

M-744

Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

for the Maywood Site, New Jersey



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RESULTS OF THE RADIOLOGICAL SURVEY AT
454 DAVISON AVENUE, MAYWOOD, NEW JERSEY

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HEALTH AND SAFETY RESEARCH DIVISION

Nuclear and Chemical Waste Programs
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RESULTS OF THE RADIOLOGICAL SURVEY AT
454 DAVISON AVENUE, MAYWOOD, NEW JERSEY

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Date of Issue - February 1986

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Work performed as part of the
RADIOLOGICAL SURVEY ACTIVITIES PROGRAM

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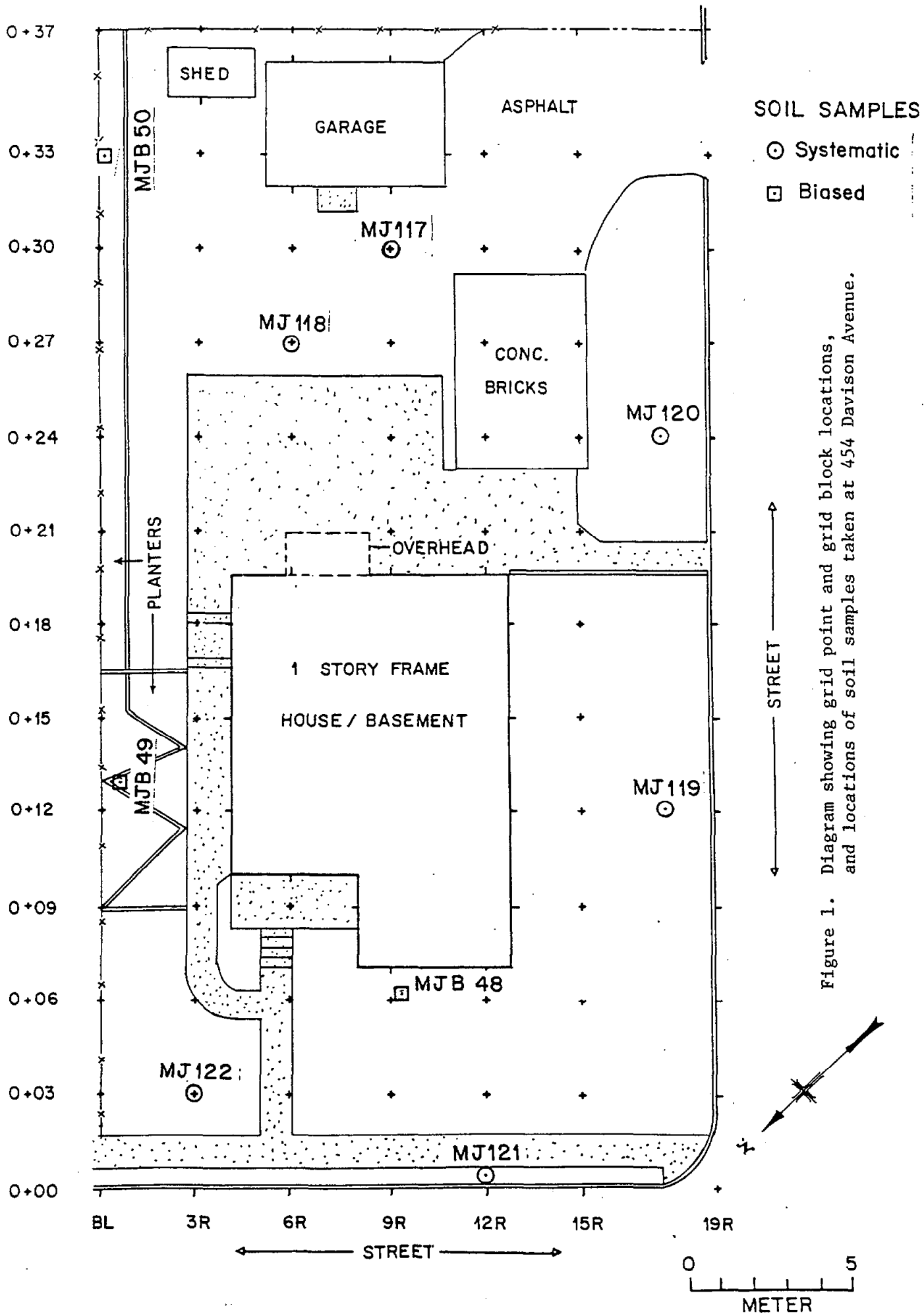


Figure 1. Diagram showing grid point and grid block locations, and locations of soil samples taken at 454 Davison Avenue.

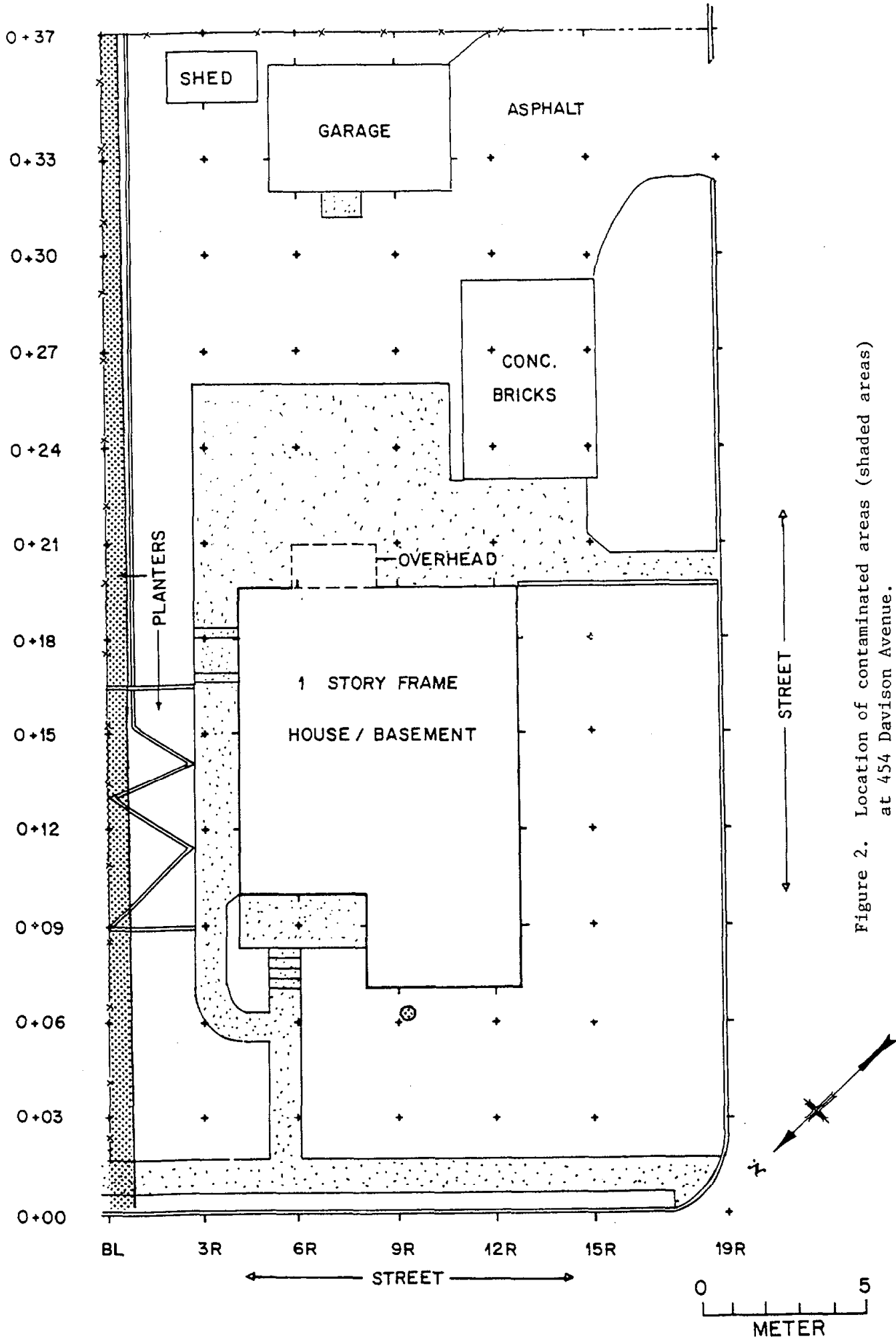


Figure 2. Location of contaminated areas (shaded areas) at 454 Davison Avenue.

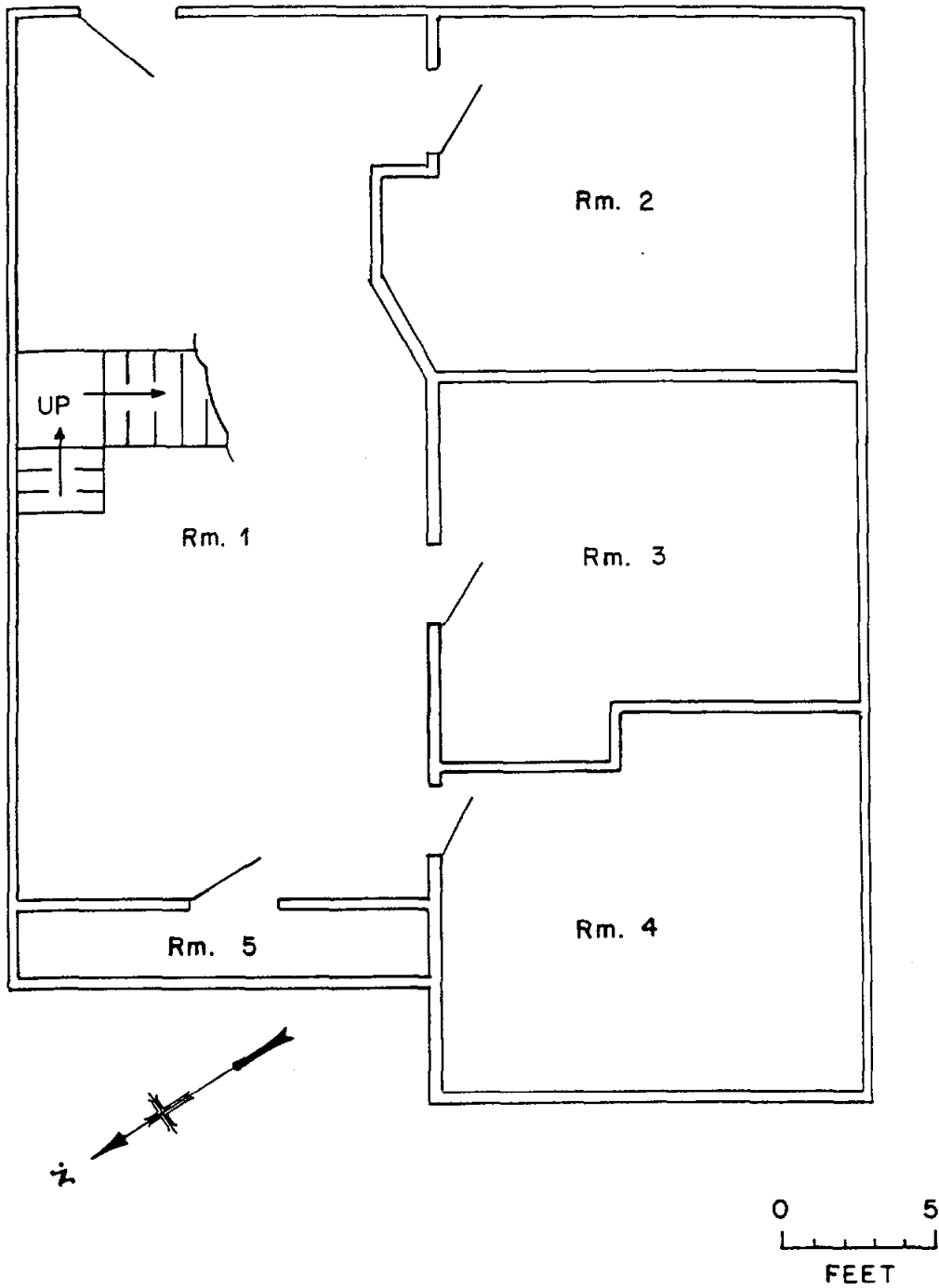


Fig. 3. Location of rooms in basement at 454 Davison Avenue.

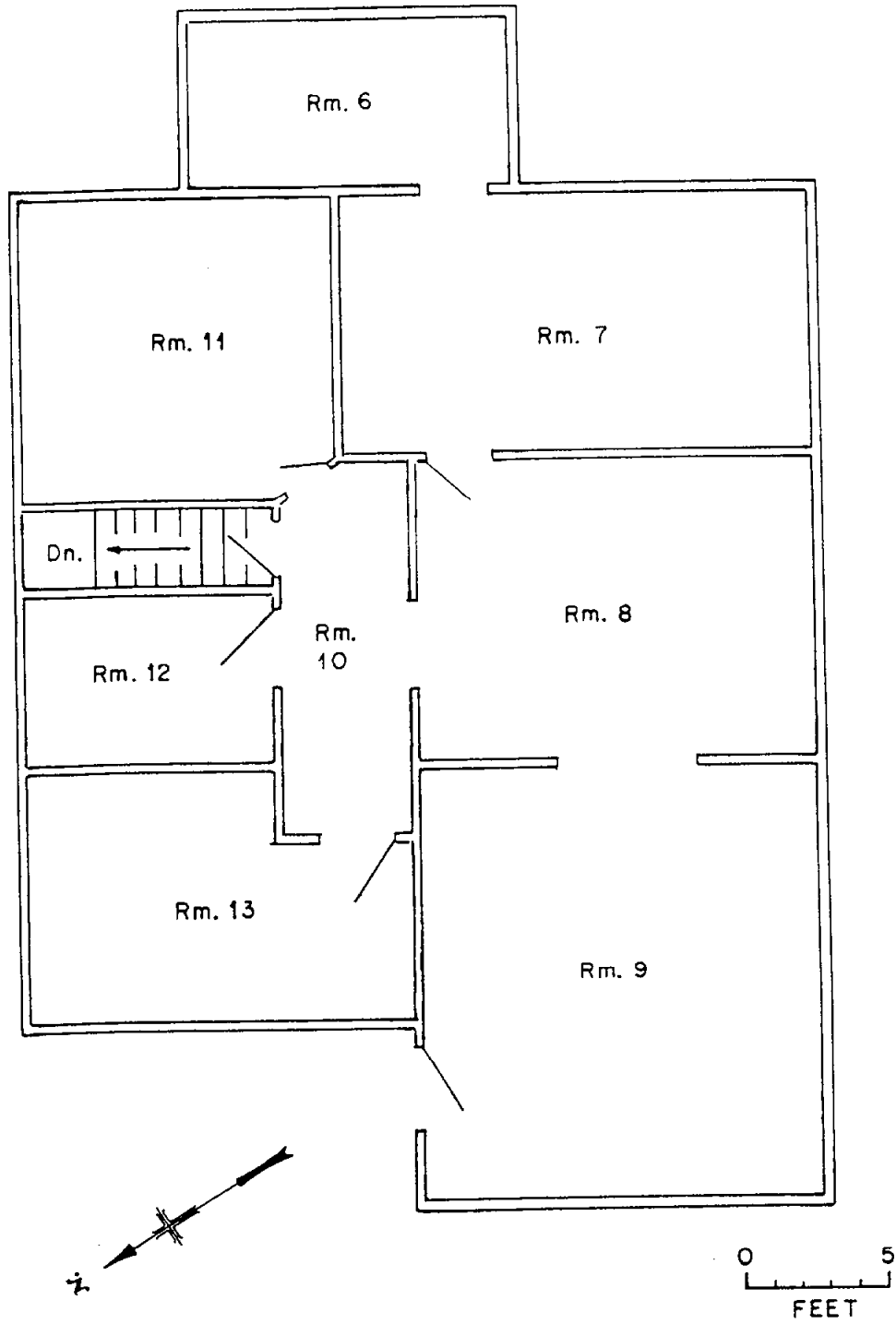


Fig. 4. Location of rooms on top floor at 454 Davison Avenue.

Table 1. A summary of proposed applicable radiation guidelines for the FUSRAP program (July 1985).

Mode of exposure	Exposure conditions	Guideline value	Guideline source
1. External gamma radiation	Exposure to individual in general population (whole body)	57 μ R/h	U.S. Department of Energy (DOE) Order 5480.1A, Chapter XI, Requirement for Radiation Protection
2. Radionuclide concentrations in soil	Maximum permissible concentration of the following radionuclides in soil above background levels averaged over 100 m ² area		U.S. Department of Energy Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites (February 1985)
	²²⁶ Ra ²³² Th	5 pCi/g averaged over the first 15 cm of soil below the surface; 15 pCi/g when averaged over 15-cm thick soil layers more than 15 cm below the surface.	

Table 2. Background radiation levels for the northern New Jersey area.

Type or radiation measurement or sample	Radiation level or radionuclide concentration
Gamma exposure rate at 1 m above floor or ground surface ($\mu\text{R/h}$)	8 ^a
Concentration of radionuclides in soil (pCi/g)	
²³² Th	0.9 ^b
²³⁸ U	0.9 ^b
²²⁶ Ra	0.9 ^b

^aReference 4.^bReference 5.

Table 3. Outdoor gamma radiation levels measured at 454 Davison Avenue.

Grid blocks	Range of exposure rate levels at the ground surface ($\mu\text{R/h}$)
0+00, BL - 0+37, BL	8 - 34 (maximum at 0+37, BL)
0+00, 3R - 0+37, 3R	8 - 14
0+00, 6R - 0+37, 6R	8 - 14
0+00, 9R - 0+37, 9R	8 - 17 (maximum at 0+6.1, 9.5R)
0+00, 12R - 0+37, 12R	7 - 10
0+00, 15R - 0+37, 15R	7 - 12

Table 4. Outdoor gamma exposure rates at 454 Davison Avenue.

Grid location	$\mu\text{R/h}$ at 1 m above ground surface
0+03, 9R	8.4
0+30, BL	13.8
0+27, 12R	8.8

Table 5. Indoor gamma radiation levels at 454 Davison Avenue.

Location ^a	External gamma exposure rate $\mu\text{R/h}$		Beta-gamma dose rate at 1 cm (mrad/h) center of room	Direct alpha activity (dpm/100 cm^2)
	Center of room at 1 m	Scan range at surface		
Room 1	11	10-13	0.02	<13
Room 2	11	9-11	<0.02	<13
Room 3	11	10-11	0.02	<13
Room 4	10	11-14	0.02	<13
Room 5	10	10-11	0.02	<13
Room 6	11	8-10	<0.02	<13
Room 7	7	6-8	<0.02	<13
Room 8	8	6-9	0.03	<13
Room 9	9	7-10	<0.02	<13
Room 10	8	8-10	0.02	<13
Room 11	8	10-11	<0.02	<13
Room 12	9	7-10	<0.02	<13
Room 13	11	7-11	0.02	<13

^aLocation is shown in Figs. 3 and 4.

Table 6. Radionuclide concentrations in soil at 454 Davison Avenue

Sample no.	Location	Depth (cm)	Radionuclide concentration (pCi/g) ^a	
			²²⁶ Ra	²³² Th
MJ117	0+30, 9R	0-15	0.8 ± 0.06	1.0 ± 0.3
MJ118	0+27, 6R	0-15	0.8 ± 0.02	1.0 ± 0.3
MJ119	0+12, 17.5R	0-15	1.5 ± 0.07	1.5 ± 0.3
MJ120	0+24, 17.5R	0-15	1.1 ± 0.1	1.2 ± 0.3
MJ121	0+0.5, 12R	0-15	0.6 ± 0.05	0.8 ± 0.2
MJ122	0+03, 3R	0-15	0.6 ± 0.1	0.8 ± 0.3
MJB48A	0+6.1, 9.5R	0-15	2.6 ± 0.3	8.5 ± 2
MJB48B	0+6.1, 9.5R	15-30	0.9 ± 0.1	1.9 ± 0.5
MJB48C	0+6.1, 9.5R	30-46	0.8 ± 0.2	1.5 ± 0.5
MJB49A	0+13, 0.25R	0-15	6.0 ± 0.9	5.5 ± 2
MJB49B	0+13, 0.25R	15-30	10 ± 0.3	6.5 ± 1
MJB49C	0+13, 0.25R	30-46	1.5 ± 0.07	1.9 ± 0.4
MJB50A	0+33, BL	0-15	1.9 ± 0.1	4.1 ± 1
MJB50B	0+33, BL	15-30	2.3 ± 0.4	5.7 ± 1
MJB50C	0+33, BL	30-36	2.2 ± 0.2	6.1 ± 2

^aCounting error associated with radionuclide results is at the 95% (1.96 σ) confidence level.

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