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February 18, 2014

Mr. Benjamin Rung
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7013

RE: Claremont Polychemical Superfund Site (Site # 130015)
Recommendations on a Reduction in the Number of Groundwater Monitoring Well Sampled and on the Installation of Additional Groundwater Monitoring Wells

Dear Mr. Rung:

HRP Engineering P.C. (HRP) has completed an evaluation of the reduction in the number or frequency of the groundwater monitoring wells currently sampled in the quarterly monitoring sampling program at the Claremont Polychemical Superfund Site located at 55 Winding Road, Old Bethpage, New York. Additionally, HRP evaluated the installation of four (4) additional groundwater monitoring wells in two (2) areas directly downgradient of the former building location and operable unit (OU) IV to further investigate the plume originating from the Claremont Polychemical Site (Site Figure 1).

Site History

The Claremont Site has had numerous environmental investigations and reports completed. The March 1988 Remedial Investigation and Feasibility Study (RI/FS) report initiated inventoried site wastes, determined site soil quality, and verified site features. The investigation results revealed soil contamination by PCE in a former "spill area" along the east side of the manufacturing building that constituted a potential threat to groundwater quality. The Record of Decision (ROD) (1990) describes required remediation that has been performed in OU IV, as well as other OUs at the Site. OU IV pertained to the capture and treatment of the on-site portion of the Claremont contaminant plume. EPA released additional Explanations of Significant Differences (ESDs) by 2003, which expanded the remediation scope. The August 2012 Remedial System Optimization (RSO) Report, completed by HRP, assessed the process for treatment modifications and identified sustainability considerations that could be incorporated into the remediation efforts. The primary objective of the RSO was to evaluate the efficiency and progress of remediation at the Site, which are comprised, of

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subsurface remediation performance and treatment system efficiency.

HRP made recommendations in the RSO pertaining to the specific evaluation of OU IV, including modifying or suspending the active operation of the groundwater pump & treat system (GWTS) within the area in the radius of influent (ROI) of extraction wells EX-1 through EX-3 connected to the GWTS directly downgradient of OU IV at the Site.

Groundwater Monitoring Well Sampling Reduction

Several of the groundwater monitoring wells currently sampled at the Claremont Site are recommended for removal from the groundwater monitoring program or a reduction in the frequency of sampling. Based on the historical groundwater monitoring well sample data analysis, the ongoing subsurface remediation the GWTS, and the RSO recommendations' for the elimination of specific groundwater monitoring wells from the Claremont quarterly monitoring program are presented below and on Figure 2 "Proposed Changes to Groundwater Monitoring Well Network Currently Sampled". Also included is the below justification of why certain groundwater monitoring wells currently sampled under the Claremont groundwater sampling program are not attributed to the main plume emanating from OU IV. The justification below also outlines which clusters of wells are recommended for responsible party monitoring or another county, state, or federal agency. In addition, certain wells have been recommended for a reduction in frequency based on HRP's RSO and monitoring GWTS

- **Sidegradient groundwater monitoring wells (LF-2):**
  Groundwater monitoring well LF-2 is located sidegradient to the plume originating from OU IV. The monitoring well is a sentinel well for the Old Bethpage Landfill, and the well has been non-detect since HRP's involvement in the monitoring well program (Figure 3A). As such, the monitoring well is recommended to be monitored by the Old Bethpage Landfill operations and the degree and extent of the plume to the west of the Claremont Site should be reevaluated.

- **Groundwater monitoring wells (EW-1A, EW-1B, and EW-1C):**
  Monitoring wells EW-1A, EW-1B, and EW-1C are located sidegradient of the Claremont plume as shown on Figure 3A. PCE levels were noted at decreasing concentrations over the last ten years in monitoring wells EW-1A, EW-1B, and EW-1C, with current concentrations approaching groundwater class GA criteria. The contaminant levels and contaminants of concern in the wells may suggest an unknown and/or uninvestigated residual source of PCE. Additionally, the EW cluster of monitoring wells were identified to be on the border of the GWTS's radius of influence (ROI) and are therefore not in the GWTS's capture zone. It is recommended that the frequency of sampling be changed to twice a year until the new monitoring wells proposed to be installed below are evaluated.

- **Sidegradient groundwater monitoring well from Claremont and sentinel groundwater monitoring well between the Old Bethpage Landfill and Claremont for the recovery wells associated with the Firemen's Training Center (FTC) (MW-6D):**
  The contamination in MW-6D is potentially coming from a source (s) upgradient of the well, assumed to be the Old Bethpage Landfill based on groundwater flow direction. MW-6D is located outside of the Claremont plume (Figure 3A) and is not expected to have been influenced by Claremont contamination based on the 2012 HRP Groundwater Model, and groundwater flow direction. It is recommended that the sampling of this well be discontinued from the Claremont sampling program.

- **Furthest downgradient monitoring wells (MW-10B, MW-10C, MW-10D, EW-3A, EW-3B, and EW-3C, EW-14D, BP-3A, BP-3B, and BP-3C):**
  The MW-10 clusters of monitoring wells are sidegradient to the main plume originating from OU IV (Figure 4). PCE contamination detected in the MW-10 cluster of wells is most likely attributed to a side gradient and upgradient source, not to OU IV.

  The EW-3 series of groundwater monitoring wells are too shallow to intercept the plume, with the screened intervals at EW-3A 95-105-feet below ground surface (bgs), EW-3B 125-135-feet bgs, and EW3C at 154 – 164-feet bgs (Figure 5). Figures 4 and 5 show a side view of the Site and the plumes, including the bottom of casing for the EW-3 series of wells which are installed at a depth shallower than the potential plume in that area.

  EW-14D is downgradient of the Site's inferred groundwater flow direction. Located between EW-14D and OU IV are the EW-3 and MW-10 clusters of monitoring wells. If the contamination in EW-14D was attributed to Claremont, it is expected that contamination would also be seen in the similar screened depths in the MW-10 clusters of wells.

  In addition, the BP-3 series of wells is downgradient of the FTC recovery wells in relation to the Claremont Site. It is assumed the FTC recovery wells would act as a hydraulic barrier between the Claremont Site and the BP-3 series of wells.

  It is recommended that the sampling of monitoring wells MW-10B, MW-10C, MW-10D, EW-3A, EW-3B, and EW-3C, EW-14D, BP-3A, BP-3B, and BP-3C be discontinued from the Claremont sampling program.

- **Upgradient groundwater monitoring wells installed to investigate off-site impacts to the Site (EW-6A, EW-6C, EW-7C, EW-7D, EW-8D, and EW-9D):**
  The monitoring wells (EW-6A and EW-6C and EW-7C, EW-7D, EW-8D installed in 1989, and EW-9D installed in 2004) are located upgradient in regards to the plume originating from OU IV and the Site. Higher levels of PCE and TCE contamination in the groundwater analytical data have been present since installation in the upgradient wells than the wells downgradient of the OU IV plume (Figures 4 and 5). The varied screened intervals of these

wells allow for the definition of the plume and suggest that the plume is from an upgradient source. The sampling of these upgradient wells should continue as part of the ongoing off-site investigation for the upgradient sites in a NYSDEC in-active hazardous waste program.

It is recommended that the wells discussed above, with the exception of the EW-1 series, be included in the groundwater monitoring programs for adjacent contaminated sites already in a county, federal, or NYSDEC remedial program. Based on the relatively stable plume that appears to have originated from sources other than Claremont OU IV, the wells are recommended to be sampled annually until they are sampled by others. However, until the monitoring wells are included in another monitoring program, they should still be sampled under the Claremont Work assignment on an annual sampling frequency.

Proposed Installation of Groundwater Monitoring Wells

To evaluate the degree and extent of the potential remaining plume originating from OU IV and the effectiveness of remediation completed by the three (3) extraction wells (EXT-1 through EXT-3) connected to the groundwater treatment system (GWTS), HRP is recommending the installation of four (4) additional monitoring wells (Figure 3).

To assess progress towards completion of the remediation goals and evaluate monitoring natural attenuation (MNA) option, HRP is proposing the installation of 4 additional monitoring wells downgradient of OU IV. The information gathered during the installation and subsequent groundwater sampling events will assist in the determination of quantifying any remaining contamination originating from under the former building footprint in the shallow depths is in the GWTS's ROI. In addition, the deeper monitoring well (EW-16C) will potentially identify contamination from upgradient plumes that exists at a depth below the recovery potential of the GWTS due to the current depth of the screened intervals of the extraction wells.

The well placement was determined based on discussions with the NYSDEC in the fourth quarter 2013, HRP's review of the current groundwater conditions at the Site and the remedial objectives for OU IV, and the August 2012 RSO, which suggested the installation of additional monitoring wells. Below is a description of the location and depth of the proposed well locations and the reasoning behind their installation:

- **Proposed Monitoring Well EW-15 -** A deep groundwater monitoring well, screened from 245-265' bgs, will be installed by the GWTS building, existing monitoring wells EW-5 and DW-2, and in the general area of the former diffusion well located on the western side of the footprint of the Claremont building. The well construction log for diffuser well No. N-8968D identifies five screened intervals and a final bottom depth of 255 feet below grade. Monitoring well EW-15 will allow for sample collection to a depth contamination is seen in other monitoring wells currently associated with the Site, but not investigated directly downgradient of the former building location. During installation, groundwater samples

will be collected at 30-foot intervals and will be based on field evaluation with a photo ionic detector (PID) and olfactory observations. The collection of samples is proposed at the following intervals: 30' bgs, 60' bgs, 130' bgs, and 200' bgs while installing the well. EW-5 is screened at 165-175' and DW-2 is screened at 95-100, and have been sampled as part of the ongoing monitoring program. As such, these intervals will not be sampled during the well installation.

- **Proposed Monitoring Wells EW-16A, EW-16B, and EW-16C** – The EW-16 series of wells will be installed adjacent to each other in the wooded area directly downgradient of the slab on grade which formerly housed the Claremont building. EW-16A, EW-16B, and EW-16C will be screened to depths of 95-105' bgs, 165-175' bgs, and 245-255'bgs, respectively. The wells sampling data will be analyzed to determine if remaining contamination from the Claremont building exists downgradient of the building, at what depth the contamination is at, and what the contaminates of concern and concentrations are. The locations for this well series is will provide data on the subsurface contamination levels, if present, that based on the HRP model would be upgradient to the radius of influence (ROI) for the GWTS. The installation of this series of monitoring wells will evaluate, what, if any, contamination originating from the former Claremont building will be recovered by the remediation system.

The existing recovery wells were installed utilizing mud rotary drilling method, which is proposed method of installation for the new monitoring wells. The vertical groundwater profile samples will be used to show the depth and the concentrations of contamination during drilling.

Conclusions

The recommended groundwater monitoring wells removed from the Claremont sampling program and included in other on-going environmental sampling programs have been evaluated and concluded that the source of contamination is not the OU IV located at the Claremont Site based on the reasons discussed above. The wells recommended to be sampled at a decreased frequency (annually) have been non-detect or below GA Class standards for a length of time that a change in concentrations is not expected. This effort will decrease the number of groundwater wells sampled, the passive diffusion bags required each sampling event, and the man-hours required to complete the sampling and will decrease the cost of a sampling event.

The four proposed groundwater monitoring wells will be installed and included in the regular sampling program for Claremont. The data derived from these wells will be used to verify the upgradient Claremont plume limits within the site boundary and predict future captured rate of the GWTS under current operational parameters.

When groundwater monitoring establishes that the plume is steady and confined to the property boundary, Class GA groundwater standards and remedial action objectives have been meet, the GWTS can be decommissioned or utilized to remediate the adjacent plume. This will

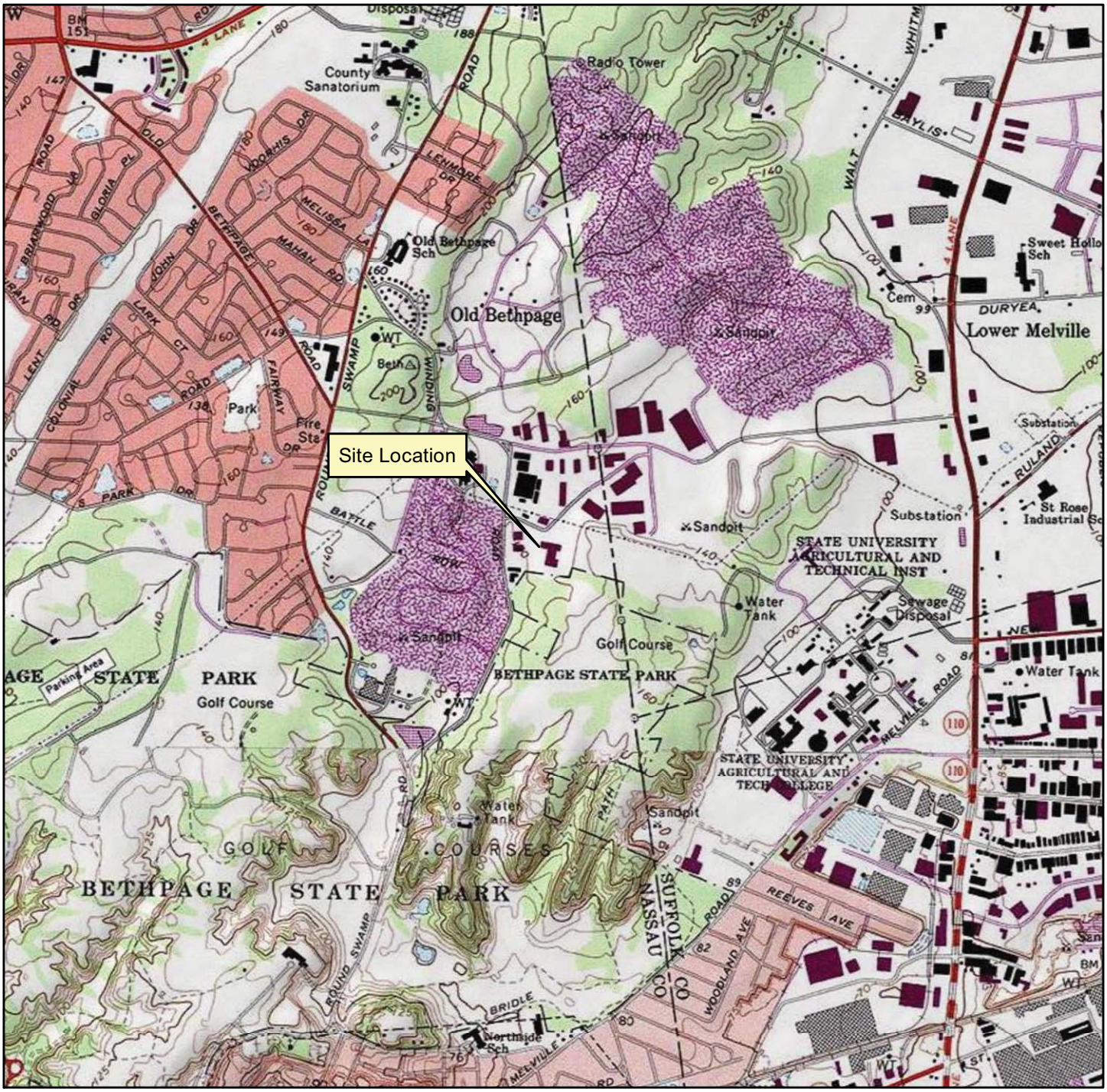
include the implementation of a Monitored Natural Attenuation (MNA) program with the availability of the GWTS to switch remedial focus to the plume originating upgradient and sidegradient of the Claremont Site and OU IV. Groundwater monitoring will continue on a semi-annual basis and transition to an annual basis until ambient water quality standards are achieved at the Site.

HRP Engineering P.C. has completed an evaluation of the reduction in the number or frequency of the groundwater monitoring wells currently sampled in the Claremont quarterly monitoring sampling program. Additionally, HRP evaluated the installation of four (4) additional groundwater monitoring wells in two (2) areas directly downgradient of the former building location and operable unit (OU) IV to further investigate the plume originating from the Site.

If you have any technical questions regarding the recommendations presented herein, please contact Jen Kotch at (518) 877-7101 X115.

Jennifer Kotch
Senior Project Geologist

Nancy Garry, P.E.
Project Manager



USGS Quadrangle Information
Quad ID: 40073-G4
Name: Huntington, New York
Date Rev: 1977
Date Pub: 1979

0 1,000 2,000 4,000 6,000 8,000 Feet

1 inch = 2,000 feet

N

Figure 1
Site Location
Claremont Polychemical Corporation
Old Bethpage, New York
HRP # NEW9625.OM
Site Code 130015
Scale 1" = 2,000'

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Figure 2 - Proposed Groundwater Monitoring Wells to remove from Claremont sampling program
Claremont Polychemical Corporation
Old Bethpage, New York
HRP # NEW9625.OM - Site Code 130015
Scale 1" = 300'

Proposed to be Removed From the Claremont Monitoring Program or Frequency of Sampling Changed to Annually

- Furthest Downgradient Monitoring Wells (MW-10B, MW-10C, MW-10D, EW-3A, EW-3B, EW-3C, EW-14D, BP-3A, BP-3B & BP-3C)
- Sidegradient Groundwater Monitoring Well (LF-2)
- Sidegradient Groundwater Monitoring Well (EW-1A, EW-1B & EW-1C)
- Sidegradient Groundwater Monitoring Well from Claremont and Sentinel Groundwater Monitoring Well between the Old Bethpage Landfill for the recovery wells associated with the Fireman's Training Center (MW-6D)
- Upgradient Groundwater Monitoring Well (EW-6A, EW-6C, EW-7C, EW-7D, EW-8D & EW-9D)

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Legend

- Sidegradient Groundwater Monitoring Well (EW-1A, EW-1B & EW-1C)
- Sidegradient Groundwater Monitoring Well (LF-2)
- Upgradient Groundwater Monitoring Well (EW-6A, EW-6C, EW-7C, EW-7D, EW-8Dm & EW-9D)
- Proposed Groundwater Monitoring Well; January 2014

Figure 3 - Proposed Groundwater Monitoring Well Location
Claremont Polychemical Corporation
Old Bethpage, New York
HRP # NEW9625.OM - Site Code 130015
Scale 1" = 120'

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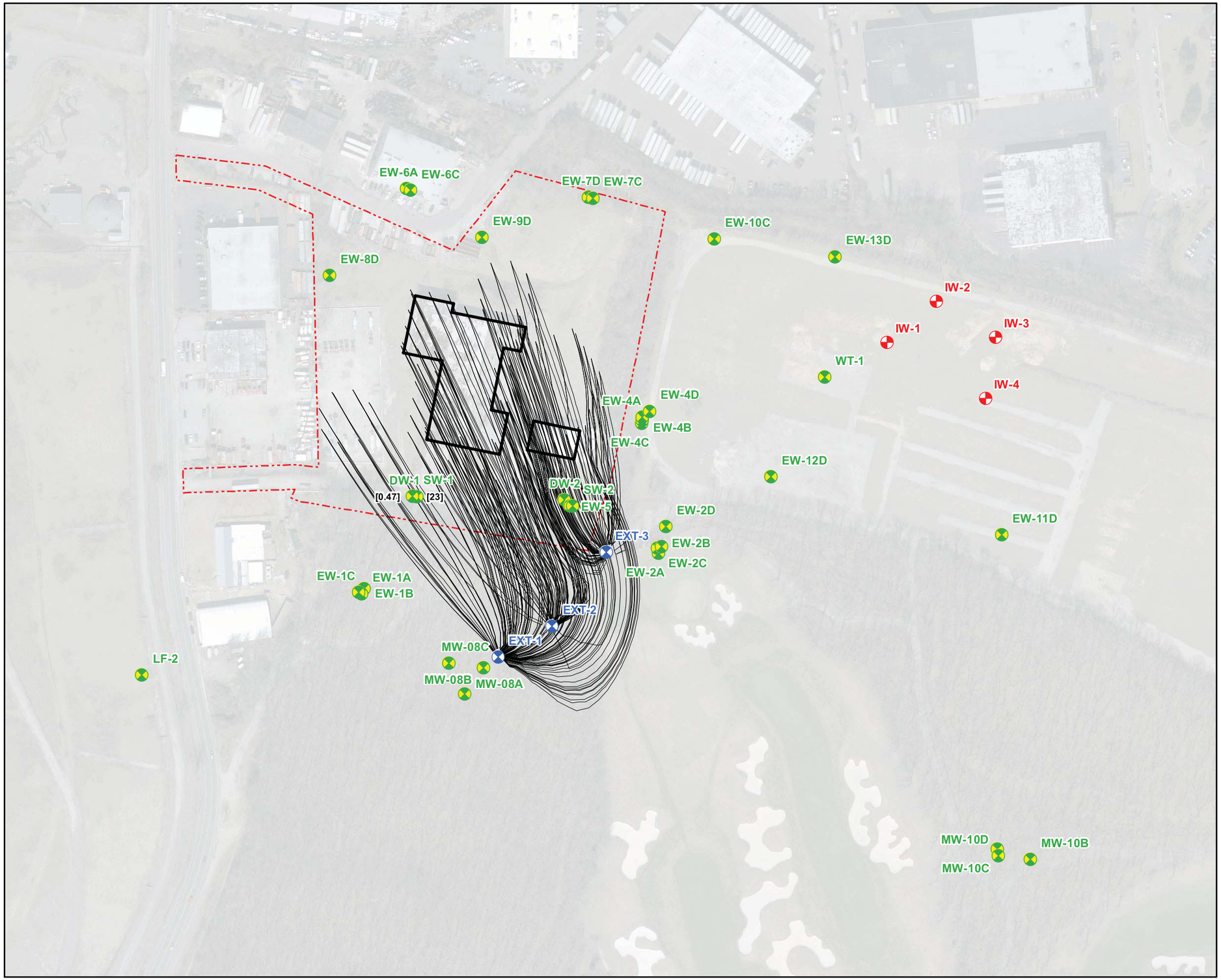

200 100 0 200 Feet

1 inch = 200 feet

Legend

- Oyster Bay Extraction Well
- Extraction Well
- Injection Well
- Monitoring Well
- Claremont Property

N

Figure 3A
Particle Traces from Known and Suspected Release Areas
Claremont Polychemical Corporation
Old Bethpage, New York
HRP # NEW9625.OM Site Code 130015
Scale 1" = 200'

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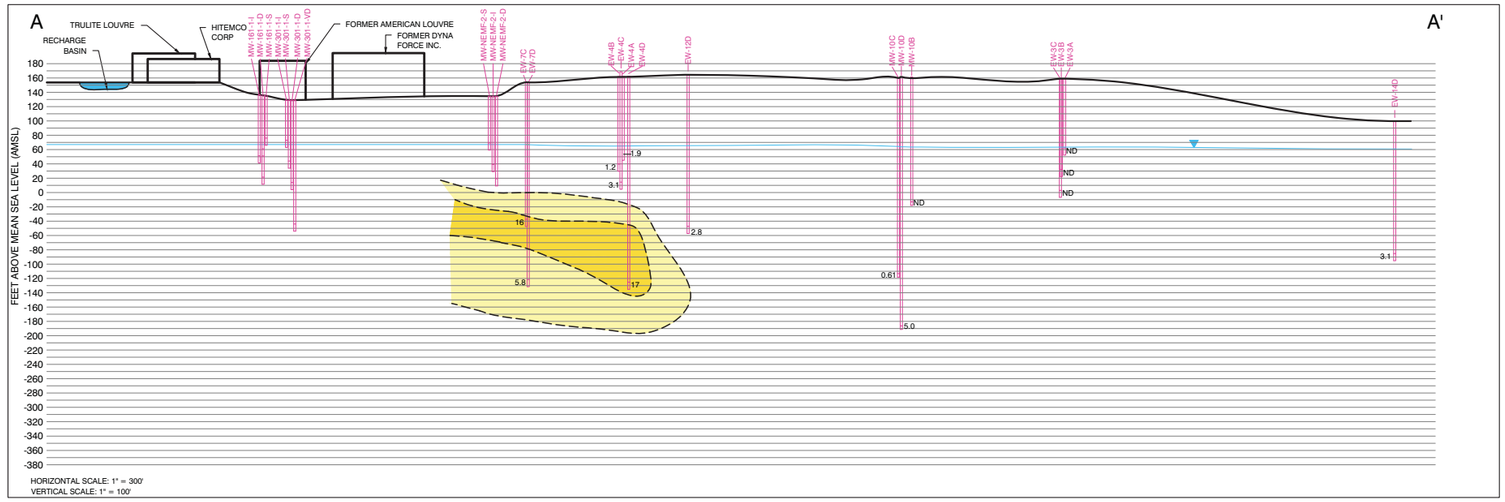
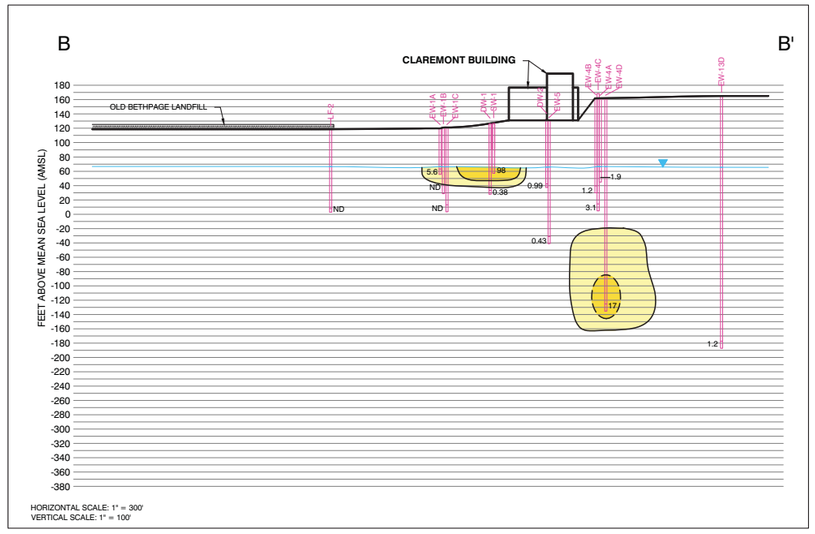
Path: J:\N\NEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\CLAREMONT POLYCHEMICAL CORP, OLD BETHPAGE, NY\NEW9625OM\GIS\Particle Traces from Known and Suspected Relese Areas.mxd





LEGEND

-WATER TABLE

PCE CONCENTRATION ISOPLETHS

-5 ug/l - 10 ug/l

-10 ug/l - 100 ug/l

-> 100 ug/l

3.1 -PCE CONCENTRATION IN ug/l

-MONITOR WELL

-SCREENED INTERVAL

1" = 100'

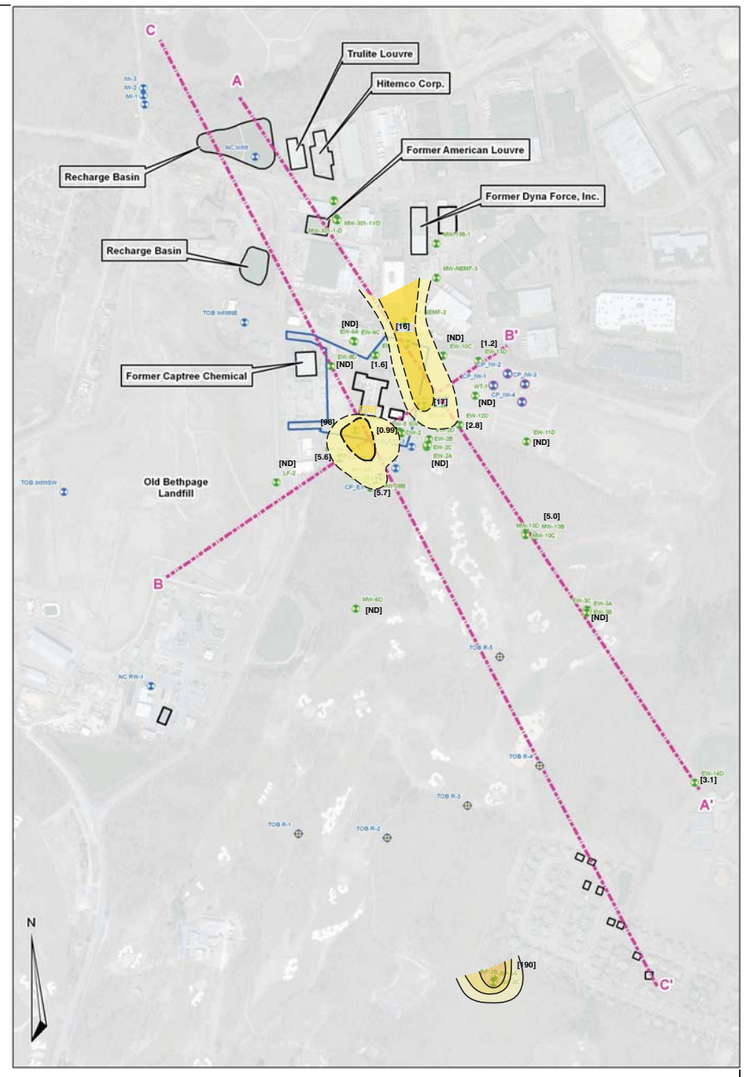
100 0 50 100 200

VERTICAL SCALE IN FEET

1" = 300'

300 200 100 0 150 300 600

HORIZONTAL SCALE IN FEET



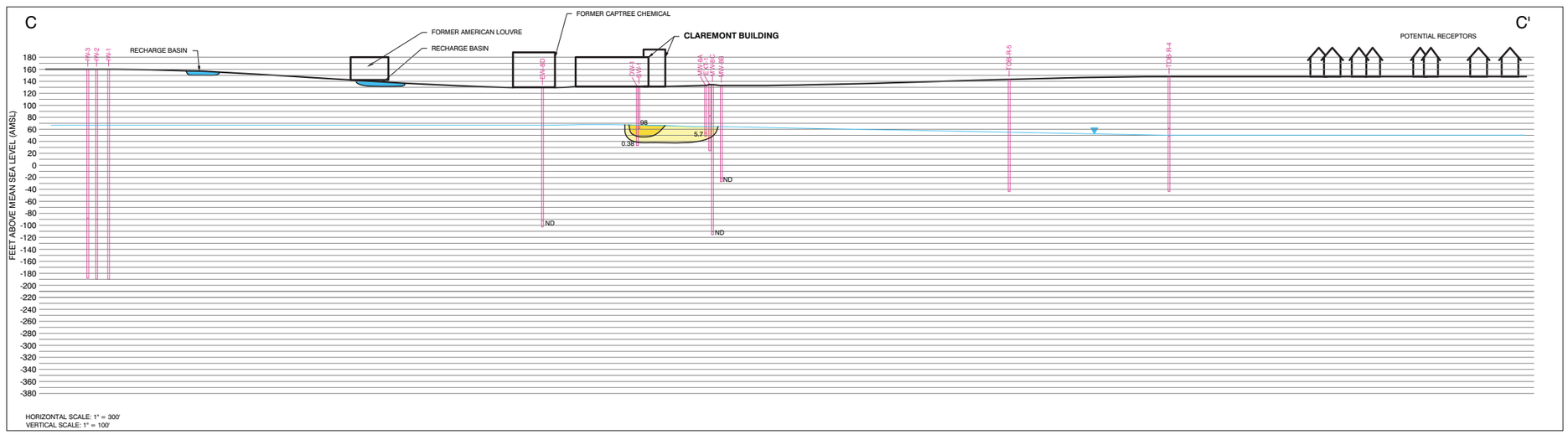
CROSS SECTION LOCATIONS

SCALE 1" = 500'

1" = 500'

500 0 250 500 1000

PLAN VIEW SCALE IN FEET



NO.	DATE	DESCRIPTION

Figure 4

PCE CONTAMINATION - SEPTEMBER 2013

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OLD BETHPAGE, NEW YORK

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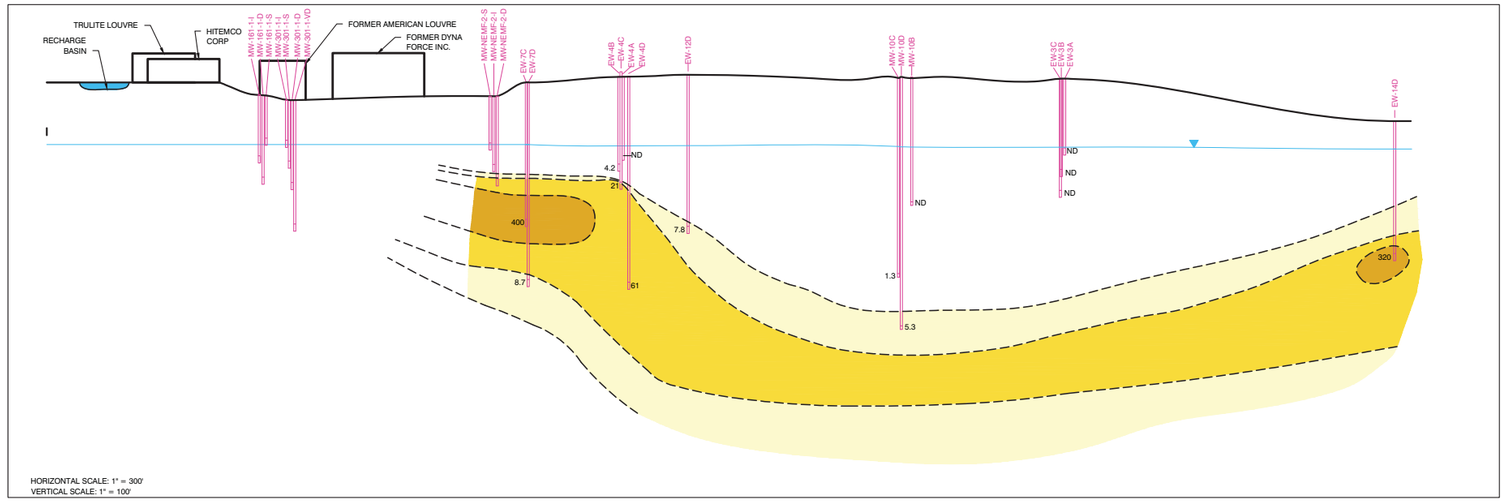
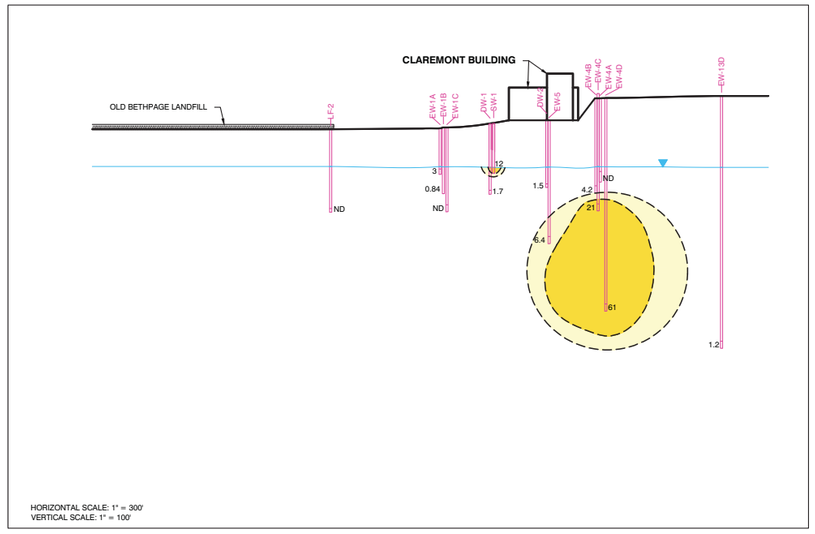
JMP DESIGNED	BPW APPROVED	AS NOTED SCALE	
DML DRAWN	10/21/2013 DATE		FIG. 3A
GTS CHECKED	NEW9625.OM PROJECT NO.		SHEET NO.





LEGEND

-WATER TABLE

TCE CONCENTRATION ISOPLETHS

- 5 ug/l - 10 ug/l
- 10 ug/l - 100 ug/l
- -> 100 ug/l

0.53 -TCE CONCENTRATION IN ug/l

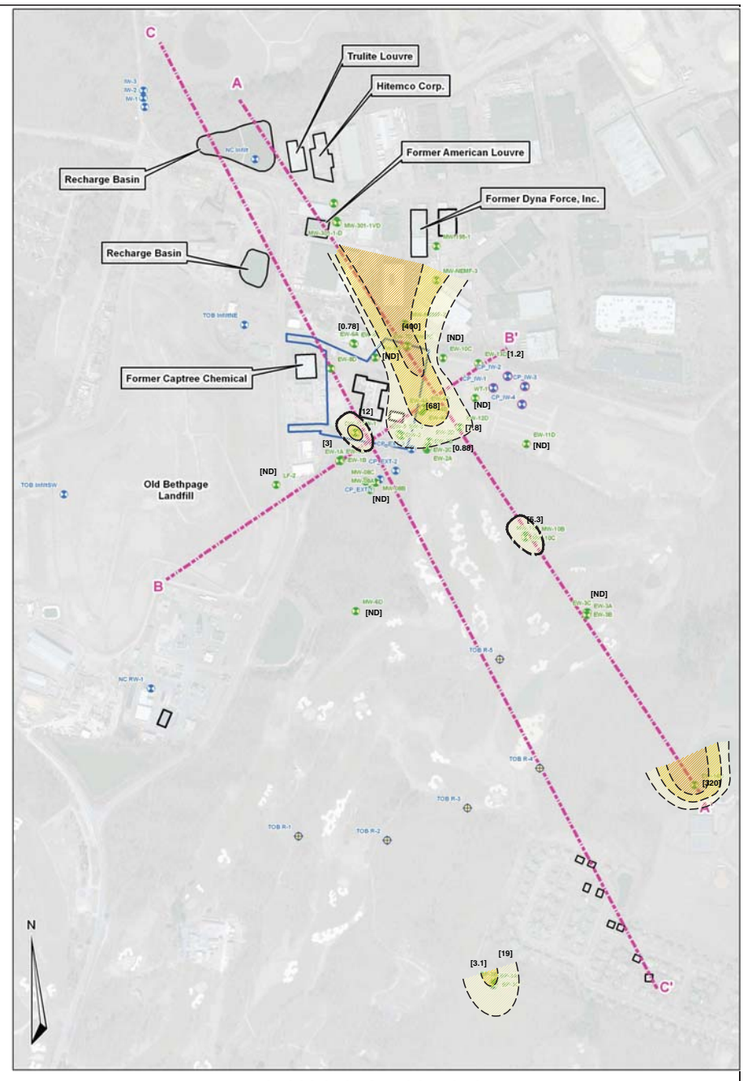
-DASHED WHERE INFERRED

-MONITOR WELL

-SCREENED INTERVAL

1" = 100'
100 0 50 100 200
VERTICAL SCALE IN FEET

1" = 300'
300 200 100 0 150 300 600
HORIZONTAL SCALE IN FEET



CROSS SECTION LOCATIONS
SCALE 1" = 500'

1" = 500'
500 0 250 500 1000
PLAN VIEW SCALE IN FEET

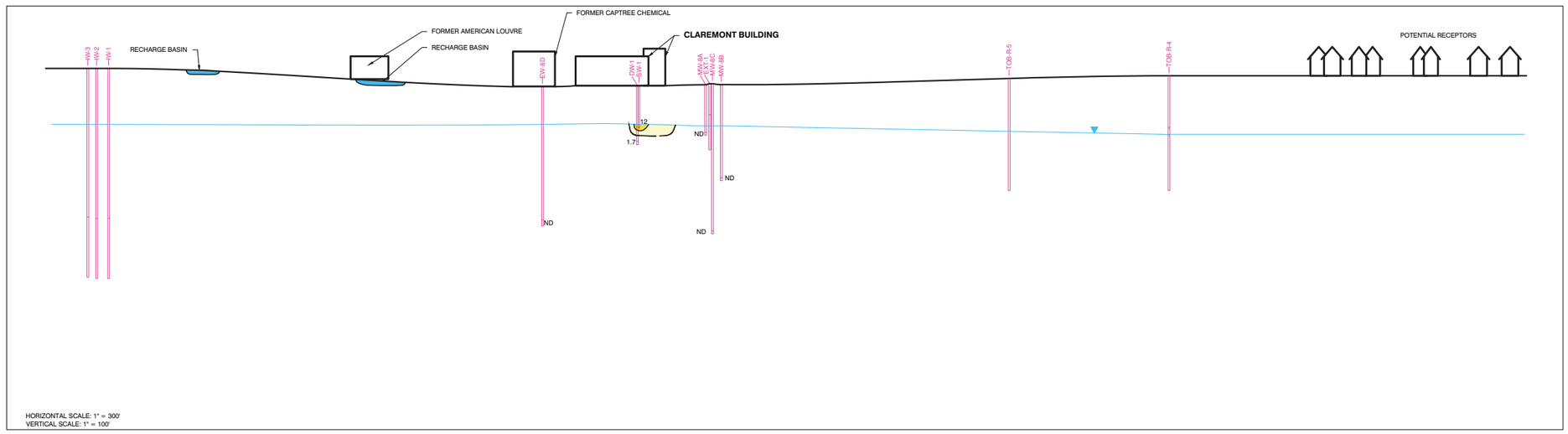


Figure 5

NO.	DATE	DESCRIPTION

TCE CONTAMINATION - SEPTEMBER 2013

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JMP DESIGNED	BPW APPROVED	AS NOTED SCALE	
DML DRAWN	10/21/2013 DATE		FIG. 3B
GTS CHECKED	NEW9625.OM PROJECT NO.		SHEET NO.