Green Remediation Evaluation

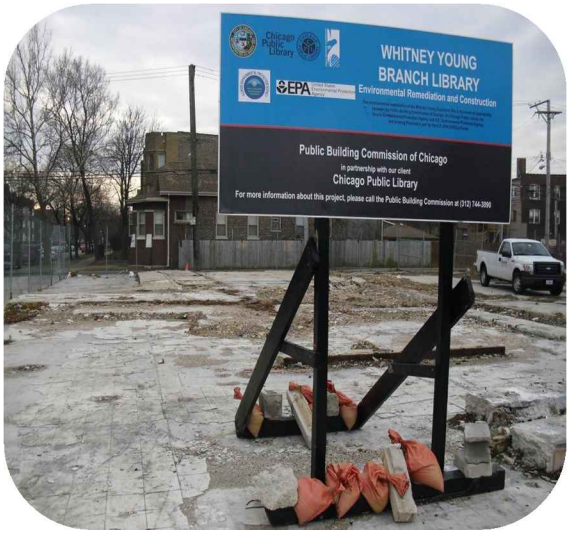
PROPOSED WHITNEY YOUNG LIBRARY EXPANSION
LPC NO.: 0316455026

USEPA BROWNFIELDS HAZARDOUS SUBSTANCES AND PETROLEUM ASSESSMENTS GRANT

USEPA COOPERATIVE AGREEMENT NO. BF-00E00880-0

May 13, 2013, Revised 8/30/2013

Terracon Project No. A2117021



Prepared for:
Public Building Commission of Chicago
Chicago, Illinois

Prepared by:
Terracon Consultants, Inc.
Chicago, Illinois

Terracon

August 30, 2013

Illinois Environmental Protection Agency
Bureau of Land
Office of Brownfields Assistance, BOL#24
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Attn: Mr. Steve Colantino

Re: Green Remediation Evaluation
LPC No. 0316455026 -- Cook County
Proposed Whitney Young Public Library
Terracon Project No. A2117021

Dear Mr. Colantino:

Terracon Consultants, Inc. (Terracon), on behalf of the Public Building Commission of Chicago (PBC), is pleased to submit this this Green Remediation Evaluation for the proposed Whitney Young Public Library site located at 7901 South Martin Luther King, Jr. Drive and 415-423 East 79th Street, Chicago, Cook County, Illinois. This document is being submitted as a pilot program of the Illinois Environmental Protection Agency (IEPA). This evaluation has been conducted in general accordance with the draft ASTM Standard Guide for Greener Cleanup (ASTM WK35161) provided by the IEPA. Throughout the document, the section headers reference the corresponding sections in ASTM Guidance. The draft version of this evaluation was issued in May 2013, and the Best Management Practices (BMP's) recommended were implemented. This revised report dated August 30, 2013 includes final version of all PBC comments.

Sincerely,
Terracon Consultants, Inc.

For:
Matt Weiss, P.G.
Project Geologist

For:
Linda Yang, P.G.
Environmental Department Manager

Richard O'Brien, P.E.
Senior Engineer

Copies to: Rich Schleyer, LeeAnn Tomas-Foster, Public Building Commission of Chicago (PBC)
Mike Charles, Heather Nifong, IEPA

TABLE OF CONTENTS

TABLES

APPENDICES

35 IAC ..... Title 35 Illinois Administrative Code
bgs ..... below ground surface
City ..... City of Chicago
cm ..... centimeter(s)
CWS ..... Community Water Supply
ESA ..... Environmental Site Assessment
eV ..... electron-volt
f_{oc} ..... Organic Carbon Content
g ..... gram(s)
GIS ..... Geographical Information System
GRO ..... Groundwater Remediation Objective
Guidance ..... Draft ASTM Guidance for Greener Cleanup (WK35161)
IEPA ..... Illinois Environmental Protection Agency
IPCB ..... Illinois Pollution Control Board
ISGS ..... Illinois State Geological Survey
ISWS ..... Illinois State Water Survey
JULIE ..... Joint Utility Locating Information for Excavators
kg ..... kilogram(s)
L ..... liter(s)
MBRG ..... Municipal Brownfields Redevelopment Grant
mg ..... milligram(s)
mL ..... milliliter(s)
N/A ..... Not Applicable
NFR ..... No Further Remediation
OSE ..... IEPA Office of Site Evaluation
PAH ..... Polycyclic Aromatic Hydrocarbons
PCB ..... Polychlorinated Biphenyl
PID ..... Photoionization Detector
PIN ..... Parcel Identification Number
ppm ..... part(s) per million
PVC ..... Polyvinyl Chloride
PWS ..... Public Water Supply
RA ..... Remedial Applicant
RACR ..... Remedial Action Completion Report
RAP ..... Remedial Action Plan
RCRA ..... Resource Conservation and Recovery Act
REC ..... Recognized Environmental Condition
RO ..... Remediation Objective
ROR ..... Remediation Objectives Report
sec ..... second(s)
SIR ..... Site Investigation Report
SPLP ..... Synthetic Precipitation Leaching Procedure
SRO ..... Soil Remediation Objective
SSL ..... Soil Screening Level
SVOC ..... Semivolatile Organic Compound
SWAP ..... Source Water Assessment Program
TACO ..... Tiered Approach to Corrective Action Objectives
TCL ..... Target Compound List
TCLP ..... Toxicity Characteristic Leaching Procedure
USEPA ..... United States Environmental Protection Agency
USGS ..... United States Geological Survey
UST ..... Underground Storage Tank
VOC ..... Volatile Organic Compound
yr ..... year(s)

GREEN REMEDIATION EVALUATION
0316455026 -- COOK COUNTY
PROPOSED WHITNEY YOUNG PUBLIC LIBRARY

Terracon Project No.A2117021
May 6, 2013 – Revised 8/30/2013

1.0 INTRODUCTION [8.3.1.1]

1.1 Report Author and Organization

This evaluation is being conducted by Terracon Consultants, Inc (Terracon) on behalf of the Public Building Commission of Chicago (PBC).

1.2 Identification of Project Team

A summary of the Project Team members is provided in Table 1-1.

Table 1-1 Summary of Project Team

Team Member Designation	Team Member Name (Organization)
Site Owner Representatives	LeeAnn Thomas-Foster (PBC) Rich Schleyer (PBC)
Illinois EPA Brownfields Representative	Heather Nifong, Steve Colantino, Mike Charles, (IEPA)
Illinois EPA SRP Project Manager	Todd Hall (IEPA)
Lead Environmental Professional	Linda Yang, P.G. (Terracon)
User	Richard O'Brien, P.E. (Terracon)

1.3 Report Completion Date

The draft version of this evaluation was issued in May 2013, and the Best Management Practices (BMP's) recommended were implemented. This revised final report dated August 30, 2013 includes final version of all PBC comments

1.4 Property Name

The property name is Whitney Young Public Library Expansion.

1.5 Site Location

The site is approximately 0.36 acres in size and encompasses properties consisting of three currently vacant lots owned by the City of Chicago and located at 415-423 East 79th Street in Chicago, Cook County, Illinois. Appendix A provides the site Topographic Vicinity Map.

1.6 Site Identification Number(s)

The site is currently enrolled in the Illinois Environmental Protection Agency (IEPA) Site Remediation Program (SRP) under LPC Number 0316455026 and USEPA Cooperative Agreement number BF-00E00880-0. The Cook County Property Index Numbers (PINs) for the Whitney Young Expansion are 20-34-200-035, 20-34-200-004, and 20-34-200-005.

1.7 Lead Oversight Agency

The lead oversight agencies for the cleanup project are USEPA Region 5 and the IEPA. The site cleanup is under USEPA Cleanup Grant and Revolving Loan Fund administered by the IEPA.

1.8 Cleanup Program

The site is currently enrolled in the IEPA SRP and Mr. Todd Hall is the remediation site Project Manager for the IEPA.

1.9 Site History

Phase I Environmental Site Assessments (ESAs) were conducted for the site by K-Plus LLC, (K-Plus) dated August 30, 2008 and by Terracon Consultants, Inc. (Terracon) dated September 30, 2010 (Terracon No. A2107011). The ESAs indicated that previous operations at the 421-423 East 79th Street property included a paint store/warehouse, laundry (dry cleaner/laundromat), auto service station and repair shop, constituting Recognized Environmental Conditions (RECs). The four buildings on the three lots of the site were razed in 2011, and the vacant parcels are owned by the City of Chicago.

1.10 Purpose

The purpose of this document is to provide best management practices for conducting the selected remedial action at the project site in a way that reduces the environmental footprint of the remediation. Specifically, this document provides recommendations to reduce remediation impacts to environmental media and the surrounding community in an economically feasible way.

2.0 SITE STATUS [8.3.1.2]

2.1 Size of the Site

The site is approximately 0.36 acres in size and encompasses the three lots outlined in Section 1.5. The full IEPA SRP site includes the west adjacent existing Whitney Young Library parcel, and totals 0.80 acres in size. No work is scheduled with the western parcel at this time, so this study will focus on the eastern three lots where active remediation is planned.

2.2 Current Phase of Cleanup

The site is currently in the implementation phase of clean up. A Remedial Objectives Report and Remedial Action Plan Addendum (ROR/RAP) was submitted to the IEPA SRP on August 3, 2012 outlining the remedy design and plans for implementation. The remedy for the site includes a combination of multiple technologies including soil excavation and disposal; soil mixing and ISCO; installation of compacted clay engineered barrier; and institutional controls.

2.3 Potential/Actual Environmental Media Impacts and Contaminants

The actual environmental media identified as impacted at the site includes soil and groundwater. As PBC is seeking a Comprehensive No Further Remediation Letter (NFR) letter from the IEPA, the potential contaminants of concern investigated for the site included those outlined in 35 IAC 740 Appendix A. Specifically, site sampling has indicated that exceedances of the Tier 1 Remedial Objectives (ROs) at the site include tetrachloroethene (PCE), trichloroethylene (TCE), methylene chloride and vinyl chloride in both soil and groundwater. Concentrations of polynuclear aromatics (PNAs) were also identified in soil above the Tier 1 ROs but were generally confined to the upper three feet at the site.

The volatile organic compound (VOC) constituents were detected in soil at depths of up to 14 feet below ground surface (bgs). A total of three samples indicated concentrations of PCE above the soil saturation limit (C_{sat}) for PCE of 240 mg/kg.

2.4 Site Use

2.4.1 Historical

As outlined in Section 1.9, the ESAs indicate that historical site use included various commercial structures and occupants including paint store/warehouse, laundry (dry cleaner/laundromat), auto service station and repair shop for the properties located at 421-423 East 79th Street. These structures were in place from approximately the 1930s to 2011 when the buildings were razed. The Whitney Young Library was constructed in approximately 1976 and remains in use west of the site.

2.4.2 Current

Current site use is a vacant lot fenced to prevent unauthorized access. The above ground portions of the former commercial buildings on the site have been razed. Whitney Young Library, a Chicago Public Library, is in operation immediately west of the site.

2.4.3 Anticipated Future

Long-term future site use includes one of two options: 1) a new Whitney Young Library on the western portion of the SRP site, including an expansion of a new building into the eastern portion of the site, or 2) a renovated Whiney Young Library with an expansion of a

new building into the eastern portion of the site. Either option will include a paved parking lot on the far eastern portion of the site. Use immediately after 2013 remedial site work will be a gravel lot with drainage improvements in anticipation of the next phase of the development.

2.5 Human or Ecological Receptors of Contamination

Potential receptors of contamination have been evaluated at the site using the Tiered Approach to Corrective Action Objectives (TACO) outlined in 35 IAC 742. Potential receptors at the site include occupants and construction workers through the soil ingestion, soil inhalation, soil component of the groundwater ingestion (soil component) and groundwater ingestion exposure routes. However, institutional controls within the City of Chicago prevent exposure to contaminated groundwater via the soil component and groundwater ingestion pathway.

Evaluation of ecological receptors is not required in the IEPA TACO regulations. Based on the existing site conditions of a library and vacant commercial lots within the City of Chicago, ecological receptors for this site are believed to be limited to those capable of thriving in an urban habitat. Potential receptors may include local migratory/local birds, small mammals and subsurface invertebrates/micro-organisms through ingestion or inhalation. However, sufficient exposure to the potential ecological receptors via ingestion is not likely as site vegetation is sparse. Furthermore, sufficient exposure to ecological receptors via inhalation is unlikely as these populations are nomadic in nature.

2.6 Adjacent Property Use

Adjacent property use consists of mixed residential and commercial businesses. Current property use includes a McDonald's restaurant to the west (7900 S Martin Luther King Drive), a mixed small commercial/residential building and Burger King Restaurant to the north of the site, a residential apartment building to the east, and single family houses to the south.

2.7 Stakeholder Involvement

Stakeholders involved in this project include the City of Chicago, Chicago Public Libraries, Public Building Commission of Chicago, Chicago Department of Fleet and Facility Management, Alderman's Office of the 6th Ward of Chicago, Whitney Young Library, the greater Grand Crossing and Chatham communities and groups including Park Manor Neighbors Community Council, Chatham Business Association Small Business Development, Inc., Chatham Avalon Park Community Council and the Gary Comer Youth Center. Other stakeholders include local contractors and project participants, including Terracon Consultants Ltd. (MEC) and Natural Resource Technology, Inc. (Remediation Contractor). State and federal stakeholders include Illinois Environmental Protection Agency

Site Remediation Program, Office of Brownfields Assistance, and the U.S Environmental Protection Agency, Region 5.

2.8 Cleanup Activities to Date

Cleanup activities conducted to date include site assessment and remedy selection. Site assessment has consistent of the site investigation necessary to satisfy the requirements of the Comprehensive Site Investigation Report (CSIR). Upon identification of contamination above Tier 1 ROs, site specific remediation objectives were established in the ROR and remedy selection was documented in the RAP. The combined CSIR/ROR/RAP was submitted to the IEPA on November 3, 2010. The RAP proposed that a combination of In-situ Chemical Oxidation (ISCO) and excavation and disposal be conducted to remediate the site. The IEPA approved the CSIR/ROR/RAP in correspondence dated January 24, 2011.

Upon approval of the RAP, a bench scale study was conducted. The bench scale study results indicated that application of a chemical oxidant resulted in reduced PCE concentrations in the laboratory environment. Based on the bench scale results, in-situ pilot study was conducted at the site utilizing injection methods to deploy the chemical oxidant at a portion of the site. Confirmation sampling conducted around the pilot study area indicated that the chemical oxidant application was effective in the sandy soil interval; however, the treatment results were inconsistent the lower permeability silt and silty clay soil below approximately 10 feet bgs. Therefore, the method proposed in the approved ROR/RAP was determined not practically feasible for site-wide remedy implementation.

An addendum to the RAP was submitted to the IEPA on August 3, 2012 presenting an alternate remedy design consisting of limited ISCO treatment, excavation and disposal and installation of an engineered barrier. The revised RAP was approved by the IEPA in a correspondence dated January 9, 2013. Active remedy implementation activities related to the revised RAP began in June 2013.

2.9 Technologies/Engineering Controls Implemented

The IEPA-approved RAP includes the use of multiple remedial technologies, engineering barriers and institutional controls at the site. At the eastern portion of the site (future parking lot), soil above approximately eight feet bgs will be remediated by excavation and disposal. Soil below approximately eight feet bgs will be remediated to below C_{sat} concentrations through the application of a chemical oxidant with in-situ mechanical soil mixing. Upon remediation of C_{sat} exceedances, the inhalation exposure pathway will be excluded through the installation of an alternative engineered barrier. The alternative engineered barrier will consist of three feet of compacted clay.

(At the western portion of the SRP site, location of the current public library and future library to be constructed, the top three feet of soil will be excavated and disposed of at a permitted landfill during the new library construction. This is not included in the 2013 site work.)

2.10 Cleanup Goals

Cleanup goals for the site are documented in the ROR Addendum prepared by Terracon dated August 3, 2012. As outlined in the ROR Addendum, cleanup goals have been established to support exclusion of the soil ingestion and soil inhalation exposure routes consistent with the requirements of 35 IAC 742.305 and TACO Tier 1 ROs for residential land use. Additionally, in areas with deep soils exceeding C_{sat} concentrations for PCE, cleanup goals will be to reduce concentrations below the chemical-specific C_{sat} concentration.

Cleanup goals for the soil component and groundwater ingestion exposure routes are based on Class I groundwater. Site investigations identified site soil exceeding Tier 1 ROs for the soil component to Class I groundwater exposure route, and groundwater exceeding Class I ingestion exposure route. Subsequent to the remediation, the extent of groundwater contamination above Class I values will be modeled using IEPA TACO Equation R-26 and, if necessary, notifications to downgradient property owners will be issued. Documentation of modeling parameters and results will be provided in the Remedial Action Completion Report (RACR).

2.11 Site Use Restrictions

Based on the selected remedy (ISCO treatment and 3 feet of compacted clay), institutional controls will be placed on the site. The institutional controls will include delineating a construction worker caution area on the final NFR letter of the site, as well as maintaining the subsurface engineered barrier and prohibiting the installation of potable water supply wells at the property. The institutional control restricting water supply well installation will rely on City Ordinance 97070701 and a memorandum of understanding between the City and the IEPA dated July 3, 1997.

3.0 CLEANUP PHASE EVALUATION [8.3.1.3]

3.1 Applicable Cleanup Phase

The cleanup phase being evaluated in this document is the remedy implementation phase. This phase constitutes the final cleanup phase of the project, as the selected remedy does not include long term operations or monitoring.

3.2 Evaluation Process

The process utilized for evaluating best management practices for the remedy implementation phase of the project consists of the Best Management Practices (BMP)

Process outlined in the draft ASTM Guidance for Greener Cleanup (WK35161). A quantitative evaluation was not conducted for the project based on correspondence with the IEPA Office of Brownfields Assistance.

3.3 Best Management Practices for Cleanup Phase

3.3.1 BMP Opportunity Assessment

The BMP Opportunity Assessment was conducted to identify BMPs that may be applicable to the current cleanup phase. Terracon consulted Appendix X2 of the draft ASTM Guidance for potential BMPs applicable to the site. Potential BMPs were considered based solely on the cleanup phase and without regards to cost, logistics or relative benefits to other BMPs. A list of potential BMPs and the core element(s) they address is provided in Table 3-1

Table 3-1 Summary of Potential BMPs

Category	BMP	Core Element(s) Addressed
Materials	Use recycled and/or bio-based content instead of petroleum-based contents for engineered barrier	MW[1]
Materials	Steam clean or use phosphate-free detergents to decontaminate equipment	W[2]; MW; LE[3]
Materials	Select oxidants/reagents with a lower environmental burden	MW; LE
Power and Fuel	Use gravity flow to introduce chemical oxidants to the subsurface when high pressure injection is unnecessary	E[4]; MW
Power and Fuel	Use biodiesel produced from waste or cellulose based products, preferring local sources to reduce transportation impacts	MW
Power and Fuel	Schedule treatment period when groundwater table is lower in order to minimize energy requirements	E
Project Planning and Team Management	Use local staff, including subcontractors, when possible to minimize resource consumption	E; A[5]; W; MW
Project Planning and Team Management	Link remediation activities to site development/construction	E; A; W; MW; LE
Project Planning and Team Management	Target Treatment Zone (TTZ) and select appropriate performance standards to minimize volume requiring treatment relative to remedial goals	E; A; W; MW; LE

[1] *MW = Materials and Waste*
[2] *W = Water*
[3] *LE = Land and Ecosystems*
[4] *E = Energy*
[5] *A = Air*

Category	BMP	Core Element(s) Addressed
Materials	Salvage uncontaminated objects/infrastructure with potential recycle, resale, donation, or reuse.	MW; E, A
Residual Solid and Liquid Waste	Use alternative drilling methods including direct-push technology (DPT) or sonic for well drilling to minimize drill cuttings that require disposal	E; A; MW; LE
Sampling and Analysis	Use local laboratory to minimize impacts from transportation	E; A
Site Preparation/Land Restoration	Use onsite or nearby sources of backfill material for excavated areas, if shown to be free of contaminants	E; A; MW
Vehicle and Equipment Management	Use biodegradable hydraulic fluids on hydraulic equipment such as drill rigs	MW
Vehicle and Equipment Management	Implement an idle reduction plan	E; A; LE
Vehicle and Equipment Management	Mix amendments into soil in situ whenever possible to minimize dust generation and emissions	A; LE

3.3.2 BMP Prioritization

BMPs identified during the Opportunity Assessment were evaluated based on the ability of each BMP to reduce the environmental footprint of the cleanup activity. BMPs that were determined to have the greatest ability to reduce the environmental footprint were assigned a “high” priority, those with a modest ability to reduce the environmental footprint were assigned a “moderate” priority and those with the least likelihood to reduce the environmental footprint were assigned a “low” priority. A summary of the prioritized BMPs is provided in Table 3-2. A brief description of the prioritization rationale is presented below.

Table 3-2 Summary of Prioritized BMPs

Priority	BMP	Core Element(s) Addressed
High	Link remediation activities to site development/construction	E; A; W; MW; LE
High	Target Treatment Zone (TTZ) and select appropriate performance standards to minimize volume requiring treatment relative to remedial goals	E; A; W; MW; LE
High	Use local staff, including subcontractors, when possible to minimize resource consumption	E; A; W; MW

Priority	BMP	Core Element(s) Addressed
Moderate	Mix amendments into soil in-situ whenever possible to minimize dust generation and emissions	A; LE
Moderate	Implement an idle reduction plan	E; A; LE
Moderate	Salvage uncontaminated objects/infrastructure with potential recycle, resale, donation, or reuse.	MW; E, A
Moderate	Use alternative drilling methods including direct-push technology (DPT) or sonic for well drilling to minimize drill cuttings that require disposal	E; A; MW; LE
Moderate	Use local laboratory to minimize impacts from transportation	E; A
Moderate	Steam clean or use phosphate-free detergents to decontaminate equipment	W; MW; LE
Moderate	Use biodiesel produced from waste or cellulose based products, preferring local sources to reduce transportation impacts	MW, A
Moderate	Select oxidants/reagents with a lower environmental burden	MW; LE
Moderate	Use gravity flow to introduce chemical oxidants to the subsurface when high pressure injection is unnecessary	E; MW
Moderate	Use onsite or nearby sources of backfill material for excavated areas, if shown to be free of contaminants	E; A; MW
Low	Use biodegradable hydraulic fluids on hydraulic equipment such as drill rigs	MW
Low	Schedule treatment period when groundwater table is lower in order to minimize energy requirements	E
Low	Use recycled and/or bio-based content instead of petroleum-based contents for engineered barrier	MW

BMPs were assigned a high priority based on their ability to have the greatest positive influence on multiple core elements. Specifically, linking the cleanup to the redevelopment of the site and using local contractors, as available, could potentially result in dramatically lower impacts to at least four of the five core elements. The benefits of these BMPs will likely expand beyond the core elements into the local community with respect to local job opportunities and development of an underserved area of the City.

BMPs were assigned a moderate priority based on their potential for positive influence on one or more core elements limited to within the technical scope of the project. The moderate priority BMPs typically include the use of materials or consumption of energy during implementation of the cleanup phase. BMPs were assigned a low priority based on the likelihood that implementation would not result in positive influences on core elements during the cleanup. BMPs assigned a low priority were not considered during steps in the BMP Process.

3.3.3 BMP Selection

The prioritized BMPs were further evaluated based on project-specific factors, including those identified within the Request for Qualifications document issued by PBC in December 2012. The high and moderate priority BMPs were evaluated for implementability, effectiveness, reliability, risks, cost and community concerns. A brief summary of this evaluation is provided below.

- **Link remediation activities to site development/construction** – This BMP had highest potential to positively affect multiple core elements while also having high implementability, effectiveness, reliability, low risks, low overall project cost and low community concerns. Conducting remediation while conducting construction preparation for the next phase of site development as a parking lot will minimize truck trips to and from the site, and thereby minimize traffic congestion, air emissions, site stormwater runoff, material use, and community disruption.

- **Target Treatment Zone (TTZ)** - This BMP of targeting deep ISCO areas and limiting site excavation in the upper interval will minimize truck trips to and from the site, and thereby minimize air emissions, offsite landfill use, stormwater runoff, material use, and community disruption.

- **Use local staff, including subcontractors, when possible to minimize resource consumption** – This BMP of utilizing local hires will minimize passenger car travel to and from site, and thereby minimize air emissions, help relieve traffic congestion, material use, and help facilitate good community relations.

- **Mix amendments into soil in situ whenever possible to minimize dust generation and emissions** – This BMP will minimize double handling of material, reducing costs. This BMP will also minimize dust in this dense urban area, helping air quality and community relations.

- **Implement an idle reduction plan** – This BMP will reduce energy use and noise emissions, help air quality in this dense urban area, and help community relations.

- **Salvage uncontaminated objects/infrastructure with potential recycle, resale, donation, or reuse –** Taking uncontaminated concrete foundations to be crushed and recycled will minimize energy use compared to creation of new concrete with virgin stone, and minimize landfill use. Because of proximity of the site to a concrete recycler, this BMP will reduce truck travel time compared to a trip to the landfill, thereby helping traffic congestion, energy use, and air quality.

- **Use alternative drilling methods including direct-push technology (DPT) or sonic for well drilling to minimize drill cuttings that require disposal** – Utilizing direct-push technology when possible when collecting confirmation samples will provide moderate benefits to waste disposal needs for the project, energy, and air emissions.

- **Use local laboratory to minimize impacts from transportation** – This BMP will reduce travel time compared to a trip to distant laboratory, thereby helping traffic congestion, energy use, and air quality. Use of a local lab will also generate more local income helping community relations.

3.3.4 BMP Implementation

The selected BMPs will be implemented during the cleanup activities. At this time, cleanup activities are anticipated to be conducted from May through October 2013. If individual BMPs are identified during the cleanup as impractical, cost-prohibitive or unacceptable to the public, then an addendum to this document will be submitted documenting those conditions.

3.3.5 BMP Documentation

The draft ASTM Guidance requires that the BMP evaluation described in this document be summarized in a standalone table. This summary is provided in Appendix B.

3.4 Status of BMP Implementation

The BMPs discussed in this document will be implemented in the near future at the site.

4.0 ANTICIPATED ENVIRONMENTAL FOOTPRINT REDUCTIONS [8.3.1.4]

Based on discussions with IEPA, qualitative evaluations were conducted on the following.

4.1 Total Energy Use

Total energy use for the project will be reduced by linking remediation to site development, salvaging concrete foundations for recycling, remediation of a TTZ, using direct push technologies, and using local staff and laboratory. The greatest energy savings would be from minimizing energy required for excavation of soil off site with use of a TTZ, and minimizing future need to replace unsuitable backfill during construction of parking lot by using suitable construction backfill during remediation.

4.2 Air Pollutants and Greenhouse Gas Emissions

Air emissions will be reduced by linking remediation to site development, mixing amendments in-situ, remediation of a TTZ, using direct push technologies, using an idle reduction plan to reduce truck diesel emissions, and minimizing emissions from travel through use of local staff, local laboratory, and recycling concrete foundations located on site. Air and carbon dioxide greenhouse emissions may be reduced the most from reducing total diesel engine truck / excavator run time by minimizing excavation of soil off site with TTZ, minimizing future need to replace unsuitable backfill during construction of parking lot, and use of an idle reduction program.

4.3 Water Resource Impacts

Water resource impacts would be reduced to a moderate degree by linking remediation to site development and remediation of a TTZ, minimizing days of site construction and potential runoff to surrounding storm sewers, and eventually waterways.

4.4 Waste/Materials Management

Waste will be reduced by linking remediation to site development, salvaging concrete foundations for recycling, remediation of a TTZ, using direct push technologies, and using local staff and laboratory. The waste reduction would be from minimizing excavation of soil off site with TTZ, minimizing future need to replace unsuitable backfill during construction of parking lot, and recycling concrete foundations instead of landfill disposal.

4.5 Land/Ecosystem Management

Because the site is located in a highly urbanized area, impacts to local land and ecosystems are of less significance as compared to a site in a rural setting. However, the BMPs identified above that would mitigate air emissions and stormwater runoff would also help mitigate impacts to offsite land and ecosystems. Additionally, future plans for the currently-vacant site include the addition of landscaping and trees, enhancing the urban ecosystem.

5.0 DECLARATION [8.3.2]

A greener cleanup evaluation was conducted in general conformance with the draft ASTM WK35161 Standard Guide for Greener Cleanups for the Whitney Young Library located at 415-423 East 79th Street, Chicago, Cook County, Illinois by Terracon Consultants, Inc. of Chicago, Illinois.

6.0 PUBLIC AVAILABILITY [8.4]

This document is available for public inspection at the City of Chicago Public Building Commission offices located at 50 W. Washington Street, Suite 200 Chicago, Illinois.

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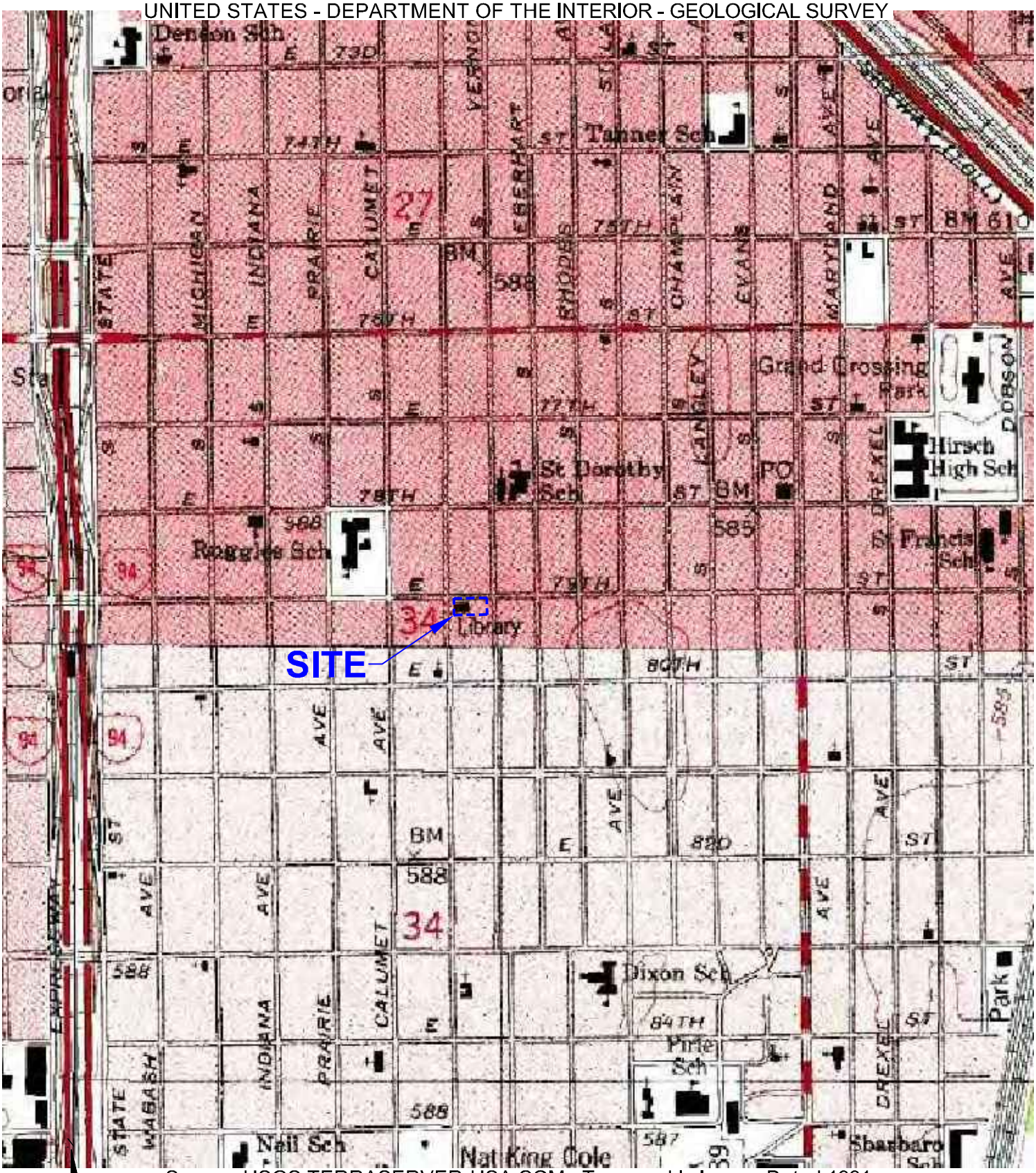
APPENDIX A

Topographic Vicinity Map

UNITED STATES - DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY



Source: USGS TERRASERVER-USA.COM - Topographic Image, Dated 1991

0 1000'
APPROXIMATE SCALE

Approximate Site Location

Project Mngr:	RMO
Drawn By:	DAC
Checked By:	TBN
Approved By:	RMO
Project No.	A2117021
Scale:	AS-SHOWN
Revised By:	EP
Date:	May 2013

Terracon
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650 W. LAKE ST., SUITE 420 CHICAGO, ILLINOIS 60661
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TOPOGRAPHIC VICINITY DIAGRAM

WHITNEY YOUNG PUBLIC LIBRARY
415-423 EAST 79TH STREET
CHICAGO, ILLINOIS

EXHIBIT
1

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. 1A

N:\PROJECTS - OTHER OFFICES\CHICAGO - A2\2010\A2107011\A2097036\DIAGRAMS\A2107011 - SBLD - REV 20100628c.dwg

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APPENDIX B

Tabular Summary of BMP Process

Appendix B - Tabular Summary of Best Management Practice (BMP) Process

Green Remediation Evaluation – Whitney Young Library

Step 1

Potential BMPs
Use recycled and/or bio-based content for engineered barrier
Steam clean or use phosphate-free soap during equipment decontamination
Select oxidants/reagents with lower environmental burden
Use gravity flow to introduce chemical oxidants
Use biodiesel to reduce transportation impacts
Schedule treatment when groundwater table is lower
Use local staff/subcontractors when possible
Link remediation to site development/construction
Target Treatment Zone and select standards to minimize treatment volume
Salvage uncontaminated infrastructure with recycle potential
Use direct-push/alternate drilling methods to minimize cuttings
Use local analytical laboratory
Use local backfill sources
Use biodegradable hydraulic fluids where applicable
Implement idle reduction plan
Mix amendments into soil in situ whenever possible

Step 2 – BMP Prioritization

Rationale
BMP Not likely to result in positive influences on core elements of the project
BMP likely to have positive influence on multiple core elements and community
BMP likely to have positive impact on core elements within project scope
BMP likely to result in positive influences on core elements
BMP likely to result in positive influences on core elements
BMP likely to result in positive influences on core elements
BMP likely to have greatest positive influence on multiple core elements and community
BMP likely to have greatest positive influence on multiple core elements and community
BMP likely to have greatest positive influence on multiple core elements and community
BMP likely to have positive impact on core elements within project scope
BMP likely to have positive impact on core elements within project scope
BMP likely to have positive impact on core elements within project scope
BMP likely to have positive impact on core elements within project scope
BMP likely to result in positive influences on core elements
BMP likely to result in positive influences on core elements and community
BMP likely to have positive impact on core elements within project scope

Prioritized BMPs
Link remediation to site development/construction
Target Treatment Zone and select standards to minimize treatment volume
Use local staff/subcontractors when possible
Mix amendments into soil in situ whenever possible
Implement idle reduction plan
Salvage uncontaminated infrastructure with recycle potential
Use direct-push/alternate drilling methods to minimize cuttings
Use local analytical laboratory
Steam clean or use phosphate-free soap during equipment decontamination
Use biodiesel to reduce transportation impacts
Select oxidants/reagents with lower environmental burden
Use gravity flow to introduce chemical oxidants
Use local backfill sources
Use biodegradable hydraulic fluids where applicable
Schedule treatment when groundwater table is lower
Use recycled and/or bio-based content for engineered barrier

Step 3 – BMP Selection

Rationale
BMP maximizes positive influences on core elements & reduces cost
BMP maximizes positive influences on core elements & reduces cost
BMP has positive effect on core elements &community
BMP has positive effect on core elements &community
BMP has positive effect on core elements &community
BMP has positive effect on core elements & cost
BMP has positive effect on core elements & cost
BMP has positive effect on core elements / community

Selected BMPs
Link remediation to site development/construction
Target Treatment Zone and select standards to minimize treatment volume
Use local staff/subcontractors when possible
Mix amendments into soil in situ whenever possible
Implement idle reduction plan
Salvage uncontaminated infrastructure with recycle potential
Use direct-push/alternate drilling methods to minimize cuttings
Use local analytical laboratory

Rationale
Rinsate to be mixed & disposed with soil; landfill will bind phosphates
Limited local availability; multiple subcontracts restricting implementation
Limited application; non-sensitive urban location; effectiveness minimizes schedule & reduces impact
Clay limits effectiveness of ISCO without active mixing
Limited local availability
Multiple subcontracts & rental machinery restricting implementation
Limited water table variability & scheduling demands make infeasible
Geomembrane barrier cost prohibitive for project

Eliminated BMPs
~~Steam clean or use phosphate-free soap during equipment decontamination~~
~~Use biodiesel to reduce transportation impacts~~
~~Select oxidants/reagents with lower environmental burden~~
~~Use gravity flow to introduce chemical oxidants~~
~~Use local backfill sources~~
~~Use biodegradable hydraulic fluids where applicable~~
~~Schedule treatment when groundwater table is lower~~
~~Use recycled and/or bio-based content for engineered barrier~~

Step 4 – BMP Implementation

Selected BMPs	Implementation Strategy
Link remediation to site development / construction	Issue combined Civil / Environmental RFP; combined drawings / specifications
Target Treatment Zone and select standards to minimize treatment volume	Remedial Action Plan minimizes CSAT ISCO area & offsite soil disposal required
Use local staff / subcontractors when possible	Mandate local hiring requirements with targeted percentages in RFP
Mix amendments into soil in situ whenever possible	Remedial Action Plan requires in situ chemical oxidation
Implement idle reduction plan	Managing Environmental Coordinator (MEC) will inform contractors in kick-off meetings and enforce on site
Salvage uncontaminated infrastructure with recycle potential	Require salvage of uncontaminated on-site foundations for recycling in Demolition contract drawing
Use direct-push / alternate drilling methods to minimize cuttings	Direct push utilized during environmental investigations and to be utilized by MEC as required for confirmation work
Use local analytical laboratory	Local labs utilized during environmental investigations and to be utilized by MEC as required for confirmation work