C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, P.C.

50 Century Hill Drive, Latham, NY 12110
518.786.7400 FAX 518.786.7299 ctmale@ctmale.com

April 27, 2012

Mr. Randy Hough
Project Manager
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7013

RE: ***Site Characterization Work Plan***
Site Boundary Modification
Old Troy Municipal Incinerator Site
Town of Brunswick, Rensselaer County
Site No. 4-42-001
C.T. Male Project No.: 12.2106

Dear Mr. Hough:

C.T. Male Associates Engineering, Surveying, Architecture & Landscape Architecture, P.C. (C.T. Male), on behalf of MATOPATO, LLC, has prepared this Site Characterization Work Plan (WP) for the portion of the above reference site currently the subject of a Site Boundary Modification (SBM).

The portion of the site subject to a SBM is approximately 9.8 acres, is zoned for industrial use and is located within the southern and southwestern corner of the property generally bound by Oakwood Avenue to the west, the Old Troy Municipal Incinerator landfill to the north, wooded undeveloped land to the east, and Farrell Road to the south. The SBM is located to the south of the footprint of the former landfill and contains a federally regulated wetland within its western boundary. A site plan map showing the approximate boundary of the subject lands is presented as Figure 1.

As discussed during our telephone conversation on March 2, 2012, it is our understanding that further characterization of soils, sediment and surface water, beyond that completed as a function of the Site Characterization under the New York State Superfund Program is required for a Site Boundary Modification. Therefore, this work plan provides the scope and rationale for completing supplemental investigations to further document the environmental status of the portion of the site in question.

Project Background

The Old Troy Municipal Incinerator (OTMI) site is approximately 50 acres, 30 acres of which were occupied by the incinerator and associated landfill. The site is identified on the County of Rensselaer, Town of Brunswick Tax Map Number 80.00, Section 2, Parcel 2. The site is listed in the NYS Registry of Inactive Hazardous Waste Sites (Site No. 4-42-001). The landfill was purportedly used from approximately 1947 to 1969.

The OTMI site has been the subject of various environmental reviews dating back to 1976, the most recent being reported in November 2008 which was provided to C.T. Male for review. According to the report entitled: "Site Characterization Report for the Old Troy Municipal Incinerator Site" Site No. 4-42-001, Brunswick, New York, as prepared for the DEC, the purpose of the most recent site evaluation was to:

- Confirm the presence of contamination and determine if it is migrating off-site;
- Examine the risks of contamination;
- Evaluate groundwater flow, and the influence of the bedrock topography on groundwater movement, and
- Aid in determining the need for a Remedial Investigation/Feasibility Study (RI/FS).

As indicated in the 2008 Site Characterization Report, limited investigation of the area subject to the SBM was completed mainly because there was little indication that this portion of the site was subject to filling when the site was operated as a landfill. The investigations completed within or in close proximity to the subject area included the collection and laboratory analysis of five (5) surface soil samples, three (3) subsurface soil samples, four (4) groundwater samples from four (4) monitoring wells, two (2) surface water samples and two (2) sediment samples. Figure 2-1 from the Site Characterization Report (attached) shows the approximate locations of the various media samples. A summary of the analytical findings for these select samples is presented below.

Surface Soil (Sample ID# SS-21, SS-22, SS-23, SS-24 and SS-25): The surface soil samples were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOCs), pesticides, PCBs and Target Analyte List (TAL) metals including mercury and cyanide. The analytical data shows SVOC and pesticide detections at concentrations below 6 NYCRR Part 375 soil cleanup objectives (SCOs) for Unrestricted Use and metals at concentrations below Unrestricted Use SCOs with the following

exception: two (2) lead, one (1) mercury and two (2) zinc detections above Unrestricted but below Residential Use SCOs and one (1) isolated mercury detection at SS-21 below the Commercial Use SCO.

Subsurface Soil OTMI-B4-S1-0 (8-9.4' bgs), OTMI-B5-S1-0 (3.7-4.8' bgs) and OTMI-MWBR-11 (4-6' bgs): The subsurface soil samples were analyzed for TCL volatile organic compounds (VOCs), SVOCs, pesticides, PCBs and TAL metals including mercury and cyanide. The analytical data shows VOC detections below Unrestricted Use SCOs in soil samples collected from OTMI-B4-S1-0 and OTMI-B5-S1-0 and below the laboratory's method detection limit in soil collected from OTMI-MWBR-11. One (1) SVOC below its Unrestricted Use SCO was identified in soil at OTMI-B4-S1-0. Pesticides and PCBs were not detected above the laboratory's method detection limit. Metal detections were all below Unrestricted Use SCOs with the exception of selenium at OTMI-MWBR-11, which was below its Residential Use SCO.

Monitoring Wells OTMI-MW-I-4, OTMI-MWBR-04, OTMI-MWBR-05 and OTMI-MWBR-11: Monitoring wells OTMI-MWBR-04, OTMI-MWBR-05 and OTMI-MWBR-11 are bedrock wells. Groundwater samples collected from OTMI-MWBR-04 and OTMI-MWBR-05 were analyzed for TCL VOCs and TAL metals including mercury and cyanide. Samples collected from OTMI-MWBR-11 were analyzed for TCL VOCs, SVOCs, pesticides, PCBs and TAL metals including mercury and cyanide. The analytical data shows VOC, SVOC, pesticide and PCB detections below the laboratory's method detection limit. Several metals were detected above SCGs at the sampled wells. These included chromium (1 well), iron (4 wells), magnesium (1 well), manganese (3 wells), selenium (4 wells), sodium (1 well), and thallium (1 well). MWBR-04 is hydraulically upgradient of the others and the landfill.

Surface Water SW-2, SW-3 and SW-11: The surface water samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs and TAL metals including mercury and cyanide. The analytical data shows VOCs and pesticides below SCGs. One (1) SVOC (phenol), one (1) pesticide (beta-BHC) and several metals were detected above SCGs.

Sediment SD-2, SD-3 and SD-11: The sediment samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs and TAL metals including mercury and cyanide. The analytical data shows VOCs, SVOCs, pesticides and PCBs below SCGs. Several metals exceeded the lowest effect level (LEL) SCG for sediments, with four (4) metals exceeding the severe effect level (SEL) SCG for sediment. These metals were arsenic, copper, iron and manganese.

Proposed Sampling Locations and Methods

The proposed investigation for the southern and southwestern portion of the site subject to the SBM will include the collection and analysis of surface soil, sediment and surface water samples, the advancement of test pits for identifying possible buried waste materials and to aid in the collection of subsurface soil samples, and the potential collection of groundwater samples should groundwater enter the test pit excavations at the depths explored.

Surface Soil Sampling

Nine (9) surface soil sampling points are proposed over the proposed SBM area as depicted in Figure 2. Six of these samples are located on the eastern portion of the SBM area and three are located along the western portion within the wooded area along Oakwood Avenue. The sampling points are designated SBM-SS1 to SBM-SS9. The sampling points may be slightly altered within each area to account for physical obstructions in the field. Surface soil samples will be collected from 0 to 2 inches below the ground surface (bgs) or vegetative root zone.

Subsurface Soil Sampling

Ten (10) exploratory test pits will be completed at the sampling points identified as SBM-TP1 through SBM-TP10 on Figure 2. Test pits are not anticipated for western portions of the SBM as these areas constitute wetlands and due to the surface and subsurface infrastructure of Oakwood Avenue. The subsurface soil samples will be collected from a two (2) foot soil sample interval within the depths explored. The selection of the subsurface sample interval for laboratory analysis will be made on the basis of subjective observations of impacts to the soils. If no subjective evidence of environmental impacts or buried waste materials are noted then the sample interval from one (1) to three (3) feet bgs will be collected for analysis. Total test pit depths are expected to be terminated at eight (8) feet below existing grades or terminated upon encountering bedrock if present at less than eight (8) feet. If groundwater is encountered in the test pits it will be subjectively assessed, and sampled for laboratory analysis. A maximum of two (2) groundwater samples will be collected from the test pits. A rubber tire backhoe will be used to excavate the test pits.

Surface Water and Sediment Sampling

Three (3) surface water and three (3) sediment sampling points are depicted as SBM-SW1/SED1, SBM-SW2/SED2 and SBM-SW-3/SED3 on Figure 2. The surface water and sediment samples identified as SBM-SW1/SED1 will be collected from a reported landfill leacheate pond on northern portions of the SBM. The second surface water and sediment samples will be collected from southern portions of the SBM in the vicinity of where a storm water culvert exits the SBM. The third surface water/sediment location is approximately half way between the above samples biased towards the western section of the wetlands.

Sample Analysis

The proposed laboratory analysis is based on the analytical results of previous sampling conducted during the Site Characterization. The proposed sampling scheme will involve collection of the requisite number of Quality Assurance/Quality Control (QA/QC) samples per media sampled.

Surface Soil Sampling

Site related surface soil samples collected during previous investigations conducted by NYSDEC showed all analyzed parameters to be below Unrestricted Use SCOs with the exception of three (3) metals which were detected below Residential Use SCOs and one (1) metal (mercury) which was detected below its Commercial Use SCO. Based on this historical data, the following laboratory analysis is proposed.

- All nine (9) individual surface soil samples will be analyzed for TCL SVOCs, pesticides and PCBs, and TAL metals + cyanide.

Subsurface Soil Sampling

Site related subsurface soil samples collected during previous investigations conducted by NYSDEC showed all analyzed parameters to be below Unrestricted Use SCOs and/or the laboratory's method detection limit the exception of selenium, which was below its Residential Use SCO. Based on this historical data, the following laboratory analysis is proposed.

- One (1) soil sample from five (5) of 10 test pits will be collected and analyzed for the full TCL/TAL parameters + cyanide on the basis of subjective impacts observed during the work. If none of the 10 test pits reveal subjective evidence of environmental impact, five (5) subsurface soil samples will be analyzed for the full TCL/TAL parameters + cyanide, skewed to those test pit locations within the northern section of the SBM lands.

Groundwater Sampling

Site related groundwater samples collected during previous investigations conducted by NYSDEC showed all analyzed parameters to be below the laboratory's method detection limit with the exception of metals. Several metals were detected above SCGs. Based on this historical data, the following laboratory analysis is proposed.

- Maximum of two (2) groundwater samples to be analyzed for TCL VOCs, TAL metals + cyanide if groundwater is encountered within the test pits at the depths explored. The analysis for VOCs in groundwater is to determine if vapor intrusion issues exist within the SBM. If groundwater is not encountered in any of the test pits then the three monitoring wells within the SBM area should be re-sampled for VOCs in order to eliminate vapor intrusion concerns for future development.

Surface Water and Sediment Sampling

The surface water and sediment samples will be collected at locations potentially affected by the landfill. As such, these samples will be analyzed for the following parameters.

- Full TCL/TAL parameters + cyanide.

Reporting

The results of the investigation will be presented in a written report which describes the methods of investigation, data and observations made in the field, summary of the analytical results compared to SCGs and our overall conclusions and recommendations. The report will append site maps, field sampling logs, test pit logs, PID soil screening logs, photographs, and the laboratory analytical reports. The analytical data will be submitted in the NYSDEC EDD format.

The sampling locations will be determined on the basis of a survey of the site by a NYS LLS, along with the proposed boundaries for site boundary modification.

Upon your review and approval of this plan, we will schedule the work for completion. The overall investigation, considering completion of the field work, laboratory turnaround time and report preparation is estimated to be approximately 6 to 8 weeks from initiation.

If you have any questions or require additional information, please contact the undersigned at 518.786.7502.

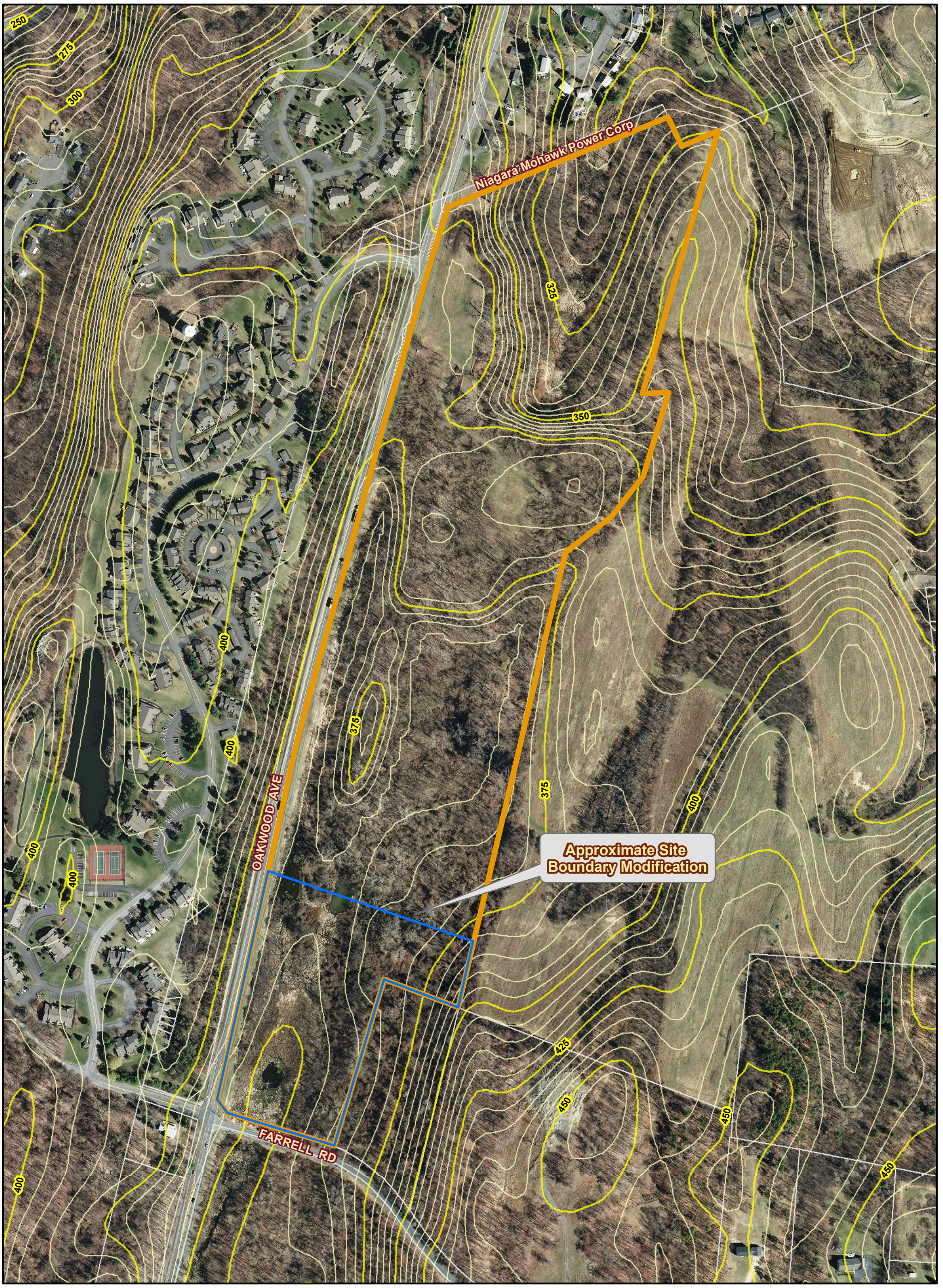
Respectfully submitted,

C.T. MALE ASSOCIATES

Kirk Moline
Managing Geologist

Attachments

c: Maureen Schuck, NYSDOH
Thomas Murley, P.E.



0 150 300 Feet

1 inch = 300 feet

N W E S

Project Number: 12.2106
Data Source: NYSGIS Clearinghouse, Rensselaer County
Projection: NY State Plane East NAD 83 (ft.)
Date: March 8, 2012
File: Oakwood_SiteLocation_Fig1.mxd
GIS: CH

Legend

- Site Boundary Modification (Approximate)
- Project Site Boundary (Approximate)
- Brunswick Tax Parcels (2005)

Notes:
Orthoimagery flown spring 2011, 1-foot resolution, natural color
5' Contours are interpolated from USGS, considered as approximate

Figure 1: Old Troy Municipal Incinerator Site

Town of Brunswick **Rensselaer County, New York**

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, P.C.
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
Architecture * Building Systems Engineering * Civil Engineering *
Environmental Services * Geographic Information Services (GIS) *
Land Development * Land Surveying
FOUNDED IN 1910

0 50 100 Feet

1 inch = 100 feet

N W E S

Notes:
Orthoimagery flown spring 2011, 1-foot resolution, natural color
5' Contours are interpolated from USGS, considered as approximate

Project Number: 12.2106
Data Source: NYSGIS Clearinghouse, Rensselaer County
Projection: NY State Plane East NAD 83 (ft.)
Date: April 24, 2012
File: Oakwood_SampleLocations_Fig2.mxd
GIS: CH

Figure 2: Proposed Sampling Locations

Town of Brunswick **Rensselaer County, New York**

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, P.C.
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
Architecture * Building Systems Engineering * Civil Engineering *
Environmental Services * Geographic Information Services (GIS) *
Land Development * Land Surveying
FOUNDED IN 1910

© Ecology & Environment Engineering P.C. GIS Department Project #
\L:\Buffalo\NYSDEC_RIFS\Maps\MXD\Old Troy\RI_Report\Feb_2008\
Figure 2-1 Sample Location Map.mxd

Figure 2-1

Site Base Map
Old Troy Municipal Incinerator Site
Brunswick, New York