ADVANCED GEOLOGICAL SERVICES

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January 10, 2013
Reference: 12-276-1

Ms. Heather Hallet, P.G.
CDM Smith
11 British American Boulevard, Suite 200
Latham, NY 12110

Subject: Geophysical Investigation Results
Former Doro Cleaners Site
3466 Genesee Street
Cheektowaga, New York

Dear Ms. Hallet:

Advanced Geological Services (AGS) presents this letter report to CDM Smith (CDM) summarizing the geophysical investigation completed by AGS on December 3 through 5, 2012 at the Former Doro Cleaners Site in Cheektowaga, New York.

The site consists of a long narrow parcel that encompasses approximately 1.8 acres. The commercial building that housed a former cleaner is situated at the southern end of the property. The east side of the property is bordered by a commercial property, State Highway Route 33 (Kensington Highway) is located to the north, Genesee Street is to the south, and a number of residential properties border the west side of the property.

The objectives of the geophysical investigation were:

1. Mark out utilities and subsurface anomalies beneath a concrete floor within the former cleaner building (approximately 10,500 sq ft).
2. Mark out utilities and subsurface anomalies across the 1.8 acre subject property.
3. Mark out utilities and residential utility service connections within the public right-of-way (ROW) along a portion of Colden Court.

Methods

To achieve the project objectives, AGS utilized combination of the terrain conductivity electromagnetic (EM) method, the radio frequency (RF) utility locating method, and the ground penetrating radar (GPR) method.

Terrain Conductivity Electromagnetic (EM) Method

Terrain conductivity EM data were collected across accessible portions of the subject property areas to identify potential buried utilities and subsurface anomalies. The EM method uses the principle of electromagnetic induction to measure the distribution of electrical conductivity of subsurface materials. The large EM response to metal makes this technique particularly well

suited to identifying buried metal objects, although it is equally sensitive to metal objects on the ground surface, as well as some naturally occurring geologic features.

A Geonics EM31 terrain conductivity EM instrument was used to collect EM data throughout the investigation area. The EM31 operates in accordance with the theory of operation at low induction numbers. An alternating current is passed through the transmitter coil to induce eddy currents into the ground. These eddy currents generate a secondary magnetic field. A component of the induced magnetic field is detected by a receiver coil and measured by the instrument. The receiver measures the field strength of both the quadrature and the in-phase components. The quadrature response is displayed as terrain conductivity in units of milliSeimens per meter (mS/m). The in-phase response is displayed in units of parts per thousand (ppt) of the transmitted signal.

EM data were collected along parallel traverses spaced 5 feet apart. Two EM measurements were recorded every second to provide detailed coverage along each traverse. The geographical coordinates of each EM reading were determined using a Trimble Pro-XRS global positioning system (GPS) capable of sub-meter accuracy. Each EM reading and the corresponding geographical coordinates were recorded on an integrated data logger.

Upon completion of EM data collection, the data were transferred to a laptop computer and contoured to identify potential anomalous features.

Radio Frequency (RF) Utility Locating Methods

The RF utility locating system (sometimes referred to as a precision utility locator, or PUL) was used to search for and identify small diameter cables, electrical conduits, or other detectable utilities that were present in the investigation areas.

AGS used a Radiodetection RD4000 utility locating instrument. This instrument consists of a receiver/tracer and a remote transmitter which operates at multiple radio-frequencies (RF) ranging from 8 kHz to 65 kHz. The receiver unit detects a transmitted RF signal, as well as standard 60 Hz electrical power lines and broad-band RF signals when operated in passive detection modes. This utility tracing instrument is an analog device which provides visual and audible feedback to the operator when a utility coupled with the transmitted signal is crossed. The transmitter produces a radio-frequency signal in the utility to be traced by either induction coupling or direct hook-up. The receiver provides audible and visual feedback to allow the operator to locate the target utility. By carefully adjusting the gain of the receiver it is possible to determine the location of the desired utility and to separate it from adjacent utilities. When used in direct hook-up modes, the RF instrument can provide a depth estimate to the utility being traced based on the vertical gradient of the received RF signal strength.

Direct hook-up, passive 60 Hz, and broad-band RF locating methods were used during this investigation. Identified utilities were marked on the ground surface with spray paint.

Ground Penetrating Radar (GPR) Method

The ground penetrating radar (GPR) method was used to identify potential utilities inside of the former cleaners building, around the exterior portions of the subject property, and along

the public ROWs surrounding the subject property. GPR methods were also used to further characterize anomalies identified in the EM results.

The GPR method is based upon the transmission of repetitive, radio-frequency electromagnetic (EM) pulses into the subsurface. When the transmitted energy of the down-going wave contacts an interface of dissimilar electrical character, part of the energy is returned to the surface in the form of a reflected signal. This reflected signal is detected by a receiving transducer and is displayed on the screen of the GPR unit as well as being recorded on the internal hard-drive. The received GPR response remains constant as long as the electrical contrast between media is present and constant. Lateral or vertical changes in the electrical properties of the subsurface result in equivalent changes in the GPR response. The system records a continuous image of the subsurface by plotting two-way travel time of the reflected EM pulse versus distance traveled along the ground surface. Two-way travel time values are then converted to depth using known soil velocity functions.

The GPR field procedures involved (1) instrument calibration, (2) test run completion, (3) production profile collection and recording, and (4) data storage for subsequent processing and analysis in the office. Each radar profile was examined for characteristic GPR signatures that may indicate the presence of buried targets.

A GSSI SIR-3000 GPR system and a 400 megahertz (MHz) antenna were used with a recording window of 60 nanoseconds (ns) to provide depth of penetration of up to approximately 10 feet under ideal soil conditions. GPR data were collected in a grid pattern across accessible portions of the building interior to identify any utilities or other potential targets of interest. GPR data were also collected around the outside of the building and within the public ROWs to identify potential utilities and anomalies that could indicate the presence of features such as underground storage tanks (USTs), septic systems, or other features of potential environmental concern. Additional GPR traverses were collected on an as needed basis to better characterize observed subsurface features. On site testing indicated that the effective depth of penetration of the GPR signal at this site was limited to approximately 5 feet, or less in many locations because of the site specific soil/fill conditions and the reinforcing material in the sidewalks. Locations of identified features were marked on the ground surface with spray paint.

Results and Discussion

An aerial photograph showing the Former Doro Cleaners Site and the surrounding area is presented on Figure 1.

Building Interior Results

The interior of the former Doro Cleaners building was investigated to identify potential utilities and subsurface anomalies that may be present beneath the concrete floor of the building. A sketch map of the building floor plan, and identified features are shown on Figure 2. The building was constructed as a slab-on-grade, and did not have a known basement or crawl space. The building interior was scanned using the RF utility locating system to identify any utilities. Direct hook-up methods were used to trace specific utilities whenever possible. GPR

transects were also completed in a grid pattern inside of all accessible portions of the building to further search for utilities and other anomalous features.

Generally, most of the utilities, including water, gas, and electric were situated along the walls and ceiling of the building, and not beneath the floor slab. The only utilities identified beneath the building slab were sanitary sewer pipes. The identified features beneath the building floor are summarized in the items bulleted below.

- A 4-foot diameter sump pit and connected trench drains that lead the sump is located in the northern (rear) portion of the building, near the eastern wall (Fig. 2). This sump drains through a pipe that extends to a floor drain and clean-out located near the bay door on the west side of the building , then continues to a clean-out located in the parking area on the west side of the building (Fig. 1). From there it continues into a sanitary sewer manhole located on the west side of Colden Court.
- A sanitary sewer pipe extends from a bathroom on the east side of the building towards the south, exiting the building, and continuing to a sanitary sewer main in Genesee Street (Fig. 2). A rectangular sump pit is located along the eastern wall of the building, near the southeast corner of the building. This sump pit connects into the sanitary sewer pipe that continues to Genesee Street.
- There were one or two possible former bathrooms and located in the north end of the western building extension (near the stairs; see Fig. 2). Pipes that appeared to be from former toilets were observed in the floor in two of the small rooms. Because of limited space, debris and stored/stacked furniture and other items, AGS was not able to determine where these possible sewer pipes went, or what they connected into. Tracing these pipes, and determining where they connect into the municipal sewer system may require pipes inspection methods such as video, and sonde insertion methods.

No additional utilities were identified below the floor slab in any of the accessible portions of the building.

Terrain Conductivity EM Survey Results

A terrain conductivity EM survey was completed across the former Doro Cleaners property to identify potential anomalies that could indicate the presence of septic systems, drain fields, dry wells, cesspools, underground storage tanks (USTs), utilities, or other features of potential environmental concern. Color contoured terrain conductivity (quadrature phase) EM results and in-phase EM results are shown on Figures 3 and 4 respectively.

The overall quality of the EM data at the Doro Cleaners site was very good. The portion of the property located north of the rear of the Doro Cleaners building was generally grass covered with mature trees, and slightly overgrown vegetation in some areas. Several residences along Colden Court whose property backed onto the Doro Cleaners property were using portions of the Doro Cleaners property for small gardens, playgrounds, ect. Neither the terrain conductivity EM data or the in-phase EM data indicated the presence of any buried features in

the area to the north of the Doro Cleaners building. There was some metal containing surface debris located approximately 45 feet to the north of the northern wall of the building that did produce a strong terrain conductivity response (labeled as "Surface Metal" on Fig. 3). However, there were no anomalies in either the terrain conductivity EM, or the in-phase EM results indicating that any features such as septic tanks, septic drain fields, or USTs were present. A number of GPR traverses were completed in the area to the north of the building from the north building wall to approximately 65 feet north of the building. The GPR records did not indicate that any buried features were present in this area, agreeing with the EM results.

Strong EM responses along the west and south sides of the Doro Cleaners property were caused by the presence of buried utilities, metal reinforced concrete in driveway aprons and some sidewalks (Figs. 3 and 4). The locations of utilities were verified using RF utility locating methods and GPR methods. No anomalies were identified that would indicate the presence of any USTs, septic tanks, settling tanks, or other previously unknown subsurface features along the west or south sides of the property.

EM data were collected along between the east side of the Doro Cleaners building and the building on the commercial property located to the east of Doro Cleaners. A chain link fence was present along the property boundary approximately 5 feet east of the east wall of the Cleaners building making it difficult to collect meaningful EM data between the fence and the building. The area between the east wall of the building and the fence along the property boundary was scanned using GPR methods. Neither the EM data or the GPR data indicated that any USTs or other features of potential environmental concern were present in this area. Combined EM and GPR data indicated that a storm sewer and a natural gas line were present between the Doro Cleaners property and the commercial building located to the east (Figs. 1, 3, and 4).

In summary, no anomalies were identified on the Doro Cleaners property that would suggest that any septic tanks, cesspools, drain fields, USTs or other buried features of potential environmental concern are present.

Utility Mapping Results

Utility mapping was completed on the former Doro Cleaners property, the public ROW along a portion of Colden Court, and on a small portion of the commercial property located to the east of the Doro Cleaners property. A combination of RF utility locating methods, GPR methods, and EM methods were used to identify utilities. All identified utilities were marked with spray paint using the standard American Public Works Association (APWA) uniform color code for marking utilities. Identified utilities are shown on Figure 1.

Utility mapping results are summarized in the bulleted items below:

- Water, sanitary sewer, storm sewer, natural gas and electrical mains located in the public ROW along Colden Court were marked out on site. The water and sanitary sewer connections to the houses along Colden Court were also marked out on site (Fig. 1).

- A storm sewer pipe and the natural gas service to the property located to the east of the Doro Cleaners property were identified and marked on site (Fig. 1).
- Water, storm sewer, sanitary sewer, natural gas, electrical and telecommunications utilities were identified and marked out on the Doro Cleaners property (Fig. 1).
- A clean-out was observed in the parking lot area on the south side (front) of the Doro Cleaners building (Fig. 1). It could not be determined using available geophysical methods whether this clean-out was for a sanitary sewer, or a storm sewer connection. Furthermore, it was not possible to trace the pipe(s) leading to and from this clean-out with any degree of certainty.

Summary and Closing

In summary, utilities inside and outside of the former Doro cleaners building mapped and marked out on site. A 4-foot diameter sump pit observed in the large rear portion of the building (north end) was determined to connect to a sanitary sewer manhole located on the west side of Colden Court. A sanitary sewer pipe was also identified exiting the southeast corner of the Doro cleaners building, towards Genessee Street.

No septic tanks, cesspools, dry wells, leach/drain fields, USTs or other features of potential environmental concern were identified from the terrain conductivity EM survey completed across the Doro Cleaners property.

Utilities on the Doro Cleaners property, along the public ROW of Colden Court, and on a portion of the site located to the east of Doro Cleaners were marked on site. A site wide utility map was generated.

All geophysical data and field notes collected as a part of this investigation will be archived at the AGS office. The data collection and interpretation methods used in this investigation are consistent with standard practices applied to similar geophysical investigations. The correlation of geophysical responses with probable subsurface features is based on the past results of similar surveys although it is possible that some variation could exist at this site. Due to the nature of geophysical data, no guarantees can be made or implied regarding the presence or absence of additional objects or targets beyond those identified.

If you have any questions regarding the results of this field investigation, please contact me at 610-722-5500. It was a pleasure working with you on this project and we look forward to being able to provide you with sub-surface imaging services in the future.

Sincerely,

Donald Jagel

Donald Jagel, P.G.
Senior Geophysicist

Enclosures: Figures 1 through 4

Legend

- Water
- Sanitary Sewer
- Storm Sewer
- Electric
- Communications
- Natural Gas
- LP — Light Post
- WV — Water Valve
- GV — Gas Valve
- CB — Catch Basin
- MH — Manhole

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feet

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NOTES:
1) Base air photo from the 2011,New York Statewide Digital Orthoimagery Program (NYSDOP). Coordinates are NY State Plane (NAD83) in units of feet.
2) The items shown on this figure may not be all inclusive. AGS does not warrant the fact that additional buried features/utilities may be present which could not be identified by AGS personnel during this investigation.

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SITE MAP SHOWING DORO CLEANERS INVESTIGATION AREA AND IDENTIFIED UTILITIES

LOCATION: 3466 GENESEE STREET, CHEEKTOWAGA, NEW YORK

CLIENT: CDM SMITH

FIGURE 1

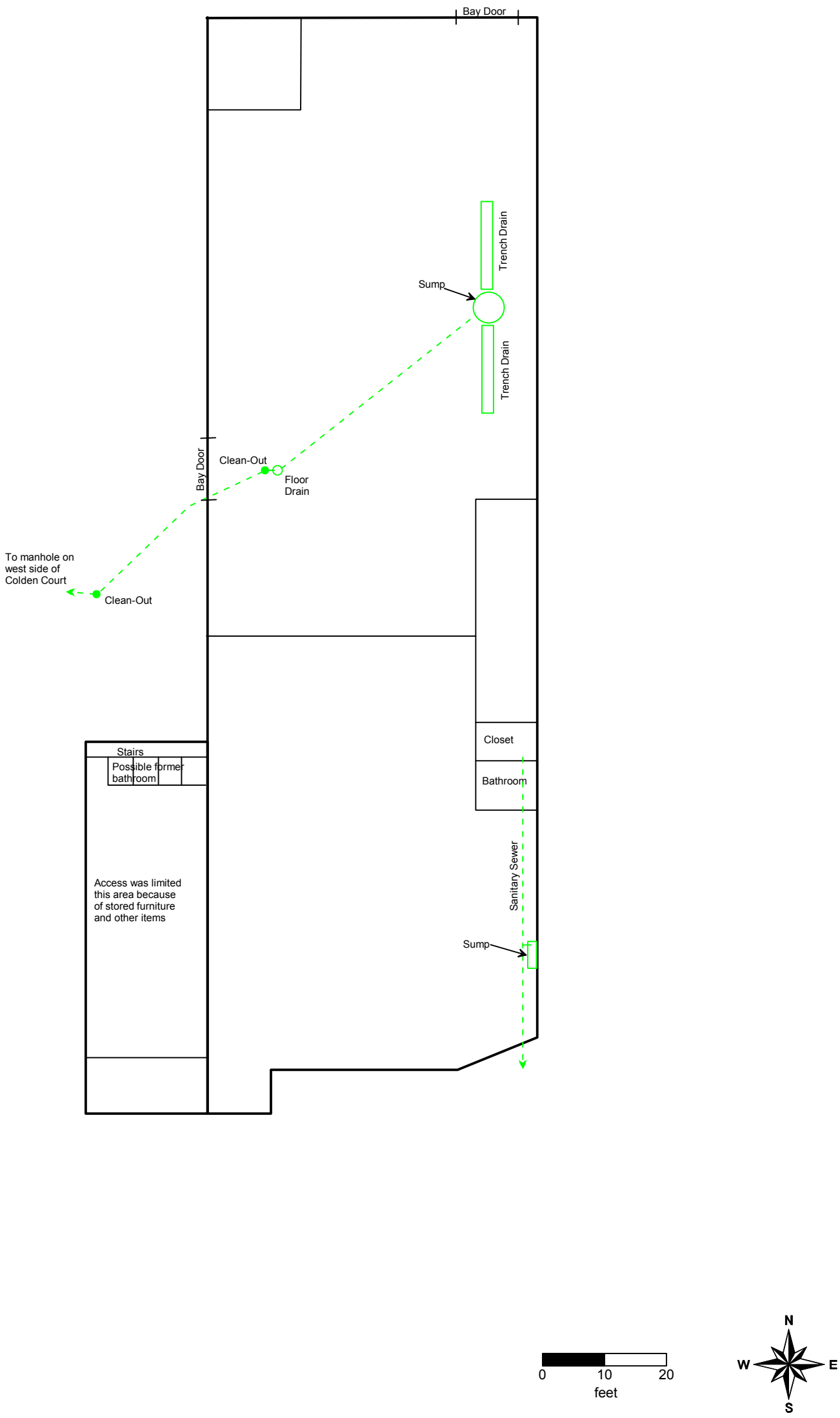
PROJECT #: 12-276-1

ADVANCED GEOLOGICAL SERVICES, INC.

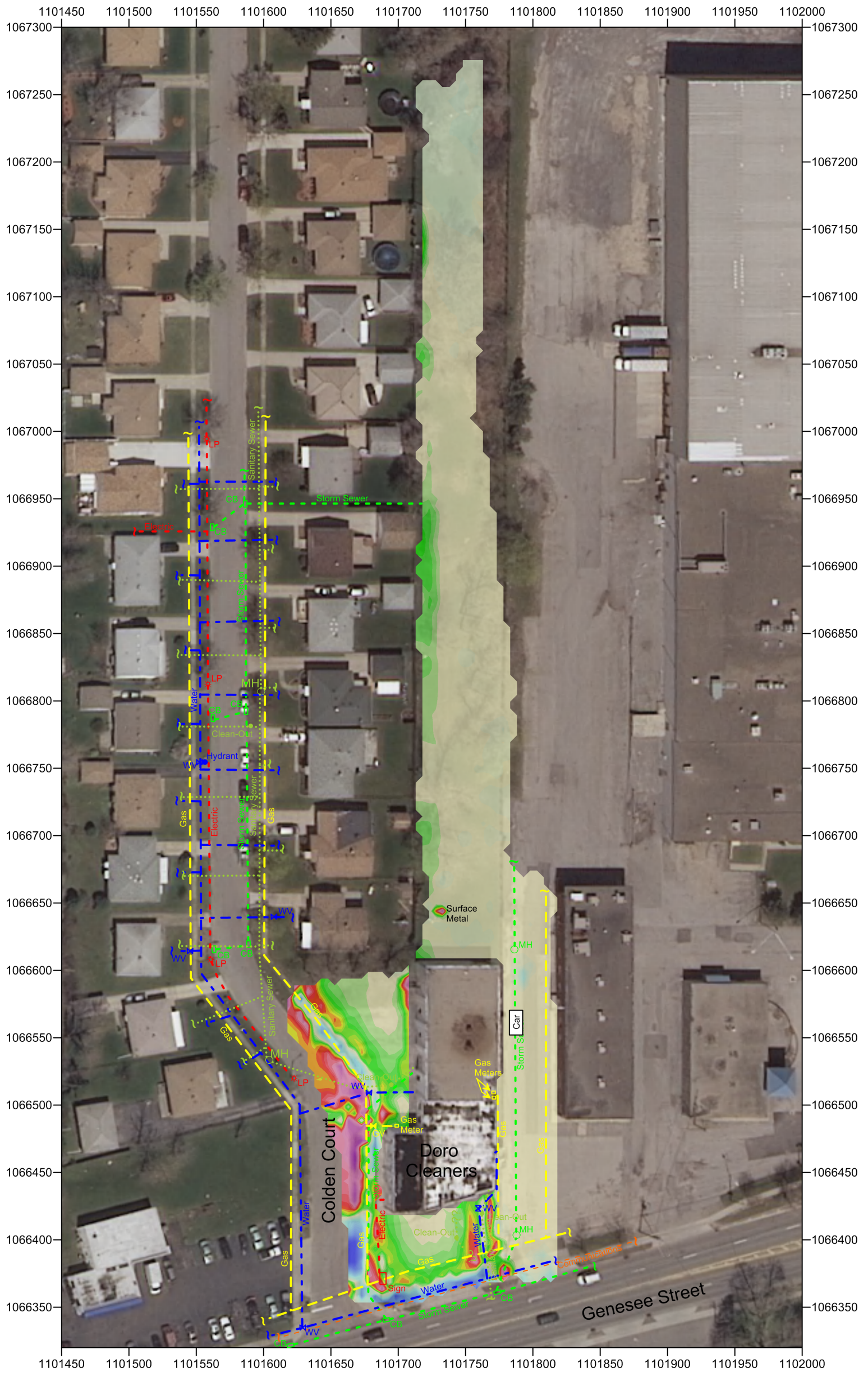
DATE: DECEMBER 27, 2012

DRAWN BY: D. JAGEL

APPROVED BY: D.JAGEL



ADVANCED GEOLOGICAL SERVICES		BUILDING FOOTPRINT OF DORO CLEANERS SHOWNING UTILITIES IDENTIFIED BENEATH THE FLOOR SLAB	
		LOCATION: DORO CLEANERS, CHEEKTOWAGA, NEW YORK	
		CLIENT: CDM SMITH	FIGURE 2
PROJECT #:	12-276-1	ADVANCED GEOLOGICAL SERVICES, INC.	
DATE:	DECEMBER 19, 2012	DRAWN BY: D. JAGEL	APPROVED BY: D. JAGEL



Legend

- Water
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- Storm Sewer
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2) Terrain conductivity data were collected with a Geonics EM31. Data were collected at a rate of two readings per second along parallel EM traverses spaced 5 feet apart. Real time navigation and positioning of EM readings were achieved using a Trimble ProXRS GPS instrument.
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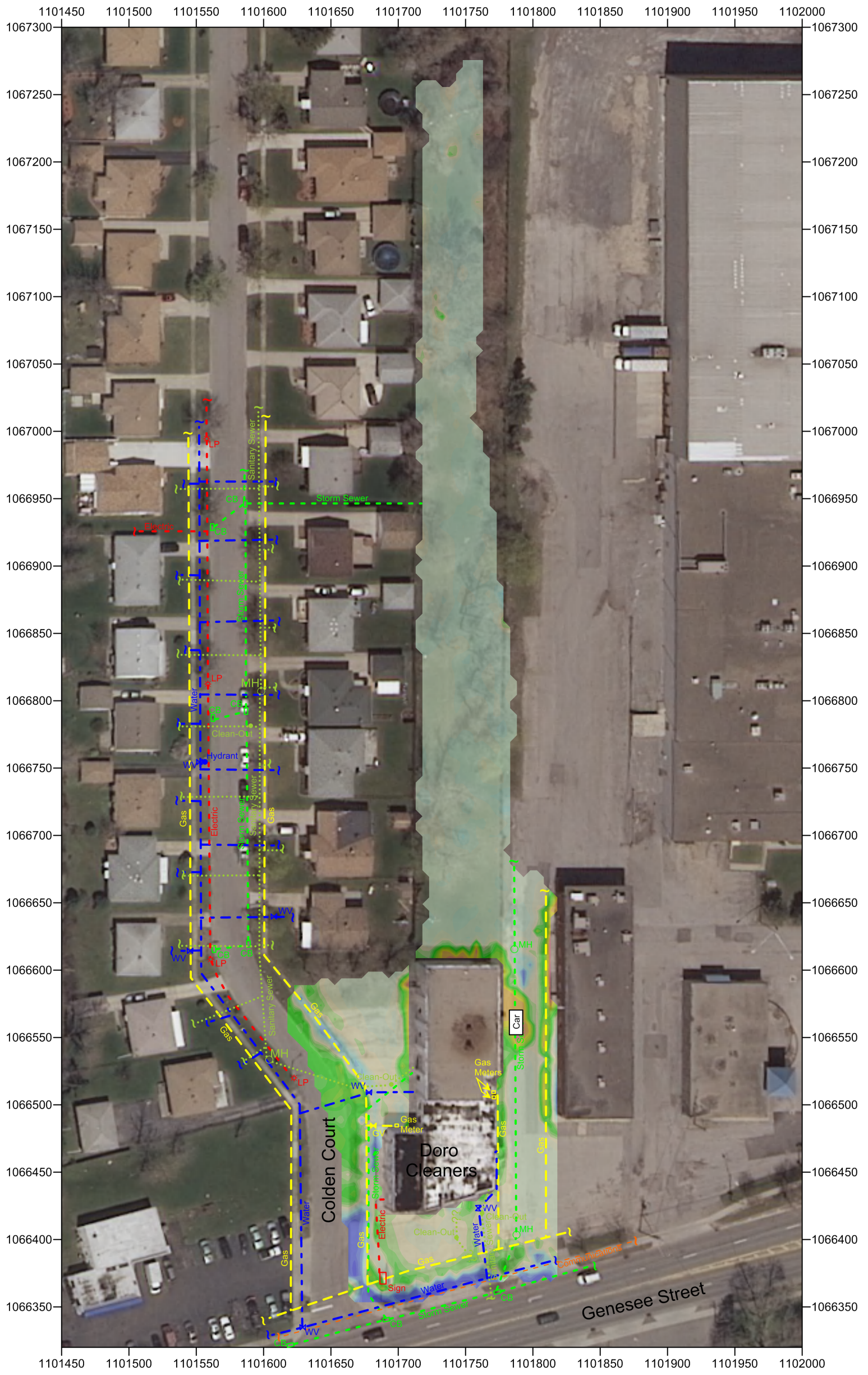
COLOR CONTOURED TERRAIN CONDUCTIVITY EM RESULTS

LOCATION: 3466 GENESEE STREET, CHEEKTOWAGA, NEW YORK

CLIENT: CDM SMITH

FIGURE 3

PROJECT #:	12-276-1	ADVANCED GEOLOGICAL SERVICES, INC.	
DATE:	JANUARY 9, 2013	DRAWN BY: D. JAGEL	APPROVED BY: D.JAGEL



Legend

- Water
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ADVANCED GEOLOGICAL SERVICES

COLOR CONTOURED IN-PHASE EM RESULTS

LOCATION: 3466 GENESEE STREET, CHEEKTOWAGA, NEW YORK

CLIENT: CDM SMITH

FIGURE 4

PROJECT #:	12-276-1	ADVANCED GEOLOGICAL SERVICES, INC.	
DATE:	JANUARY 9, 2013	DRAWN BY: D. JAGEL	APPROVED BY: D.JAGEL