

May 23, 2016

Mike Lanenga
SET Environmental
450 Sumac Road
Wheeling, IL 60090

RE: 201 – 485 Chicago Riverwalk Thorium Monitoring

Dear Mr. Lanenga:

Stan A. Huber Consultants, Inc. (SAHCI) was hired by your firm to provide radiation monitoring during the excavation and installation of manholes and duct banks along the Riverwalk adjacent to Lower Wacker Drive in Chicago, Illinois. The monitoring was performed on May 11 – May 17, 2016. All activities were conducted under the guidance of document *SET General Guidance for Thorium Monitoring*.

Instrumentation

Surface gamma scans were performed by Kyle Smith and Brian Schmidt using a Ludlum Model 2221 Scaled / Ratemeter (serial no. 126496) with attached 2"x2" NaI probe with 6" lead shield. The instrument was calibrated on October 15, 2015. The USEPA action level of 7.1 picocuries per gram (pCi/g) total thorium for this instrument is 7,054 counts per minute (cpm).

The average background count rate for this location was found to be 2,106 cpm.

Soil Gamma Scans

Gamma surface scans were performed using the Ludlum Model 2221 Scaler / Ratemeter described above. Data was collected by entering the excavation after each 18 inch lift and recording the highest count rate for the floors and walls to an excavation depth of 3 feet. Soil removed beyond 3 feet deep to a maximum depth of 6.5 feet was screened as it was removed from the excavation. Directional borings were used for much of the work. For these locations, any generated spoils were screened as they were generated.

The maximum gamma count rate for each 1.5 foot lift was recorded on the attached Radiation Survey Forms. The count rates in the excavation ranged from 1,400 cpm to 5,300 cpm. No count rates were found at any time that exceeded the threshold limit of 7,054 cpm.

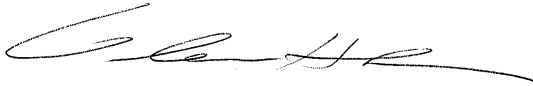
Additional Monitoring

Since no count rates were identified above the 7.1 pCi/gram threshold limit, no additional soil sampling, air monitoring, or personnel monitoring were performed.

You will need to forward a copy of this report to the City of Chicago Department of Public Health (Attn: Rahmatunsia Begum) with the CDOT Permit Number in the subject line. Additionally, a copy of this report should be submitted to USEPA as required.

Thank you for your assistance with this project. If you have any questions or need additional information please call me at (815) 485-6161.

Sincerely,
Stan A. Huber Consultants, Inc.

A handwritten signature in black ink, appearing to read 'G. Huber', written in a cursive style.

Glenn Huber, CHP
President

Radiation Survey Form

Location/ Project ID: RIVERWALK - ELECTRICAL SERVICE INSTALLATION - CHICAGO, IL

Date: 5/12-17/2016

Technician: BRIAN SCHMIDT

Inst Model: LVDMW-2221

Serial No.: 126496

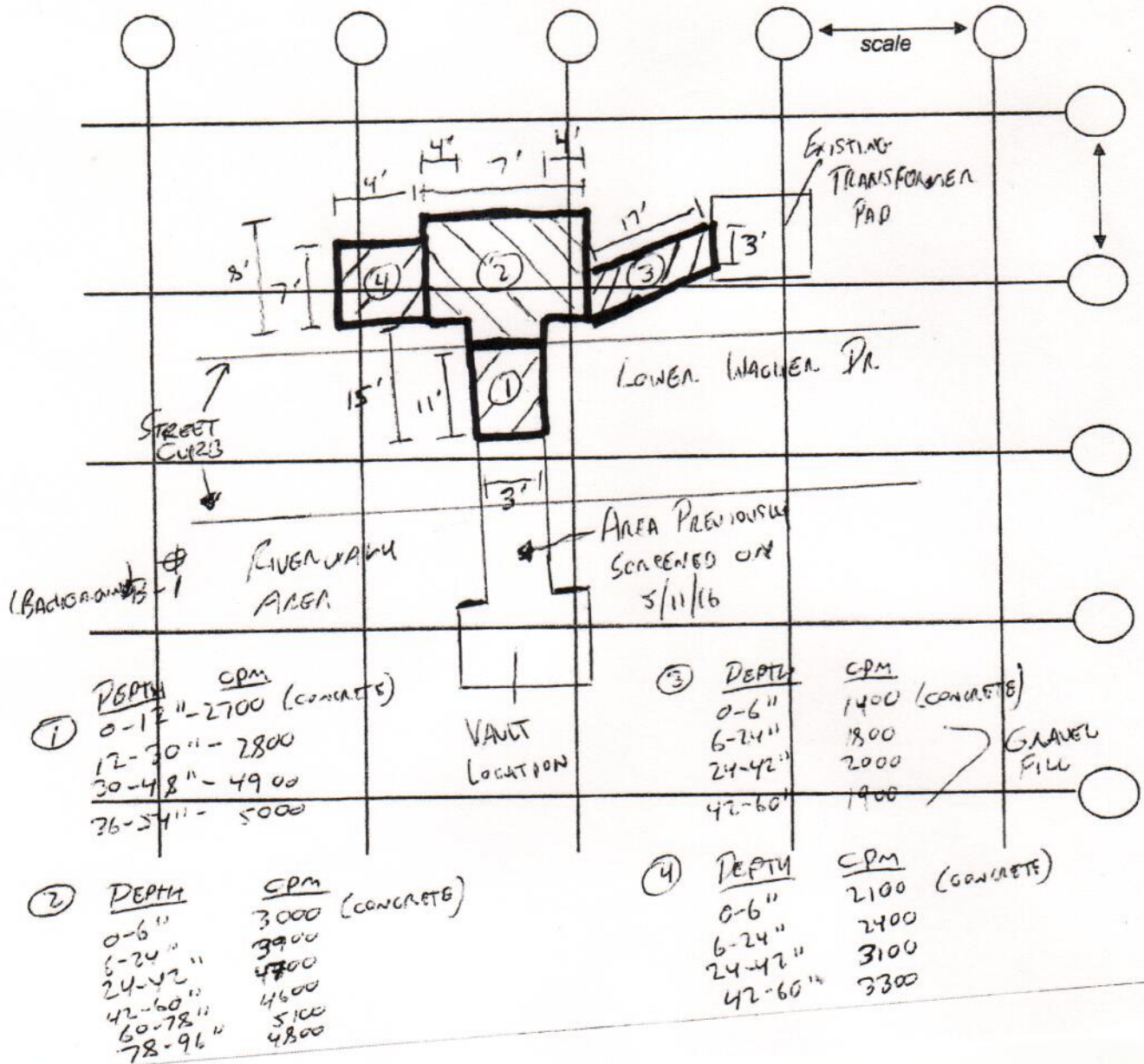
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0-78"

Background 2106 cpm

Action Level: 7054 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.



Radiation Survey Form

Location/ Project ID: RIVERWALK - DIRECTIONAL BORING - ELECTRICAL SERVICE INSTALL - CHICAGO, IL

Date: 5/13-17-2016

Technician: BRIAN SCHMIDT

Inst Model: LUDLUM - 2201

Serial No. : 126496

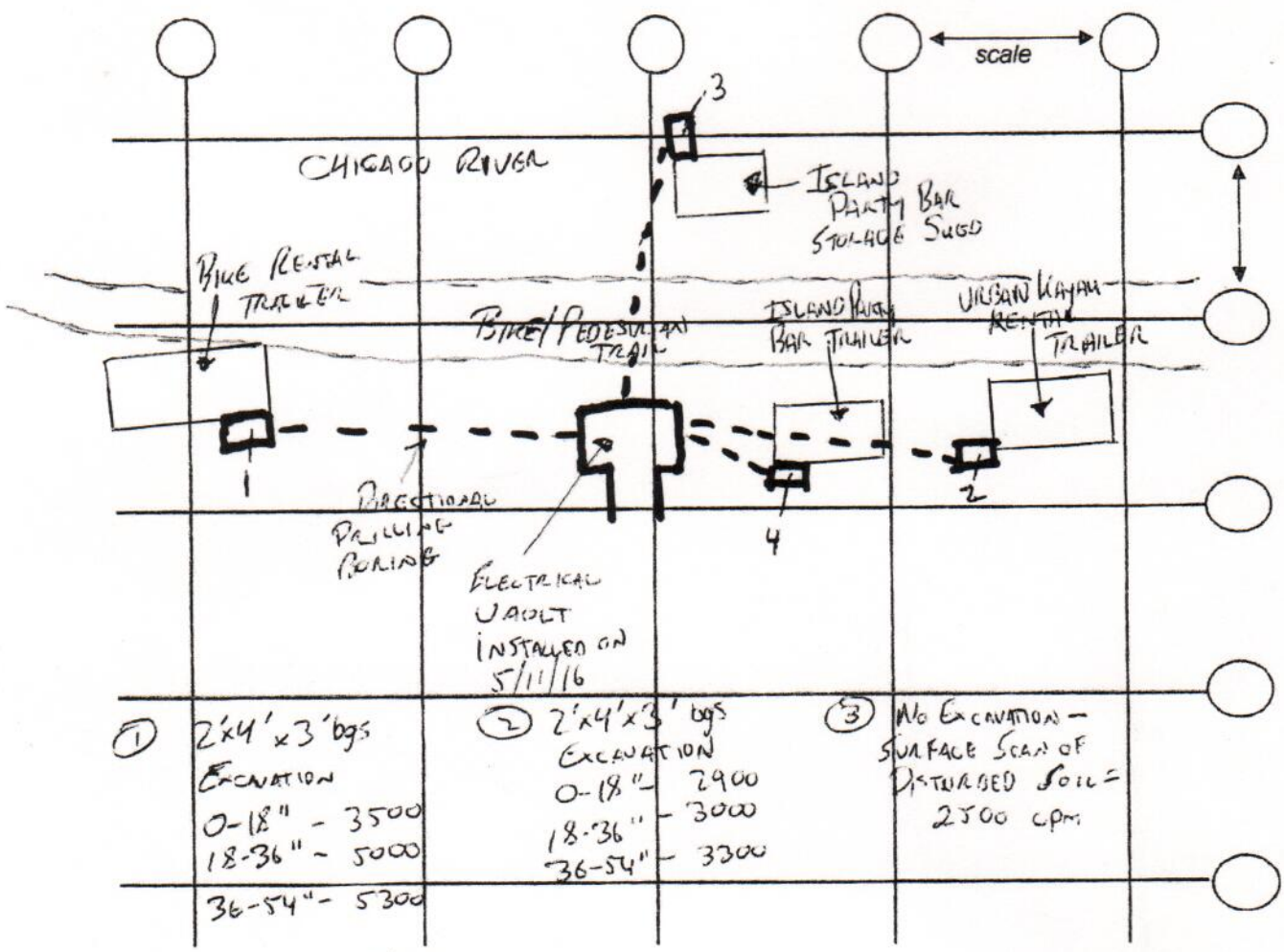
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0-36"

Background 2106 cpm

Action Level: 7054 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.



<p>① 2'x4'x3' bgs EXCAVATION 0-18" - 3500 18-36" - 5000 36-54" - 5300</p>	<p>② 2'x4'x3' bgs EXCAVATION 0-18" - 2900 18-36" - 3000 36-54" - 3300</p>	<p>③ No Excavation - SURFACE SCAN OF DISTURBED SOIL = 2500 cpm</p>
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④ 2'x4'x3' bgs
EXCAVATION
0-18" - 2500
18-36" - 3100
36-54" - 3500

Radiation Survey Form

Location/ Project ID:

Date: 5/11/2016

Technician: KYLE SMITH

Inst Model: 2221

Serial No. : 126497

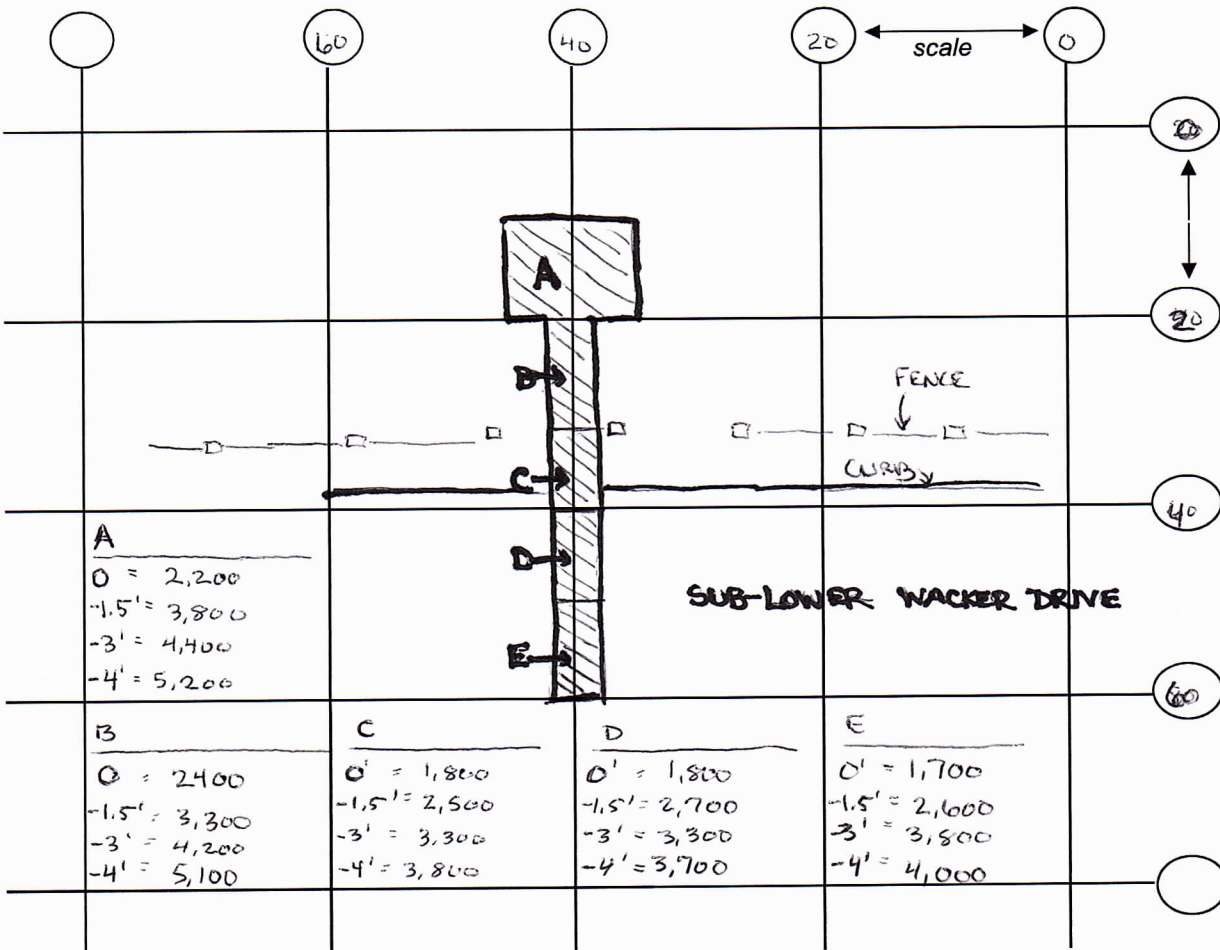
Probe Type: 1"x1" NaI 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0 - -4'

Background 2,258 cpm

Action Level: 6,018 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.



Excavated Area =