



INVENTUM ENGINEERING, PC

June 7, 2022

Benjamin McPherson, P.E.
Professional Engineer 1 (Environmental)
Division of Environmental Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

Subject: Above Ground Storage Tank ST24 Investigation Work Plan
Riverview Innovation & Technology Campus
3875 River Road
Town of Tonawanda, New York
Site No. C9153353

Dear McPherson,

On May 26, 2022, the base of the former Pentane Tank, ST24 (Photograph No. 1 and Figure 4-62 of the RI Report) on the Riverview Innovation & Technology Campus, Inc. (RITC) Brownfield Cleanup Program (BCP) Site (#C9153535) in the Town of Tonawanda, New York was removed in accordance with the Aboveground Storage Tank Management Interim Remedial Measures Work Plan. In accordance with the work plan, the underlying soils were inspected after the base was removed and were found to be visually impacted (Photograph No. 2). This investigation work plan is being submitted to collect data needed to determine the scope and approach to address the observed conditions.

441 CARLISLE DRIVE
SUITE C
HERNDON, VA 20170
WWW.INVENTUMENG.COM



Photograph No. 1
ST24 Pentane Tank Before Demolition
September 9, 2021





Photograph No. 2
Former Location of ST24 After Removal of the Base
May 26, 2022

At the time of the initial inspection two locations within the limits of the former tank were advanced to provide a preliminary understanding of the extent of impact and to determine if there was a potential for migration of the materials (Photograph No. 3). The initial findings were there was 6-inches of a sand base below the tank and that material was impacted. The sand base had been placed on the silty clay that is typical of the BCP Site. At the locations inspected, the upper 6- to 18-inches below the sand (0- to 12-inches of the silty clay) was stained. At depths of 18-inches below ground surface (12-inches below top of clay), the clay was the typical reddish brown color.





Photograph No. 3
Initial Investigation of Subsurface at Former ST24 Location
May 26, 2022

The Phase 1 scope is intended to provide the data required to determine the scope of an IRM to remove the identified impacted fill and soils, and to determine the nature of the impacts to select the appropriate remedial action and, if necessary, gain approval for offsite transportation and disposal.

For the purposes of the Phase 1 investigation Inventum is proposing the collection of samples at twelve locations shown on Figure 1. The samples will be collected from the locations indicated by the red circles on Figure 1 as follows:

- 0- to 6-inches bgs fill; and
- 6- to 18-inches bgs, stained silty clay.

The samples will be collected from the locations indicated by the blue circles on Figure 1 as follows:

- 0- to 6-inches bgs fill;
- 6- to 18-inches bgs, stained silty clay; and
- 18- to 24-inches bgs, reddish brown silty clay.



If there is no stained clay at the southeast corner sample location, the deeper clay sample will be collected at one of the red circle locations toward the north. A test pit shall be advanced in the southwest corner, along the west side of the secondary containment. If impacts are observed in that area samples of the visually impacted materials, fill and or clay, will be collected and analyzed.

The samples will be collected from the sidewall of shallow test pits advanced with conventional earthmoving equipment. Careful attention will be followed so that the materials are removed in sequence; sand fill, stained clay, underlying clay. All test pits will be advanced to determine the depth to the underlying reddish brown silty clay. Observation of excavated soils and screening with a 10.6eV PID will be made directly in the sidewall of the test pit or from each bucket load. After screening, soils will be temporarily stockpiled adjacent to the excavation and at a minimum of 2-feet from the edge. Soils that are heavily impacted shall be stockpiled within the footprint of the former tank.

Samples that are submitted for analytical characterization will be collected directly from the wall of the test pit with a dedicated disposable stainless-steel spoon. Samples collected from test pits will, to the greatest extent practicable, be biased to areas within the excavation exhibiting the greatest degree of potential contamination based on visual observation, odor, and PID screening. Under no circumstances will anyone be allowed to enter a test pit that is greater than 3-feet deep or with flowing groundwater.

Photographs of each test pit will be taken. Photographs of any significant features exposed by the test pit (ex. buried debris, mobile tar seeps, etc.) will be collected after the final depth is reach. All pertinent information will be recorded in the field notebook or on test pit logs. The location of the samples will each be marked with a pin flag and the location measured with site GPS equipment.

Samples will be submitted to a NYSDEC certified laboratory under strict chain of custody in accordance with the following request:

Deliverable Requirements:		NYSDEC Cat. B; NYSDEC EQUIS EDD;	
Analysis [Method]	Matrix	No. of Samples	
<i>Tank ST24</i>			
8260 TCLP	Soil	4	
8270 TCLP	Soil	4	
TAL Metals [6010C]	Soil	26	
TCL VOCs [8260]	Soil	26	
TCL SVOCs (8270]	Soil	26	
PCBs [8082A]	Soil	26	
Total Ammonia [350.1]	Soil	26	
Total Mercury [7471]	Soil	26	
Total Cyanide [9012B]	Soil	26	



Sample numbers shall be:

TP- ST24 - ## - *depth range in inches - date*

The two samples of fill and the two samples of stained clay with the highest PiD readings or the most visible concentration of impact shall be sampled for TCLP analyses.

The samples will be submitted for standard turnaround which is currently 5- to 8 business days. The sample data will be tabulated and submitted in an IRM work plan with a drawing showing the corresponding sample numbers and proposing the next actions to be taken. The data summary and IRM work plan will be submitted within 10 days of the receipt of the completed laboratory data.

Please let us know if you have any comments or questions.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "John P. Black", is centered on a light yellow rectangular background.

John P. Black
Partner

Attachments

Ecc: John Yensan, OSC
Dan Flanagan, OSC
Roxanne Birx, Inventum
Peter Zaffram, Inventum
Angela Martin, NYSDOH
Andrea Caprio, NYSDEC



Engineering Certification

I, John P. Black certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Above Ground Storage Tank ST24 Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Respectfully Submitted,

Inventum Engineering, P.C.



Date:

6/7/2022

John P. Black, P.E.

License No:

062818-1



It is a violation of the laws of New York, for any person, unless acting under the direction of a Licensed Professional Engineer, to alter any item or any portion of this document in any way. If an item bearing the seal of a Licensed Professional Engineer is altered, the altering Engineer shall affix to the item his/her seal and notation "altered by" followed by his/her signature and the date of such alternation, and a specific description of the alteration.



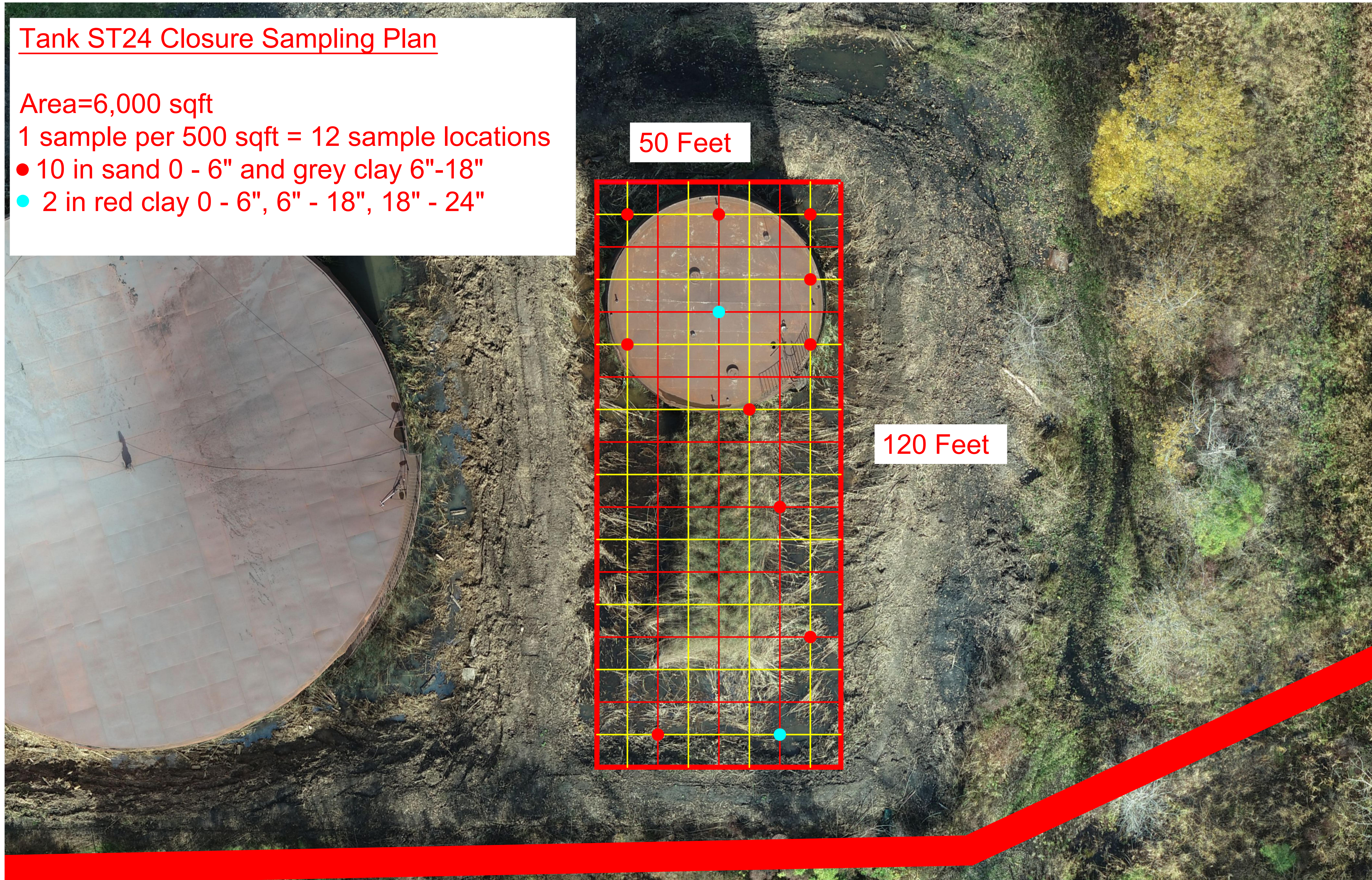
Tank ST24 Closure Sampling Plan

Area=6,000 sqft

1 sample per 500 sqft = 12 sample locations

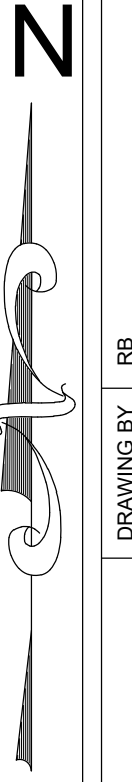
● 10 in sand 0 - 6" and grey clay 6"-18"

● 2 in red clay 0 - 6", 6" - 18", 18" - 24"

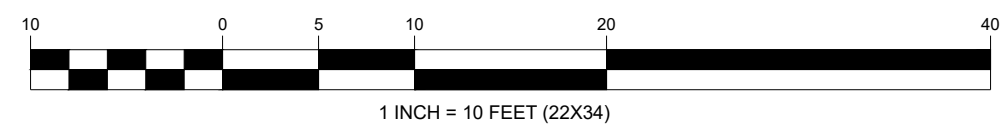


50 Feet

120 Feet



D



DRAWING BY	RB
CHECKED	
APPROVED	
<small>PROPERTY OF INVENTUM ENGINEERING IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME WITHOUT NOTICE. IT IS NOT TO BE REPRODUCED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY PARTNERS, FINANCIAL INSTITUTIONS, SUBSIDIARIES OR AGENTS OF INVENTUM ENGINEERING. NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY.</small>	

TANK ST24 CLOSURE SAMPLING
 RIVERVIEW INNOVATION & TECHNOLOGY
 CAMPUS, INC.
 3875 RIVER ROAD
 TONAWANDA, NEW YORK 14150
 BCP SITE No. C915353

INVENTUM ENGINEERING
 441 CARLISLE DRIVE
 SUITE C
 HERNDON, VIRGINIA 20170
 (703) 722-6049
 www.InventumEng.com

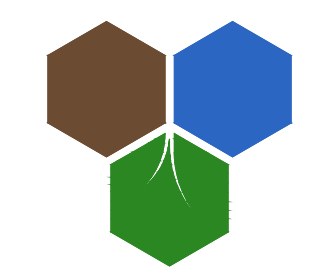
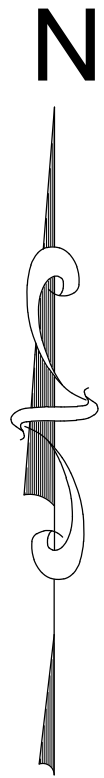
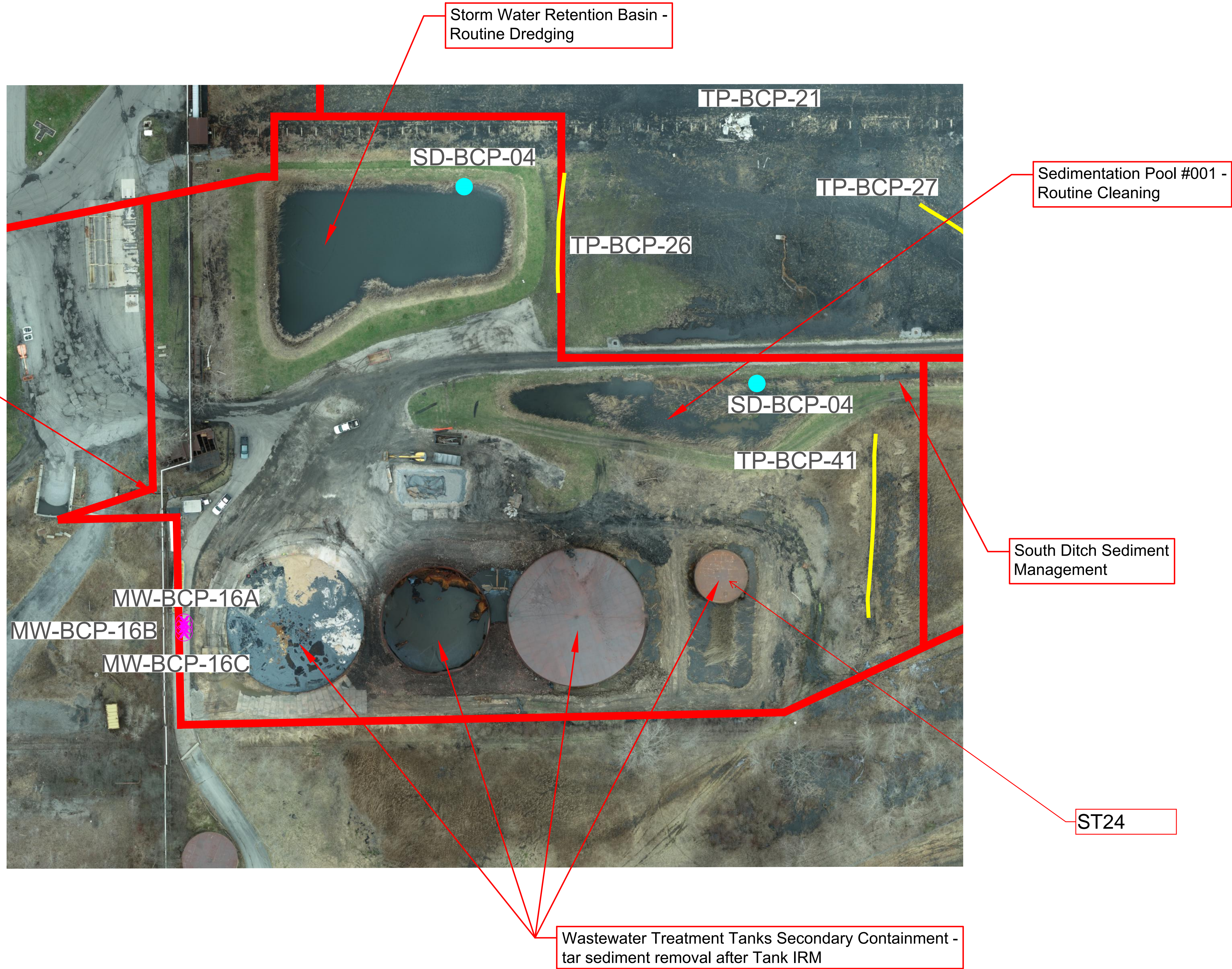
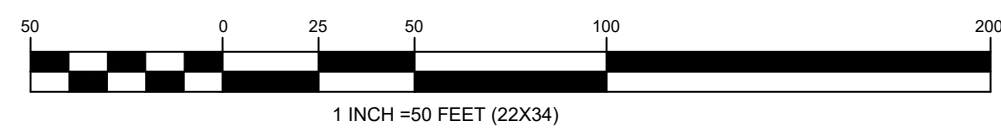


FIGURE 1
 DRAWING NUMBER
A01 6

D



DRAWING BY	RB
CHECKED	
APPROVED	

PROPERTY OF INVENTUM ENGINEERING
 IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME WITHOUT NOTICE. IT IS TO BE KEPT IN THE ORIGINAL FORM AND NOT REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN THE NECESSARY PARTNERS, FINANCIAL INSTITUTIONS, SUBCONTRACTORS, OR CONSULTANTS. ANY REPRODUCTION WITHOUT THE WRITTEN CONSENT OF INVENTUM ENGINEERING.
 NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE AUTHORITY OF A LICENSED PROFESSIONAL ENGINEER ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. TO ALTER THIS DOCUMENT IN ANY WAY.

**NATURE AND EXTENT
 WATER TREATMENT AREA - AOI 6**
 RIVERVIEW INNOVATION & TECHNOLOGY
 CAMPUS, INC.
 3875 RIVER ROAD
 TONAWANDA, NEW YORK 14150
 BCP SITE No. C915353

INVENTUM ENGINEERING
 441 CARLISLE DRIVE
 SUITE C
 HERNDON, VIRGINIA 20170
 (703) 722-6049
 www.InventumEng.com

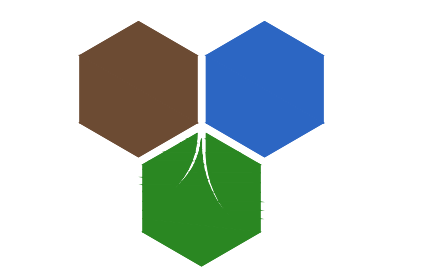


FIGURE 4 - 62
 DRAWING NUMBER
AOI 6