



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
ENGINEER RESEARCH AND DEVELOPMENT CENTER, CORPS OF ENGINEERS
WATERWAYS EXPERIMENT STATION, 3909 HALLS FERRY ROAD
VICKSBURG, MISSISSIPPI 39180-6199

October 11, 2017

Office of Counsel

VIA ELECTRONIC MAIL

Mr. John Greenewald, Jr.
The Black Vault



RE: Freedom of Information Act (FOIA) Request FP-17-025325 (FOIA 17-07)

Dear Mr. Greenewald:

Pursuant to your FOIA request dated April 1, 2017, I am sending you the responsive document "Cantonment Areas: Study Using Urban Pattern, Study of Dispersed Layout, Study of Disruptive Patterns, Revision" enclosed with this letter. There are no fees associated with this request. If you have any questions, please feel free to contact me at the above address.

If you have any questions, please feel free to contact me at the above address or at telephone number (601) 634-2757.

Sincerely,

Allison M. Brewer
ERDC Assistant Counsel

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and research of John Greenewald, Jr., creator of:

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CAMOUFLAGE MEMORANDUM

AD-C953 386

CANTONMENT AREAS

Study Using Urban Pattern (4)

Study of Dispersed Layout (u)

Study of Disruptive Patterns (u)

DISTRIBUTION LIMITED TO INDIA ONLY
 BETWEEN OTHER COUNTRIES AND
 DOMESTIC MARKETS. INFORMATION ON
 ANYTHING IN THE AREA OF APPLICABLE
 ET. CAN BE OBTAINED FROM THE

For $\{A_1, A_2, A_3\}$ no

Declassified by: Army Declassification Activity
Declassified on: 21 Sep 2017

REVISED AND COMBINED
MAY 6, 1942

**Camouflage Section, The Engineer Board
Fort Belvoir, Virginia**

DC 28,910

17200—FAY BELVOIR, VA.—8.9.48—800

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URBAN PATTERN FOR THE CAMOUFLAGE

OF A

CANTONMENT AREA

1. The following drawing and photographs illustrate the effective use of dispersion and camouflage in the initial layout of an actual cantonment area.

2. The design calls for one basic layout for barracks and facilities to accommodate a regiment. The basic plan varies only in its planting, depending upon its orientation to the sun.

3. Inasmuch as the site selected for this particular cantonment lies on the outskirts of a town, the buildings were arranged in groups to simulate a suburban development. The scale of the buildings has been broken up by paint in geometric patterns.

4. A generous amount of tree planting is used to break up the shadows of the buildings and arrangement and grouping of these trees are in character with suburban developments.

5. The inclusion of trees in the classification yards to simulate an orchard is a promising possibility offered as an alternative to the more expensive cover of nets and will help greatly in concealing an otherwise conspicuous landmark.

6. The plan calls for a minimum of ground paint; consequently the maintenance and cost of camouflage for such a large installation would be relatively small.

7. The designs originated with a private firm under contract with one of the Engineer Department Offices. Specific credit must be omitted for reasons that will be apparent.

MARCH 9, 1942

CAMOUFLAGE SECTION
THE ENGINEER BOARD

FORT BELVOIR, VIRGINIA

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PLAN OF CANTONMENT

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VERTICAL OF BASIC PLAN
(PLANTING SCHEME B)
REGIMENTS 4, 2, 7, 8, 10

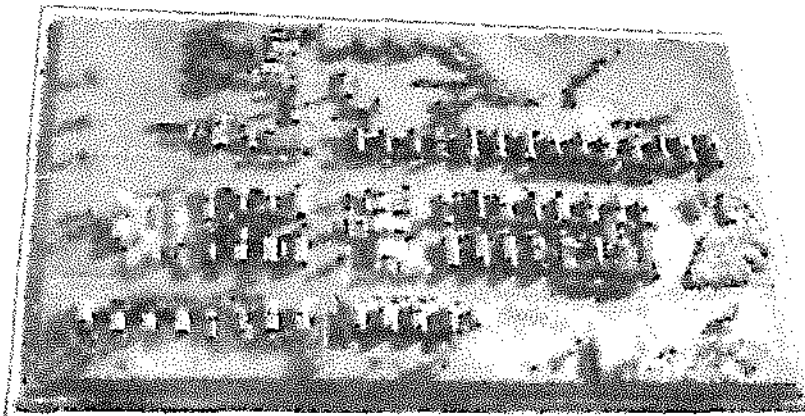
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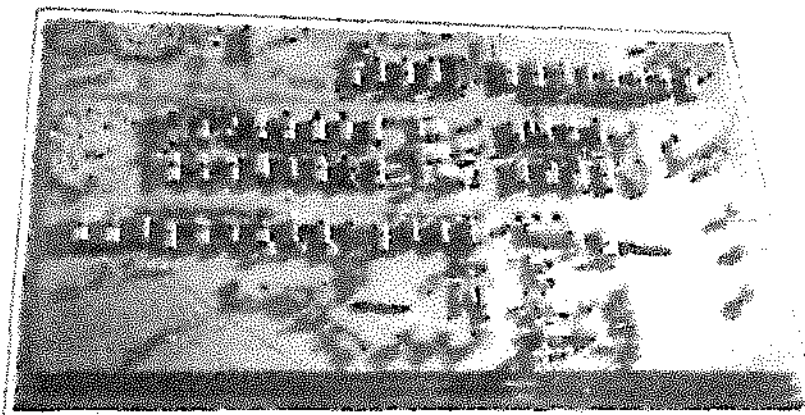
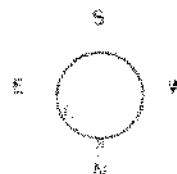


VERTICAL OF BASIC PLAN
(PLANTING SCHEME A)
REGIMENTS 1, 3, 5, 6, 9

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OBLIQUE OF BASIC PLAN
FROM NORTH
EVENING SUN
PLANTING SCHEME A



OBLIQUE OF BASIC PLAN
FROM SOUTH
EARLY MORNING SUN
PLANTING SCHEME A



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CANTONMENT AREAS

STUDY OF DISPERSED LAYOUT

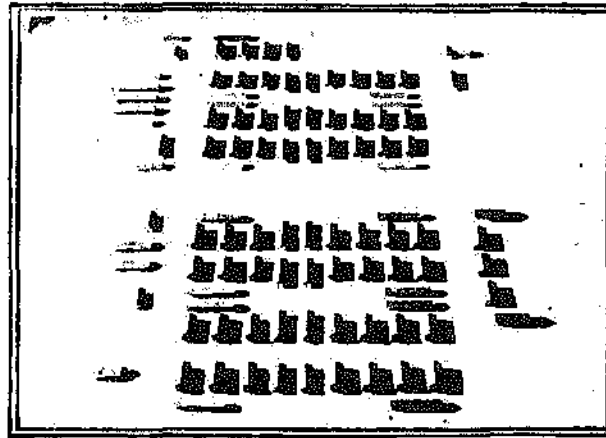
1. The following drawings are suggestions for dispersion within large cantonment areas. Visibility and concentration of buildings has been reduced by rotating the buildings and arranging them to fit the contours of the ground, while organizational grouping has been retained.

2. The area of the dispersed layout is approximately fifteen percent greater than the standard rectangular layout. In the case of the cantonment at Camp Forrest, a careful estimate indicated that the cost of roads and utilities would be increased about eighteen percent.

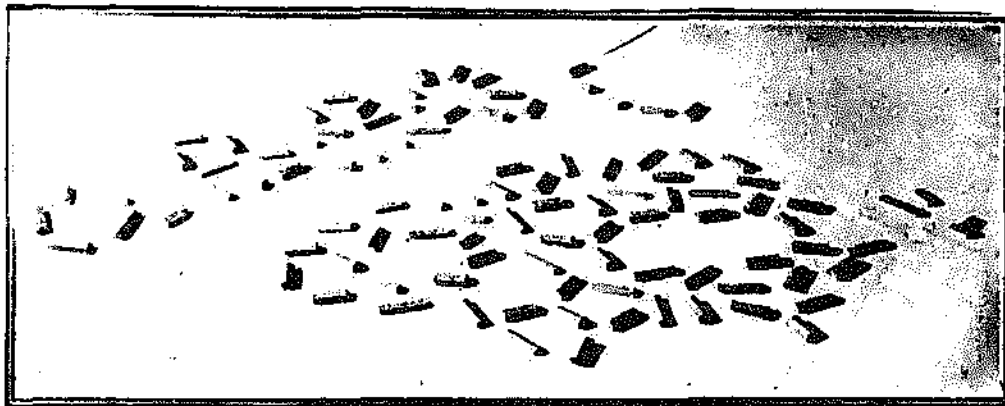
3. Since the cost of building remains unchanged, the net increase in the total cost of the project, excluding compensating economies, would be about four percent. The compensating economies are the elimination of drastic grading by the following of contours, the preservation of surface growing soils, the conserving of trees with their high military concealment values from the oblique, and the reduction in visibility by dispersion over a greater area.

4. The accompanying model study of a cantonment area demonstrates the high visibility of repeating shadows in a rectilinear arrangement, compared to the varied shadows formed by varied orientation of the buildings.

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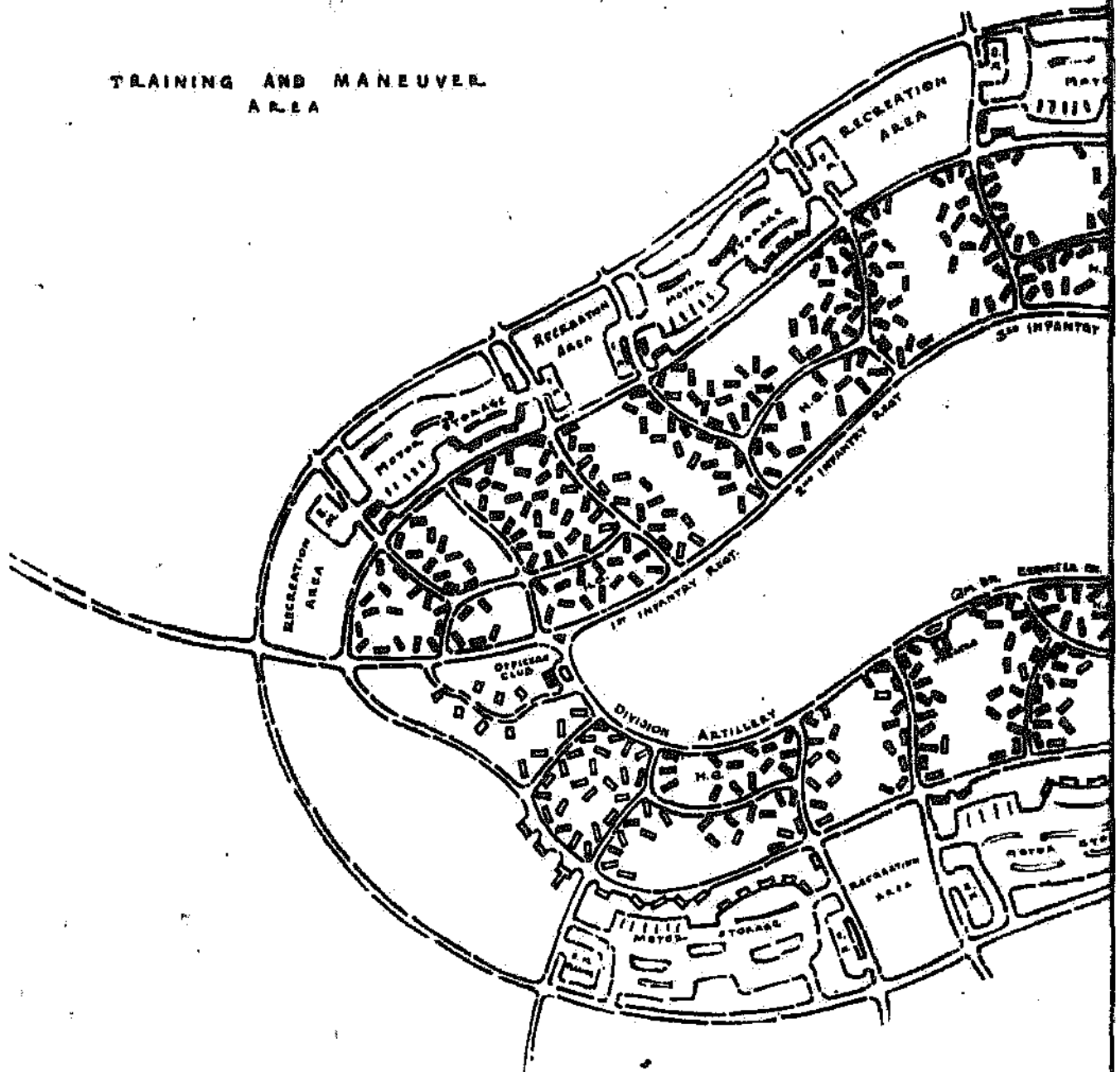
(a) REGIMENTED LAYOUT



(b) THE SAME BUILDINGS BUT DISPERSED
IRREGULARLY TO PERMIT UTILIZATION
OF GROUND FORMS AND NATURAL COVER.
NOTE DIFFERENCE IN RESULTING SHADOWS.

MODEL STUDY OF A CANTONMENT AREA

TRAINING AND MANEUVER
AREA

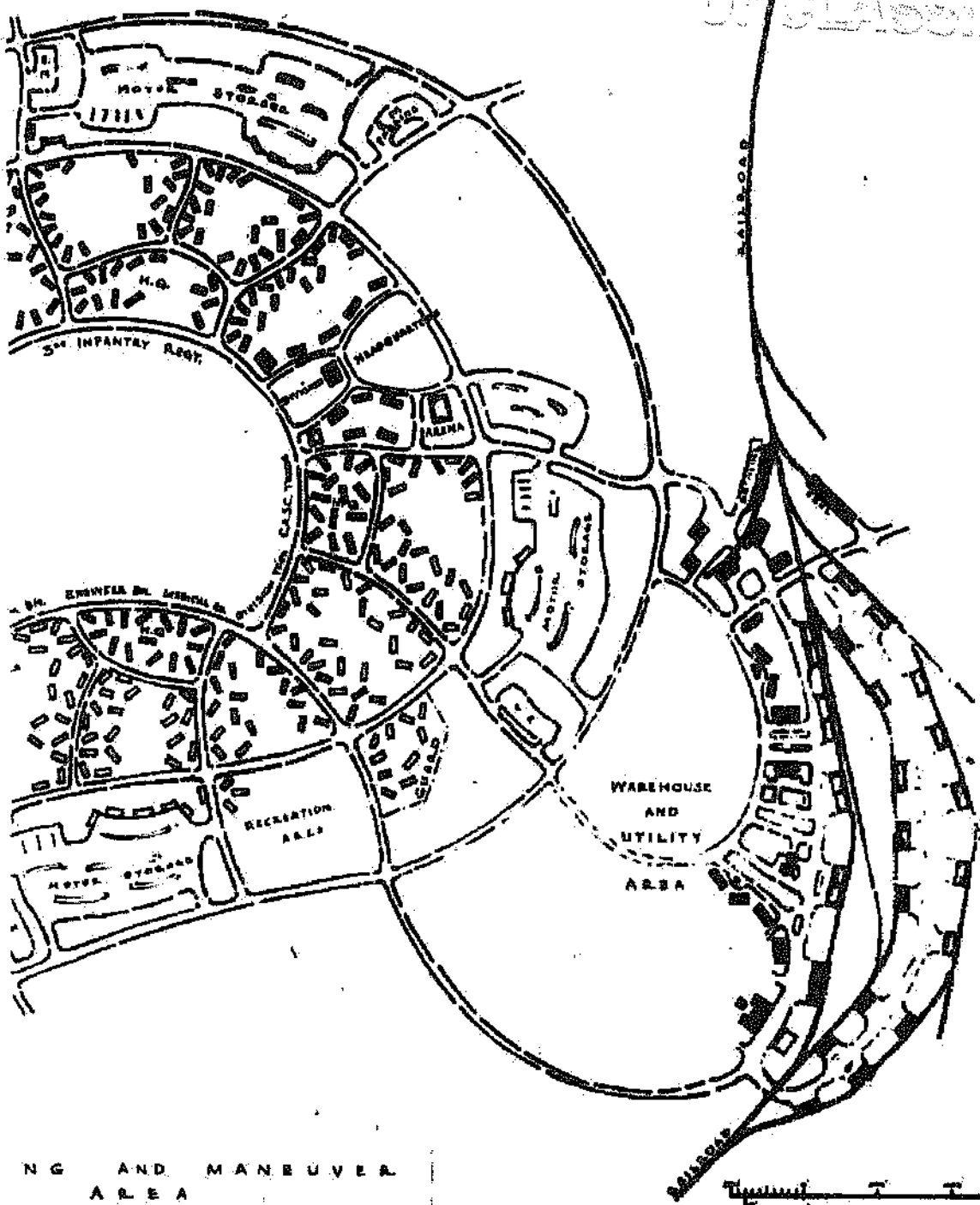


TRAINING AND
AREA

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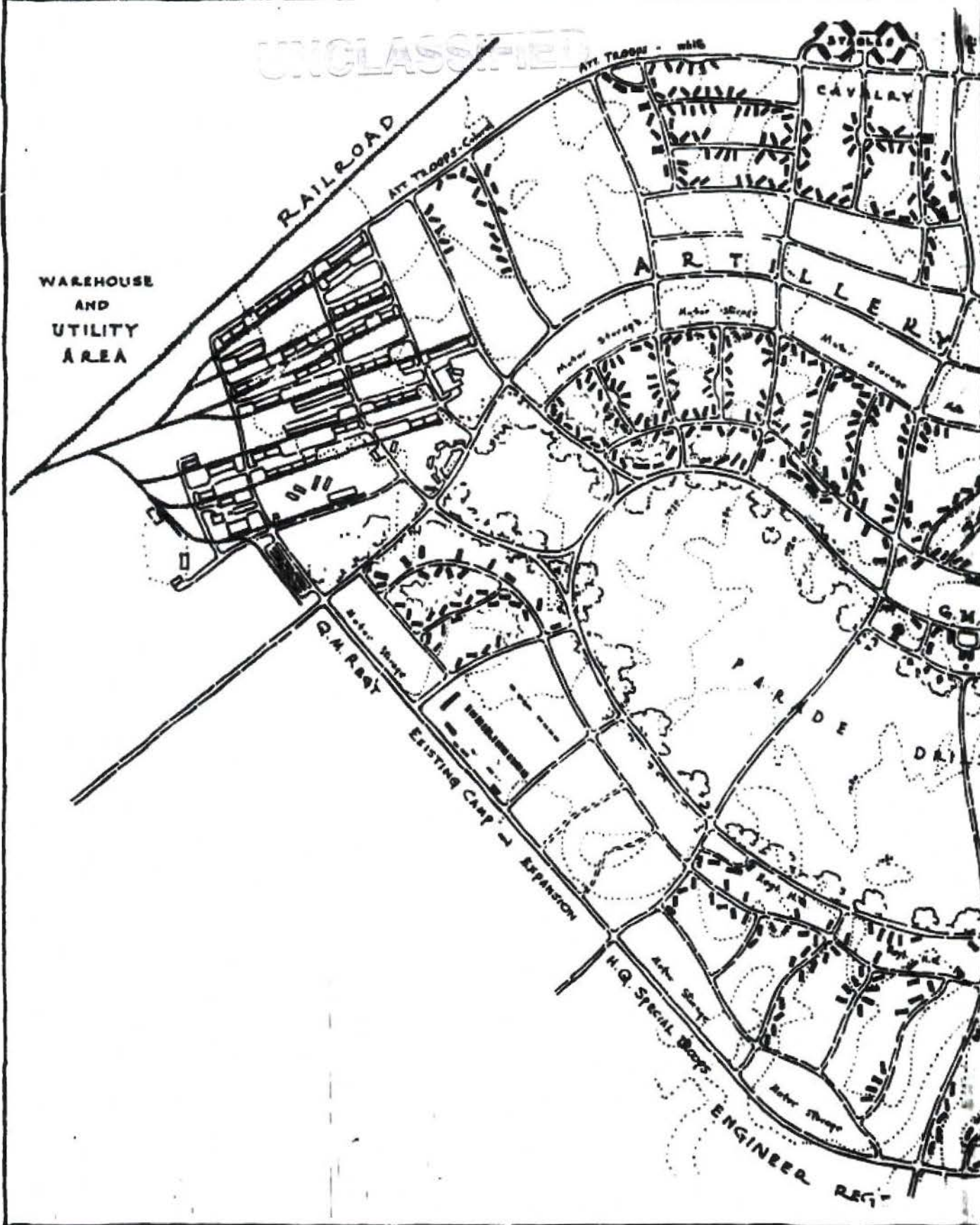


NG AND MANEUVER
AREA

DISPERSED LAYOUT FOR A TRIANGULAR DIVISION			
ENGINEER'S DRAWING THE ENGINEER NO. 40, FORT SILVER, VA.			
DATE: 10-1-50	BY: [Signature]	CHECKED: [Signature]	
APPROVED: [Signature]	DATE: 10-1-50	DATE: 10-1-50	
GROUP: AS, AF	DATE: 10-1-50	DATE: 10-1-50	
6.8-E-1039			

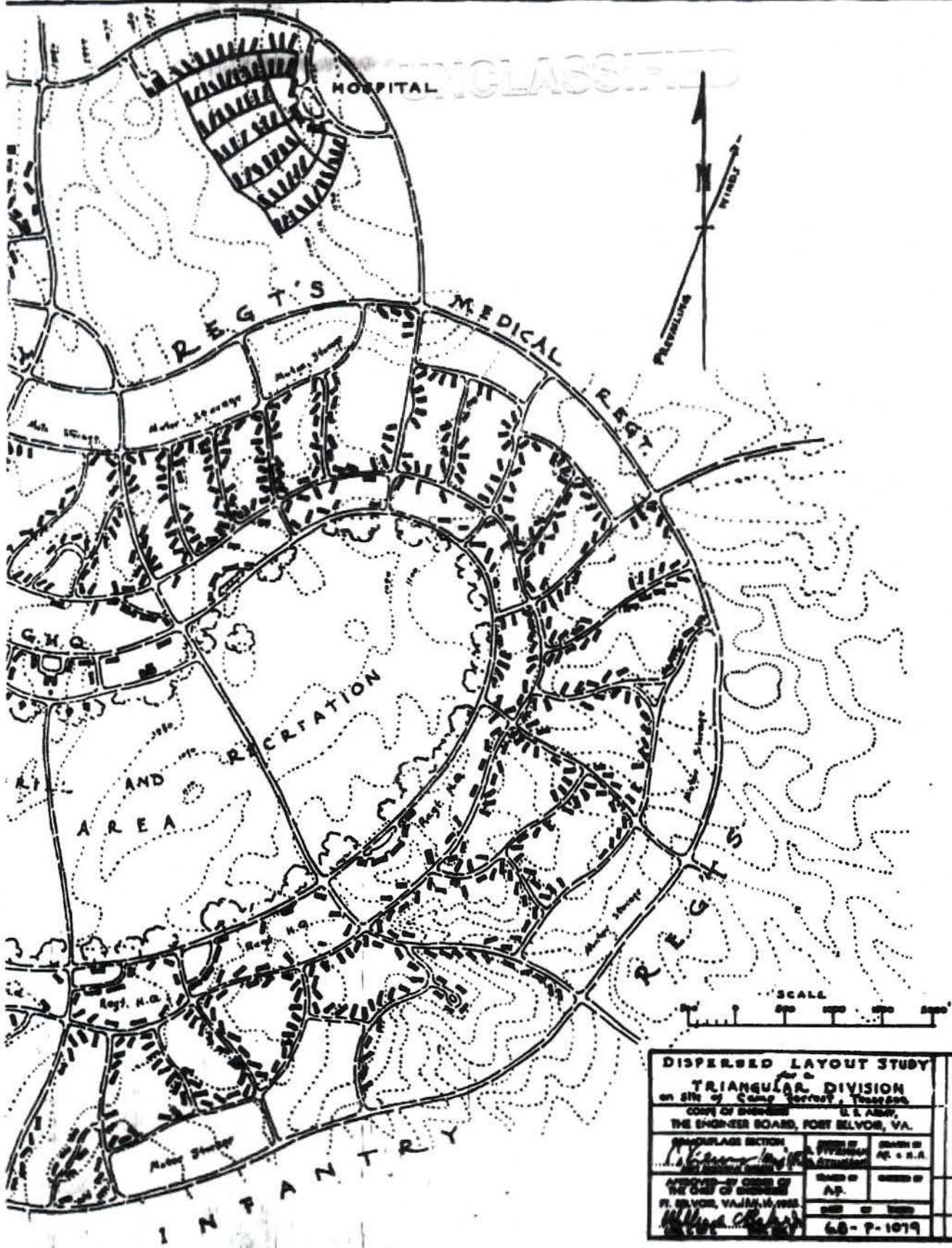
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REPORT ON TYPICAL DISRUPTIVE PATTERNS

FOR
CANTONMENT BUILDINGS

NOTE

The accompanying charts and color chips were prepared in connection with a request from the Chief of Engineers for information relative to protective coloration for cantonment buildings at the Caribbean bases. The scale, shape, and color of these patterns are well suited to wooded areas in any region. The shape and scale are suited also to partially wooded regions such as landscaped areas, but the color selection should be varied to suit local conditions.

OCTOBER 15, 1941

CAMOUFLAGE SECTION
THE ENGINEER BOARD

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FORT BELVOIR, VIRGINIA.

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COLOR CHART

To accompany drawings of Typical Disruptive Patterns, Cantonment Buildings.

Camouflage Section, The Engineer Board
Fort Belvoir, Virginia



LIGHT COLORS

This color to be used where areas surrounding the buildings consist of bare earth, sand, and certain grey types of vegetation. It may be modified in the field to better meet local terrain conditions by the addition of white or yellow green.

NO. 4 FIELD DRAB

Pigmentation - 6 parts white, 3 parts iron oxide yellow, 1 part chrome oxide green.



This color to be used where green is the dominant terrain color, especially if all or almost all of the open areas are grass covered.

NO. 1 LIGHT GREEN

Pigmentation - 20 parts chrome oxide green, 5 parts iron oxide yellow, 2 parts white, 1 part burnt umber.

Either of the above colors, or blends of both, may be used where light color is indicated on the drawings.

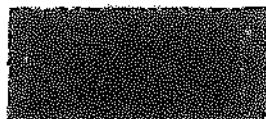


MEDIUM COLOR

This is the basic color of the pattern designs and should be used where medium color is indicated on the drawings.

NO. 2 DARK GREEN

Pigmentation - 20 parts chrome oxide green, 5 parts burnt umber, 1 part iron oxide red.



DARK COLOR

This color is to be used where dark color is indicated on the drawings.

NO. 7 LOAM

Pigmentation - 10 parts black, 1 part burnt umber, 1 part iron oxide red.

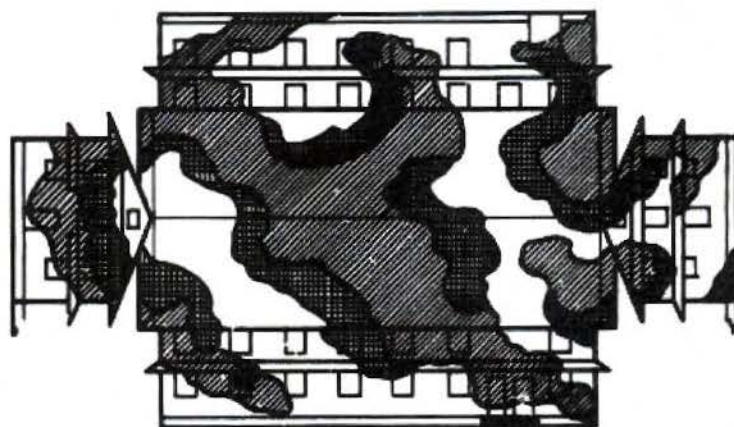
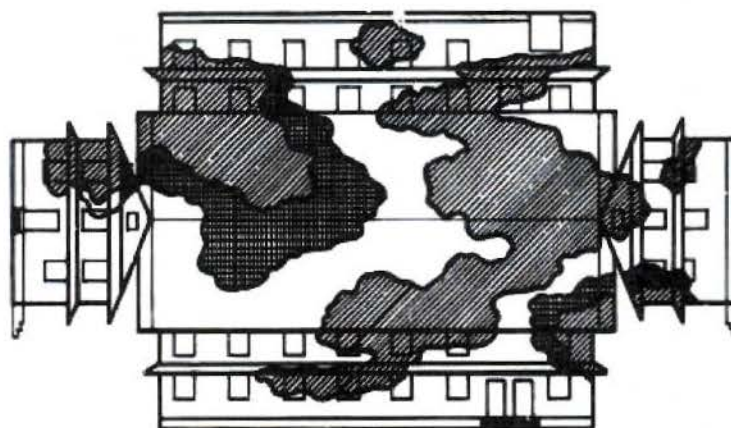
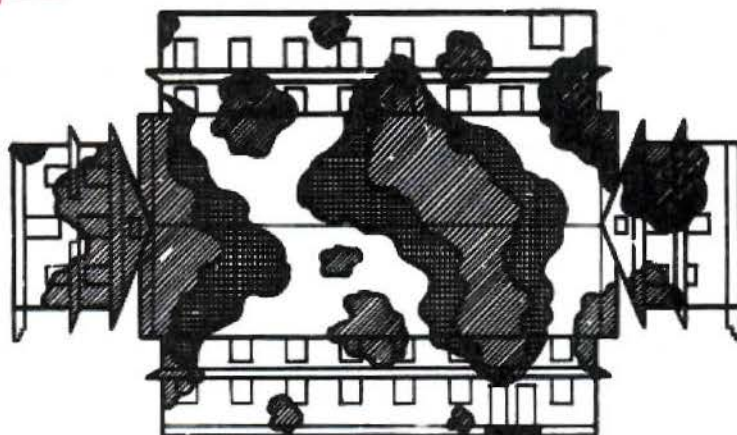
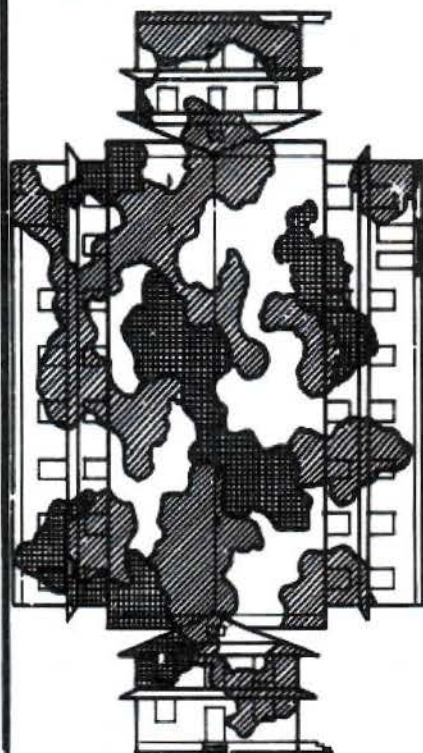
NOTES

These colors (excepting black) have been designed for reflection in the infra-red, and will retain this property when blended with white or with each other. However, this property will be lost if different pigments are used.

The pigmentations given above are approximate and their proportions will vary with different paint vehicles and pigment sources. The pigments used in the preparation of these colors are all of domestic origin and are commercially available. The mixtures given are for the general guidance of the agencies procuring, producing, and applying the paints. Revised (12-12-41) according to Corps of Engineers, U. S. Army, Tentative Specification No. T-1213.

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NOTES

THESE PATTERNS SHOULD BE EXTENDED ONTO ADJACENT GROUND AREAS.
SEE ACCOMPANYING COLOR INSTRUCTIONS FOR PRINTING DETAILS.

LEGEND

- ☐ LIGHT
- ☒ MEDIUM
- ☒ DARK

TYPICAL DISRUPTIVE PATTERNS CANTONMENT BUILDINGS

COPY OF DRAWING THE ENGINEER 801 RD. FORT BELVOIR, VA.		U.S. ARMY	
CAMOUFLAGE SECTION		DRAWN BY	
APPROVED BY		COX	L.C.
IN BELVOIR, VA.		MAILED BY	M.H.
DATE		NOV 19 1958	6.11-A-208

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