MEMORANDUM

Date: January 23, 2019

Prepared for: Village of Floral Park

Prepared by: Christopher Carleo
Thomas P. Clark
The Vertex Companies, Inc.

Subject: **Review of CWDD.38.15.09 Early Works Site Investigation Report Village Floral Park Sampling dated December 3, 2018.**
LIRR Expansion Project
Project No. 46408

VERTEX has conducted this review on behalf of the Village of Floral Park (Village).

DOCUMENTS REVIEWED

VERTEX reviewed the following documents prepared by Stantec on behalf of 3TC:

- CWDD.38.15.09 Early Works Site Investigation Report (SIR) Village of Floral Park Sampling dated December 3, 2018 (December 3, 2018 SIR).

VERTEX previously reviewed CWDD.38.15.05 Early Works Site Investigation Report, Floral Park Area dated October 30, 2018. That report included data for 36 samples collected from 14 locations in the Village. In VERTEX's review of 3TC's Soil Sampling and Analysis Plan (SSAP), contained in an email from VERTEX to 3TC dated July 14, 2018, the following recommendation was made:

- *Since only two samples (at Stations 115+50 and 120+00) are proposed to be collected in residential areas along the alignment of the sound/retaining wall in Floral Park, we request that three additional samples be collected between Stations 113+50 and 122+00. One of these additional borings should be located at the end of Hanover Street. The three additional samples along with the two already identified in the plan should be placed at roughly equal spacing within that length of track. We also request that surface soil samples be collected in the range from 0 to 12 inches rather than 0 to 24 inches.*

The December 3, 2018 SIR provides data for three additional samples collected in accordance with this recommendation.

FINDINGS

VERTEX reviewed the December 3, 2018 SIR for consistency with the Early Works Soil Sampling and Analysis Plan (SSAP), VERTEX's July 14, 2018 recommendations for additional sampling, the Memorandum of Understanding (MOU) between the Village and LIRR and in terms of its protectiveness to Village residents.

Results

The analytical data provided in the SIR are consistent with the requirements of the SSAP and VERTEX's July 14, 2018 recommendations. Three additional surface soil samples were collected next to residential properties along the LIRR Right Of Way (ROW) between Plainfield Avenue and the Village's playing fields from depths indicated and analyzed for the constituents identified. A figure showing sample locations, taken from the December 3, 2018 SIR, is attached to this review.

The attached tables, taken from the December 3, 2018 SIR, summarize the sample locations, depths, results, and soil classification for disposal or reuse. In two of the three samples, concentrations of organic or inorganic chemicals including herbicides exceeded the Soil Cleanup Objectives (SCOs) for Unrestricted Use, which are the most restrictive levels. In VERTEX's opinion, because the locations of soil in the planned work area are all within the LIRR ROW, SCOs for industrial use, which are usually much higher, are applicable to the soil which will be excavated. SCOs for industrial use are not exceeded in any sample. Concentrations of dioxins were not detected above regulatory levels in any sample.

In addition to laboratory analysis, soil samples were evaluated using field screening methods. Those methods included measuring concentrations of organic vapors using a photoionization detector (PID) and observing for odors or visual evidence of impacts (staining). Field screening indicates that the soil in the samples consists of dark brown or black sandy soil with no odors or staining. The PID did not indicate the presence of any organic vapors.

Soil Management

Concentrations of chemicals detected in soil samples described in both the October 30, 2018 and December 3, 2018 SIRs are consistent with fill material present in urban areas. It also appears that some soil has been impacted by past use of herbicides for weed control by LIRR. In VERTEX's opinion, concentrations of contaminants measured in soil pose no significant health risk to Village residents and visitors based on New York standards. However, since various chemical constituents were detected in the samples, excavated soil should be managed effectively through the implementation of proper soil handling methods. For this reason, it is important that the Village require 3TC follow appropriate procedures for handling soils excavated.

During previous discussions, 3TC indicated that they had prepared a written soil management summary but could not provide it to the Village unless LIRR agreed. Based on that discussion, the following provides VERTEX's understanding of soil management procedures to be followed during the work in the Village:

- Air monitoring for dust and organic vapors will be performed at all times when soil is being disturbed as specified in the Community Air Monitoring Plan. The results of monitoring will be used to mitigate air quality problems.

- Dust control best management practices (BMPs) will be implemented at all times as specified in the Stormwater Pollution Prevention Plan and Fugitive Dust Control Plan.

- Qualified environmental professionals will observe excavation and conduct field screening for signs of contamination including staining, oily material, odors, organic vapors, and containers.

- Excavated soil will be loaded directly into trucks and removed from the Village either to permitted off-site management facilities or staging areas outside the Village.

- Soil classified for reuse will be shipped to a staging area outside the Village and stored for later reuse. It is not clear whether any additional soil characterization will be performed.

- Excavations within the Village will be backfilled using clean soil from a permitted off-site quarry or excavated soil classified for reuse. Soil from areas along the railroad corridor but outside of the Village may be reused as backfill for Village excavations.

- VERTEX recommends that 3TC describe what procedures will be followed if significant contamination is observed outside the planned limits of excavation.

3TC should verify that these are the soil management procedures that will be followed or provide additional details in a written Soil Management Summary.

Recommendations and Action Items

VERTEX's recommends that 3TC address the comments in the attached comment summary table.

Capital Construction

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LIRR Expansion Project
Floral Park to Hicksville

VILLAGE OF FLORAL PARK
SUBMITTAL REVIEW COMMENTS

bDesign-Builder's Design Unit:	Village of Floral Park/VERTEX	**FORM DR - REF #:** *(Unique Document Number)*	Click here to enter text.
Title of document/package for review	CWDD.38.15.09 Early Works Site Investigation Report Village Floral Park Sampling dated December 3, 2018		
Design-Builder's Document Submission #	Click here to enter text.	**Date received from Design-Builder**	Click here to enter a date.
Type of Review	Final Design Review	**Review Type**	Review and Comment
Reviewer(s) Village of Floral Park		**Date received by Reviewers**	Click here to enter a date.

(add rows if needed)

REVIEWERS TO COMPLETE				DESIGN-BUILDER TO COMPLETE		REVIEWERS TO COMPLETE	
Comment #	**Reviewer Initials**	**Page/Section /Item**	**Reviewer's Comment**	**Proposed Disposition**	**Design Builder's Response**	**Final Disposition**	**Comment**
1		Soil Management	VERTEX's review includes a summary of the current understanding of soil management procedures based on previous discussions. Verify or correct this understanding and provide additional details.				
2		Soil Management Summary (SMS)	Prepare a Soil Management Summary (SMS) for soil disturbing work in the Village. 3TC should provide the following information in the SMS.	Choose an item.		Choose an item.	
3		Information to be provided in SMS	How contaminated soil will be identified in the field.	Choose an item.			

VILLAGE OF FLORAL PARK
SUBMITTAL REVIEW COMMENTS

REVIEWERS TO COMPLETE				DESIGN-BUILDER TO COMPLETE		REVIEWERS TO COMPLETE	
Comment #	**Reviewer Initials**	**Page/Section /Item**	**Reviewer's Comment**	**Proposed Disposition**	**Design Builder's Response**	**Final Disposition**	**Comment**
4		Information to be provided in SMS	A description of the real-time field verification process to be used during excavation. 3TC should provide details of this process and how decisions will be made. As indicated previously, field screening may not be a fully effective method for verification of contamination.	Choose an item.			
5		Information to be provided in SMS	Verify that all soil will be direct-loaded into trucks and removed from the Village immediately and that no soil will be stored, stockpiled, or staged within the Village.	Choose an item.			
6		Information to be provided in SMS	How soil classified for reuse will be managed and documented, if additional samples be collected and if soil intended for reuse will be staged based on where it was excavated or will all the soil be placed together in stockpiles.	Choose an item.			
7		Information to be provided in SMS	If analytical data for soil from to be used as backfill in the Village will be provided to the Village for review and 3TC should describe data management procedures for soil reuse data.				

VILLAGE OF FLORAL PARK
SUBMITTAL REVIEW COMMENTS

REVIEWERS TO COMPLETE				DESIGN-BUILDER TO COMPLETE		REVIEWERS TO COMPLETE	
Comment #	Reviewer Initials	Page/Section /Item	Reviewer's Comment	Proposed Disposition	Design Builder's Response	Final Disposition	Comment
8		Information to be provided in SMS	Whether samples will be collected around the excavation to determine if all the contaminated soil has been removed. What procedures will be followed if there is staining or odors in soils at the limits of excavation and what if heavily contaminated or oily soil, drums, tanks, or other signs of contamination are observed.				
9		Information to be provided in SMS	What procedures will be followed to manage the contaminated soil during the work, will trucks be covered and if decontamination of trucks will be conducted.				
10		Information to be provided in SMS	Describe how air monitoring data collected in accordance with the Community Air Monitoring Plan will be used	Choose an item.			
11				Choose an item.			
Date of comments by reviewers:				Date of Response:	Click here to enter a date.	Date of Resolution:	Click here to enter a date.

LEGEND

SOIL BORING LOCATION

LIRR RIGHT-OF-WAY

N

NOT TO SCALE
NOT FOR CONSTRUCTION

ENTECH ENGINEERING,PC

EnTech Engineering, P.C.
17 State Street, 36th Floor
New York, NY 10004

Tel: 646-722-0000
www.entech.nyc

FIGURE 2: BORING LOCATION PLAN

LIRR EXPANSION PROJECT
ADDITIONAL SOIL SAMPLING WITHIN THE LIRR ROW IN FLORAL PARK, NY

3.0 FIELD SCREENING AND ANALYTICAL RESULTS

3.1 FIELD SCREENING

In general, the geology at the site entailed of topsoil comprised primarily of sand. The common soil texture present was medium to coarse and the visual appearance of the soil remained constant, with the common color being brown and black sand based on visual observations. EnTech noted the conditions of soils during the installation of the following three (3) borings. Groundwater was not encountered in any of the borings. A summary of the field screening observations is presented below. Boring logs are presented in Appendix B.

- Boring EB-FP1: PID readings were 0.0 ppm for depth 0-1 ft bgs of brown and black sandy loam. No odors were detected throughout the entire boring.
- Boring EB-FP2: PID readings were 0.0 ppm for depth 0-1 ft bgs of brown and black sandy loam. No odors were detected throughout the entire boring.
- Boring EB-FP3 PID readings were 0.0 ppm for depth 0-1 ft bgs of brown and black sandy loam. No odors were detected throughout the entire boring.

3.2 SOIL SAMPLE ANALYTICAL RESULTS

A summary of the results for each soil sample is provided in Table 2.

Table 2: Floral Park Soil Sample Analytical Results Summary

Boring ID	Sample Depth (feet bgs)	Sample ID	Summary of Comparison to Regulatory Thresholds	Detected Concentration of Analytes Exceeding Regulatory Thresholds
EB-FP1	0-1	LIRR 3RD-EB-FP1-091318	**Acetone (VOC); 4,4'-DDE, 4,4'-DDT (Pesticides); Arsenic, Copper and Lead (Metals) tested above Unresticed Use SCO.**	**Compound**: Acetone **Concentration**: 0.018 mg/kg **Compound**: 4,4' DDE **Concentration**: 0.0186 mg/kg **Compound**: 4,4' DDT **Concentration**: 0.051 mg/kg **Compound**: Arsenic **Concentration**: 13.9 mg/kg **Compound**: Copper **Concentration**: 200 mg/kg **Compound**: Lead **Concentration**: 88.3 mg/kg

Table 2: Floral Park Soil Sample Analytical Results Summary				
Boring ID	**Sample Depth (feet bgs)**	**Sample ID**	**Summary of Comparison to Regulatory Thresholds**	**Detected Concentration of Analytes Exceeding Regulatory Thresholds**
EB-FP2	0-1	LIRR 3RD-EB-FP2-091318	**Acetone (VOC); 4,4'-DDE, 4,4'-DDT (Pesticides); Copper and Zinc (Metals) tested above Unresticted Use SCO.**	**Compound**: Acetone **Concentration**: 0.084 mg/kg **Compound**: 4,4' DDE **Concentration**: 0.00646 mg/kg **Compound**: 4,4' DDT **Concentration**: 0.00514 mg/kg **Compound**: Copper **Concentration**: 198 mg/kg **Compound**: Zinc **Concentration**: 132 mg/kg
EB-FP3	0-1	LIRR 3RD-EB-FP3-091318	All analytical results were below the regulatory thresholds.	N/A

The soil analytical results are presented in Appendix A. The laboratory reports and chain-of-custody forms are presented in Appendix C.

Dioxin

Three (3) samples were collected at each borings at a depth of 0'-1' bgs and tested for dioxin. The results were compared to the EPA Regional Screening Levels (RSL) for dioxin mixtures. The RSL for residential soils is 0.0001 milligrams per kilogram (mg/kg) (100 picograms per gram [pg/g] of 2,3,7,8- Tetrachlorodibenzodioxin (TCDD)). The RSL for industrial soils is 0.00047 mg/kg (470pg/g) of TCDD. The following table describes the results:

Table 3: Floral Park Dioxin Results			
Sample ID	**Client ID**	**Summary of Comparison to Regulatory Thresholds**	**Detected Concentration of Dioxin Exceeding Regulatory Thresholds**
EB-FP1	LIRR 3RD-EB-FP1-091318	TCDD tested below the regulatory threshold.	N/A
EB-FP2	LIRR 3RD-EB-FP2-091318	TCDD tested below the regulatory threshold.	N/A

Table 3: Floral Park Dioxin Results			
Sample ID	**Client ID**	**Summary of Comparison to Regulatory Thresholds**	**Detected Concentration of Dioxin Exceeding Regulatory Thresholds**
EB-FP3	LIRR 3RD-EB-FP3-091318	TCDD tested below the regulatory threshold.	N/A

3.3 QA/QC Sample Analytical Results – Trip Blank

As stated detailed in Section 2.0, the following Quality Assurance/Quality Control samples were taken:

- One (1) trip blank sample

As per the approved Early Works SAP, one (1) field blank and one (1) blind duplicate soil sample was collected per every twenty (20) soil samples for the entire Early Works soil sampling program. As of 12/03/2018, a total of two-hundred-and-ninety-nine (299) soil samples have been collected under the Early Works soil sampling program. Accordingly, a total of fifteen (15) field blanks and sixteen (16) blind duplicate soil samples have been collected in compliance with the one (1) field blank and one (1) blind duplicate soil sample per twenty (20) soil samples requirement. Therefore, the QA/QC frequency objective for the collection and laboratory analysis of field blanks and duplicate soil samples has been met.

As per the approved Early Works SAP, one (1) trip blank was collected and analyzed for each soil sampling cooler shipped.

The analytical results for these QA/QC samples were compared against New York Technical Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS). Results for the QA/QC sample analytical results are presented in Appendix A-7. A summary of the QA/QC sample results is presented in Table 4 below.

Table 4: Floral Park QA/QC Sample Analytical Results				
Sample Type	**Date Collected**	**Laboratory Sample ID**	**Summary of Comparison to Regulatory Thresholds**	**Detected Concentration of Analytes Exceeding Regulatory Thresholds**
Trip Blank	9/13/2018	L1836292-01	All analytical results were below the regulatory thresholds..	N/A

4.0 SOIL CHARACTERIZATION

The soil was characterized as per the soil characterization guidelines as listed in Technical Provisions Section 2.7.13.1.D, RFI# 202, RFI #226, and RFI #236:

i. **Hazardous Material –** Material from areas where analytical results exceed RCRA and/or Toxic Substance Control Act (TSCA) hazardous waste regulatory levels for at least one target compound, as defined by 40 CFR Part 261, 40 CFR Part 761, and 6 NYCRR Part 371.
ii. **Non-Hazardous, Non-Petroleum Contaminated Material –** Material from areas where analytical results exceed Soil Cleanup Objectives (SCO) of 6 NYCRR Part 375-6.8 (Track 1) but are below hazardous waste regulatory levels established by the NYSDEC and do not exhibit petroleum contamination or exceed the soil cleanup levels (SCLs) for petroleum contaminated soil as per NYSDEC's CP-51.
iii. **Non-Hazardous, Non-Petroleum Contaminated Material - Suitable for Re-Use On Site** – Material from within the LIRR ROW or on LIRR property that tests below the Industrial Use SCO, regardless of whether it tests above a lower SCO threshold. Placement and re-use restrictions apply as per LIRR's response to RFI #236.
iv. **Non-Hazardous, Non-Petroleum Contaminated Material – Suitable for Commercial Re-Use –** Soil from commercial locations off LIRR property that test below the Commercial Use SCO, regardless of whether it tests above a lower SCO threshold. Placement and re-use restrictions apply as per LIRR's response to RFI #236.
v. **Non-Hazardous, Non-Petroleum Contaminated Material – Suitable for Residential Re-Use –** Soil from residential locations off LIRR property that test below the Residential Use SCO, regardless of whether it tests above a lower SCO threshold.
vi. **Petroleum-Contaminated Material –** Material from areas where field observations suggest petroleum contamination and exceed the SCLs for petroleum contaminated soil as per NYSDEC's CP-51.
vii. **Non-Contaminated Material –** Material from areas where environmental investigations do not indicate the presence of contamination as identified in the above three categories.

Table 5 below summarizes the soil classifications for the additional soil samples collected within the LIRR ROW in Floral Park, NY.

Table 5: Floral Park Soil Characterization Table

Boring ID	Sample Depth (feet bgs)	Sample ID	Soil Characterization
EB-FP1	0-2	LIRR 3RD-EB-FP1-091318	**Non-Hazardous, Non-Petroleum Contaminated Material - Suitable for Re-Use On Site Placement and Re-Use Restrictions Apply**

Table 5: Floral Park Soil Characterization Table

Boring ID	Sample Depth (feet bgs)	Sample ID	Soil Characterization
EB-FP2	0-2	LIRR 3RD-EB-FP2-091318	**Non-Hazardous, Non-Petroleum Contaminated Material - Suitable for Re-Use On Site Placement and Re-Use Restrictions Apply**
EB-FP3	0-2	LIRR 3RD-EB-FP3-091318	Non Contaminated Material

As detailed in TP Section 2.7.13.1.Z.1, soil classified as Non-Contaminated Material may be reused on site.

Soil within the vicinity of the following samples has been characterized as Non-Hazardous, Non-Petroleum Contaminated Material – Suitable for Re-Use on Site due to analytical results for pesticides and/or metals in exceedance of the Unrestricted Use Soil Cleanup Objective (SCO):

- EB-FP1 (LIRR 3RD-EB-FP1-091318); and
- EB-FP2 (LIRR 3RD-EB-FP2-091318).

As per LIRR's response to Request for Information (RFI) #202, soil that has tested above the Unrestricted Use SCO but below the Industrial Use SCO may be reused within the LIRR ROW or on LIRR property. Any such material that is exported from the work site must be disposed of or processed as Non-Hazardous, Non-Petroleum Contaminated Material, as detailed in TP Section 2.7.13.1.W.1.i.