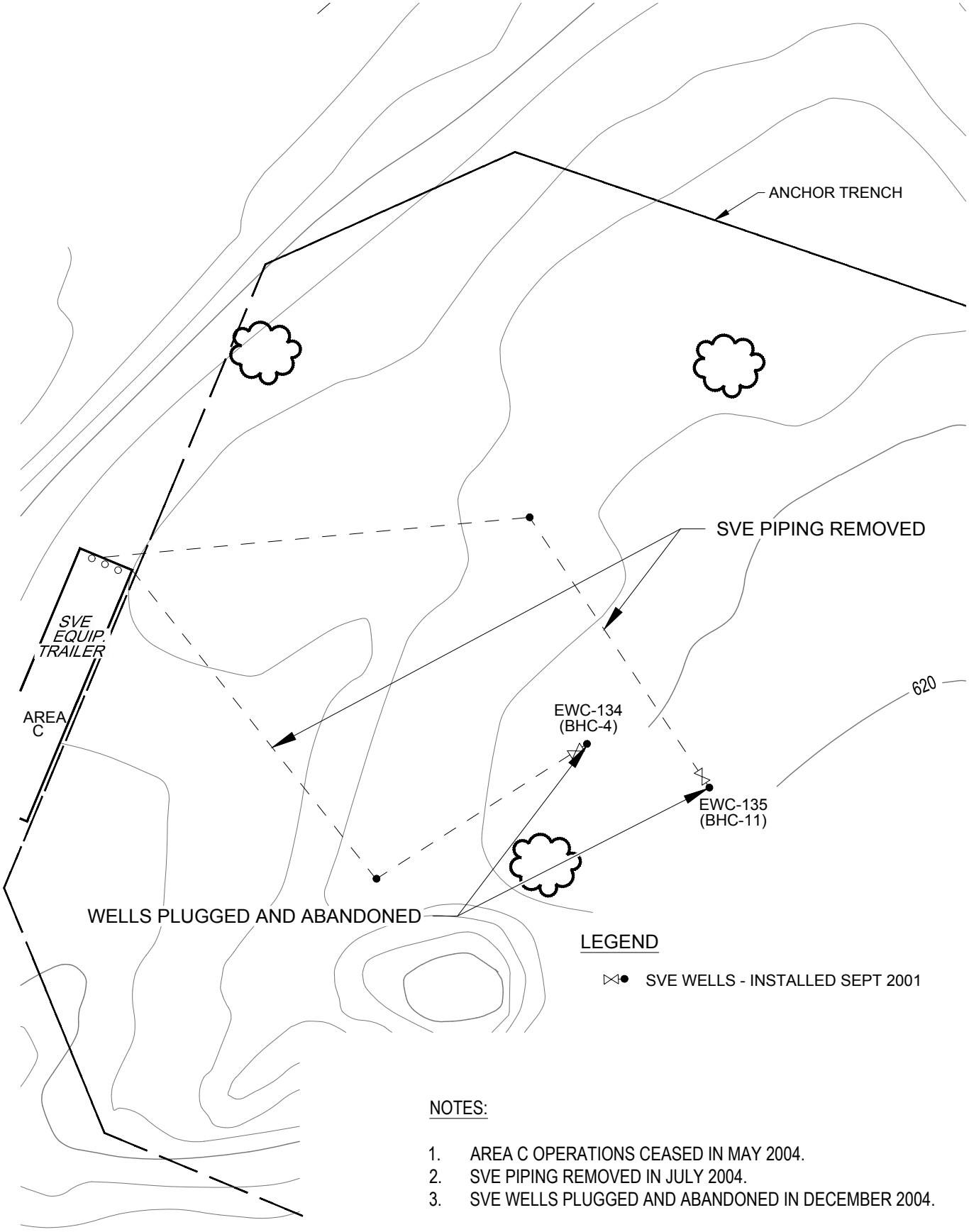
AREA A SVE SYSTEM

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 1.3

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 1.3 AREA A SVE SYSTEM.dwg
Plot Date: 9 March 2018 - 11:29 AM

Source:



NOTES:

1. AREA C OPERATIONS CEASED IN MAY 2004.
2. SVE PIPING REMOVED IN JULY 2004.
3. SVE WELLS PLUGGED AND ABANDONED IN DECEMBER 2004.

N

0 6'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

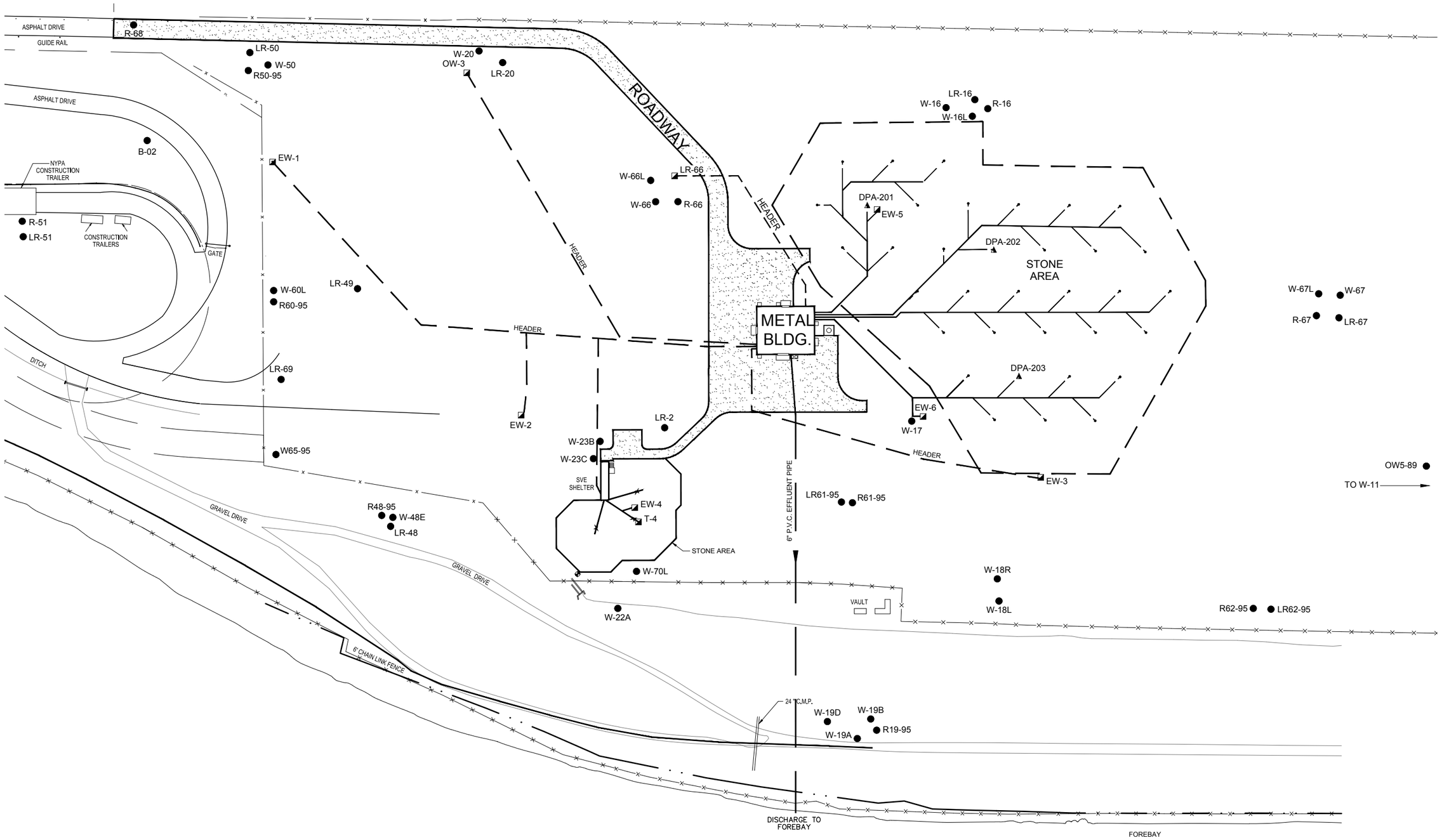
FORMER AREA C SVE SYSTEM

Project No. **06488**
Report No. **031**
Date **MAR 18**

FIGURE 1.4

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 1.4 FORMER AREA C SVE SYSTEM.dwg
Plot Date: 9 March 2018 - 11:29 AM

Source:



LEGEND

W-66 ●	MONITORING WELL
EW-2 ◪	GROUNDWATER EXTRACTION WELL
DPA-201 ◭	DUAL PHASE EXTRACTION WELLS

N

0 50'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

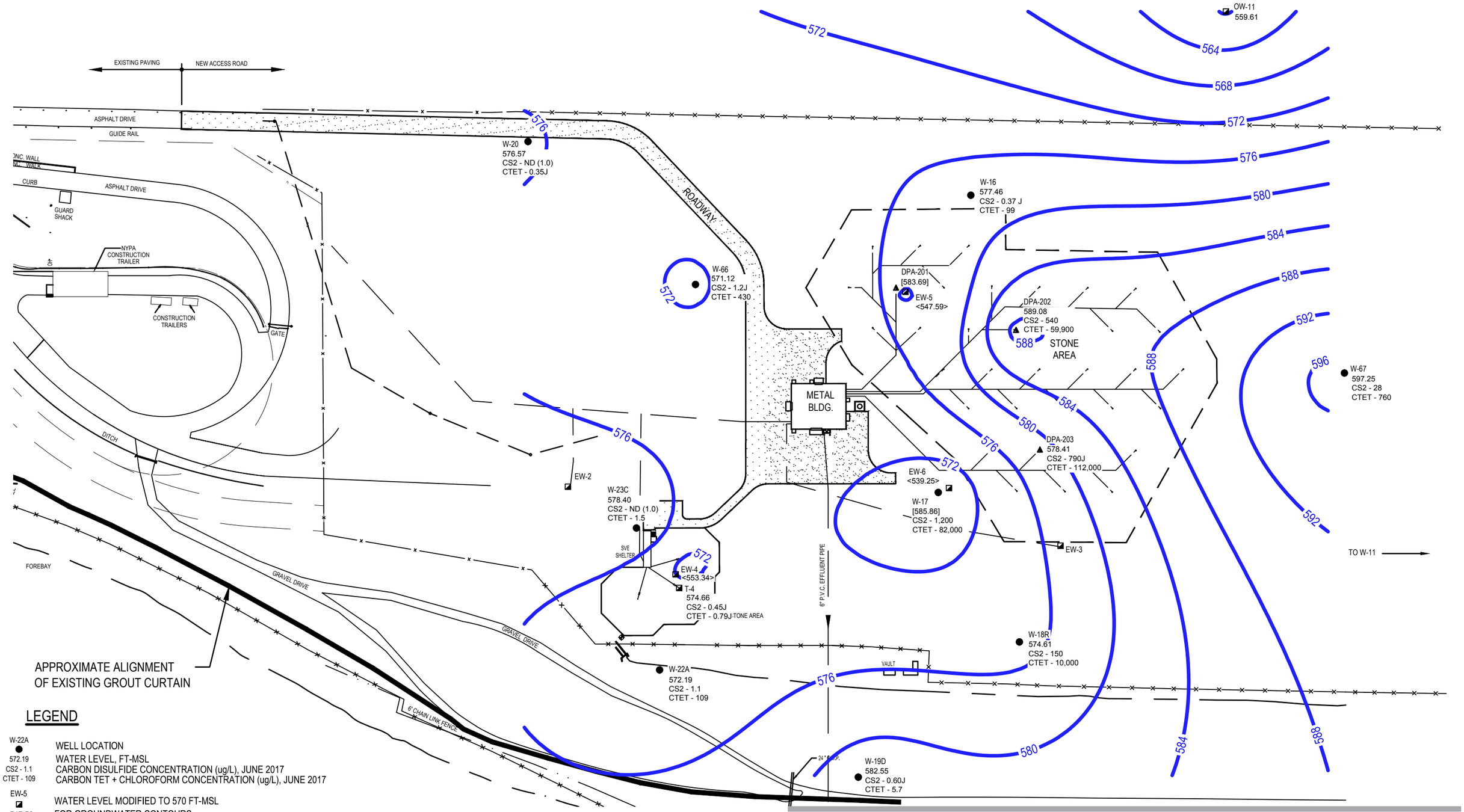
EXTRACTION AND MONITORING WELLS

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 1.5

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 1.5 EXTRACTION AND MONITORING WELLS.dwg
Plot Date: 9 March 2018 - 11:29 AM

Source:



LEGEND

W-22A ●	WELL LOCATION
572.19	WATER LEVEL, FT-MSL
CS2 - 1.1	CARBON DISULFIDE CONCENTRATION (ug/L), JUNE 2017
CTET - 109	CARBON TET + CHLOROFORM CONCENTRATION (ug/L), JUNE 2017
EW-5 ◪ <547.59>	WATER LEVEL MODIFIED TO 570 FT-MSL FOR GROUNDWATER CONTOURS
W-17 ● [584.90]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS

NOTE: EW-1, EW-2 AND EW-3 NOT USED FOR CONTOURING. THESE EXTRACTION WELLS ARE NOT OPEN IN THE UPPER LOCKPORT FORMATION

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

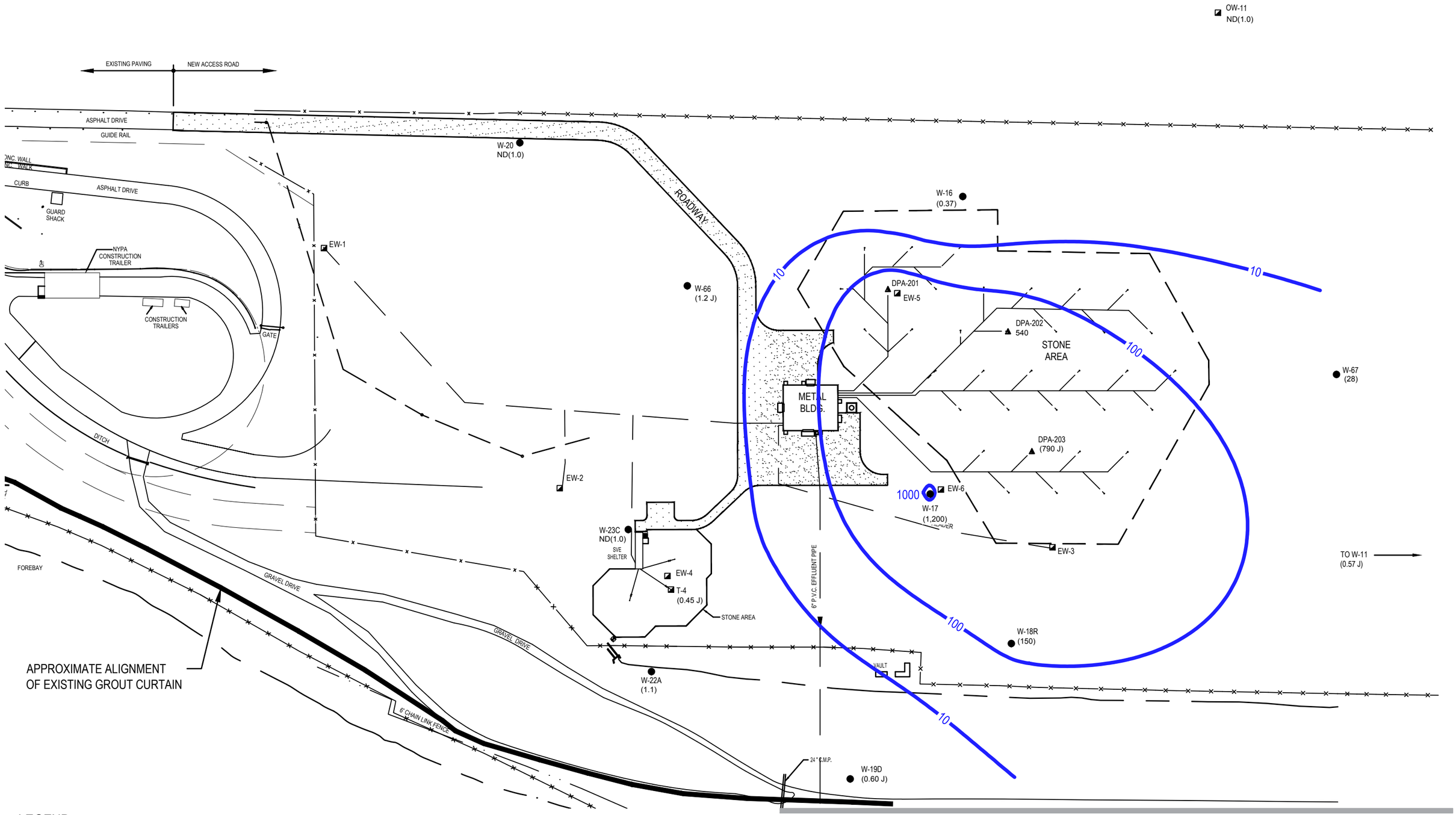
GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017 UPPER LOCKPORT WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.1

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.1 GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017.dwg
Plot Date: 9 March 2018 - 11:29 AM

Source:



LEGEND

W-16 (0.37) ● WELL LOCATION (CONCENTRATION - µg/L)

N

0 100'

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

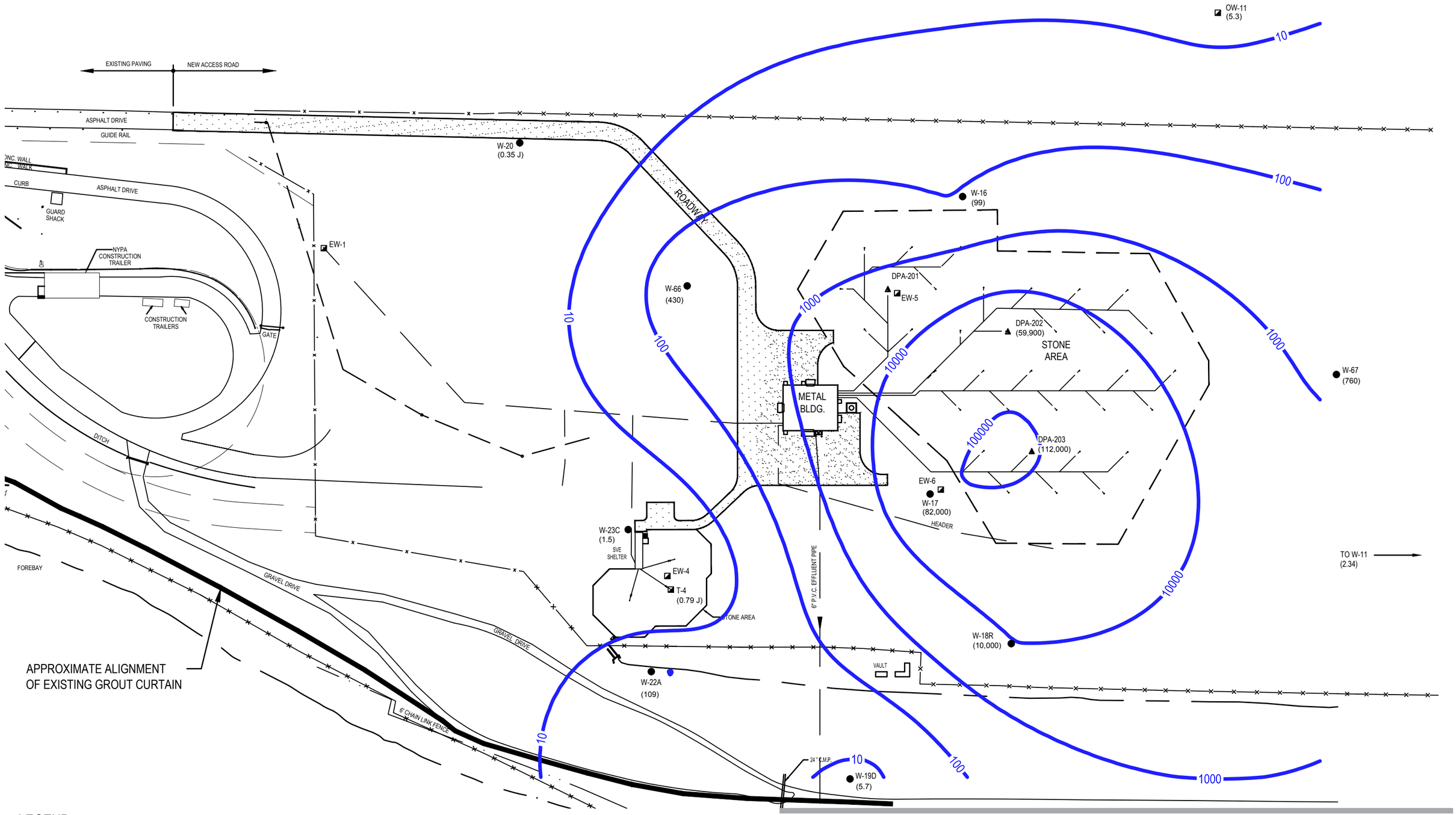
CHEMICAL ISOCONTOURS - JUNE 2017 CARBON DISULFIDE UPPER LOCKPORT WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.2

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.2 CHEMICAL ISOCONTOURS - JUNE 2017 CARBON DISULFIDE.dwg
Plot Date: 9 March 2018 - 11:30 AM

Source:



LEGEND

W-67 (760) WELL LOCATION (CONCENTRATION - µg/L)

N

0 100'

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

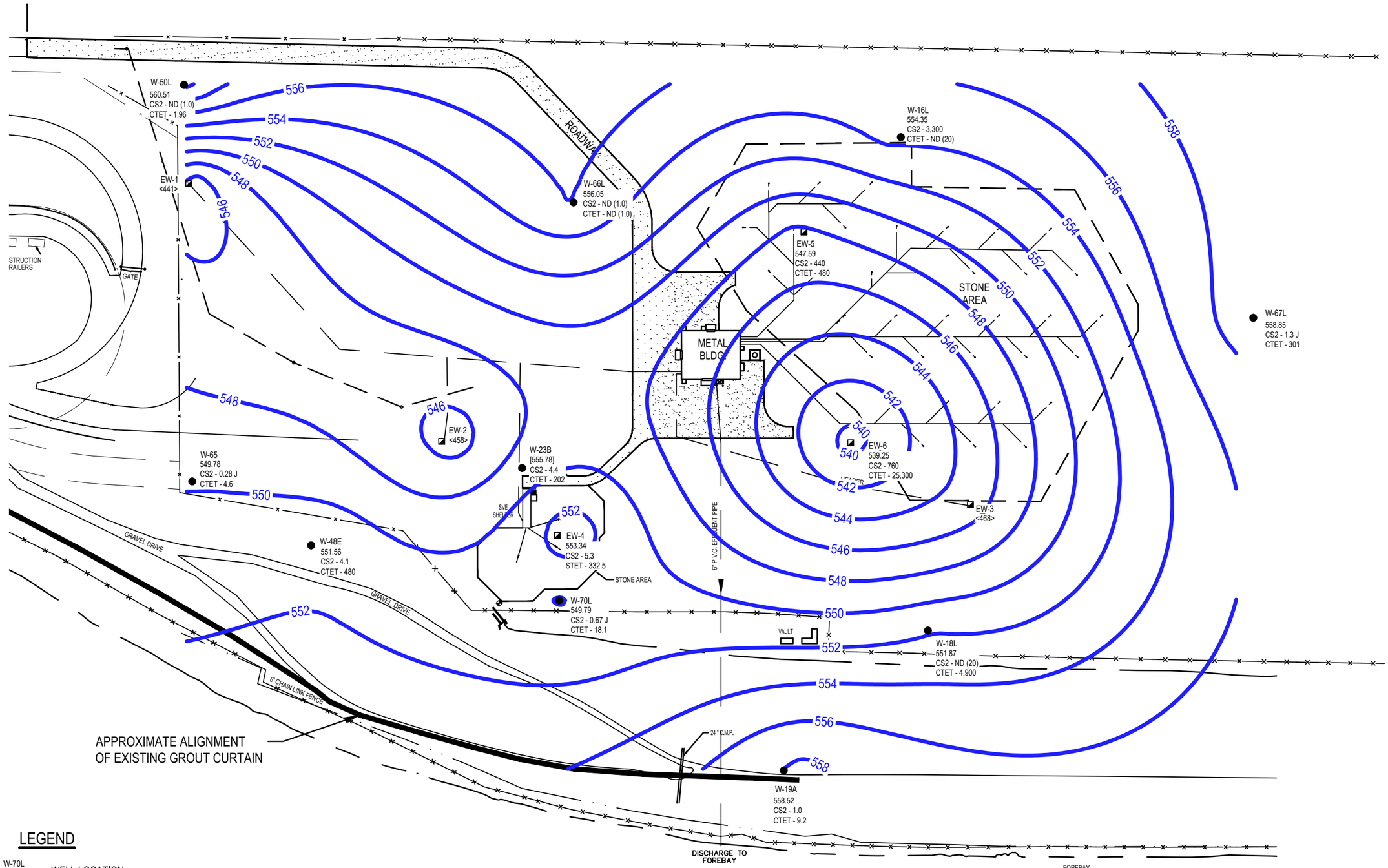
CHEMICAL ISOCONTOURS - JUNE 2017 CARBON TETRACHLORIDE AND CHLOROFORM - UPPER LOCKPORT WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.3

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.3 JUNE 2017 CARBON TETRACHLORIDE AND CHLOROFORM.dwg
Plot Date: 9 March 2018 - 11:30 AM

Source:



LEGEND

W-70L ●	WELL LOCATION
(549.79)	WATER LEVEL, FT-MSL
CS2 - 0.67 J	CARBON DISULFIDE CONCENTRATION (ug/L), JUNE 2017
CTET - 18.1	CARBON TET + CHLOROFORM CONCENTRATION (ug/L), JUNE 2017
EW-2 ◪ <458>	WATER LEVEL MODIFIED TO 545 FT-MSL FOR GROUNDWATER CONTOURS
W-23B ● [555.78]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

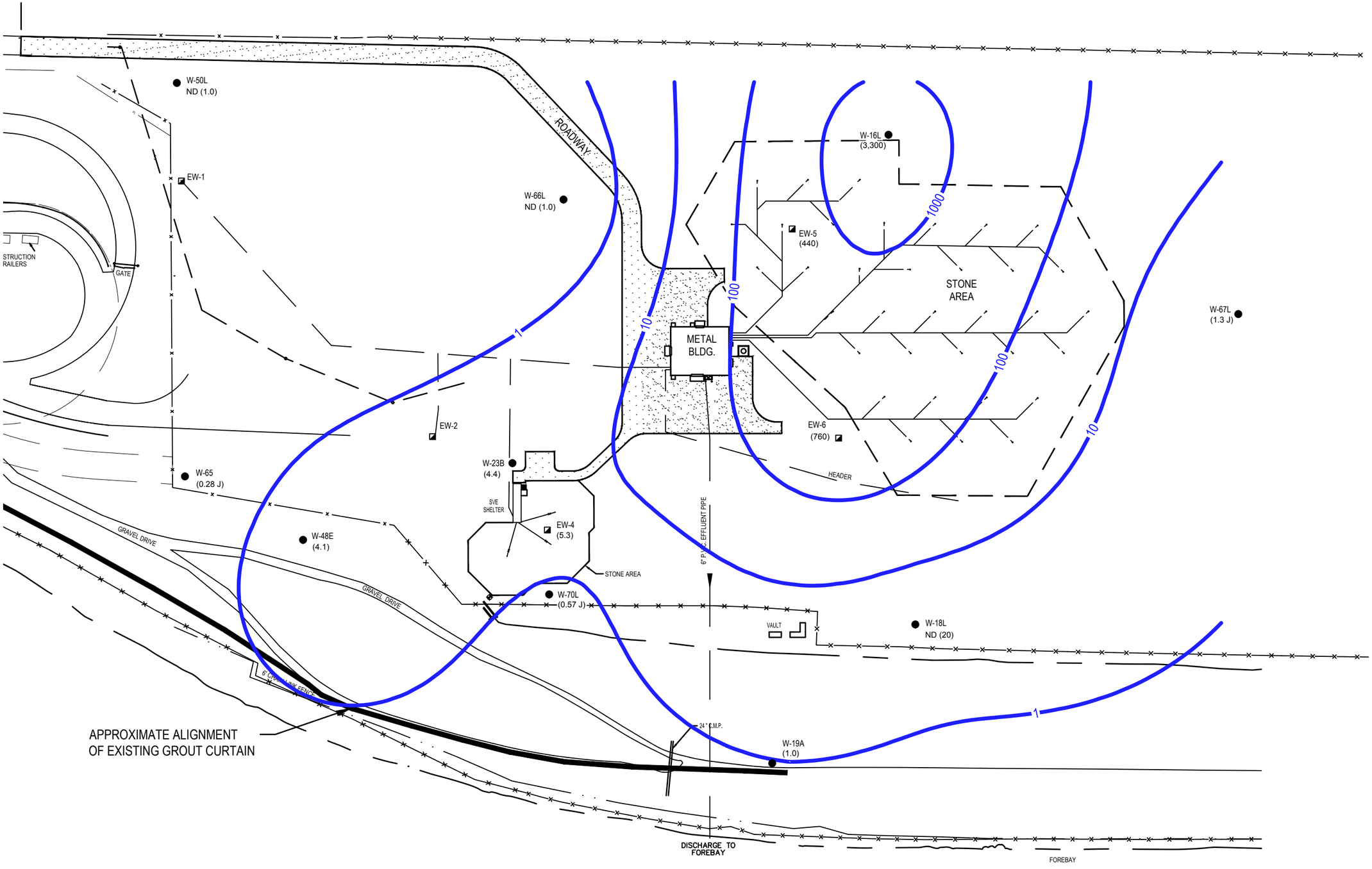
GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017 LOWER LOCKPORT WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.4

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.4 GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017.dwg
Plot Date: 9 March 2018 - 11:30 AM

Source:



LEGEND

W-16L
(3,300)
WELL LOCATION
(CONCENTRATION - µg/L)

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

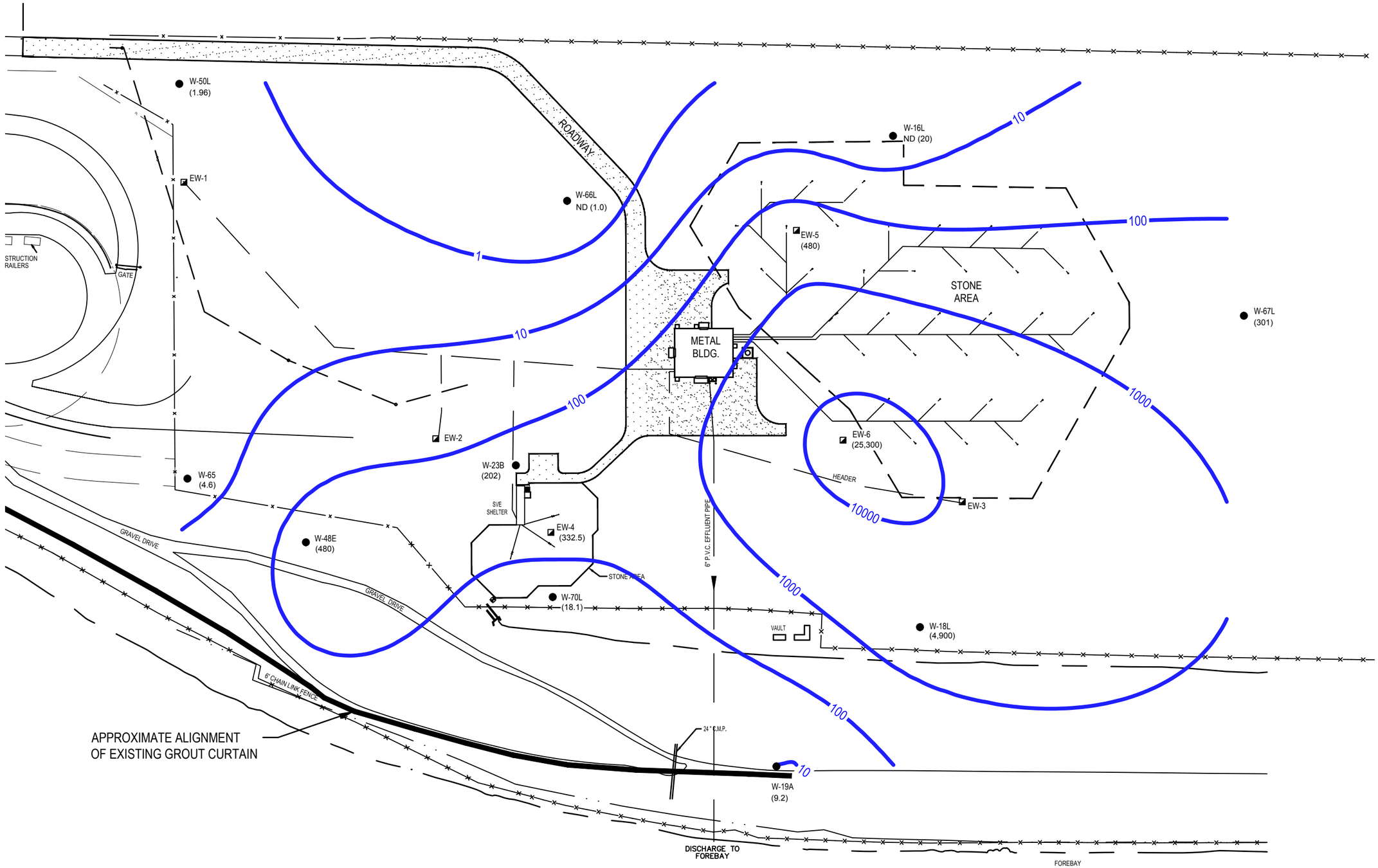
CHEMICAL ISOCONTOURS - JUNE 2017 CARBON DISULFIDE LOWER LOCKPORT WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.5

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.5 CHEMICAL ISOCONTOURS - JUNE 2017 CARBON DISULFIDE.dwg
Plot Date: 9 March 2018 - 11:30 AM

Source:



LEGEND

W-67L
(301)
WELL LOCATION
(CONCENTRATION - µg/L)

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

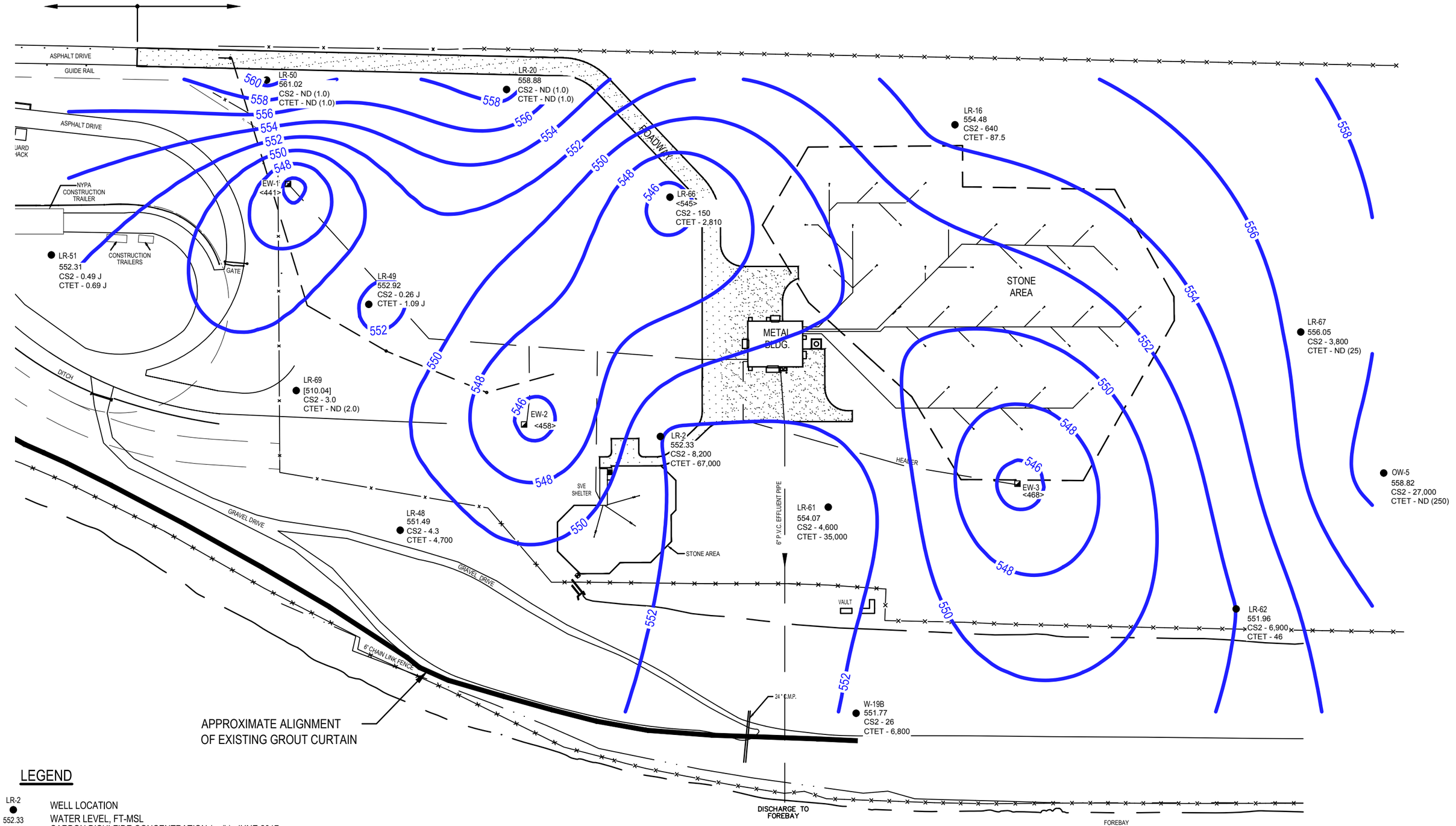
CHEMICAL ISOCONTOURS - JUNE 2017
CARBON TETRACHLORIDE AND
CHLOROFORM - LOWER LOCKPORT
WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.6

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.6 JUNE 2017 CARBON TETRACHLORIDE AND CHLOROFORM.dwg
Plot Date: 9 March 2018 - 11:30 AM

Source:



LEGEND

LR-2 ●	WELL LOCATION
552.33	WATER LEVEL, FT-MSL
CS2 - 8,200	CARBON DISULFIDE CONCENTRATION (ug/L), JUNE 2017
CTET - 67,000	CARBON TET + CHLOROFORM CONCENTRATION (ug/L), JUNE 2017
EW-2 ◪ <458>	WATER LEVEL MODIFIED TO 545 FT-MSL FOR GROUNDWATER CONTOURS
LR-69 ● [510.04]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

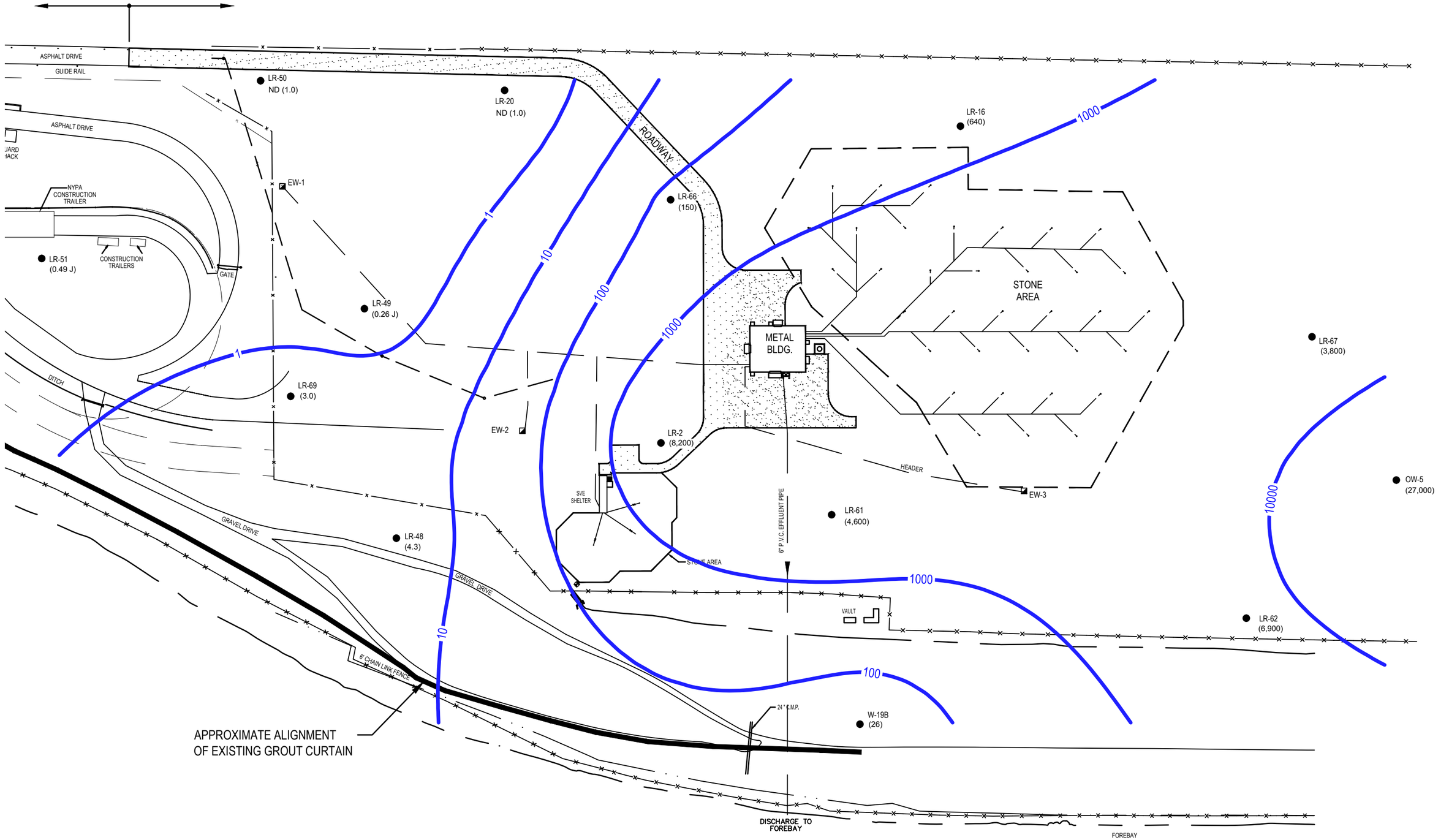
GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017 LOCKPORT / ROCHESTER WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.7

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.7 GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017.dwg
Plot Date: 9 March 2018 - 11:31 AM

Source:



LEGEND

LR-67 ● (3,800) WELL LOCATION (CONCENTRATION - µg/L)

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

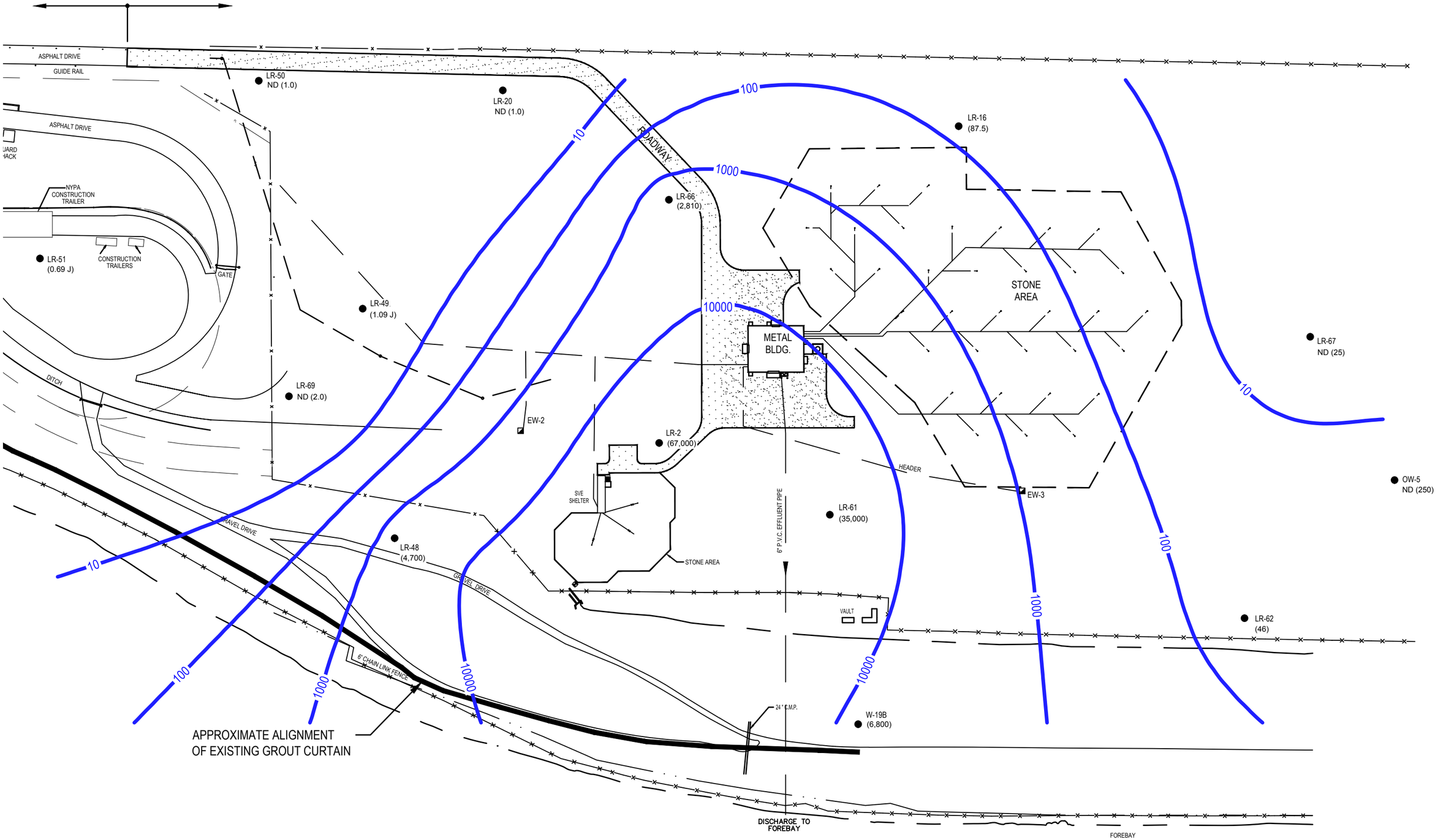
CHEMICAL ISOCONTOURS - JUNE 2017 CARBON DISULFIDE LOCKPORT / ROCHESTER WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.8

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.8 CHEMICAL ISOCONTOURS - JUNE 2017 CARBON DISULFIDE.dwg
Plot Date: 9 March 2018 - 11:31 AM

Source:



LEGEND

LR-61 ● (35,000) WELL LOCATION (CONCENTRATION - µg/L)

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

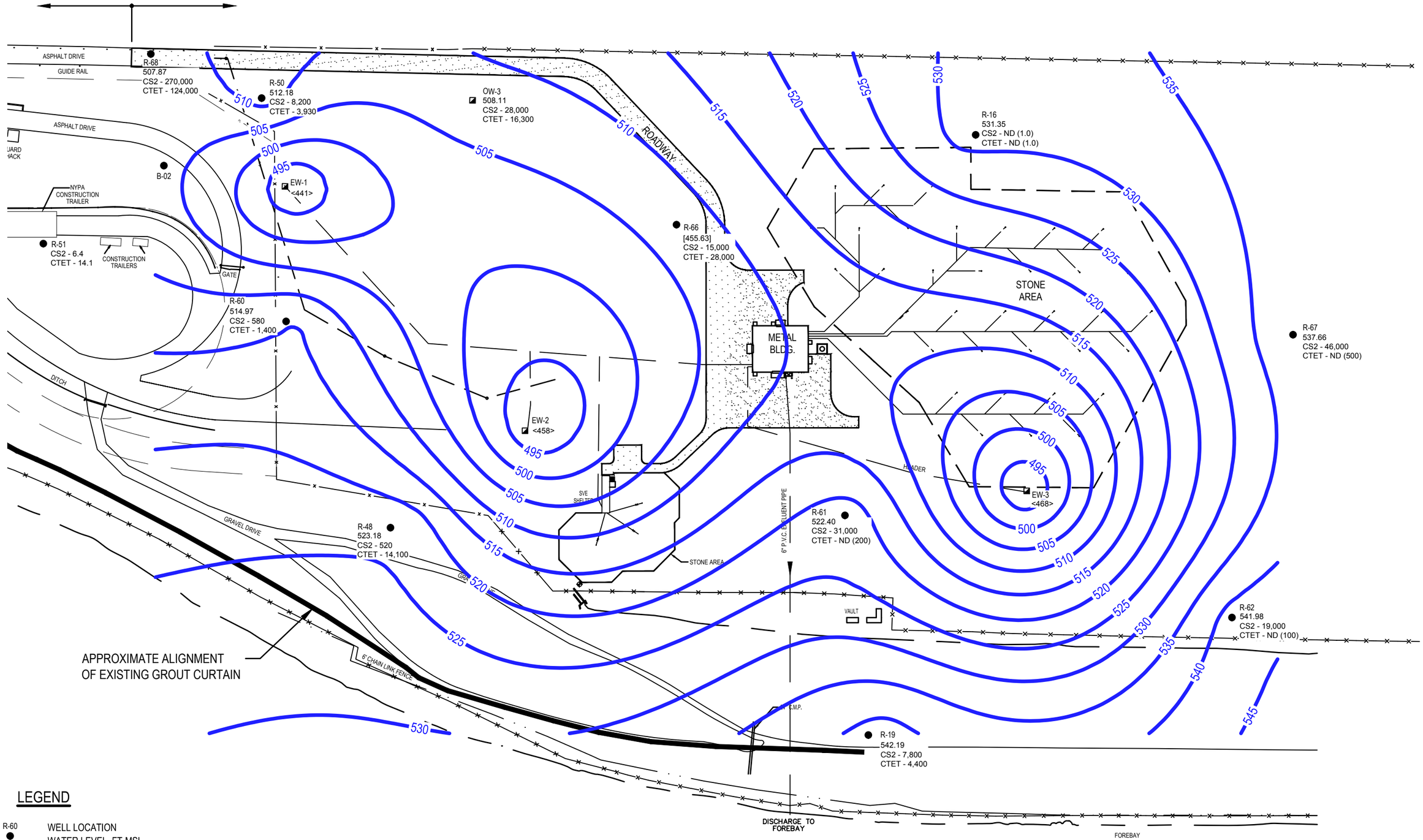
CHEMICAL ISOCONTOURS - JUNE 2017 CARBON TETRACHLORIDE AND CHLOROFORM - LOCKPORT / ROCHESTER WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.9

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.9 JUNE 2017 CARBON TETRACHLORIDE AND CHLOROFORM.dwg
Plot Date: 9 March 2018 - 11:31 AM

Source:



LEGEND

R-60	WELL LOCATION
514.97	WATER LEVEL, FT-MSL
CS2 - 580	CARBON DISULFIDE CONCENTRATION (ug/L), JUNE 2017
CTET - 1,400	CARBON TET + CHLOROFORM CONCENTRATION (ug/L), JUNE 2017
EW-2 <458>	WATER LEVEL MODIFIED TO 490 FT-MSL FOR GROUNDWATER CONTOURS
R-66 [455.63]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

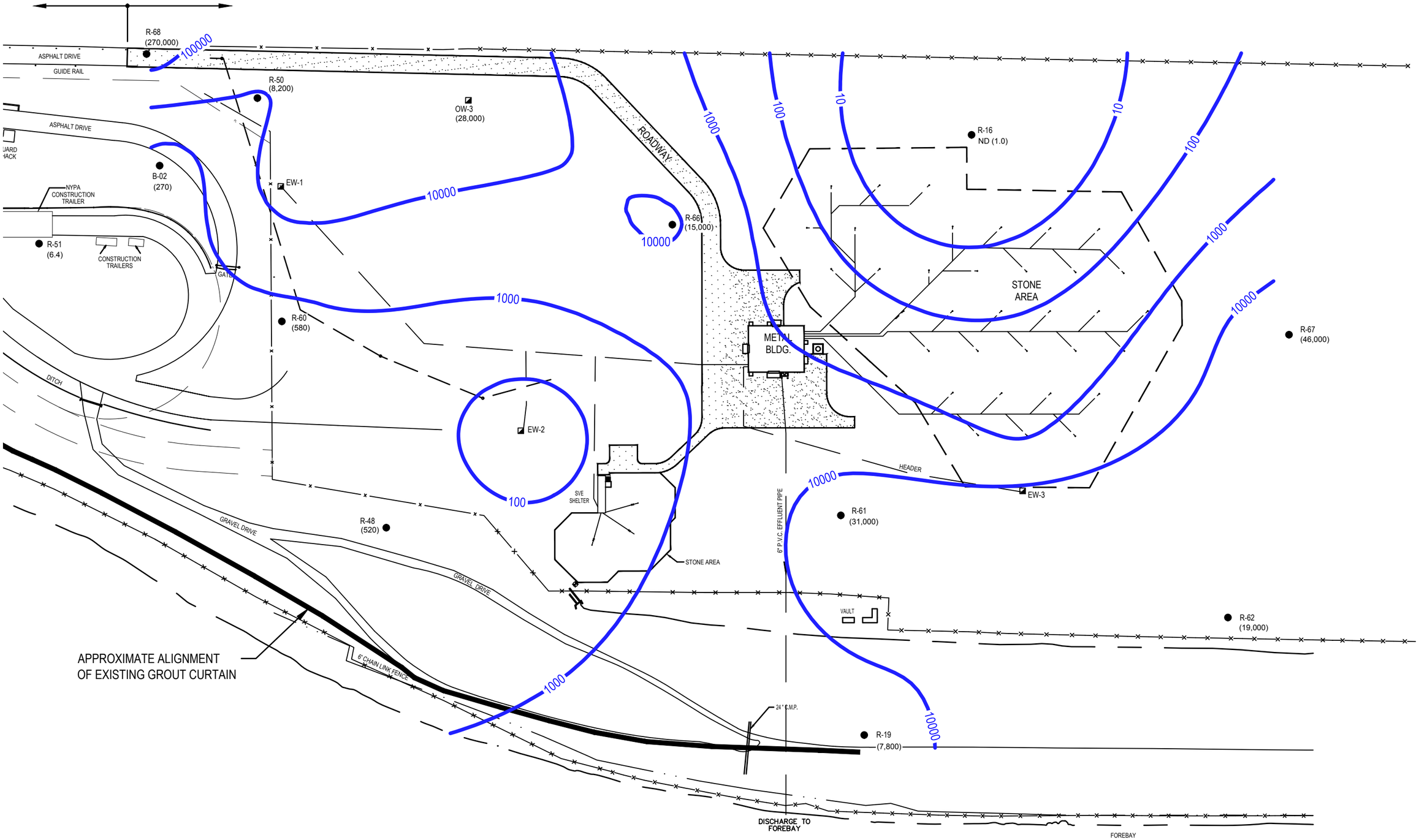
GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017 ROCHESTER WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.10

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.10 GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS - APRIL 2017.dwg
Plot Date: 9 March 2018 - 11:31 AM

Source:



LEGEND

R-48 ● (520) WELL LOCATION (CONCENTRATION - µg/L)

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

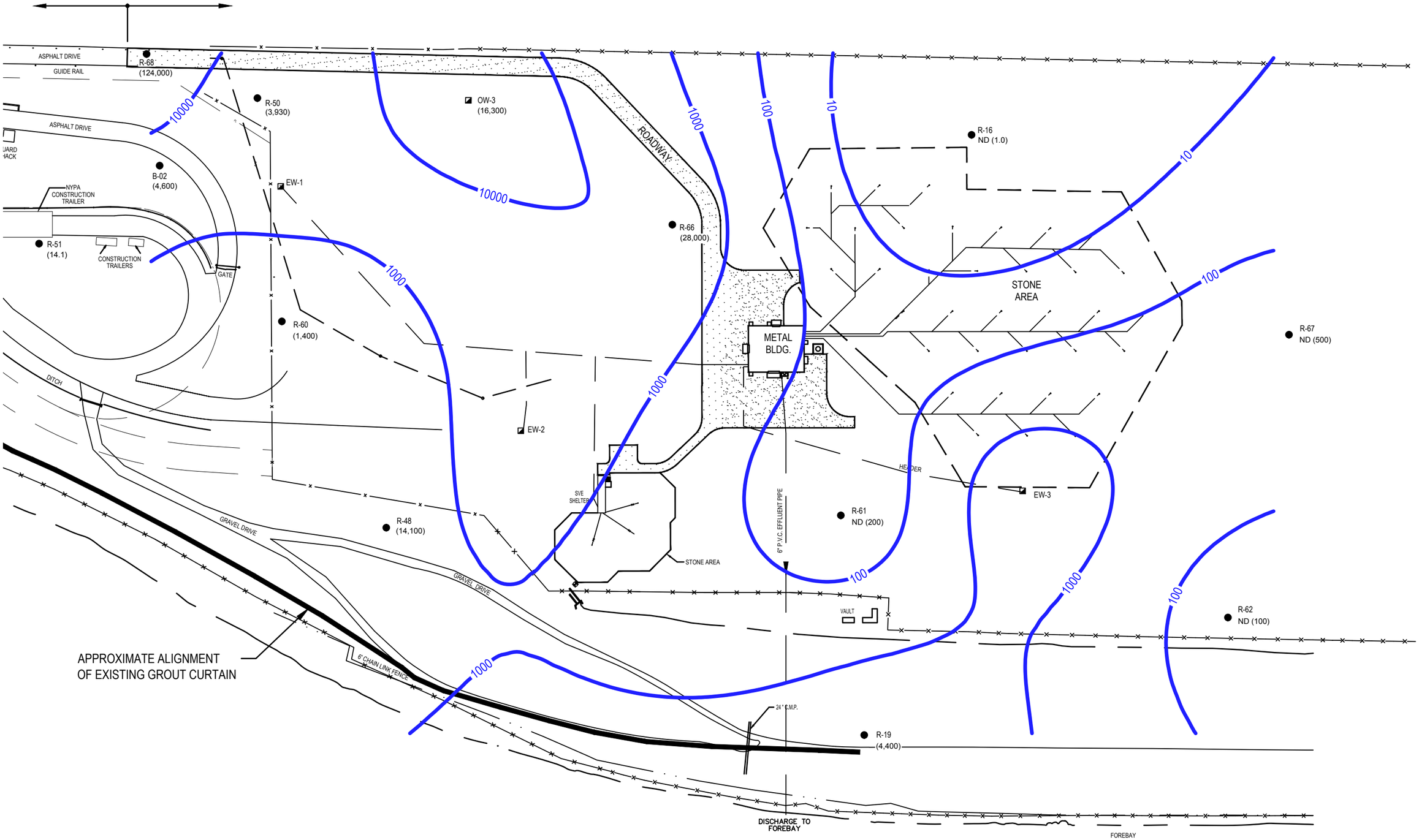
CHEMICAL ISOCONTOURS - JUNE 2017
CARBON DISULFIDE
ROCHESTER WATER BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.11

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.11 CHEMICAL ISOCONTOURS - JUNE 2017 CARBON DISULFIDE.dwg
Plot Date: 9 March 2018 - 11:31 AM

Source:



LEGEND

R-66 (28,000) — WELL LOCATION (CONCENTRATION - µg/L)

N

0 100'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

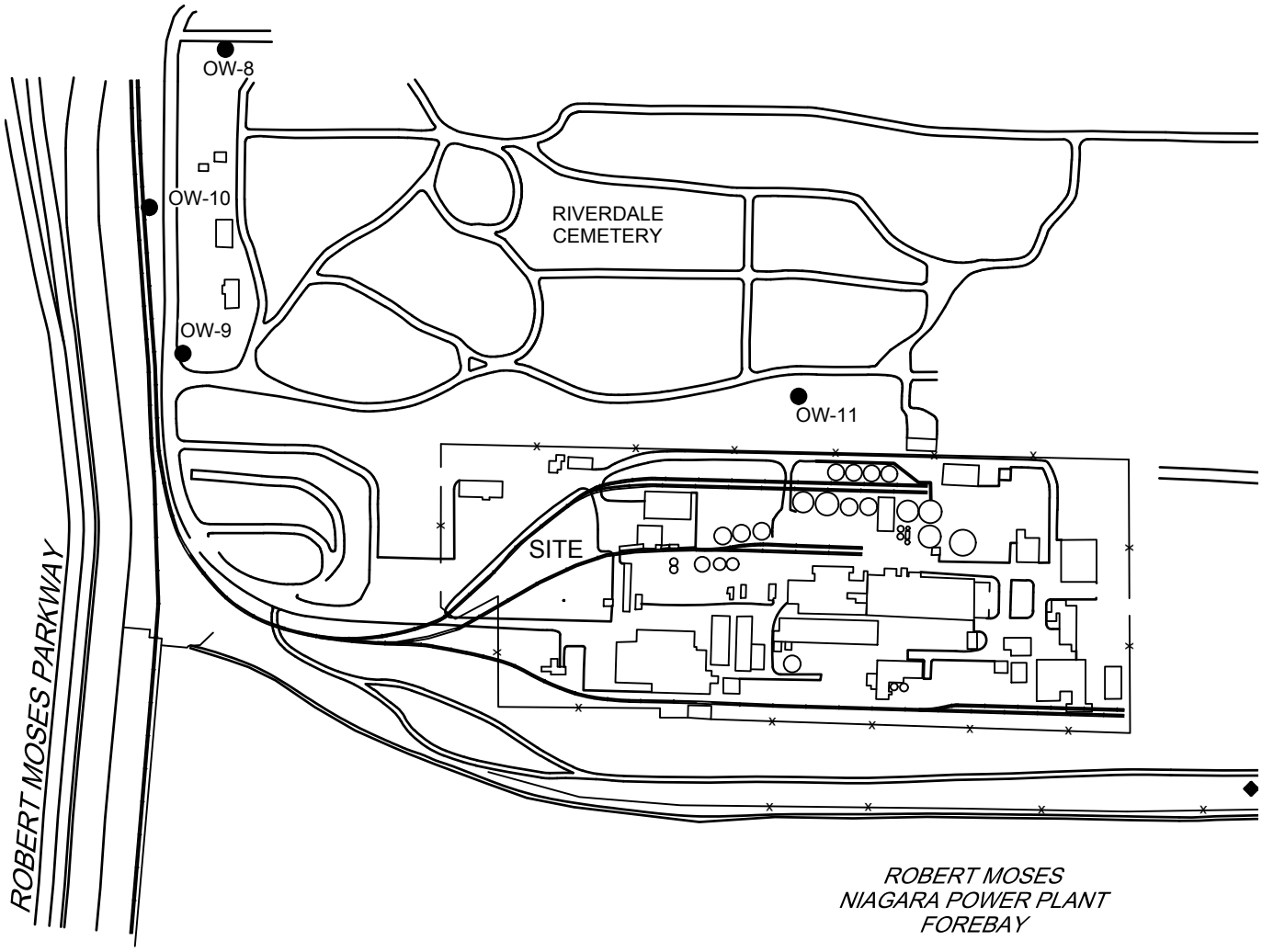
CHEMICAL ISOCONTOURS - JUNE 2017
CARBON TETRACHLORIDE AND
CHLOROFORM - ROCHESTER WATER
BEARING ZONE

Project No. **06488**
Report No. **031**
Date **MAR 2018**

FIGURE 7.12

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 7.12 JUNE 2017 CARBON TETRACHLORIDE AND CHLOROFORM.dwg
Plot Date: 9 March 2018 - 11:32 AM

Source:



LEGEND

OW-11 ● NORTH SIDE GROUNDWATER MONITORING WELL LOCATIONS

NOTE:

SAMPLING OF OVERBURDEN WELLS OW-8, OW-9 AND OW-10 WAS DISCONTINUED IN MAY 2004. BEDROCK WELL OW-11 CONTINUES TO BE SAMPLED ANNUALLY.

N

0 200'

GHD

STAUFFER MANAGEMENT COMPANY, LLC
LEWISTON, NEW YORK

NORTH SIDE WELL LOCATIONS

Project No. **06488**
Report No. **031**
Date **MAR 18**

FIGURE 8.1

Filename: P:\Drawings\06000s\06488\06488-Reports\06488-00(031)\CADD\Drawings\Figures\FIGURE 8.1 NORTH SIDE WELL LOCATIONS.dwg
Plot Date: 9 March 2018 - 11:32 AM

Source:

Tables

TABLE 5.1

EXTRACTION WELL EW-1
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	367,410	gallons
2nd Quarter	270,768	gallons
3rd Quarter	336,629	gallons
4th Quarter	337,807	gallons
Total	**1,312,614**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	37,000	405.0
Carbon tetrachloride	3,800	41.6
Chlorobenzene	0	0.0
Chloroform	3,300	36.1
Methylene chloride	290	3.2
Tetrachloroethene	0	0.0
Toluene	0	0.0
Trichloroethene	0	0.0
Total VOC Removal		**486**

Notes:
VOC Volatile Organic Compound.

TABLE 5.2

EXTRACTION WELL EW-2
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	742,914	gallons
2nd Quarter	677,132	gallons
3rd Quarter	621,259	gallons
4th Quarter	567,366	gallons
Total	**2,608,671**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	19	0.4
Carbon tetrachloride	1,600	34.8
Chlorobenzene	4	0.1
Chloroform	550	12.0
Methylene chloride	27	0.6
Tetrachloroethene	22	0.5
Toluene	0	0.0
Trichloroethene	5	0.1
Total VOC Removal		**48**

Notes:
VOC Volatile Organic Compound.

TABLE 5.3

EXTRACTION WELL EW-3
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	686,588	gallons
2nd Quarter	822,067	gallons
3rd Quarter	804,215	gallons
4th Quarter	766,267	gallons
Total	**3,079,137**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	1,400	36.0
Carbon tetrachloride	7,700	197.7
Chlorobenzene	0	0.0
Chloroform	4,400	113.0
Methylene chloride	230	5.9
Tetrachloroethene	100	2.6
Toluene	0	0.0
Trichloroethene	180	4.6
Total VOC Removal		**360**

Notes:
VOC Volatile Organic Compound.

TABLE 5.4

EXTRACTION WELL EW-4
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	75,000	gallons
2nd Quarter	75,000	gallons
3rd Quarter	75,000	gallons
4th Quarter	75,000	gallons
Total	**300,000**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	5	0.0
Carbon tetrachloride	3	0.0
Chlorobenzene	26	0.1
Chloroform	330	0.8
Methylene chloride	14	0.0
Tetrachloroethene	18	0.0
Toluene	0	0.0
Trichloroethene	8	0.0
Total VOC Removal		**1.0**

Notes:
VOC Volatile Organic Compound.

TABLE 5.5

EXTRACTION WELL EW-5
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	1,443,584	gallons
2nd Quarter	1,142,216	gallons
3rd Quarter	1,162,638	gallons
4th Quarter	1,267,734	gallons
Total	**5,016,172**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	440	18.4
Carbon tetrachloride	370	15.5
Chlorobenzene	0	0.0
Chloroform	110	4.6
Methylene chloride	0	0.0
Tetrachloroethene	52	2.2
Toluene	0	0.0
Trichloroethene	22	0.9
Total VOC Removal		**41.6**

Notes:
VOC Volatile Organic Compound.

TABLE 5.6

EXTRACTION WELL EW-6
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	516,152	gallons
2nd Quarter	497,916	gallons
3rd Quarter	368,119	gallons
4th Quarter	146,668	gallons
Total	**1,528,855**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	760	9.7
Carbon tetrachloride	20,000	255.0
Chlorobenzene	0	0.0
Chloroform	5,300	67.6
Methylene chloride	140	1.8
Tetrachloroethene	280	3.6
Toluene	0	0.0
Trichloroethene	92	1.2
Total VOC Removal		**338.8**

Notes:
VOC Volatile Organic Compound.

TABLE 5.7

DUAL-PHASE AREA A WELL DPA-201
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	17,500	gallons
2nd Quarter	17,500	gallons
3rd Quarter	17,500	gallons
4th Quarter	17,500	gallons
Total	**70,000**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	16	0.0
Carbon disulfide	0	0.0
Carbon tetrachloride	3,500	2.0
Chlorobenzene	0	0.0
Chloroform	1,100	0.6
Methylene chloride	41	0.0
Tetrachloroethene	3,100	1.8
Toluene	0	0.0
Trichloroethene	860	0.5
Total VOC Removal		**5.0**

Notes:

VOC Volatile Organic Compound.

TABLE 5.8

DUAL-PHASE AREA A WELL DPA-202
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	23,518	gallons
2nd Quarter	14,869	gallons
3rd Quarter	11,751	gallons
4th Quarter	33,023	gallons
Total	**83,161**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	540	0.4
Carbon tetrachloride	53,000	36.8
Chlorobenzene	0	0.0
Chloroform	6,900	4.8
Methylene chloride	0	0.0
Tetrachloroethene	1,200	0.8
Toluene	0	0.0
Trichloroethene	140	0.1
Total VOC Removal		**42.8**

Notes:
VOC Volatile Organic Compound.

TABLE 5.9

DUAL-PHASE AREA A WELL DPA-203
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	4,500	gallons
2nd Quarter	8,000	gallons
3rd Quarter	7,000	gallons
4th Quarter	7,000	gallons
Total	**26,500**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	790	0.2
Carbon tetrachloride	98,000	21.7
Chlorobenzene	0	0.0
Chloroform	14,000	3.1
Methylene chloride	0	0.0
Tetrachloroethene	2,600	0.6
Toluene	0	0.0
Trichloroethene	0	0.0
Total VOC Removal		**25.5**

Notes:
VOC Volatile Organic Compound.

TABLE 5.10

EXTRACTION WELL OW-3
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	27,681	gallons
2nd Quarter	18,328	gallons
3rd Quarter	22,748	gallons
4th Quarter	19,356	gallons
Total	**88,113**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	28,000	20.6
Carbon tetrachloride	13,000	9.6
Chlorobenzene	0	0.0
Chloroform	3,300	2.4
Methylene chloride	0	0.0
Tetrachloroethene	230	0.2
Toluene	110	0.1
Trichloroethene	0	0.0
Total VOC Removal		**32.8**

Notes:
VOC Volatile Organic Compound.

TABLE 5.11

EXTRACTION WELL LR-66
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

Flow Rates:

1st Quarter	45,000	gallons
2nd Quarter	45,000	gallons
3rd Quarter	45,000	gallons
4th Quarter	45,000	gallons
Total	**180,000**	**gallons**

	Annual Total	
Compound	***Conc. (ug/L)***	***Mass (lbs)***
Benzene	0	0.0
Carbon disulfide	150	0.2
Carbon tetrachloride	2,500	3.8
Chlorobenzene	3	0.0
Chloroform	310	0.5
Methylene chloride	38	0.1
Tetrachloroethene	100	0.2
Toluene	0	0.0
Trichloroethene	1	0.0
Total VOC Removal		**4.7**

Notes:
VOC Volatile Organic Compound.

TABLE 7.1

2017 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Well I.D.	***February 2017***	***April 2017***	***August 2017***
Extraction Wells			
DPA-201	578.85	583.69	579.04
DPA-202	587.44	589.08	586.22
DPA-203	585.21	578.41	585.08
T-4	572.97	574.66	572.67
EW-1	454	441	456
EW-2	458	458	458
EW-3	475	468	465
EW-4	543.74	553.34	547.98
EW-5	580.01	547.59	574.76
EW-6	544.66	539.25	532.46
OW-3	514.56	508.11	514.8
LR-66	-	-	-
Upper Lockport Wells			
W-16	578.7	577.46	546.85
W-17	585.05	585.86	585.06
W-18R	573.66	574.61	573.75
W-19D	Dry	582.55	571.04
W-20	574.43	576.57	574.66
W-22A	Dry	572.19	Dry
W-23C	577.99	578.4	578.41
W-66	569.75	571.12	569.67
W-67	591.27	597.25	589.35
OW-11	552.6	559.61	555.43

TABLE 7.1

2017 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Well I.D.	***February 2017***	***April 2017***	***August 2017***
Lower Lockport Wells			
W-16L	545.4	554.35	547.24
W-18L	545.74	551.87	548.24
W-19A	558.51	558.52	558.17
W-23B	555.75	555.78	555.73
W-48E	Dry	551.56	549.42
W-50	556.27	560.51	556.81
W-60L	Dry	Dry	Dry
W-65	545.49	549.78	544.71
W-66L	548.13	556.05	550.73
W-67L	549.99	558.85	552.45
W-70L	545.32	549.79	540.37
Lockport/Rochester Wells			
W-19B	547.38	551.77	550.69
LR-2	545.83	552.33	559.05
LR-16	545.62	554.48	547.38
LR-20	552.63	558.88	554.31
LR-48	545.94	551.49	549.46
LR-49	546.97	552.92	549.83
LR-50	556.4	561.02	561.94
LR-51	546.47	552.31	549.65
LR-61	547.38	554.07	550.2
LR-62	546.75	551.96	548.03
LR-67	547.74	556.05	549.28
LR-69	507.98	510.04	504.44
OW-5	551.05	558.82	552.36

TABLE 7.1

2017 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Well I.D.	***February 2017***	***April 2017***	***August 2017***
Rochester Wells			
R-16	531.66	531.35	522.84
R-19	540.43	542.19	540.27
R-48	527.19	523.18	527.11
R-50	508.82	512.18	500.95
R-60	526.83	514.97	521.39
R-61	534.53	522.4	531
R-62	541.55	541.98	538.19
R-66	454.74	455.63	451.87
R-67	537.13	537.66	536.54
R-68	521.69	507.87	513.06

Notes:

Ft. msl	Feet, Mean Sea Level
NM	Not measured

TABLE 7.2

MONITORING AND EXTRACTION WELLS BY WATER BEARING ZONE
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Upper Lockport	***Lower Lockport***	***Lockport/Rochester***	***Rochester***
Well ID	***Well ID***	***Well ID***	***Well ID***
OW-11	W-16L	LR-2	B-02
T-4	W-18L	LR-16	R-16
W-16	W-19A	LR-20	R-19
W-17	W-23B	LR-48	R-48
W-18R	W-48E	LR-49	R-50
W-19D	W-50	LR-50	R-51
W-20	W-60L	LR-51	R-60
W-22A	W-65	LR-61	R-61
W-23C	W-66L	LR-62	R-62
W-66	W-67L	LR-67	R-66
W-67	W-70L	LR-69	R-67
DPA-201	EW-1	OW-5	R-68
DPA-202	EW-2	W-19B	EW-1
DPA-203	EW-3	LR-66	EW-2
EW-4	EW-4	EW-1	EW-3
EW-5	EW-5	EW-2	OW-3
EW-6	EW-6	EW-3	

TABLE 9.1
COMPOUND-SPECIFIC SSPL REMOVAL
AREA A SVE SYSTEM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2003-2014

SSPL Compound	*2003*		*2004*		*2005*		*2006*		*2007*		*2008*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	0	0	1	0	1	0	3	0	0	0	0	0
Carbon tetrachloride	801	85	198	87	1,782	91	1,536	90	2,132	91	442	87
Chlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0
Chloroform	68	7	18	8	95	5	98	6	93	4	32	6
Methylene chloride	0	0	0	0	0	0	2	0	0	0	0	0
Tetrachloroethene	68	7	8	4	75	4	62	4	110	5	28	6
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	0	3	1	1	0	11	0	13	1	4	1
Total:	**937**		**228**		**1,954**		**1,712**		**2,349**		**507**	

SSPL Compound	*2009*		*2010*		*2011*		*2012*		*2013*		*2014*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0.0	0
Carbon disulfide	1	1	2	1	0	0	0	0	0	0	0.0	0
Carbon tetrachloride	94	87	227	90	240	83	215	86	130	85	17.8	81
Chlorobenzene	0	0	0	0	0	0	0	0	0	0	0.0	0
Chloroform	7	7	14	6	33	11	20	8	13	9	2.4	11
Methylene chloride	0	0	0	0	0	0	0	0	0	0	0.0	0
Tetrachloroethene	5	5	7	3	10	4	13	5	8	5	1.5	7
Toluene	0	0	0	0	0	0	0	0	0	0	0.0	0
Trichloroethene	1	1	1	0	6	2	2	1	1	1	0.2	1
Total:	**108**		**251**		**289**		**250**		**152**		**22.0**	

TABLE 9.2

EXTRACTION WELL SUMMARY
TOTAL VOLUME OF GROUNDWATER EXTRACTED
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

	Volume Pumped by Extraction Wells (Gallons/Year)											
Period	***EW-1***	***EW-2***	***EW-3***	***EW-4***	***EW-5***	***EW-6***	***DPA-201***	***DPA-202***	***DPA-203***	***OW-3***	***LR-66***	***Site Total***
First Quarter	367,410	742,914	686,588	75,000	1,443,584	516,152	17,500	23,518	4,500	27,681	45,000	3,949,847
Second Quarter	270,768	677,132	822,067	75,000	1,142,216	497,916	17,500	14,869	8,000	18,328	45,000	3,588,796
Third Quarter	336,629	621,259	804,215	75,000	1,162,638	368,119	17,500	11,751	7,000	22,748	45,000	3,471,859
Fourth Quarter	337,807	567,366	766,267	75,000	1,267,734	146,668	17,500	33,023	7,000	19,356	45,000	3,282,721
Total Gallons:	**1,312,614**	**2,608,671**	**3,079,137**	**300,000**	**5,016,172**	**1,528,855**	**70,000**	**83,161**	**26,500**	**88,113**	**180,000**	**14,293,223**

TABLE 9.3

EXTRACTION WELL SUMMARY
TOTAL MASS REMOVAL BY GROUNDWATER EXTRACTION
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2017

	Total Mass Removal (Lbs/Year)											
Compound	***EW-1***	***EW-2***	***EW-3***	***EW-4***	***EW-5***	***EW-6***	***DPA-201***	***DPA-202***	***DPA-203***	***OW-3***	***LR-66***	***Site Total***
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	405	0	36	0	18	10	0	0	0	21	0	491
Carbon tetrachloride	42	35	198	0	15	255	2	37	22	10	4	618
Chlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0
Chloroform	36	12	113	1	5	68	1	5	3	2	0	246
Methylene chloride	3	1	6	0	0	2	0	0	0	0	0	12
Tetrachloroethene	0	0	3	0	2	4	2	1	1	0	0	12
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	0	5	0	1	1	1	0	0	0	0	7
Total VOC Removal	**486**	**48**	**360**	**1**	**42**	**339**	**5**	**43**	**26**	**33**	**5**	**1,386**

Notes:
VOC Volatile Organic Compound.

TABLE 9.4

COMPOUND-SPECIFIC SSPL REMOVAL
GROUNDWATER EXTRACTION SYSTEM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2006-2017

SSPL Compound	*2006*		*2007*		*2008*		*2009*		*2010*		*2011*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	1,664	47	1,954	53	2,109	44	1,182	80	1,554	60	1,510	60
Carbon tetrachloride	1,420	40	1,278	35	1,998	42	1,147	77	731	28	753	30
Chlorobenzene	1	0	1	0	2	0	7	0	2	0	2	0
Chloroform	401	11	400	11	605	13	387	26	257	10	216	9
Methylene chloride	11	0	14	0	15	0	10	1	9	0	7	0
Tetrachloroethene	17	1	20	1	42	1	18	1	20	1	12	0
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	3	0	5	0	19	0	3	0	3	0	2	0
Total:	**3,672**		**3,672**		**4,790**		**2,754**		**2,575**		**2,501**	

SSPL Compound	*2012*		*2013*		*2014*		*2015*		*2016*		*2017*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	1,665	66	938	52	956	64	881	56	922	33	491	35
Carbon tetrachloride	626	25	636	35	346	23	480	30	1,470	53	618	45
Chlorobenzene	2	0	1	0	1	0	0	0	0	0	0	0
Chloroform	195	8	197	11	161	11	193	12	320	12	246	18
Methylene chloride	9	0	11	1	8	1	10	1	11	0	12	1
Tetrachloroethene	11	0	11	1	9	1	10	1	29	1	12	1
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	4	0	5	0	5	0	5	0	6	0	7	1
Total:	**2,511**		**1,801**		**1,486**		**1,580**		**2,758**		**1,386**	

TABLE 9.5

COMPOUND-SPECIFIC SSPL REMOVAL
SITE REMEDIAL SYSTEMS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2006-2015

Pounds Removed Per Year

SSPL Compound	*2006*		*2007*		*2008*		*2009*		*2010*		*2011*	
	SVE Systems	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	3	1,664	0	1,954	0	2,109	1	1182	2	1554	0	1510
Carbon tetrachloride	1,536	1,420	2,132	1,278	442	1,998	94	1147	227	731	240	753
Chlorobenzene	0	1	0	1	0	2	0	7	0	2	0	2
Chloroform	98	401	93	400	32	605	7	387	14	257	33	216
Methylene chloride	2	11	0	14	0	15	0	10	0	9	0	7
Tetrachloroethene	62	17	110	20	28	42	5	18	7	20	10	12
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	11	3	13	5	4	19	1	3	1	3	6	2
Total:	**1,712**	**3,517**	**2,349**	**3,672**	**507**	**4,790**	**108**	**2,754**	**251**	**2,575**	**289**	**2,501**

SSPL Compound	*2012*		*2013*		*2014*		*2015*		*2015*			
	SVE Systems	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***Cumulative Compound Total***	***% of Total***
Benzene	0	0	0	0	0	0	0	0	0	0	**0**	0
Carbon disulfide	0	1665	0	938	0	956	0	881	0	922	**15,343**	43
Carbon tetrachloride	215	626	130	636	18	346	0	480	0	1470	**15,919**	45
Chlorobenzene	0	2	0	1	0	1	0	0	0	0	**19**	0
Chloroform	20	195	13	197	2	161	0	193	0	320	**3,645**	10
Methylene chloride	0	9	0	11	0	8	0	10	0	11	**116**	0
Tetrachloroethene	13	11	8	11	1	9	0	10	0	29	**444**	1
Toluene	0	0	0	0	0	0	0	0	0	0	**0**	0
Trichloroethene	2	4	1	5	0	5	0	5	0	6	**98**	0
Total:	**250**	**2,511**	**152**	**1,801**	**22**	**1,486**	**0**	**1,580**	**0**	**2,758**	**35,584**	100

Notes:
GW Groundwater extraction system.

Appendices

Appendix A
Groundwater Treatment System
2017 Process Monitoring Data

Appendix A-1
Groundwater Influent Data
2017 Analytical Results
Stauffer Management Company LLC
Lewiston, New York

	Sample ID:	INF-010217-DJT	INF-020617-SG	INF-030517-DJT	INF-040317-DO	INF-050717-DJT	INF-060417-DJT
	Collection Date:	01/02/17	02/06/17	03/05/17	04/03/17	05/07/17	06/04/17
Parameters	**Units**						
Volatiles							
Benzene	µg/L	ND 100	ND 25	ND 25	ND 25	ND 50	ND 25
Carbon disulfide	µg/L	5100	1600	4200	1100	1700	2300
Carbon tetrachloride	µg/L	2500	3900	3000	6200	5700	3700
Chlorobenzene	µg/L	ND 100	ND 25	ND 25	ND 25	ND 50	ND 25
Chloroform	µg/L	1300	2200	1800	2900	2100	1300
Methylene chloride	µg/L	ND 100	110	81	120	82	64
Tetrachloroethene	µg/L	ND 100	140	91	150	200	90
Toluene	µg/L	ND 100	ND 25	ND 25	ND 25	ND 50	ND 25
Trichloroethene	µg/L	ND 100	97	43	78	75	48

	Sample ID:	INF-070317-SG	INF-080717-DO	INF-090517-DO	INF-100217-DO	INF-111617-DO	INF-120417-SG
	Collection Date:	07/03/17	08/07/17	09/05/17	10/02/17	11/16/17	12/04/17
Parameters	**Units**						
Volatiles							
Benzene	µg/L	ND 25	ND 25	ND 25	ND 25	ND 100	ND 50
Carbon disulfide	µg/L	340	3200	1800	3600	8900	3300
Carbon tetrachloride	µg/L	6200	2800	4800	1900	6600	2800
Chlorobenzene	µg/L	ND 25	ND 25	ND 25	ND 25	ND 100	ND 50
Chloroform	µg/L	2500	1400	2300	1100	3500	1100
Methylene chloride	µg/L	96	79	110	75	260	64
Tetrachloroethene	µg/L	140	72	100	49	120	78
Toluene	µg/L	ND 25	ND 25	ND 25	ND 25	ND 100	ND 50
Trichloroethene	µg/L	72	53	78	47	120	50

Notes:
ND Non-detect at the associated value.

Appendix A-2
Groundwater Interstage Data
2017 Analytical Results
Stauffer Management Company LLC
Lewiston, New York

	Sample ID:	CBT-010217-DJT	CBT-010917-DJT	CBT-011617-SG	CBT-012317-SG	CBT-013017-DJT	CBT-020617-SG	CBT-021317-DJT
	Collection Date:	01/02/17	01/09/17	01/16/17	01/23/17	01/30/17	02/06/17	02/13/17
Parameters	**Units**							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	1.6	18	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	6.1	50	140	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	8.6	46	150	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	26	35	48	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	CBT-022017-SG	CBT-022717-SG	CBT-030517-DJT	CBT-031317-SG	CBT-032017-SG	CBT-032617-DJT	CBT-040317-DO
	Collection Date:	02/20/17	02/27/17	03/05/17	03/13/17	03/20/17	03/26/17	04/03/17
Parameters	**Units**							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	53	200	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	110	300	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	2.0	190	530	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	11	37	58	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	1.1	1.4	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	1.2	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

Appendix A-2
Groundwater Interstage Data
2017 Analytical Results
Stauffer Management Company LLC
Lewiston, New York

Sample ID:		CBT-041017-DO	CBT-041717-SG	CBT-042417-DJT	CBT-043017-DJT	CBT-050717-DJT	CBT-051417-DJT	CBT-052217-DJT
Collection Date:		04/10/17	04/17/17	04/24/17	04/30/17	05/07/17	05/14/17	05/22/17
Parameters	**Units**							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	2.0	4.2	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	1.4	4.3	29	59	54	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	5.1	18	82	180	290	ND 1.0
Methylene chloride	µg/L	ND 1.0	6.6	10	17	20	23	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Sample ID:		CBT-052817-DJT	CBT-060417-DJT	CBT-062517-DJT	CBT-070317-SG	CBT-071017-DO	CBT-071717-DO	CBT-072417-DO
Collection Date:		05/28/17	06/04/17	06/25/17	07/03/17	07/10/17	07/17/17	07/24/17
Parameters	**Units**							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

Appendix A-2
Groundwater Interstage Data
2017 Analytical Results
Stauffer Management Company LLC
Lewiston, New York

Sample ID:		CBT-073117-SG	CBT-080717-DO	CBT-081417-DO	CBT-082117-DO	CBT-082817-DO	CBT-090517-DO	CBT-091117-DO
Collection Date:		07/31/17	08/07/17	08/14/17	08/21/17	08/28/17	09/05/17	09/11/17
Parameters	**Units**							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	0.68 J	0.94 J	5.4
Methylene chloride	µg/L	ND 1.0	1.5	2.8	5.3	12	17	29
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Sample ID:		CBT-091817-DO	CBT-092517-DO	CBT-100217-DO	CBT-100917-DO	CBT-101617-DO	CBT-102417-DO	CBT-103017-DO
Collection Date:		09/18/17	09/25/17	10/02/17	10/09/17	10/16/17	10/24/17	10/30/17
Parameters	**Units**							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	0.37BJ	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

Appendix A-2
Groundwater Interstage Data
2017 Analytical Results
Stauffer Management Company LLC
Lewiston, New York

Sample ID:		CBT-110617-DO	CBT-111617-DO	CBT-112017-SG	CBT-112717-DO	CBT-120417-DO	CBT-121117-SG	CBT-121917-DO
Collection Date:		11/06/17	11/16/17	11/20/17	11/27/17	12/04/17	12/11/17	12/19/17
Parameters	**Units**							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	0.27 J	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	0.33 J
Methylene chloride	µg/L	ND 1.0	ND 1.0	0.94 J	4.6	9.1	10	8.2
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Sample ID:		CBT-122617-DO
Collection Date:		12/26/17
Parameters	**Units**	
Volatiles		
Benzene	µg/L	ND 1.0
Carbon disulfide	µg/L	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0
Chlorobenzene	µg/L	ND 1.0
Chloroform	µg/L	0.65 J
Methylene chloride	µg/L	5.0
Tetrachloroethene	µg/L	ND 1.0
Toluene	µg/L	ND 1.0
Trichloroethene	µg/L	ND 1.0

Notes:
ND Non-detect at the associated value.

Appendix A-3
Groundwater Effluent Data
2017 Analytical Results
Stauffer Management Company LLC
Lewiston, New York

	Sample ID:	EFF-010217-DJT	EFF-010917-DJT	EFF-011617-SG	EFF-020617-SG	EFF-032017-SG	EFF-040317-DJT
	Collection Date:	01/02/17	01/09/17	01/16/17	02/06/17	03/20/17	04/03/17
Parameters	**Units**						
Volatiles							
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	EFF-042317-DJT	EFF-043017-DJT	EFF-050717-DJT	EFF-051417-DJT	EFF-052217-DJT	EFF-060417-DJT
	Collection Date:	04/23/17	04/30/17	05/07/17	05/14/17	05/22/17	06/04/17
Parameters	**Units**						
Volatiles							
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 10	ND 10
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

Appendix A-3
Groundwater Effluent Data
2017 Analytical Results
Stauffer Management Company LLC
Lewiston, New York

	Sample ID:	EFF-070317-SG	EFF-080717-DO	EFF-090517-DO	EFF-100217-DO	EFF-111617-DO	EFF-120417-DO
	Collection Date:	07/03/17	08/07/17	09/05/17	10/02/17	11/16/17	12/04/17
Parameters	**Units**						
Volatiles							
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	EFF-121117-SG	EFF-121917-SG	EFF-122617-DO
	Collection Date:	12/11/17	12/19/17	12/26/17
Parameters	**Units**			
Volatiles				
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 10	ND 10	ND 10
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

Appendix B
Groundwater Treatment System
2017 SPDES Data

Appendix B
Analytical Results Summary
2017 SPDES Sampling
Stauffer Management Company LLC
Lewiston, New York

	Sample ID:		SPDES-020617	SPDES-062517	SPDES-080717	SPDES-111617
	Sample Type:		Effluent	Effluent	Effluent	Effluent
	Collection Date:		02/06/17	06/25/17	08/07/17	11/16/17
Semi-Volatiles	**Units**	**Discharge Limitation**				
2,4-Dichlorophenol	µg/L	10	ND 1.3	ND 1.3	ND 1.3	ND 1.3
Hexachloroethane	µg/L	10	ND 1.2	ND 1.2	ND 2.7	ND 2.7
Naphthalene	µg/L	10	ND 1.0	ND 1.0	ND 2.2	ND 2.2
Metals						
Total Arsenic	lb/day	0.036	< 0.003	0.002	< 0.003	0.003
Total Chromium	lb/day	0.072	< 0.003	< 0.003	< 0.003	< 0.003
Total Copper	lb/day	0.1	< 0.007	< 0.007	< 0.007	< 0.007
Total Lead	lb/day	0.16	< 0.016	< 0.016	< 0.016	< 0.016
Total Nickel	lb/day	0.072	< 0.013	< 0.013	< 0.013	< 0.013
Total Selenium	lb/day	0.48	< 0.003	< 0.003	< 0.003	< 0.003
Total Zinc	lb/day	0.86	< 0.007	0.002	0.019	0.015
Wet Chemistry						
Total Recoverable Phenolics	mg/L	0.010	ND 0.0020	ND 0.0020	ND 0.0020	0.0075

Notes:

ND Not detected at or above associated value

Mass discharge rates for metals were calculated utilizing laboratory results and average daily flow rates. Metals results that were non-detect are shown as less than the calculated result.

Appendix C
Groundwater Treatment System
2017 Performance Monitoring Data

Appendix C
Analytical Results Summary
2017 Annual Groundwater Monitoring
Stauffer Management Company LLC
Lewiston, New York

Sample Location	Collection Date	Parameter: Benzene Unit: µg/L	Carbon disulfide µg/L	Carbon tetrachloride µg/L	Chlorobenzene µg/L	Chloroform µg/L	Methylene chloride µg/L	Tetrachloroethene µg/L	Toluene µg/L	Trichloroethene µg/L
Extraction Wells										
DPA-202	6/23/2017	ND 500	540	53000	ND 500	6900	ND 500	1200	ND 500	140 J
DPA-203	6/23/2017	ND 1000	790 J	98000	ND 1000	14000	ND 1000	2600	ND 1000	ND 1000
EW-1	6/23/2017	ND 250	37000	3800	ND 250	3300	290	ND 250	ND 250	ND 250
EW-2	6/23/2017	ND 10	19	1600	3.6 J	550	27	22	ND 10	5.4 J
EW-3	6/23/2017	ND 50	1400	7700	ND 50	4400	230	100	ND 50	180
EW-4	6/23/2017	ND 2.5	5.3	2.5	26	330	14	18	ND 2.5	7.5
EW-5	6/23/2017	ND 2.5	440	370	ND 2.5	110	ND 2.5	52	ND 2.5	22
EW-6	6/23/2017	ND 100	760	20000	ND 100	5300	140	280	ND 100	92 J
LR-66	6/23/2017	ND 2.5	150	2500	3.2	310	38	100	ND 2.5	1.2 J
OW-3	6/23/2017	ND 250	28000	13000	ND 250	3300	ND 250	230 J	110 J	ND 250
T-4	6/23/2017	ND 1.0	0.45 BJ	ND 1.0	ND 1.0	0.69 J	ND 1.0	11	ND 1.0	2.6
Upper Lockport Wells										
OW-11	6/20/2017	ND 1.0	ND 1.0	1.4	ND 1.0	3.9	ND 1.0	ND 1.0	ND 1.0	ND 1.0
OW-11 (Dup.)	6/20/2017	ND 1.0	ND 1.0	1.4	ND 1.0	3.7	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-11	6/20/2017	ND 1.0	0.57 J	1.5	ND 1.0	0.84 J	ND 1.0	4.0	ND 1.0	3.9
W-16	6/20/2017	0.27 J	0.37 J	10	ND 1.0	89	ND 1.0	64	0.21 J	210
W-17	6/19/2017	ND 100	1200	71000	ND 100	11000	210	320	ND 100	180
W-18R	6/20/2017	ND 50	150	5100	ND 50	4900	ND 50	64	ND 50	12 J
W-19D	6/20/2017	ND 1.0	0.60 J	1.7	ND 1.0	4.0	ND 1.0	5.0	ND 1.0	0.30 J
W-20	6/20/2017	ND 1.0	ND 1.0	ND 1.0	ND 1.0	0.25 J	ND 1.0	ND 1.0	ND 1.0	0.23 J
W-22A	6/20/2017	ND 1.0	1.1	67	1.1	42	0.63 J	8.3	ND 1.0	3.0
W-23C	6/20/2017	ND 1.0	ND 1.0	ND 1.0	ND 1.0	1.4	ND 1.0	1.9	ND 1.0	0.58 J
W-66	6/21/2017	ND 2.0	1.2 J	280	ND 2.0	150	2.0 J	45	ND 2.0	21
W-66 (Dup.)	6/21/2017	ND 2.0	1.3 J	270	ND 2.0	150	1.7 J	43	ND 2.0	19
W-67	6/21/2017	0.60 J	28	490	2.3	270	8.6	48	ND 2.0	26
Lower Lockport Wells										
W-16L	6/19/2017	ND 20	3300	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	6.6 J
W-18L	6/21/2017	ND 20	ND 20	1400	ND 20	3500	260	95	ND 20	170
W-19A	6/20/2017	ND 1.0	1.0	3.1	ND 1.0	6.1	ND 1.0	7.1	ND 1.0	1.5
W-23B	6/20/2017	ND 2.0	4.4	82	5.0	120	1.9 J	200	ND 2.0	34
W-48E	6/20/2017	ND 1.0	4.1	310	ND 1.0	170	3.2	24	ND 1.0	6.8
W-50L	6/20/2017	ND 1.0	ND 1.0	1.5	ND 1.0	0.46 J	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-65	6/20/2017	ND 1.0	0.28 J	2.4	0.97 J	2.2	ND 1.0	1.2	ND 1.0	0.62 J
W-66L	6/19/2017	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-67L	6/21/2017	ND 2.0	1.3 J	51	2.1	250	34	24	ND 2.0	53
W-70L	6/20/2017	1.6	0.57 J	ND 1.0	50	18	ND 1.0	ND 1.0	0.40 J	2.5

Appendix C
Analytical Results Summary
2017 Annual Groundwater Monitoring
Stauffer Management Company LLC
Lewiston, New York

Sample Location	Collection Date	Benzene µg/L	Carbon disulfide µg/L	Carbon tetrachloride µg/L	Chlorobenzene µg/L	Chloroform µg/L	Methylene chloride µg/L	Tetrachloroethene µg/L	Toluene µg/L	Trichloroethene µg/L
Lockport/Rochester Wells										
LR-2	6/21/2017	ND 25	8200	49000	9.0 J	18000	1300	460	ND 25	37
LR-16	6/20/2017	ND 2.5	640	3.5	ND 2.5	84	49	18	ND 2.5	26
LR-20	6/20/2017	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	0.46 J	0.24 J
LR-48	6/20/2017	0.58 J	4.3	3400	190	1300	40	68	0.57 J	37
LR-49	6/20/2017	ND 1.0	0.26 J	0.73 J	2.8	0.36 J	ND 1.0	ND 1.0	0.38 J	0.25 J
LR-50	6/20/2017	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
LR-51	6/20/2017	ND 1.0	0.49 J	ND 1.0	3.8	0.58 J	ND 1.0	ND 1.0	0.23 J	ND 1.0
LR-61	6/21/2017	ND 25	4600	25000	59	10000	560	320	ND 25	95
LR-62	6/20/2017	15	6900	12	ND 10	34	ND 10	ND 10	3.6 J	17
LR-67	6/22/2017	ND 25	3800	ND 25	ND 25	ND 25	ND 25	28	ND 25	17 J
LR-67 (Dup.)	6/22/2017	ND 25	3600	ND 25	ND 25	ND 25	ND 25	27	ND 25	16 J
LR-69	6/20/2017	230	3.0	ND 2.0	ND 2.0	ND 2.0	ND 2.0	ND 2.0	38	ND 2.0
OW-5	6/22/2017	ND 250	27000	ND 250	ND 250	ND 250	ND 250	ND 250	ND 250	ND 250
W-19B	6/21/2017	ND 25	26	2900	140	3900	220	91	ND 25	300
Rochester Wells										
B-02	6/23/2017	44	270	2000	ND 25	2600	210	27	20 J	ND 25
R-16	6/20/2017	120	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	46	ND 1.0
R-19	6/23/2017	59	7800	1800	ND 50	2600	400	24 J	48 J	ND 50
R-48	6/20/2017	8.5	520	11000	2.0	3100	260	9.6	3.0	0.60 J
R-50	6/23/2017	72	8200	830	ND 50	3100	160	27 J	46 J	ND 50
R-51	6/23/2017	34	6.4	ND 1.0	ND 1.0	14	19	0.39 J	9.5	ND 1.0
R-60	6/23/2017	43	580	7.1 J	ND 10	1400	350	ND 10	4.8 J	ND 10
R-61	6/23/2017	ND 200	31000	ND 200	ND 200	ND 200	ND 200	ND 200	ND 200	ND 200
R-62	6/23/2017	220	19000	ND 100	ND 100	ND 100	ND 100	ND 100	95 J	ND 100
R-66	6/25/2017	ND 100	15000	10000	ND 100	18000	3300	ND 100	ND 100	ND 100
R-67	6/23/2017	140 J	46000	ND 500	ND 500	ND 500	ND 500	ND 500	ND 500	ND 500
R-68	6/23/2017	ND 2500	270000	71000	ND 2500	53000	2100 J	780 J	ND 2500	ND 2500
QA/QC										
RINSEBLANK	6/19/2017	ND 1.0	1.5	2.7	ND 1.0	1.9	ND 1.0	ND 1.0	ND 1.0	ND 1.0
RINSEBLANK	6/20/2017	ND 1.0	0.43 J	2.0	ND 1.0	1.8	ND 1.0	ND 1.0	ND 1.0	ND 1.0
RINSEBLANK	6/21/2017	ND 1.0	0.47 J	1.5	ND 1.0	1.5	ND 1.0	ND 1.0	ND 1.0	ND 1.0
RINSEBLANK	6/22/2017	ND 1.0	0.76 J	ND 1.0	ND 1.0	18	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	6/20/2017	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	6/21/2017	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	6/23/2017	ND 1.0	0.47 J	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	6/25/2017	ND 1.0	0.31 J	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND - Not present at or above the associated value

Appendix D
Monitoring Well Inventory

Appendix D
Monitoring Well Inventory
Stauffer Management Company LLC
Lewiston, New York
2017

August 2, 2017

Well No.	*Sounded Depth (Ft. BTOC)*	*Pro-Casing*	*Lock*	*Concrete Collar*
B02	NA (barcad)	G	G	G
OW-3	77.00	NA	NA	NA
OW-5	56.89	G	G	G
OW-8	0.56	NA	NA	NA
OW-9	NA	NA	NA	G
OW-10	NA	NA	NA	G
OW-11	28.82	NA	NA	G
W-11	31.21	G	G	G
W-16	52.92	G	G	G
W-16L	52.92	G	G	G
W-17	17.30	G	G	G
W-18L	53.23	G	G	G
W-18R	27.70	G	G	G
W-19A	39.24	G	G	G
W-19B	45.88	G	G	G
W-19D	24.45	G	G	G
W-20	19.09	G	G	G
W-22A	NA	G	G	G
W-23B	38.94	G	G	G
W-23C	16.48	G	G	G
W-48E	38.28	G	G	G
W-50	33.15	G	G	G
W-60L	NA	G	G	G
W-65	41.49	G	G	G
W-66	25.43	G	G	G
W-66L	43.53	G	G	G
W-67	16.63	G	G	G
W-67L	53.02	G	G	G
W-70L	54.2	G	G	G
LR-2	35.48	G	G	G
LR-16	52.51	G	G	G
LR-20	37.75	G	G	G

Notes:
Ft. BTOC = Feet Below Top of Casing
PW = Pumping Well
EW = Extraction Well
NA = Not Available
G = Good Condition
P = Poor Condition
*Pro-Casing almost completely rotted out

Appendix D
Monitoring Well Inventory
Stauffer Management Company LLC
Lewiston, New York
2017

August 2, 2017

Well No.	*Sounded Depth (Ft. BTOC)*	*Pro-Casing*	*Lock*	*Concrete Collar*
LR-48	37.39	G	G	G
LR-49	38.18	G	G	G
LR-50	27.57	G	G	G
LR-51	29.5	G	G	G
LR-61	51.46	G	G	G
LR-62	59.91	G	G	G
LR-66	NA	NA	NA	NA
LR-67	56.46	G	G	G
LR-69	81.43	G	G	G
R-16	77.44	G	G	G
R-19	58.59	G	G	G
R-48	60.70	G	G	G
R-50	89.46	G	G	G
R-51	67.06	G	G	G
R-60	67.06	G	G	G
R-61	70.60	G	G	G
R-62	69.71	P	G	G
R-66	139.96	G	G	G
R-67	69.23	G	G	G
R-68	74.32	G	G	G
EW-4	47.42	G	NA	G
EW-5	24.63	G	NA	G
EW-6	68.82	G	NA	G
DPA-201	21.03	NA	NA	G
DPA-202	15.86	NA	NA	G
DPA-203	19.85	NA	NA	G
EW-1	133.45	G	NA	G
EW-2	134.09	G	NA	G
EW-3	140.65	G	NA	G
T4	23.14	G	NA	G

Notes:
Ft. BTOC = Feet Below Top of Casing
PW = Pumping Well
EW = Extraction Well
NA = Not Available
G = Good Condition
P = Poor Condition
*Pro-Casing almost completely rotted out