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H. AVCI

April 2, 1956

COMPOSITE RADIATION SAFETY REPORT ON SITE A AS OF FEBRUARY 1, 1956

The following buildings have been surveyed<sup>1</sup> and no activity was detected.<sup>2</sup>

Building

|                   |  |
|-------------------|--|
| "C"               | Laboratory   |
| "D"               | Labs and Offices   |
| "F"               | Cafeteria  |
| "G"               | Dormitory  |
| "H"               | Treater House  |
| "K"               | This building presently contains Reclamation<br>Section's equipment, none of which is contaminated   |
| "L"               | Laboratory   |
| "M"               | Fire House   |
| "Q"               | West Quonset   |
| "R"               | East Quonset   |
| "T"               | Garage. This building contains a pile rod coffin<br>sitting in a base. All accessible surfaces of<br>the coffin have been surveyed and no activity<br>was detected |
| "X"               | Dog Shelter  |
| "Z" 1 thru "Z" 10 | Storage Huts   |

<sup>1</sup> "Surveyed" as used in this report means that all floor areas, horizontal surfaces, and walls up to approximately seven feet have been checked by Radiation Safety Technicians with the instruments at their disposal.

<sup>2</sup> "No activity detected" as used in this report indicates no reading above background.

All of "A" building has been surveyed and no activity was detected with the following exceptions:

| <u>Location</u> | <u>Description</u>  | <u>Results</u>   |
|-----------------|---|--|
| A-16            | Floor area inside the concrete shell of CP-2  | Alpha - NAD<br>Beta-Gamma - Spots<br>.5 - .7/1" R&S              |
| A-16            | Ductwork in upper southwest corner of room  | Suspect loose alpha contamination                                |
| A-16            | Beta, gamma survey on all vertical surfaces of the concrete shell of CP-2   | General - 0.1 - 0.2/1" R&S                                       |
| A-16            | Alpha on concrete blocks which form the north wall of the CP-2 shell. (On all open and vertical and horizontal surfaces after sandblasting) | 0.1 to 0.4 M   |
| A-16            | All vertical surfaces (walls) above approximately seven feet, rafters and superstructure of room  | These areas were not surveyed. Suspect loose alpha contamination |

"B" building has been surveyed and found to contain no activity with the following exceptions:

| <u>Location</u> | <u>Description</u>  | <u>Results</u>                             |
|-----------------|---|--|
| B-1             | Several spots on the floor of Room B-1 after sandblasting | 0.1/1" R&S, No alpha activity was detected |
| B-1             | The catwalk and crane girders were surveyed               | No activity detected                       |

The following buildings have not been surveyed.

- |                                  |                      |
|----------------------------------|----------------------|
| "E" Boiler House                 | "O" Cooling Tower    |
| "P" Pump House                   | "S" Compressor House |
| "J" Well House                   | "V" Generator House  |
| "N" Guard House at Main Entrance | "W" Water Tower      |

(See the attached maps for approximate location of all building mentioned in this report)

No surveys were accomplished of the outside surfaces of any of the buildings or the grounds surrounding the buildings.

All Radiation Safety Hazard signs have been removed, any penciled markings of radiation levels in the buildings mentioned in this report, and dated prior to the date of this report, may be disregarded.

I. WATER

TABLE 1

Non-Volatile Radioactivity in Streams at Site A

| Sampling Location <sup>a</sup> | April 14, 1954               |                             | May 31, 1955                 |                             |
|--------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
|                                | alpha $\mu\text{c}/\text{l}$ | beta $\mu\text{c}/\text{l}$ | alpha $\mu\text{c}/\text{l}$ | beta $\mu\text{c}/\text{l}$ |
| 1                              | 0.1                          | 8.1                         | 2.1                          | 35.                         |
| 2                              | 1.7                          | 8.8                         | 1.5                          | 24.                         |
| 3                              | 1.9                          | 7.0                         | 2.8 <sup>b</sup>             | 27.                         |
| 4                              | 1.6                          | 6.8                         | 1.4                          | 17.                         |

<sup>a</sup> Sampling locations as numbered on "Topographical Survey of Plot M Palos Park" PE-A-11

<sup>b</sup> This sample contained the following concentrations of alpha emitting elements:

|                        |                                |
|------------------------|--------------------------------|
| Uranium                | 2.4 $\mu\text{c}/\text{liter}$ |
| Radium                 | 0.2 $\mu\text{c}/\text{liter}$ |
| Thorium plus Plutonium | 0.2 $\mu\text{c}/\text{liter}$ |

The alpha activity in water collected in 1955 from locations 1, 2, and 4 was uniformly low, about 2  $\mu\text{c}/\text{liter}$ , and is essentially the same as found in the water collected in 1954 from the same locations. The values are similar to those found in other streams in the Chicago area and are considered normal. Ambiguous results were obtained from total alpha activity measurements of the sample from location Number 3; however, analyses for the common alpha emitting elements (see "b" above) indicated that the concentrations of these elements were all low and normal for streams in the Chicago area.

The beta activity in the 1955 water samples, 17 to 35  $\mu\text{c}/\text{liter}$ , was 2 to 4.5 times higher than that found in samples from the same location in 1954. However, this additional activity is almost certainly due to fallout since the rains in April and May, 1955, contained relatively large amounts of fallout activity, and the rate of beta decay, about 40% in 30 days following collection, was that expected from fallout activity.

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II. BOTTOM SILT

TABLE II

Non-Volatile Radioactivity in Bottom Silt at Site A

| Sampling Location <sup>a</sup> | April 14, 1954        |                      | May 31, 1955          |                      |
|--------------------------------|-----------------------|----------------------|-----------------------|----------------------|
|                                | alpha $\mu\text{c/l}$ | beta $\mu\text{c/l}$ | alpha $\mu\text{c/l}$ | beta $\mu\text{c/l}$ |
| 1                              | 30                    | 73                   | 27                    | 73                   |
| 2                              | 26                    | 52                   | 27                    | 65                   |
| 3                              | 25                    | 62                   | 21                    | 92                   |
| 4                              | 29                    | 56                   | 29                    | 93                   |

<sup>a</sup> Sampling locations as numbered on "Topographical Survey of Plot M Palos Park" PE-A-71

The alpha activity in bottom silt samples collected in 1955 from all four locations was uniform and similar to that found in 1954 samples from Site A and other locations in the Chicago area.

The beta activity in samples collected in 1955 from locations 1 and 2 were normal and similar to values found in 1954. The samples from locations 3 and 4 contained approximately 93  $\mu\text{c}$ , beta/gram, or about 30  $\mu\text{c}$ /gram more than found in 1954. The beta activity in these samples decayed to almost normal values in 30 days after collection, and this additional activity must also be considered the result of recent fallout activity.

### III. SOIL

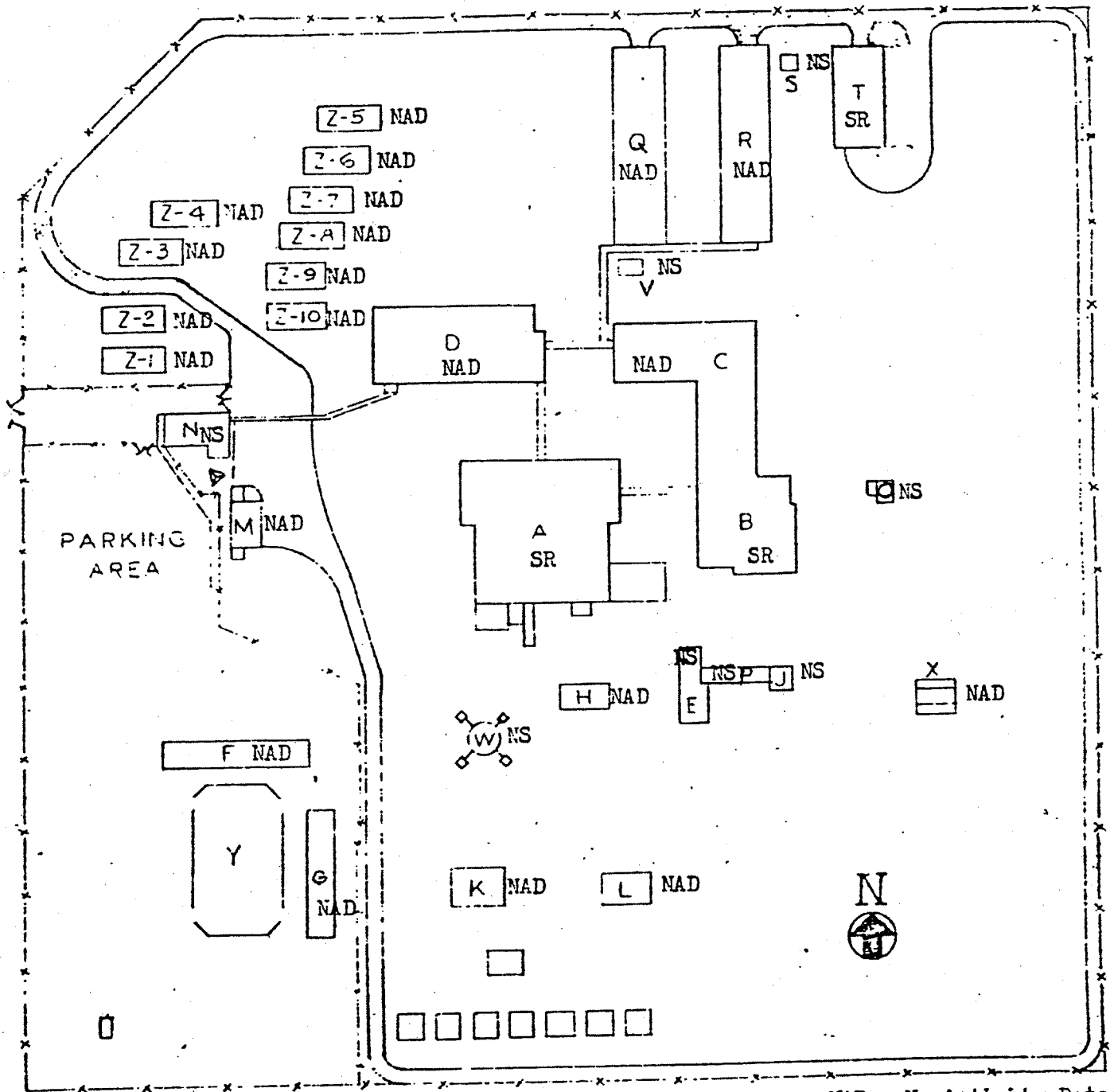
TABLE III

Non-Volatile Radioactivity in Soil Borings Near Plot Y

| Depth (ft) | June 3, 1954                    |                                | May 27, 1955                    |                                |
|------------|---------------------------------|--------------------------------|---------------------------------|--------------------------------|
|            | alpha $\mu\text{c}/\text{gram}$ | beta $\mu\text{c}/\text{gram}$ | alpha $\mu\text{c}/\text{gram}$ | beta $\mu\text{c}/\text{gram}$ |
| 0 - 1      | 30                              | 83                             | 43                              | 116                            |
| 1.5 - 2.0  | -                               | -                              | 34                              | 82                             |
| 2.5 - 3.0  | 31                              | 85                             | -                               | -                              |
| 4.5        | -                               | -                              | 23                              | 85                             |
| 5.5 - 6.0  | 31                              | 86                             | -                               | -                              |
| 7          | -                               | -                              | 26                              | 79                             |
| 8.5 - 9.0  | 22                              | 65                             | -                               | -                              |
| 9.5        | -                               | -                              | 22                              | 63                             |

The 1955 soil borings were taken one foot from the 1954 sampling location designated as M-8 (Drawing PE-A-9?), located eleven (11) feet northwest of Plot M.

The activity within one foot of the surface is not considered significant since contamination leached from Plot Y would be expected at greater depths. Below one foot the alpha and beta activities in the 1955 sample are normal for the Chicago area and are essentially unchanged from those found in 1954.



*PALOS PARK PLOT PLAN*  
SCALE 1"=120'

NAD: No Activity Detected  
NS : Not Surveyed  
SR : See Report

**LEGEND**

- A - BLDG. "A" (LAB.)
- B - BLDG. "B" (LAB.)
- C - BLDG. "C" (LAB.)
- D - BLDG. "D" (LAB.)
- E - BOILER HOUSE
- F - MESS HALL
- G - DORMITORY
- H - TREATER HOUSE

- J - WELL HOUSE
- K - BLDG. "K" (LAB.)
- L - BLDG. "L" (LAB.)
- M - FIRE STATION
- N - GUARD HOUSE
- O - COOLING TOWER
- P - PUMP HOUSE
- Q - WEST QUONSET (LAB.)

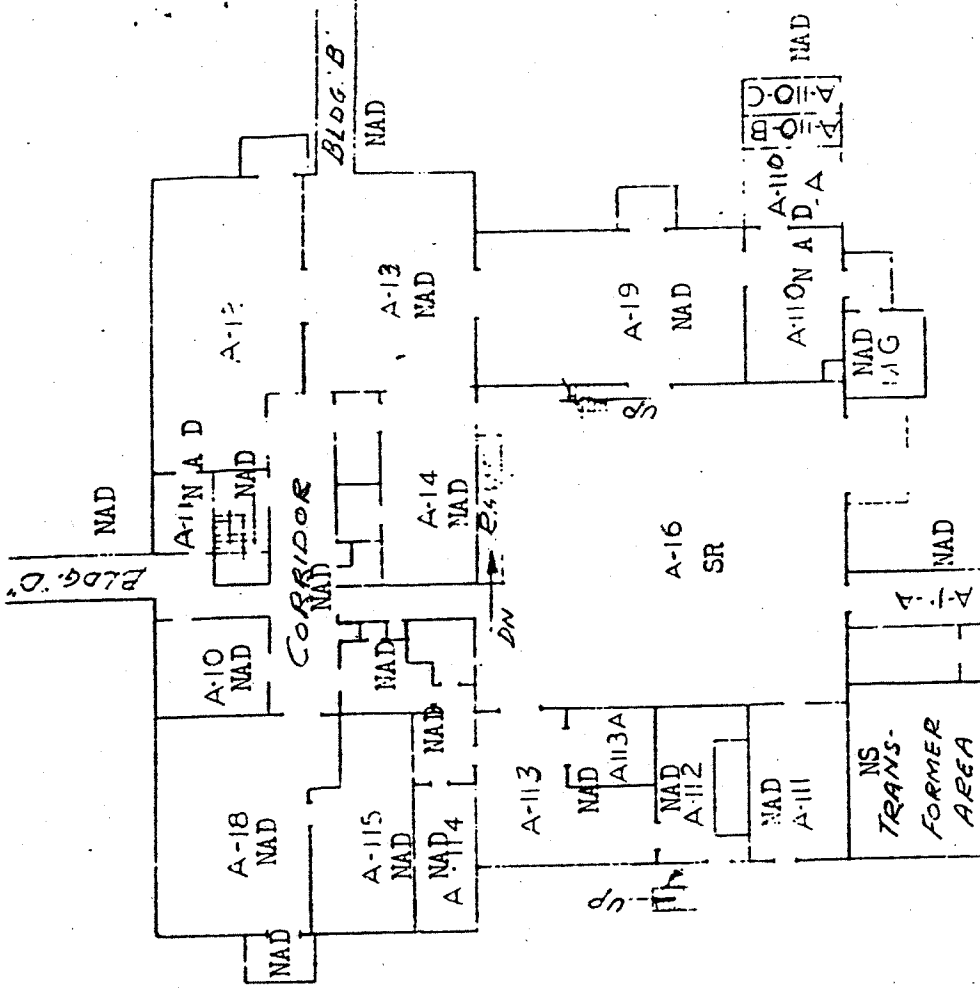
- R - EAST QUONSET (LAB.)
- S - COMPRESSOR HOUSE
- T - GARAGE
- V - GENERATOR HOUSE
- W - WATER TOWER
- X - DOG SHELTER
- Y - TENNIS COURT
- Z1 TO Z10 - STORAGE HUTS

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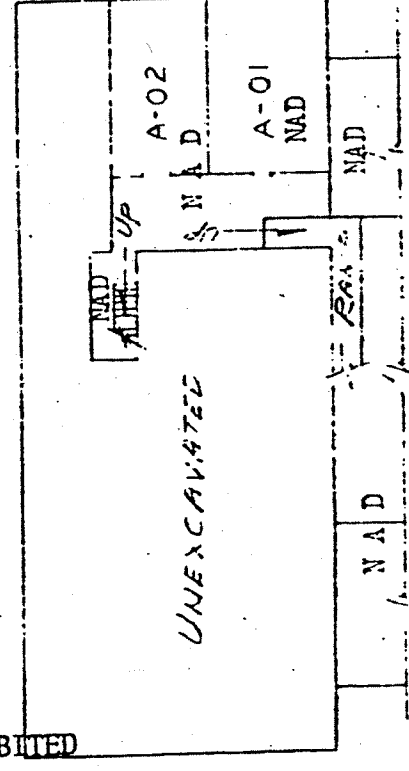
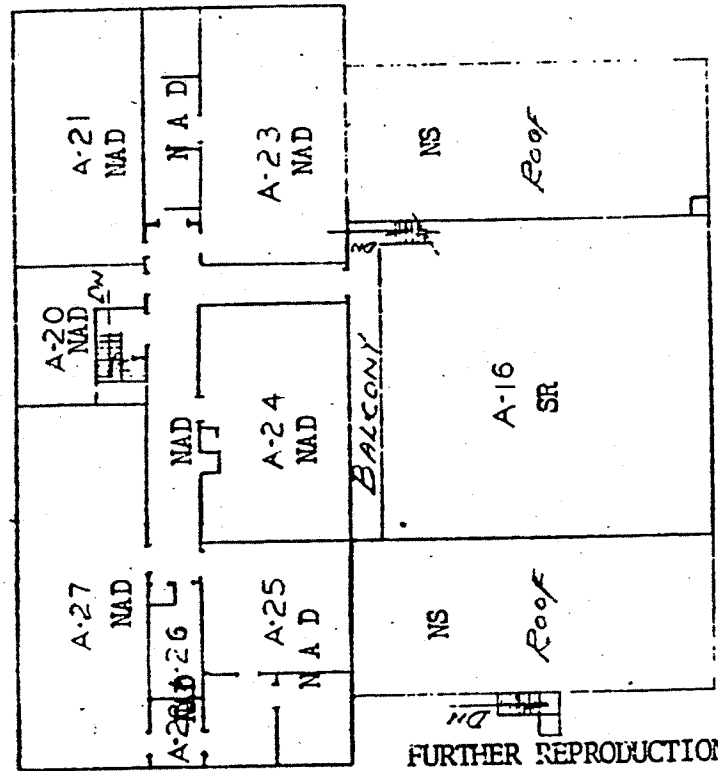
SUPERINTENDENT  
GUIDE PLANS  
PALOS PARK

Doc No. ANL-1151



GUIDE PLANS  
 PAGES PACK

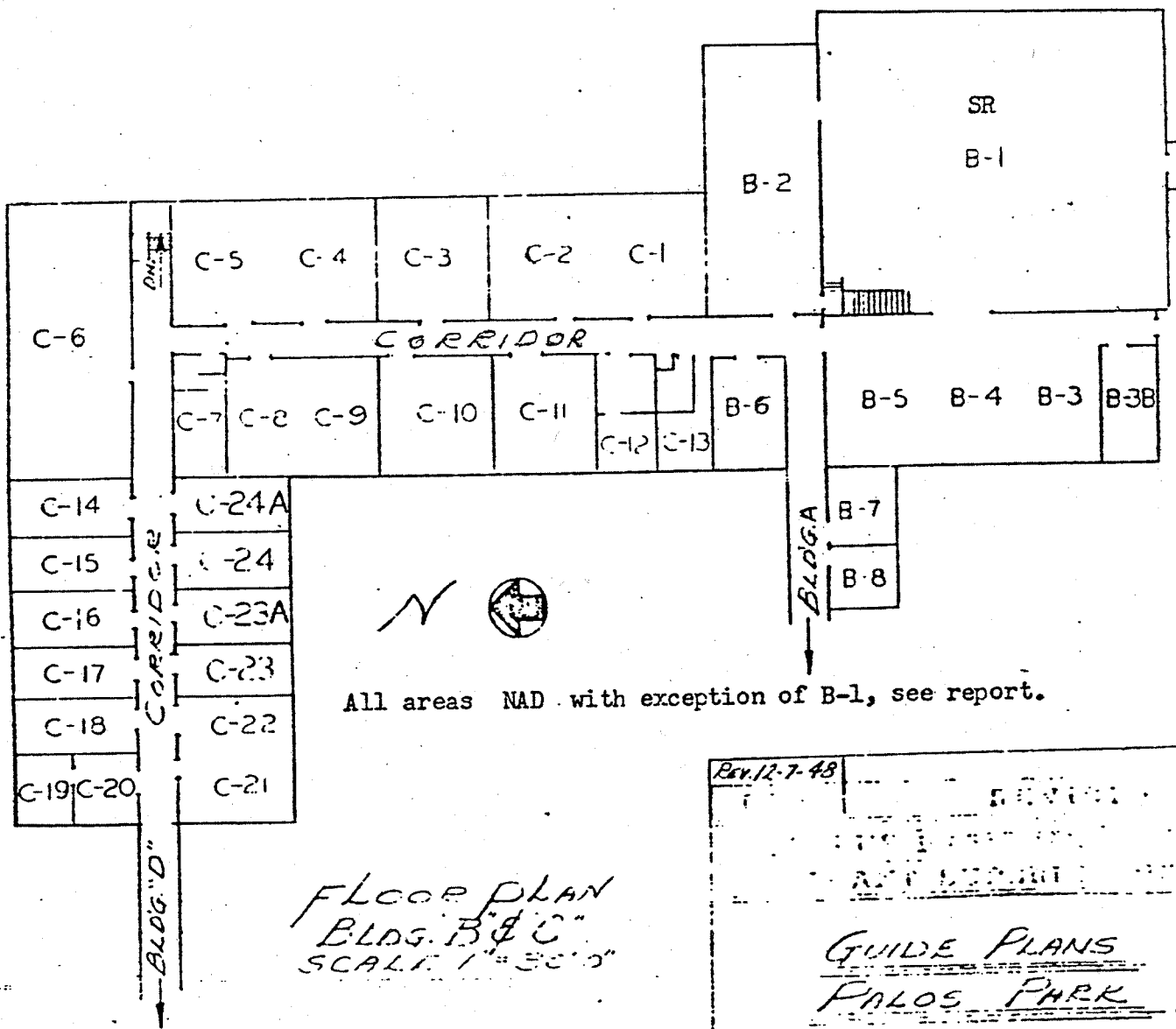
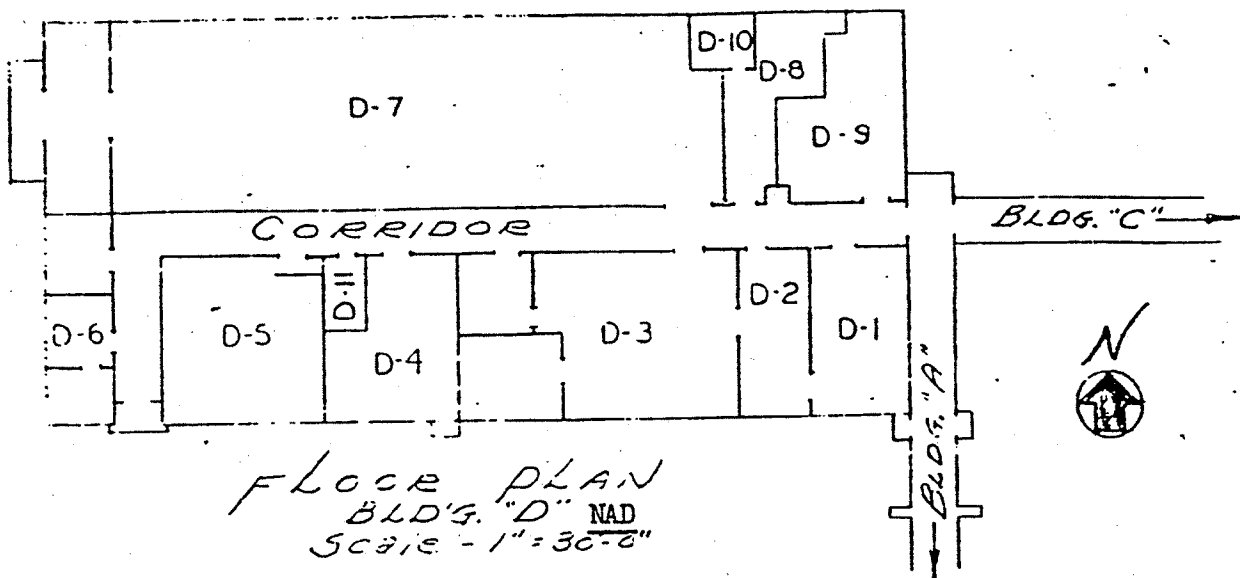
NAD: No Activity Detected  
 NS : Not Surveyed  
 SR : See Report



BUILDING A

BASEMENT

FURTHER REPRODUCTION PROHIBITED



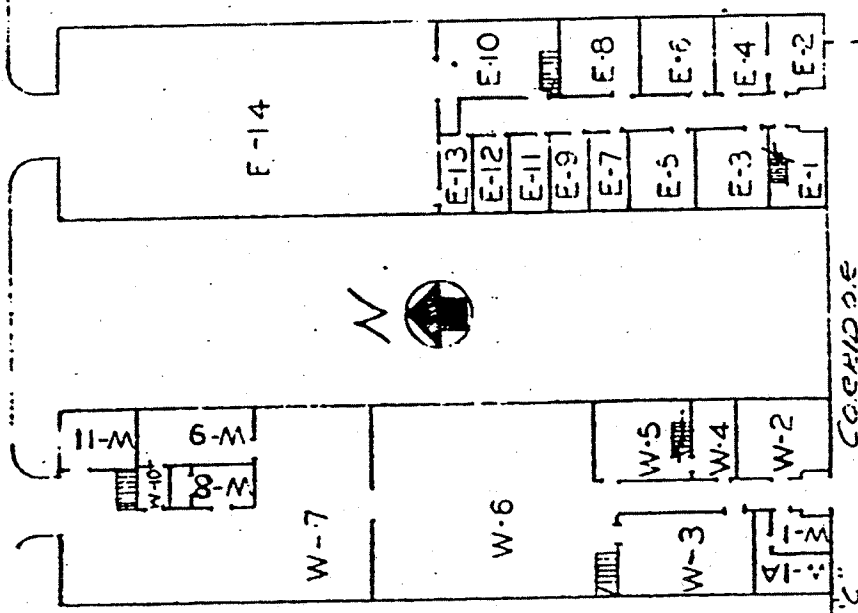
All areas NAD with exception of B-1, see report.

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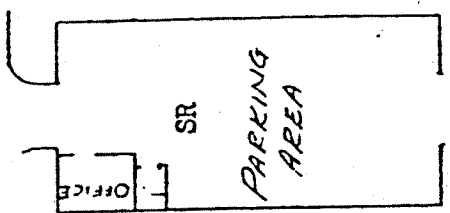
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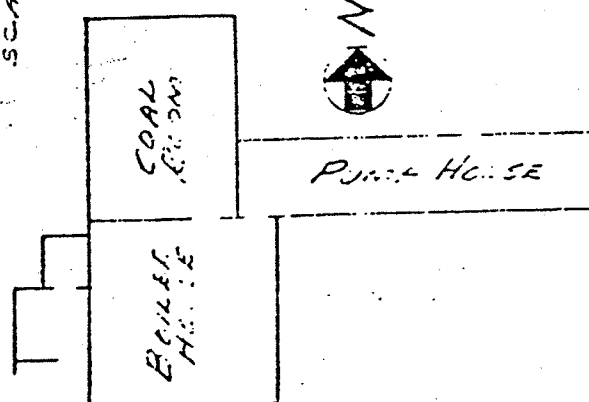
PERIMETER ROAD



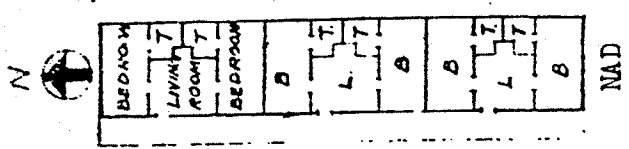
E. & W. QUONSETS NAD  
SCALE 1"=40'-0"



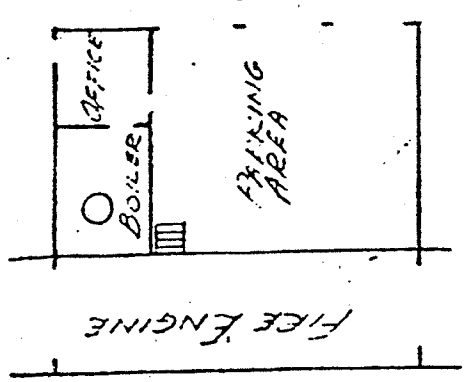
GARAGE



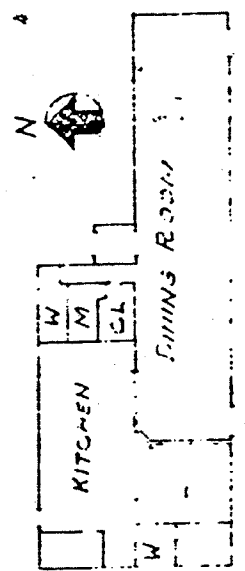
BOILER HOUSES  
SCALE 1"=30'-0"



DORMITORY  
SCALE 1"=40'-0"



FIRE STATION NAD  
SCALE 1"=20'-0"



CAFETERIA NAD  
SCALE 1"=40'-0"

NAD: No Activity Detected  
NS: Not Surveyed  
SR: See Report

1-1-49 RAK  
SITE

GUIDE PLANS  
PALOS PARK