



January 29, 2021

Revised 7/26/21 GAH

Abby Mazza

City of Chicago Department of Assets, Information and Services (AIS)
2 N. LaSalle St., Suite 200
Chicago, Illinois 60602-3704

RE: Radiation Monitoring – City of Chicago Department of Water Management
Former Carnotite Reduction Company Permit Hold Area
CDOT Permit: 1389448 and 1389467

Dear Ms. Mazza:

Stan A. Huber Consultants, Inc (SAHCI) was contracted to provide radiation monitoring for the City of Chicago Department of Water Management (DWM) during excavation for the abandonment of water mains and fire hydrant relocations surrounding the Former Carnotite Reduction Company (Carnotite) site in Chicago, Illinois. The potential radiological contaminants in the area surrounding the Carnotite site are uranium (U-234+U-235+U-238), thorium (Th-230), and radium (Ra-226).

Monitoring was performed at the following locations:

E. 26 th St. and Dr. Martin Luther King Jr. Dr.	11/19/20-11/20/20, 11/30/20-12/1/20, 1/7/21
S. Vernon Ave. and S. Ellis Ave.	11/20/20, 11/23/20 - 11/25/20
E. 27 th St. and S. Ellis Ave.	11/25/20
Prairie Shores Parking Lot	12/2/20

On January 13, 2021, Chicago Department of Transportation (CDOT) performed excavation to remove a light pole at the corner of E. 26th Street and Dr. Martin Luther King Jr. Drive. Brian Schmidt, SAHCI Health Physics Technician, was onsite to provide radiological monitoring but it was determined that the planned excavation would only be taking place within the clean backfilled area that DWM had previously excavated. Since this area had been previously monitored, Abby Mazza, approved that no further surveys were required for this work.

Instrumentation

Surface gamma scans were performed using Ludlum Model 2221 Scaler / Ratemeters (serial nos. 132844 and 134542) with attached Ludlum Model 44-10 2"x2" NaI detectors (w/ 6" collimated lead shields). The instruments were calibrated on July 28, 2020. The

Illinois Emergency Management Agency (IEMA) field action level (FAL) which would trigger additional monitoring and sampling is twice the average background count rate.

The average background count rate for instrument number 132844 was measured as 2,844 counts per minute (cpm) with a FAL of 5,666 cpm. The average background count rate for instrument number 134542 was measured as 1,566 cpm with a FAL of 3,132 cpm.

Soil Gamma Scans

Gamma surface scans were performed using the Ludlum Model 2221 Scaler / Ratemeters described above. Survey data was collected by entering the excavations after each 18-inch lift and recording the highest count rate for the floors and walls to a maximum excavation depth of 7.5 feet below ground surface. After the excavations were 3 feet deep, surveys were performed of the buckets of soil as they were removed from the excavation, prior to loading. No soil was stockpiled during the project and all excavated soils were loaded directly into the truck after screening.

The maximum gamma count rate for each lift was recorded on the attached Radiation Survey Forms. The count rates in the excavations ranged from 1,500 cpm to 4,700 cpm. No count rates were found at any time that exceeded the instrument specific FAL.

Additional Monitoring

Since no count rates were identified above the FAL, no additional soil sampling, air monitoring, or personnel monitoring were performed.

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.

Glenn Huber, CHP
President

Radiation Survey Form

Location/ Project ID: DWM - CARNOTITE - WATER SERVICE & HYDRANT DECOMMISSION EXCAVATION - ROW RADIOLOGICAL SOIL SURVEY

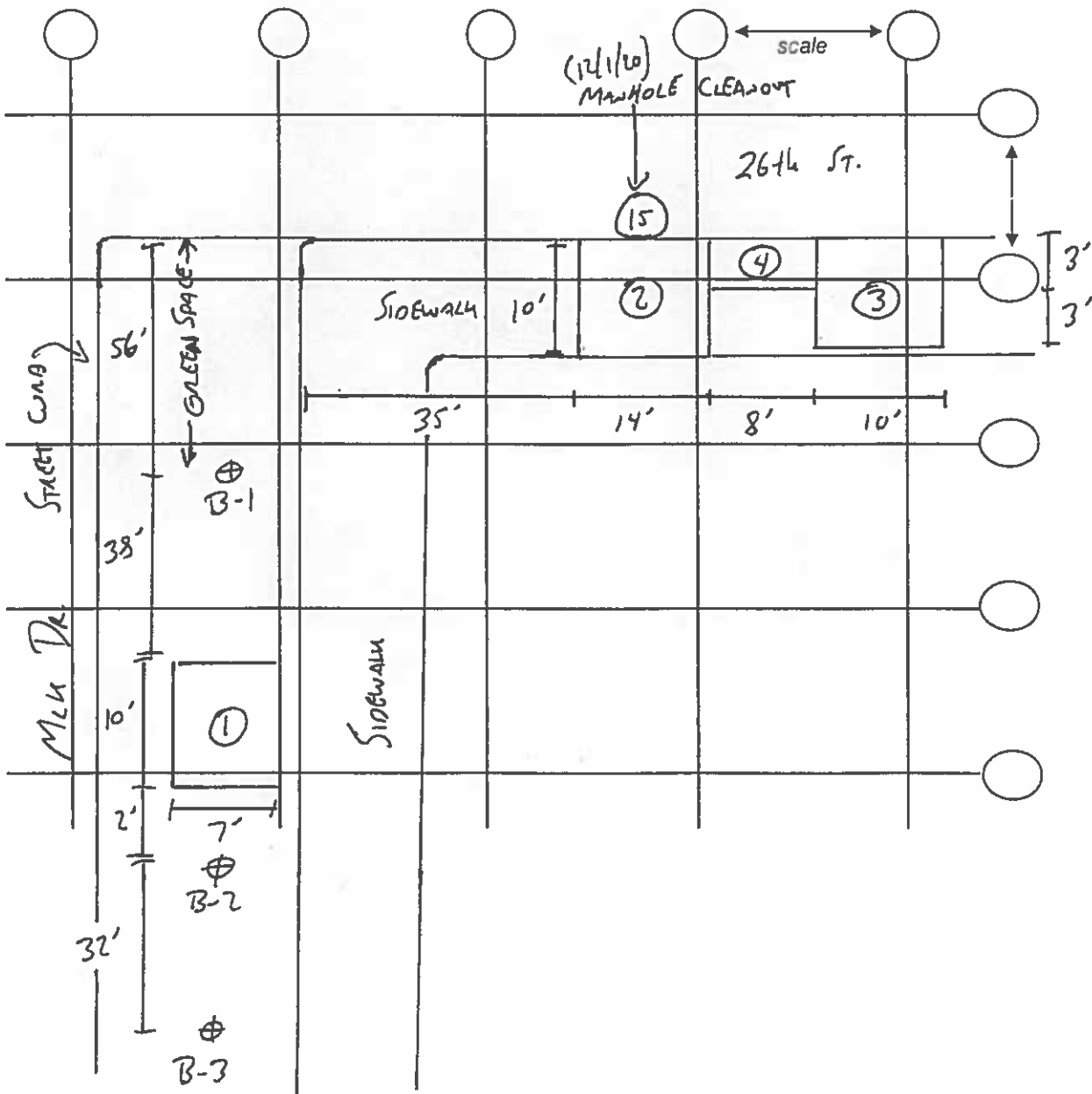
Date: 11/19/2020 - 12/2/2020 Technician: BRIAN SCHMIDT

Inst Model: LVDLUM-7221 Serial No.: 132844

Probe Type: 1"x1" NaI / ~~2"x2" NaI~~ Lift Elevation: 0-108"
Shielded / Not Shielded

Background 2833 cpm Action Level: 5666 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: DWM-CANADITE-WATER SERVICE + HYDRANT DECOMMISSION EXCAVATION - LOW RADIOLOGICAL SOIL SURVEY

Date: 11/19/2020 - 12/2/2020 Technician: BRIAN SCHMIDT

Inst Model: LUDLUM-2221 Serial No.: 132844

Probe Type: 1"x1" NaI / 2"x2" NaI / Shielded / Not Shielded
Lift Elevation: 0-108"

Background 2833 cpm Action Level: 5666 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.



EXCAVATION ID	DEPTH	CPM
①	0-18"	2600
	18-36"	2900
	36-54"	4100
②	54-72"	3100
	72-90"	2600
	0-18"	2100
	18-36"	2400
③	36-54"	3600
	54-72"	3200
	72-90"	2800
	0-18"	2400
④	18-36"	2800
	36-54"	3300
	48-66"	3000
	0-18"	2700
	18-36"	2900

⑤ MANHOLE CLEAN-OUT (12/1/2020)
RANGE (CPM): 1200-1600
MAX (CPM): 1900

Radiation Survey Form

Location/ Project ID: DWM-CALNITITE-WATER SERVICE-HYDRANT DECOMMISSION EXCAVATION - ROW RADIOLOGICAL SOIL SURVEY

Date: 11/20-25/2020

Technician: BRIAN SCHMIDT

Inst Model: LUDLUM-2221

Serial No.: 132844

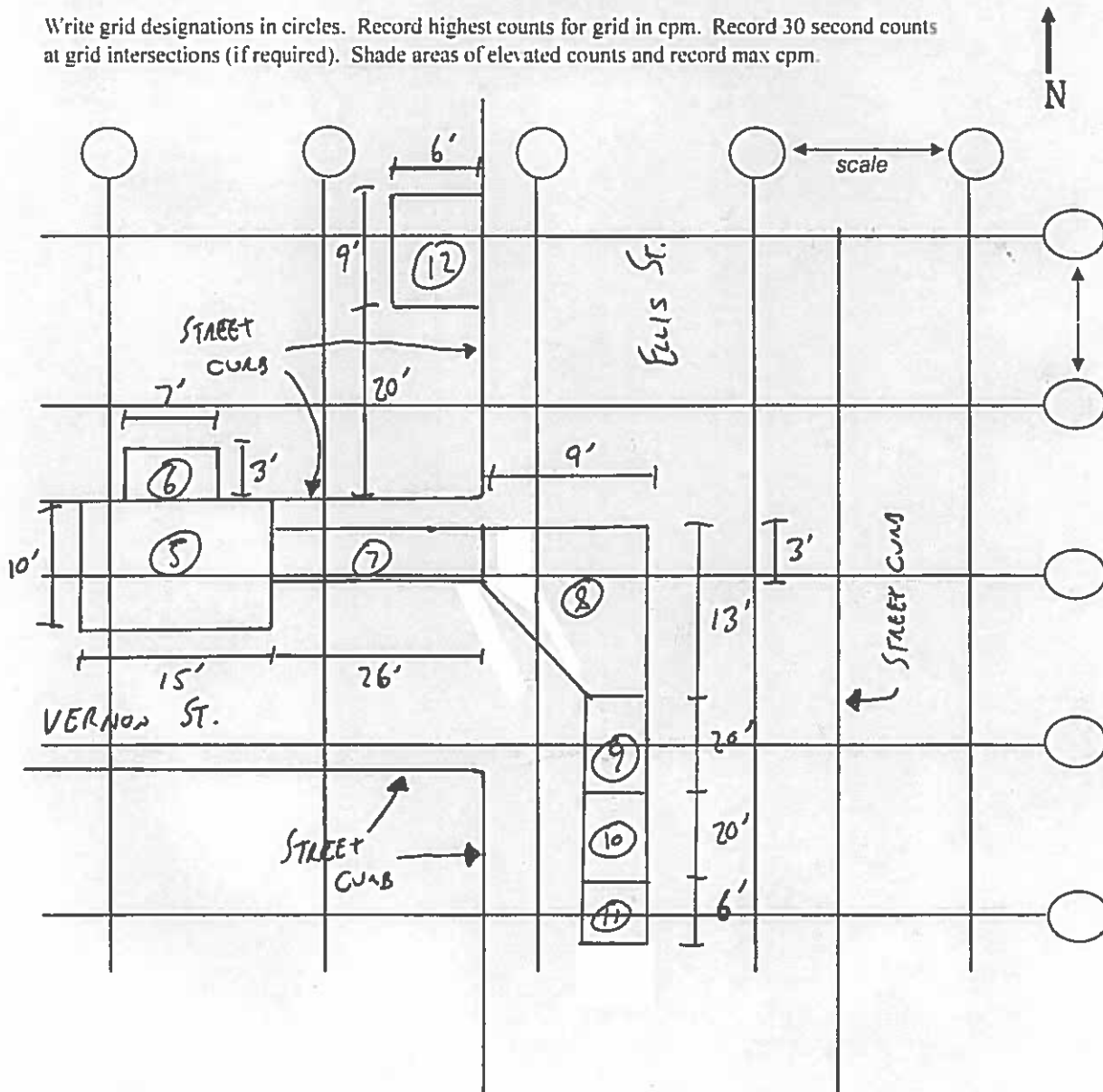
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0-108"

Background 2833 cpm

Action Level: 5666 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: DWM - CARNOTITE - WATER SERVICE & HYDRANT DECOMMISSION EXCAVATION - ROW RADIOLOGICAL SOIL SURVEY

Date: 11/20-25/2020

Technician: Brian Schmidt

Inst Model: WALUM-7221

Serial No. : 132844

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

Lift Elevation: 0-108"

Background 2833 cpm

Action Level: 5666 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.



Excavation ID	DEPTH	CPM	Excavation ID	DEPTH	CPM
⑤	0-18"	1900	⑨	0-18"	2200
	18-36"	2400		18-36"	3400
	36-54"	2300		36-54"	3900
⑥	54-72"	4000	⑩	54-72"	3100
	72-90"	3000		72-90"	2800
	90-108"	2400		90-108"	3000
	0-18"	2600		0-18"	2000
⑦	18-36"	3600	⑪	18-36"	2300
	36-54"	4000		36-54"	2900
	54-72"	4700		54-72"	3200
	72-90"	2400		72-90"	2600
⑧	90-108"	2800	⑫	90-108"	2800
	0-18"	2100		0-18"	1800
	18-36"	2900		18-36"	2500
	36-54"	2600		36-54"	2800
	54-72"	2700		54-72"	3000
	72-90"	3300		72-90"	3000
	90-108"	3100		90-108"	2700
	0-18"	2200			
	18-36"	2800			
	36-54"	3900			
	54-72"	3300			
	72-90"	2900			
	90-108"	3600			

Radiation Survey Form

Location/ Project ID: DWM-CANNONITE - WATER SERVICE & HYDRANT REMOVAL DECOMMISSION EXCAVATION -
ROW RADIOLOGICAL SOIL SURVEY

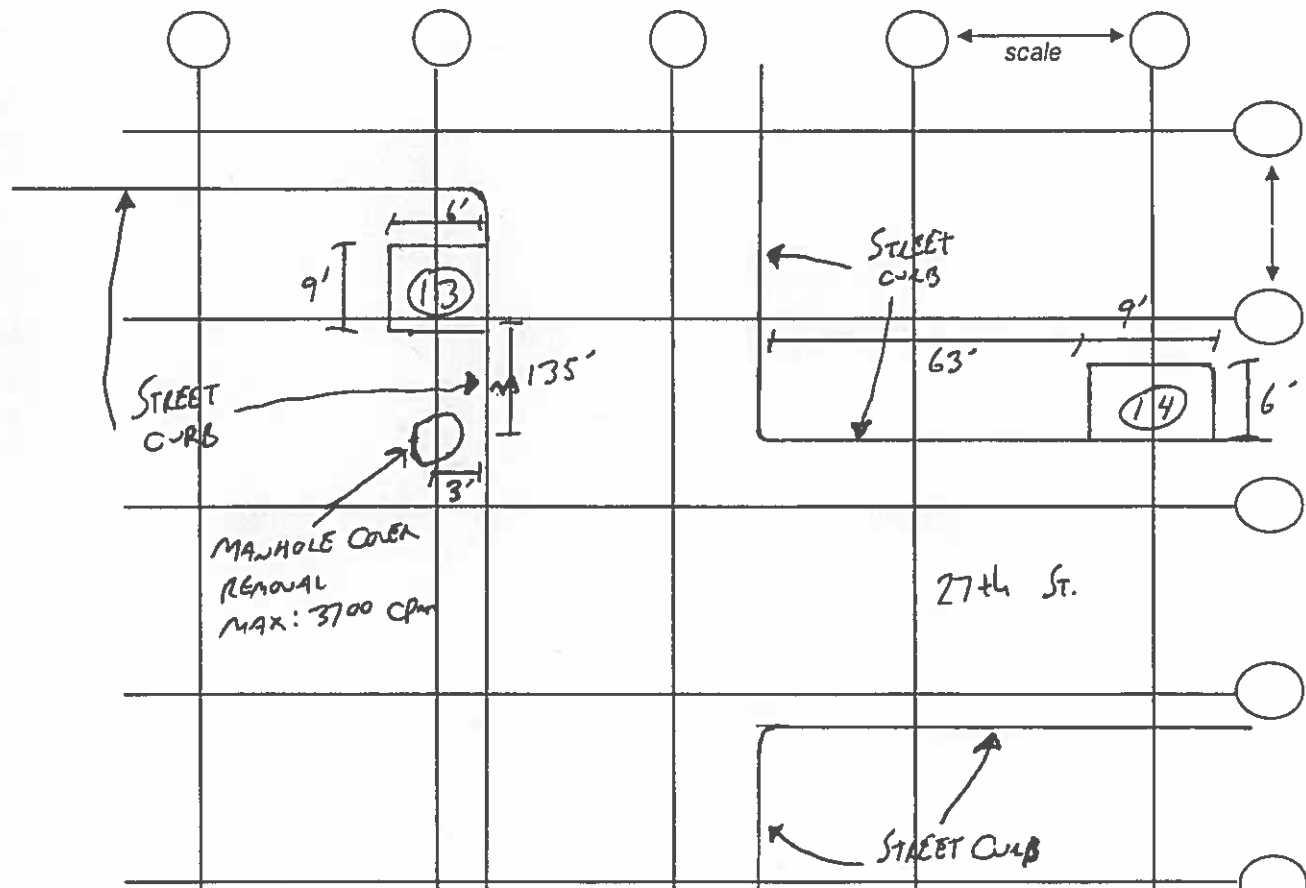
Date: 11/25/2020 Technician: BRIAN SCUMIOT

Inst Model: LOVALUM - 7721 Serial No.: 132844

Probe Type: 1"x1" NaI / ~~2"x2" NaI~~ Lift Elevation: 0-108"
Shielded / Not Shielded

Background 2833 cpm Action Level: 5666 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.



MEASUREMENT ID	DEPTH	CPM
(13)	0-18"	2900
	18-36"	2600
	36-54"	3100
	48-66"	3800
(14)	0-18"	2800
	18-36"	3000
	36-54"	3600
	48-66"	3400

Radiation Survey Form

Location/ Project ID: DUM-CANNONITE - WATER SERVICE & HYDRANT DECOMMISSION EXCAVATION - ROW RADIOLOGICAL SOIL SURVEY

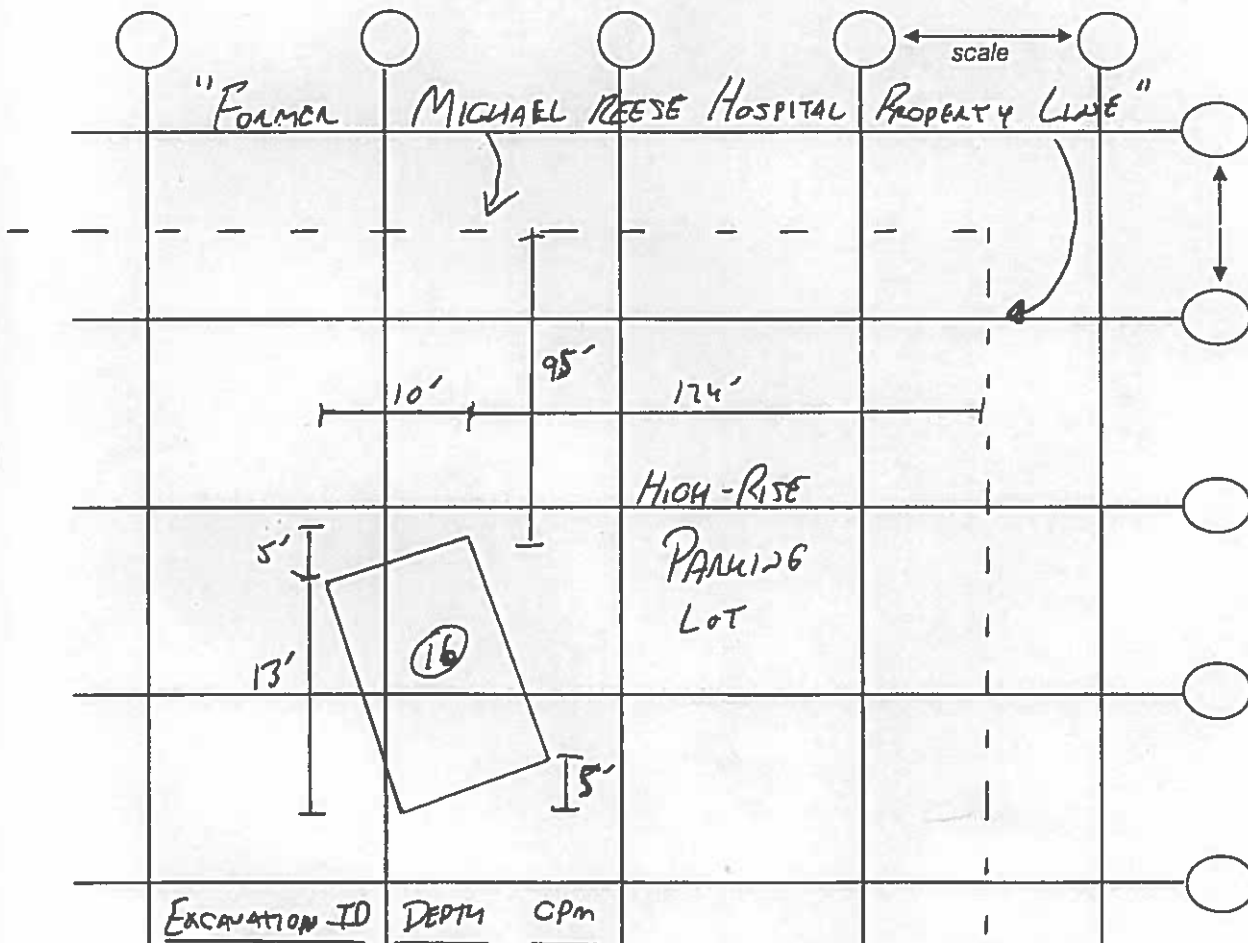
Date: 12/2/2020 Technician: BRIAN SCHMIDT

Inst Model: LUOLUM-2221 Serial No.: 132844

Probe Type: 1"x1" NaI / 2"x2" NaI Lift Elevation: 0-108"
Shielded / Not Shielded

Background 2833 cpm Action Level: 5666 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.



EXCAVATION ID	DEPTH	CPM
(16)	0-18"	1600
	18-36"	2500
	36-54"	3400
	54-72"	3800
	72-90"	2700
	90-108"	2200
	108-126"	2100

Radiation Survey Form

Location/ Project ID: 26th St. and MLK - DWM water shutoff

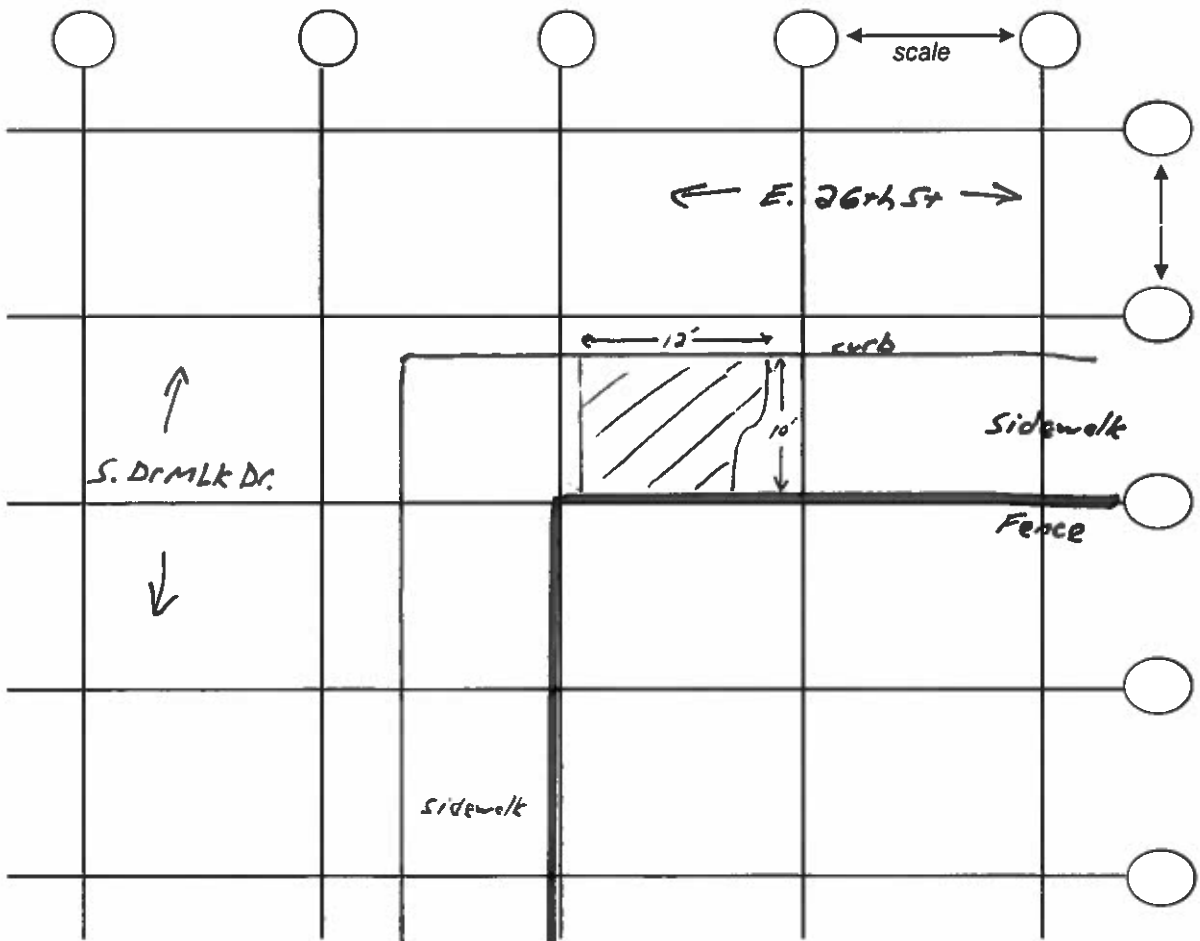
Date: 1/7/21 Technician: Glenn Huber

Inst Model: Ludlum 2221 Serial No. : 134542

Probe Type: 1"x1" NaI / 2"x2" NaI Lift Elevation: Surface to -7.5' BGS
Shielded / Not Shielded

Background 1,566 cpm Action Level: ^{GH 3/32} 7,228 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.



Depth	cpm
surface	1500
-1.5'	1800
-3'	2400
-4.5'	2200
-6'	2200
-7.5'	2100

= Excavated Area