FIELD WORK
ON THE
PROGRESSIVE MILITARY MAP
OF THE
UNITED STATES

THESIS
FOR
ADVANCED DEGREE IN CIVIL ENGINEERING

BY
R. ROBERT LYON

1914

Military Topography

Civil engineering + Surveying

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The importance of maps and a correct knowledge of the topographical features of the terrain is always of vast interest, especially at places where military manoeuvres or hostilities may occur. At such times it is of infinite value to have at hand accurate maps, prepared in advance, which cover the theatre of operations. All nations which maintain military establishments make, in time of peace, accurate maps showing the topographical features of the country, which will be of utmost value if an enemy should invade their boundaries. Points of military interest are marked and an accompanying description of the section covered by the map gives other information which may be of military value.

An important branch of the work, carried on by the United States Government and the different states, has been that of making accurate maps of the different sections which make up the area of the United States. A close observation of any large map of the United States will show that the older states in the East, including Kentucky and Tennessee, differ from the newer states in the North and West, in that their detailed surface is blank or irregular while the newer states are, for the

most part, laid off in little rectangles based on certain main lines. This frame-work shows the evidence of the national surveys that have been made. The principle of rectangular surveys being applied to the then new region of the Northwest territory was at the suggestion of President Jefferson. There is now a collection of over fifteen thousand maps, including state and county maps, in the library at Washington, D. C., which have been indexed and catalogued.

Since 1882, a large part of this work has been carried on by the United States Geological Survey, and at the present time more than one-third of the area of the country, excluding outlying possessions, has been mapped by this survey. These maps are printed by the Government in a suitable atlas size and sold to the public at a small charge. (A further description of the work being done by the United States Geological Survey appears on the back of the map enclosed with the notes accompanying this paper.)

The work of man is continually changing the topographical features of any particular section of the country but these changes grow slower as the sections become more densely populated.and permanent works are built. The United States Geological Map is used as the base for the Progressive Military Map of the United States. In this section of the country the survey was

completed in 1890, so that the map used for the base in the present work is twenty-four years old. The object of the Progressive Military Map of the United States is to correct these maps up to date and add as many of the topographical features as the scale of the map will permit. The notes which accompany this map describe those features which are of military importance. The following instructions are used as a guide in the performance of this work.

> "Two copies of map of area to be surveyed will be furnished to officers detailed for field work. One copy will be cut into pieces of convenient size for carrying in the pocket for use in the field. The duplicate sheet will not be cut and will be used for transferring the information gathered on the several field sections before submitting the map and report.
>
> Taking the proper skeleton sections or "field sections" for the work laid out for the day, and starting in each case from a point clearly determined on the map, the officer will proceed along every road shown in the field skeleton, noting distances, directions of prominent features, character of streams and fords (bottom and the like), indicating the size and shape of the elevations, ridges, etc., by contour lines.
>
> All features of military significance will be observed and recorded on the face of the field skeleton in the proper location, or will be referred by number to notes as herein directed. Notes and sketches of bridges, and any other features that cannot be placed upon the field skeletons may be entered in a blank book or other record carried for the purpose. These sketches need not be made to scale, but dimensions, approximate or measured, will always be given on the sketch, or on the photograph, in case photographs take the place of sketches.
>
> The representations upon the field skeleton of such roads as do not exist will be erased or taken out, and the sign for a new road will be put down

properly wherever one is discovered.

All highways and roads must be gone over with the same care.

The following will be noted on the field maps:

1. The location (and altitude in feet when conveniently obtainable) of the highest points of hills and ridges, the former to be shown both on the field map and on the corrected atlas sheet by a small cross.

2. All wooded areas that can be shown with sufficient accuracy to warrent their being shown on the engraved sheets.

3. (a) The extent of important highway and railroad cuts and embankments.

(b) The location and extent of arroyos.

Features under (a) and (b) to be represented on the field sheets by appropriate symbols, togather with figures where the depths or heights exceed five feet, or would otherwise seriously interfere with the maneuvering of cavalry or field artillery.

4. Plans of towns and built-up portions.

5. In outlying districts, the locations of all houses.

6. Telegraph and telephone lines.

7. The location except in cities and towns, of mills, water works, water tanks, roundhouses and blacksmith shops.

The notes submitted with each field sheet will be grouped under the following headings, giving the information called for in the subheadings and any additional facts that may be of military value:

GENERAL DESCRIPTION.

General character of the country, hilly cultivated, wooded, etc.

Source of water supply, quality and quantity.

Industries.

Factories, etc.

Crops raised if a farming country.

Lumber yards and other repositories of material.

Climate and variations in temperature in different seasons of the year; average rainfall.

And any other matter that could have a bearing upon military operations in the country traversed.

STREAM CROSSINGS.

At each point where a road or railroad is shown to cross a stream, will be placed a reference number, and in seperate notes the following information will be given under the corresponding number:

Fordable or non-fordable.

Width and depth of stream.
Character of bottom.
Character and steepness of banks.
Means of crossing.
If crossing is by ferry, kind and capacity should be stated.

Where the crossing is by means of a bridge or culvert the following will be stated:

Type of construction of bridge.
Material.
Length and width.
Height above water.
Condition and strength.
Construction of piers and abutments.

Pen and ink sketches, or photographs, if obtainable, of the most important bridges will be submitted. These should always be a side view to show construction, etc. The reference number of the stream crossing should be placed on each sketch or photograph.

STREAMS.

General description of character of each stream and extent of, and seasons for, rises and falls; navigability.

TOWNS AND VILLAGES.

Population.
Principal industries.
General character of buildings and location of any large important buildings which might be used for military purposes.
Extent of communication by telegraph and telephone, trolley lines, etc.
Water supply, quantity and guality.

COMMANDING POSITIONS.

Indicate location on map by X.

The particular advantage of the position, field of fire, means of approach, etc., should be stated by reference numbers, i. e., X1, X2, X3.

CAMP SITES.

Indicate location on map by A.

Using reference numbers, A1, A2, A3, etc., state:

Number of troops which could be accommodated.
Source, quantity and quality of water, forage and other supplies.
Drainage.

DOCKS.

Location will be shown on map by reference numbers thus: D1, D2, D3, etc. The following information will be given in the notes:

Dimensions.

Height above water.
Material.
Condition.
Depth of water.
Storage facilities in neighborhood.

ROADS.

To describe each road, reference letters will be placed on roads in about the following manner:

A- -A Macadamized road, good condition.
B- -B Dirt road, bad.
C- -C Sandy road.
D- -D Steep grades, etc., etc.

Where more than one road exists between two points, so that there may be no doubt as to which one it is intended to describe, reference letters may be placed at several points as follows: A- -A- -A.

The legend used will always be stated in the notes.

Reasons for changes made in roads will be stated.

RAILROADS.

Where a railroad is other than standard gauge, the gauge should be stated.

In places where railroads are shown to cross marshes, the height of fill should be stated.

Depots, sidings (number and length), platforms or other facilities for loading and unloading, storehouses, etc.

AEROPLANE LANDINGS.

Within every five-mile square of territory to be mapped there will be indicated by the conventional signs set opposite the following heads two or three of the best landing places for aeroplanes. These landing places will be selected in accordance with the following description as to what constitutes "good" and "possible" landing places.

a. Good Landing Place for Aeroplanes.

A landing place is considered "good" when it offers a runway of at least 300 yards in all directions, so that a safe landing may be made in winds; in addition it must be level, free from obstacles of all kinds, including shrubbery over two feet high, trees, stumps, etc.; the soil must be firm enough to rise from, and there should be no high obstacles surrounding the place.

b. Possible Landing Place for Aeroplanes.

A possible landing place is one that has a runway at least 250 by 50 yards in any one direction. It too must be free from obstacles, but grass or low shrubbery of any sort, not over three feet high, would not constitute an obstacle; more-over, the soil may be sandy; there should be, however,

no high obstacles surrounding this place.

The following authorized abbreviations will be used in recording the information:

abut	. . abutment.	bot	. . bottom.
cov.	. . covered.	cul	. . culvert.
n. f.	. not fordable.	gir	. . girder.
P	. . pier.	R. H.	. roundhouse.
str	. . stream.	tr	. . truss.
s	. . steel.	W. W.	. water-works.
f	. . fordable.	B. S.	. blacksmith shop.
i	. . iron.	st	. . stone.
w	. . wood.		

A separate report will be submitted with each quadrangle surveyed.

For any additions made to the maps, the authorized conventional signs therefor will be used. Where any other symbols are used to show certain features, an explanation will be made in the margin or in the notes.

Writing and figures should be plain.

The prime purpose of the recinnaissance is to verify and correct the skeleton, and next to add all the information necessary to complete the map for military purposes. Wherever the skeleton is incorrect or is deficient in military information, correction will be made or the deficiency will be supplied on ths spot, and on the print as directed."

The instructions relative to aeroplane landings were added this year.

It is the ultimate object of the Progressive Military Map of the United States to cover all the areas of the United States which may be used, in time of peace, for military maneuvers or which, during war, may become theatres of military operations. This is a large task and would require a number of years under the most favorable circumstances to complete the first survey. The work has been in progress about six years yet only a small beginning has been made because of no adequate prov-

ision for its execution. At present only a few quadrangles near each of the forts have been surveyed and many of those which have been covered are not complete except the roads which, in most cases, have been gone over thoroughly.

Primarily, it was intended that the Engineer Corps should make this survey but that department has no officers available for this work, and no appropriation is made to defray the expense. This handicap imposes conditions which, in order to do the work at all, makes progress slow and permanent organization impossible. This gives a lower average quality of work with a higher unit cost.

As the work is being carried on at present, officers from the forts in the vicinity that is to be mapped, are detailed for work on the Progressive Military Map of the United States during, what is known as, the indoor season. This is the season of the year when the weather conditions render it undesirable for outside work at the forts. In the North this season is in the Winter and is also the most unfavorable time for doing map work.

Five years ago an officer was detailed for map work, - given two copies of the geological map, an allowance of stationery that he would ordinarily

use at a military post, a reconnaissance outfit such as is used for making road sketches in the mobile army, and sent into the field. Taking one of the sheets of the map, which he cut or folded into suitable size for carrying in the pocket, the officer walked over each of the roads, noting,condition of the same and making such notes as could be recorded on the map which he carried. He was allowed to use his judgment in making such additional notes as he thought of military value, but the idea was that all data possible,would be abbreviated and placed on the face of the finished sheet, which was copied from the map carried in the field.

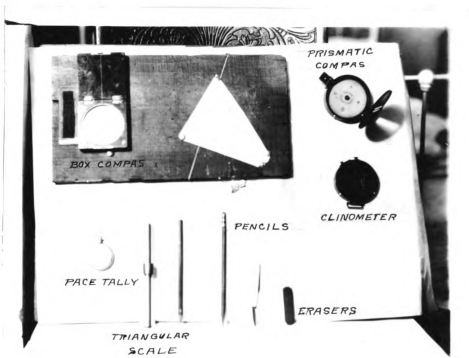
In April 1911, the instructions which used for the work at the present time were sent out. The amount of information that it was necessary to gather was largely increased. Officers detailed for map duty began to request assistants and authority was obtained for one assistant, who would be an enlisted man preferable a non-commissioned officer. Requests were also made for more supplies and transportation. Since there is no special appropritation for carrying on this work, different departments are called upon to furnish the necessary materials. The greatest difficulty has been experienced in obtaining transportation. In this district, previous to October 1912,officers detailed for field work obtained authority for the hire of a horse

and wagon. While authority could always be obtained, there was delay and, many times, difficulty in settling the bills. The officer who was detailed in this section during the Winter of 1911 - 1912 had one assistant and obtained authority for the hire of an automobile at the rate of five dollars per day, he furnishing his own gasoline. The Quartermaster who settled the bills for the automobile hire was held up in his accounts by the auditor and the officer was obliged to refund the amount that had been expended for transportation as automobile hire. The only thing for the officer to do in this case was to refund the money and put in a claim against the Government for expenses incurred in line of duty. Some officers still have claims against the Government for expenses incurred while on this duty.

When the writer was detailed for map duty the First of September 1912, and directed to report by letter to the Department Engineer for instructions; the letter of instructions stated that, upon request, the District Commander would furnish the assistants needed and the Quartermaster Department would furnish the necessary transportation to carry on the work. Greenport, Long Island, was selected as a station and the area to be mapped was Orient Point, five miles from Greenport by road, and Gardiner's Island, twelve miles from Greenport by

water across Gardiner's Bay. This area had been assigned for the work the year before but had not been done, due, no doubt, to it's inaccessibility. Complying with the letter of instructions, a letter was forwarded requesting that the Quartermaster furnish as transportation, one bicycle, one team of mules and buckboard and one boat to be used until the field work on Gardiner's Island was finished; and further requested that two men be detailed as assistants, - one to act as driver. The District Commander detailed one man as assistant and sent the information that no transportation could be spared for work in connection with the military map. A letter was then forwarded to the Department Engineer stating the circumstances and the impossibility of going forward with the work without the transportation requested. This letter, no doubt, was forwarded to the Commanding General who, in turn, directed the District Commander to furnish the transportation requested; for the writer was called to account by the District Commander for having requested specific transportation instead of authority for the hiring of transportation, as had been done by officers previously detailed. However, another man was detailed at once and transportation furnished. It took five weeks to accomplish this end but no trouble has been experienced since in this matter.

In the beginning everybody was absolutely new to the work. It was necessary to form a plan and teach the men the use of the different instruments which they were to use. The instruments in this case were a hard pencil, box compass, pocket clinometer, pace tally and a six-inch triangular draughting scale. With the box



Field Instruments

compass, triangular scale and a small board, the men were taught the principle of the plane-table. Each man was given a pace tally and his pace was standardized and a table constructed to change his paces into sixtieths of an inch on the scale of the map. With this outfit, con-

sisting of a small board with a pocket compass set in a fixed position and oriented to read north, the section of the map having been placed in its proper position on the board, the men became very proficient in filling in the map using the triangular scale to obtain the direction and distance on the map. A light tripod of the type used for kodaks, fitted with a small square board on top, is preferred by some men to mount this outfit upon.

Using Improvised Plane-Table in the Field.

This same tripod is used for a camera stand when the light conditions make it necessary to take a picture

with a time exposure. About four weeks is required by

Using Tripod as a Camera Stand.

the average man, who has the knack of using a pencil, to become proficient in the field work; using a map with a scale of about one inch to the mile. The following data is recorded on the map in the field: All new roads, new houses, bridges, electric and railroad lines, telephone and telegraph lines, fields (cultivated, pasture, wooded, brush), kinds of roads, churches and schools, docks, cuts and fills, highest points on hills, cemeteries and long stone fences. In many built-up sections the required lines must be necessarily fine and the greatest difficulty experienced with men is to teach them to keep the

work small and the map clean. And not all men who are assigned as assistants have this ability to use a hard pencil.

Early in 1913, with a view of accomplishing more and better work, the party of assistants was enlarged to five. A typewriter and high-speed camera were purchased. The men were divided into parties of two men each and a driver for work in the field, while the writer took most of the pictures and collected the additional data required. This arrangement was so successful that, upon re-detail in September 1913, a request for eight assistants, a team and buckboard and a saddle horse was made. The District Commander laughed at the size of the party but granted the request. This detail, which has been in the field during the past Winter, is made up of three parties of two men each in the field and two men in the office. All of the men were new to the work with the exception of the sergeant who is chief of the detail. This man was the single assistant to the officer working in this section two years ago. In the field two men work together, one of them in each party being a non-commissioned officer. In the office a finished copy of the map is made from the sections worked in the field. Notes collected in the field books are typewritten. A supply of developer and printing materi-

als were obtained upon request and the pictures are made in the office, which is better than sending them to New York City to be finished and then returned to be verified and numbered, as was done previous to this year. It is also possible to keep the picture and notes together which is preferable to having them seperated and referring one to the other by number. Over seven hundred pictures have been taken during the past Winter. An area of six hundred and fifty square miles has been covered by this survey during the same time and the military notes and data collected.

Since there is no regular appropriation for this work, it is hard to deduce the exact cost data. The Quartermaster Department and the Engineer Department furnish the supplies and equipment on memorandum receipt. At the end of the season the equipment is returned to the respective departments and it is only possible to estimate depreciation charges. The fixed charges consisting of wages and allowances amount to over seven hundred dollars per month. To this must be added the value of the transportation consisting of a team of mules, a buckboard, saddle horse and equipment, forage, grain, stationery and photo supplies furnished by the Quartermaster Department. Drawing materials and instruments and photo supplies furnished by the Engineer Department. Estimating the value of these various supplies and substituting the cost

value where it was possible, the Saybrook quadrangle cost the government close to eleven dollars and sixty cents per square mile for the two hundred and eight square miles surveyed. A condition which added materially to this cost was that nearly all of the men were new to the work and part of the first month was devoted to instruction.

An examination of the cost of the Guilford quadrangle gives better results although the weather was cold and many days it was impossible to work yet, the time taken to complete the two hundred and nine square miles in this quadrangle was much less than in the previous one. The cost to the government of the Guilford quadrangle is given briefly below.

Wages to one officer and eight men	$1636.59
Photograph supplies	22.00
Transportation	
Stabling	21.16
Hay, grain, oats and straw delivered	62.55
Horseshoeing and repairs	25.25
Estimated depreciation of equipment	10.00
Estimated value of stationery	5.00
	$1782.55

Dividing this amount over the two hundred and nine square miles in the quadrangle gives a result of eight dollars and firty-nine cents per square mile.

This ia a saving of three dollars and eleven cents per square mile or nearly twenty-seven per cent, due almost entirely to the increased experience of the men. The unit cost could be much further reduced if the details were made permanent. With a permanent organization, and an appropriation sufficient to carry on the work, it is believed that the unit cost could be reduced to less than half of the expenditure at the present time. In this case automobile and motor-cycle transportation could be used and a large part of the work done in a favorable season of the year. At the present time complete military data is most required and no cost data is kept.

No radical departures from the instruction pamphlet have been made. A color scheme of indicating on the map the kind of roads was adopted last year. The Department Engineer was pleased and approved this method where a glance at the map shows the nature of the roads in any section of the country that has been covered by this survey. The best map for military purposes,is that one which conveyes the most information to the eye with the least study. With this aim in view, everything is indicated on the face of the map which will stand out clear, and the notes are additional information which is valuable,where a more extended study of conditions is desirable.

The notes taken in the field are bound in the succeeding pages of this thesis in the form they were compiled in, for the completed report on this quadrangle. A copy of the finished field map is to be found in a pocket on the inside of the back cover of this book.

N O T E S

ON THE

GUILFORD QUADRANGLE

G E N E R A L D E S C R I P T I O N

The general character of the country is hilly. large areas are covered with an undergrowth from fifteen to twenty-five feet high. In places, there are considerable areas devoted to agriculture but the cleared spaces seem to be largely pasture lands. The products raised are not sufficient to supply the local needs of the villages.

The water supply for the towns along the coast, Clinton, Madison, East River and Guilford, are supplied from wells and a water-works system which has reservoirs on the hills near Killingworth and a single main pipeline which takes in all of the above towns. The northern part of the quadrangle is supplied from wells. There are several good streams and creeks where water can be obtained. The supply is plentiful and good.

The principal industries are agriculture, fishing and oyster planting along the coast, cutting wood and railroad ties, and manufacturing as noted in the different villages.

The climate along the Sound is damp during the Winter and Spring months,and in this section is given to changes. The highest temperature in July is about 95 degrees and the lowest in January or February is near -8 degrees. The average rainfall per year is about thirty-

six inches. From three to twelve inches of this is snow during the Winter which, as a rule, does not stay on the ground any length of time after it falls. About one-half of the days during the year are clear and fog occurs on about one-half of the remaining days. The foggy days are largely in the Spring. The table below (compiled from several years) gives the changes in temperature and the rainfall during the different seasons.

	Summer	Autumn	Winter	Spring
Average maximum temperature	80	61	38	56
Average minimum temperature	60	44	22	39
Variation in temperature	20	16	16	17
Rainfall	12 in.	11 in.	9 in.	15 in.

S T R E A M C R O S S I N G S.

In collecting the necessary military data for stream crossings, it was necessary to abbreviate the notes and, in transcribing them, the same formula has been used. In addition to the abbreviations on the seventh page, the following have been utilized:

pk	. . plank.	hw	. . highway.
br	. . bridge.	l	. . long.
wd	. . wide.	d	. . deep.
k.p.	. king-post.	q.p.	. queen-post.
cn	. . condition.	h	. . high.
h.a.w.	height above water.	h.a.r.	height above road.
rein	. reinforced.	con.	. concrete.
R.R.	. railroad.	E.R.	. electric road.
Ar	. . arch.		

No. 1.
w. pk. hw. br.
24' l. x 14' wd.
abut. st. cn good
h. a. w. 4'
str.20'wd.x3'd.,m.f.
banks low

No. 2.
w. pk. hw. br.
10' l. x 12' wd.
abut. st. cn good
h. a. w. 3'
str.8'wd.xl'd.,f.
banks sloping

No. 3.
w. k.p. hw. br.
24' l. x 13' wd.
abut. st. cn good
h. a. w. 4.5'
str.20'wd.x2'd.,f.
banks low

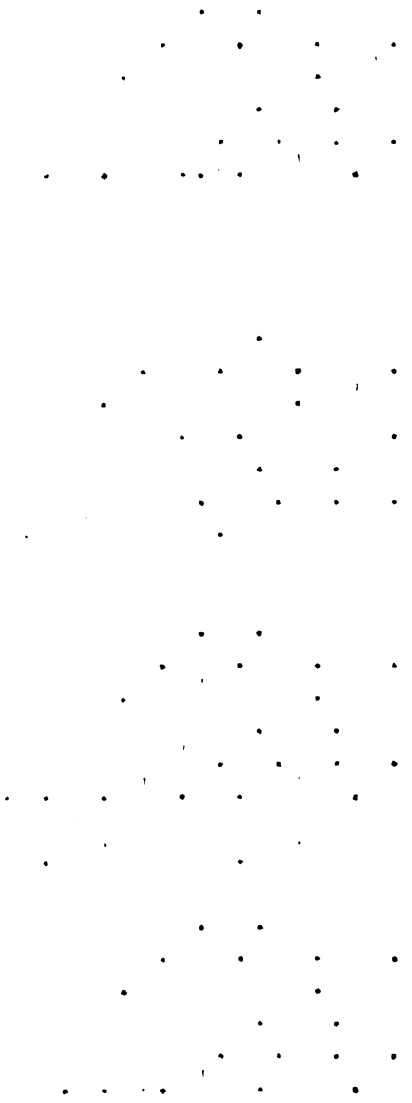
No. 4.
w. pk. hw. br.
22' l. x 12' wd.
abut. st. cn good
h. a. w. 4.5'
str.18'wd.x2.6'd.,f.
banks low

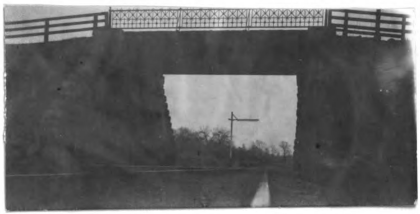
No. 5.
s. gir. hw. br.
145' l. x 20' wd.
d. of gir. 5.6'
abut. st. cn good
h. a. r. 20.5'
fill 10' h. x 200' l.

No. 6.
w. pk. hw. br.
26' l. x 19' wd.
abut. st. cn poor
h. a. w. 5.8'
str.23'wd.x4.6'd.,n.f.
banks low and marshy
fill 3' h. x 550' l.

No. 7.
w. pk. hw. br.
11' l. x 16' wd.
abut. st. cn poor
h. a. w. 4.9'
str.8'wd.x3'd.,n.f.
banks low and marshy

No. 8.
w. q.p. hw. br.
33' l. x 13' wd.
abut. st. cn good
h. a. w. 7'
str.30'wd.x3'd.,f.
banks sloping





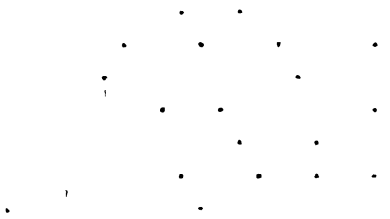
No. 9.
s. gir. hw. br.
31' l. x 30' wd.
d. of gir. 1.10'
abut. st. cn good
h. a. r. 20.4'
fill 10' h. x 200' l.

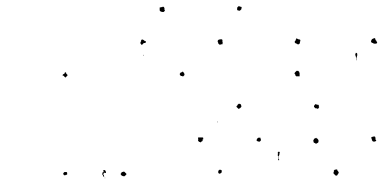
No. 10.
w. pk. hw. br.
16' l. x 12' wd.
abut. st. cn poor
h. a. w. 6'
str.12'wd.x2'd.,n.f.
banks low

w. pk. hw. br.
18' l. x 13' wd.
abut. st. cn poor
h. a. w. 6'
str.15'wd.x2'd.,n.f.

No. 11.
w. pk. hw. br.
30' l. x 19' wd.
abut. st. cn good
h. a. w. 12'
str.25'wd.x2.5'd.,f.
banks sloping

No. 12.
w. pk. hw. br.
22' l. x 13.8' wd.
abut. st. cn good
h. a. w. 6.5'
str.20'wd.x3'd.,f.
banks sloping





No. 13.
con.hw.br.(rein.s.gir)
24' l. x 15' wd.
abut. st. cn good
h. a. w. 7'
str.20'wd.x2'd.,f.
banks low

No. 14.
w. pk. hw. br.
19' l. x 14' wd.
abut. st. cn good
h. a. w. 6'
str.15'wd.x2'd.,f.
banks low

No. 15.
s. gir. R. R. br.
10' l. x 27' wd.
abut. st. cn good
h. a. r. 12'

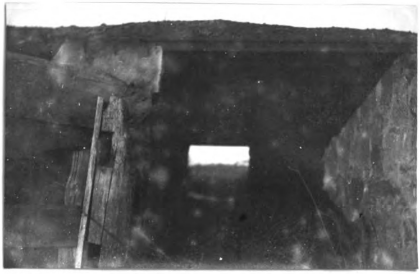
No. 16.
st. Ar. R. R. br.
22' l. x 22' wd.
abut. st. cn good
h. a. w. 21'
str.22'wd.x2'd.,n.f.
banks low and marshy
fill 10' h. x 500' l.

No. 17.
st. Ar. hw. br.
16' l. x 75' wd.
abut. st. cn good
h. a. w. 9.6'
str.40'wd.x2'd.,n.f.
banks built-up

No. 18.
s. gir. R. R. br.
55' l. x 33' wd.
abut. st. cn good
h. a. r. 16'
d. of gir. 3.3'

No. 19.
w. pk. hw. br.
24' l. x 11' wd.
abut. st. cn good
h. a. w. 3.8'
str.20'wd.x2.4'd.,f.
banks low

No. 20.
s. gir. R. R. br.
33' l. x 33' wd.
d. of gir. 3'
abut. st. cn good
h. a. r. 15'



No. 21.
s. gir. R. R. br.
6' l. x 33'wd.
d. of gir. .6'
abut. st. cn good
h. a. r. 7''

No. 22.
st. R. R. br.
5' l. x 55' wd.
abut. st. cn good
h. a. w. 9'
str.5'wd.xl'd.,n.f.
banks low and marshy
fill 6' h. x 1500'l.

No. 23.
s. Pratt tr. hw. br.
62' l. x 17' wd.
abut. st. cn good
h. a. w. 9'
str.55'wd.x8'd.,n.f.

No. 24.
rein. con. E. R. br.
135' l. x 11' wd.
abut. con. on good
h. a. w. 10'
str.125'wd.x10'd.,n.f.
banks low and marshy
fill 10' h. x 500' l.

No. 25.
con.hw.br.(rein.s.gir.)
12' l. x 22' wd.
abut. st. on good
h. a. w. 8'
str.10'wd.x1'd.,f.
banks sloping

(This bridge is identical
to No. 25 and the same
photograph is used.

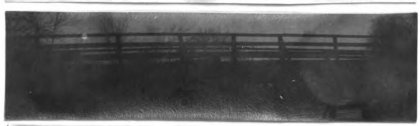
No. 26.
con.hw.br.(rein.s.gir.
12' l. x 22' wd.
abut. st. on good
h. a. w. 6'
str.10'wd.x 2'd.,n.f.
banks low

No. 27.
w. pk. hw. br.
8.4' l. x 14' wd.
abut. st. on good
h. a. w. 7'
str.5'wd.x2'd.,f.
banks sloping

(Photograph same as No. 25)

No. 28.
con.hw.br.(rein.s.gir.
10' l. x 14' wd.
abut. st. cn good
h. a. w. 2'
str.8'wd.x1!d.,f.
banks low

No. 29.
s. gir. R. R. br.
111.8' l. x 26.8' wd.
abut. st. cn good
h. a. w. 24.5'
d. of gir. 4.9'
str.94'wd.x4.2'd.,n.f.



No. 30.
w. pk. hw. br.
56.3' l. x 16.2' wd.
abut. st. cn good
h. a. w. 7'
str.54'wd.x2.7'd.,n.f.
banks low

No. 31.
s. gir. R. R. br.
14.1' l. x 35' wd.
abut. st. cn good
h. a. r. 14.1'
d. of gir. 1.7'

No. 32.
w. pk. hw. br.
10.8' l. x 14.1' wd.
abut. st. cn good
h. a. w. 6.9'
str. 12'wd.x1.5'd., f.
banks low

No. 33.
w. pk. hw. br.
23.6' l. x 11.8' wd.
abut. st. cn fair
h. a. w. 4.2'
str. 24'wd.x2.5'd., f.
banks sloping

No. 34.
w. k.p. hw. br.
70' l. x 14.6' wd.
abut. st. cn good
h. a. w. 7.9'
str. 65'wd.x3'd.,n.f.
banks sloping

No. 35.
w. pk. hw. br.
18.6' l. x 13.2' wd.
abut. st. cn good
h. a. w. 2.8'
str.10'wd.x1'd.,f.
banks low and sloping

No. 35½.
w. k.p. hw. br.
22' l. x 14' wd.
abut. st. cn good
h. a. w. 6'
str.20'wd.x5'd.,n.f.
banks low
fill 2' h. x 1000' l.

No. 36.
w. k.p. hw. br.
34' l. x 18' wd.
abut. st. cn good
h. a. r. 20'

No. 37.
w. k.p. hw. br.
32' l. x 20' wd.
abut. st. cn good
h. a. r. 19.7'
fill 20' h. x 350' l.

No. 38.
w. k.p. hw. br.
32' l. x 20' wd.
abut. st. cn good
h. a. r. 19.7'
fill 20' h. x 400' l.

No. 39.
w. pk. hw. br.
9' l. x 16' wd.
abut. st. cn poor
h. a. w. 2'
str.8'wd.xl'd.,f.
banks low

No. 40.
st. hw. br.
12' l. x 10.5' wd.
abut. st. cn good
h. a. w. 3.5'
str.8'wd.x2.5'd.,f.
banks sloping

No. 41.
w. pk. hw. br.
15.3' l. x 11.8' wd.
abut. st. cn fair
h. a. w. 2.7'
str.13'wd.x1.8'd.,f.
banks sloping

No. 42.
w. k.p. hw. br.
37.5' l. x 13.5' wd.
abut. st. cn good
h. a. w. 5.8'
str.40'wd.x3.6'd.,n.f.
banks sloping

No. 43.
w. pk. hw. br.
10' l. x 13' wd.
abut. st. cn poor
h. a. w. 2.1'
str.12'wd.x1.8'd.,f.
banks low and marshy

No. 44.
w. pk. hw. br.
9.5' l. x 10' wd.
abut. st. cn poor
h. a. w. 3'
str.10'wd.x1'd.,f.
banks low and sloping

No. 45.
w. pk. hw. br.
16.1' l. x 13.5' wd.
abut. st. cn good
h. a. w. 3'
str.15'wd.x1.6'd.,f.
banks low and sloping

No. 46.
w. pk. hw. br.
17.3' l. x 13.2' wd.
abut. st. cn poor
h. a. w. 3.2'
str.12'wd.x3.4'd.,n.f.
banks low

No. 47.
s. gir. R. R. br.
10.6' l. x 14' wd.
d. of gir. 2'
abut. st. cn good
h. a. w. 11.8'
str.18'wd.x1'd.,n.f.
banks low
fill 10' h. x 900' l.

No. 48.
w. k.p. hw. br.
32' l. x 20' wd.
abut. st. cn good
h. a. r. 19.7'

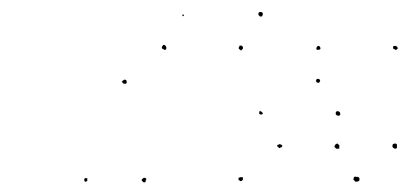
No. 49.
w. pk. hw. br.
15' l. x 12' wd.
abut. st. cn good
h. a. w. 3'
str.12'wd.xl'd.,f.
banks low

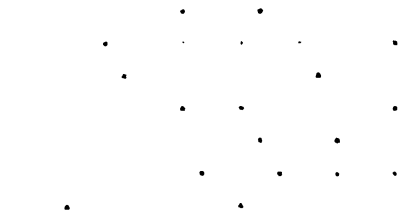
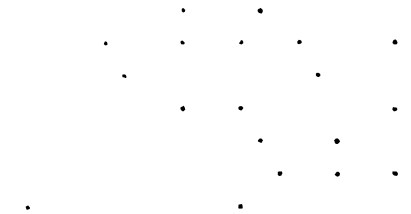
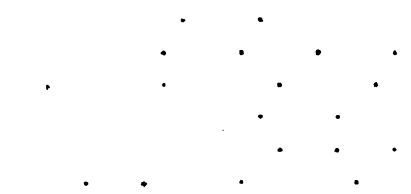
No. 50.
st. Ar. hw. & s.
gir. E. R. br.
20.5' l. x 21.8' wd.
abut. st. cn good
h. a. w. 5.6'
str.18.5'wd.xl.7'd.,f.
banks low and marshy

No. 51.
s. gir. R. R. br.
33' l. x 22' wd.
d. of gir. 1.8'
abut. st. cn good
h. a. r. 12.8'
fill 7' h. x 900' l.

No. 52.
s. gir. R. R. br.
41' l. x 22' wd.
d. of gir. 1.8'
abut. st. cn good
h. a. r. 16'
fill 8' h. x 1000' l.

No. 53.
w. pk. hw. br.
18.3' l. x 15.2' wd.
abut. st. cn good
h. a. w. 9'
str.17'wd.x2'd.,f.
banks low



No. 54.
w. R. R. tres.
106' l. x 28' wd.
abut. w. cn good
h. a. w. 9.6'
str.80'wd.x8'd.,n.f.
banks low
fill 5' h. both
approaches

No. 55.
w.E.R.tres.(s.gir.)
124' l. x 7' wd.
d. of gir. 1.3'
abut. w. cn good
h. a. w. 9'
str.90'wd.x10'd.,n.f.
banks low

No. 56.
s. Pratt tr. hw. br.
49' l. x 18.5' wd.
d. of gir. .8'
abut. st. cn good
h. a. w. 6.9'
str.40'wd.x9'd.,n.f.
banks low

No. 57.
w. pk. hw. br.
17' l. x 12' wd.
abut. st. cn fair
h. a. w. 2.8'
str.18'wd.x2.1'd.,f.
banks low and sloping

No. 58.
w. pk. hw. br.
44' l. x 15' wd.
abut. st. cn fair
h. a. w. 9'
str.60'wd.x4'd.,n.f.
banks low

No. 59.
w.R.R.tres.(s.gir.)
63' l. x 28' wd.
d. of gir. 1.4'
abut. w. cn good
h. a. w. 10.6'
str.40'wd.x2'd.,n.f.
banks low
fill 9' h. x 800' l.

No. 60.
w. pk. hw. br.
18' l. x 15' wd.
abut. st. cn good
h. a. w. 5'
str.15'wd.x2'd.,n.f.
banks low

No. 61.
w. pk. hw. br.
15' l. x 16.2' wd.
abut. st. cn poor
h. a. w. 5'
str.12'wd.x5'd.,n.f.
banks high and marshy

No. 62.
w. pk. hw. br.
23.7' l. x 15' wd.
abut. st. cn poor
h. a. w. 8'
str.20'wd.x1.6'd.,f.
banks sloping

No. 63.
s. gir. hw. br.
26' l. x 14' wd.
d. of gir. .9'
abut. st. cn good
h. a. w. 4.8'
str.23'wd.x4'd.,n.f.
banks low

No. 64.
con.hw.br.(rein.s.gir.
21.4' l. x 14.6' wd.
d. of gir. .9'
abut. st. cn good
h. a. w. 4.8'
str.18'wd.x2'd.,f.
banks low

No. 64½.
w. pk. hw. br.
26' l. x 15' wd.
abut. st. cn poor
h. a. w. 5'
str.20'wd.x1'd.,f.
banks low

No. 65.
w.R.R.tres.(s.gir.)
102' l. x 14' wd.
d. of gir. 1.4'
abut. w. cn good
h. a. w. 12'
str.60'wd.x10'd.,n.f.
banks low
fill 8' h. x 1000' l.

No. 66.
s. gir. hw. br.
54.5' l. x 21.9' wd.
d. of gir. 4.7'
h. a. w. 8'
str.44'wd.x2'd.,n.f.
banks low
fill 5' h. x 500' l.

No. 67.
w.E.R.tres.(s.gir.)
132' l. x 7' wd.
d. of gir. 1.3'
h. a. w. 8.8'
str.40'wd.x2'd.,n.f.
banks low
fill 2' h. x 500' l.

No. 68.
con. & s. Pratt
tr. E. R. br.
111.5' l. x 7' wd.
d. of gir. 1.5'
h. a. r. 25.9'
abut. con. on good
con. approach 243' l.
x 13.3' wd.

No. 69.
w. k.p. hw. br.
31.8' l. x 20.2' wd.
abut. st. on good
h. a. r. 19'
fill 7.5' h. x 200' l.

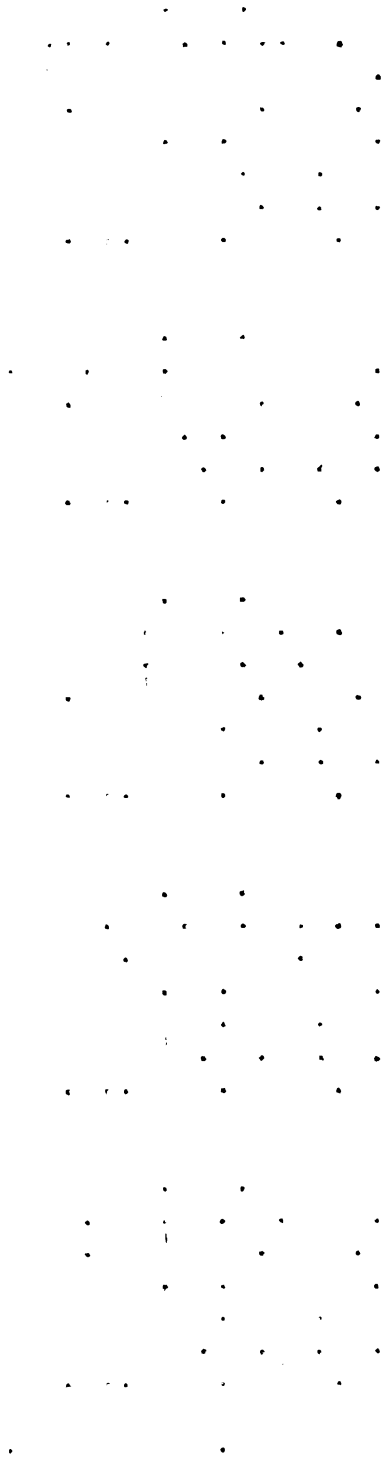
No. 70.
con. hw. br. (rein.
s. gir)
38.4' l. x 19' wd.
d. of gir. 1.5'
abut. st. on good
h. a. w. 8'
str.25'wd.x2'd.,f.
banks low

No. 71.
s. Warren tr. hw. br.
42.8' l. x 16' wd.
d. of gir. .5'
h. a. w. 6.6'
str.20'wd.x1'd.,f.
banks low

No. 72.
con. E. R. br.
(rein. s. gir.)
24.6' l. x 11' wd.
abut. con. on good
h. a. w. 7'
str.10'wd.x1'd.,f.
banks sloping

No. 73.
w.E.R.br.(s.gir.)
30' l. x 7' wd.
d. of gir. 1.8'
abut. con. on good
h. a. w. 5.8'
str.20'wd.x1'd.,f.
banks low

No. 74.
s. gir. E. R. br.
63.6' l. x 7' wd.
d. of gir. 1.5'
abut. con. on good
h. a. w. 4.8'
str.40'wd.x1'd.,f.
banks low
fill 3' h. x 1800' l.



No. 75.
s.Warren tr.hw.br.
34' l. x 15' wd.
d. of gir. .5'
abut. st. cn good
h. a. w. 7.4'
str.25'wd.x1.5'd.,f.
banks low

No. 76.
w. pk. hw. br.
11.6' l. x 14.3' wd.
abut. st. cn good
h. a. w. 3'
str.5'wd.x1'd.,f.
banks low

No. 77.
w. pk. hw. br.
11.10' l. x 13.10' wd.
abut. st. cn poor
h. a. w. 3.8'
str.12'wd.x1'd.,f.
banks low and slopimg

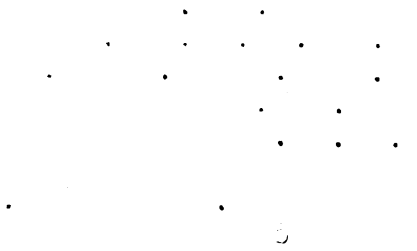
No. 78.
con. Ar. hw. br.
50' l. x 18' wd.
abut. con. cn good
h. a. r. 17'

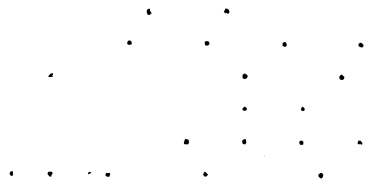
No. 79.
s. gir. R. R. br.
31.2' l. x 26.7' wd.
d. of gir. 1.4'
abut. st. cn good
h. a. w. 14'
fill 10' h. x 1500 l.

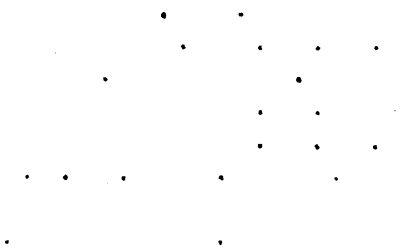
No. 80.
st. Ar. R. R. br.
16.9' l. x 27.6' wd.
abut. st. cn good
h. a. w. 15' (arch)
banks low
fill 10' h. x 3500' l.
height of track
above arch 6'

No. 81.
w. pk. hw. br.
12.6' l. x 21' wd.
abut. w. cn poor
h. a. w. 3.5'
str.11'wd.x3'd.,n.f.
banks low

No. 82.
w. E. R. br.
11' l. x 18' wd.
abut. w. cn good
h. a. w. 6'
str.10'wd.x3'd.,n.f.
banks low
fill 2' h. x 1300' l.





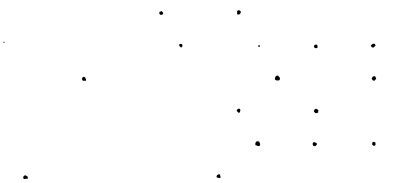


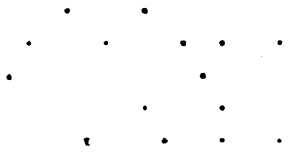
No. 83.
w. E. R. br.
7.8' l. x 11' wd.
abut. st. on good
h. a. r. 9'
fill 5' h. x 500' l.

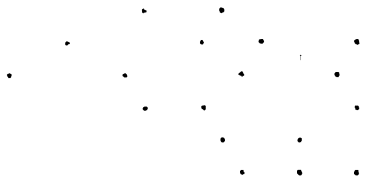
No. 84.
w. pk. hw. br.
9.8' l. x 15' wd.
abut. w. on poor
h. a. w. 1'
str.6'wd.x2'd.,m.f.
banks low

No. 85.
w. k.p. hw. br.
29' l. x 19' wd.
abut. st. on good
h. a. r. 19.7'

No. 86.
s. gir. R. R. br.
30.8' l. x 26.9' wd.
d. of gir. 3.6'
abut. st. on good
h. a. r. 17'







No. 87.
s. gir. R. R. br.
29' l. x 14' wd.
d. of gir. 3.6'
abut. st. cn good
h. a. r. 18.5'
fill 15' h. x 850' l.

No. 88.
w. pk. hw. br.
10' l. x 12' wd.
abut. st. cn poor
h. a. w. 2'
str.8'wd.x3'd.,n.f.
banks low

No. 89.
w. q.p. hw. br.
46' l. x 11' wd.
abut. st. cn good
h. a. w. 8'
str.40'wd.x4'd.,n.f.
banks sloping

No. 90.
s. gir. R. R. br.
14.5' l. x 14' wd.
abut. st. cn good
d. of gir. 1'
h. a. r. 11'

No. 91.
w. pk. hw. br.
18.6' l. x 12' wd.
abut. st. cn poor
h. a. w. 2.2'
str.14'wd.x7'd.,n.f.
banks low

No. 92.
w. pk. hw. br.
12' l. x 13.6' wd.
abut. st. cn good
h. a. w. 2'
str.10'wd.x4'd.,n.f.
banks low

No. 93.
w. E. R. tres.
200' l. x 7' wd.
abut. st. cn good
h. a. w. 8'
str.175'wd.x2'd.,n.f.
banks low
fill 4' h. x 3400' l.

No. 94.
s. gir. R. R. br.
77.5' l. x 14' wd.
d. of gir. 7'
abut. st. cn good
h. a. w. 20'
str.20'wd.x1'd.,n.f.
banks low
fill 15' h. x 500' l.

No. 95.
w. pk. hw. br.
14.2' l. x 12.5' wd.
abut. st. cn poor
h. a. w. 3'
str.12'wd.x1'd.,f.

No. 96.
w. pk. hw. br.
10' l. x 16' wd.
abut. st. on poor
h. a. w. 2.6'
str.5'wd.xl.6'wd.,n.f.
banks low

No. 97.
w. k.p. hw. br.
23' l. x 13' wd.
abut. st. on poor
h. a. w. 7'
str.15'wd.xl.6'd.,f.
banks sloping

No. 98.
w. k.p. hw. br.
32' l. x 16' wd.
abut. st. on good
h. a. w. 6'
str.25'wd.x2'd.,f.
banks sloping

No. 99.
w. pk. hw. br.
10' l. x 16' wd.
abut. st. on good
h. a. w. 3'
str.8'wd.xl'd.,f.
banks low

No. 100.
w. pk. hw. br.
13' l. x 15' wd.
abut. st. cn good
h. a. w. 6'
str.19'wd.x1'd.,f.
banks steep

No. 101.
w. pk. hw. br.
21' l. x 13' wd.
abut. st. cn poor
h. a. w. 7'
str.18'wd.x2'd.,f.
banks sloping

No. 102.
w. pk. hw. br.
25' l. x 13' wd.
abut. st. cn good
h. a. w. 4.6'
str.20'wd.x2'd.,f.
banks low

No. 103.
w. pk. hw. br.
25' l. x 15' wd.
abut. st. cn poor
h. a. w. 5.6'
str.20'wd.x1.6'd.,f.
banks low

No. 104.
w. pk. hw. br.
17' l. x 25' wd.
abut. st. cn poor
h. a. w. 4.6'
str.16'wd.x1'd.,f.
banks low

No. 105.
w. pk. hw. br.
12' l. x 12' wd.
abut. st. cn good
h. a. w. 4'
str.10'wd.x1'd.,f.
banks sloping

No. 106.
w. pk. hw. br.
18' l. x 14' wd.
abut. st. cn good
h. a. w. 3.6'
str.10'wd.x1'd.,f.
banks low

No. 107.
w. pk. hw. br.
10.6' l. x 14' wd.
abut. st. cn good
h. a. w. 1'
str.10'wd.x5'd.,n.f.
banks low

No. 108.
w. pk. hw. br.
10' l. x 13' wd.
abut. st. on poor
h. a. w. 2.6'
str.8'wd.x1'd.,f.
banks low

No. 109.
w. pk. hw. br.
17' l. x 10' wd.
abut. st. on poor
h. a. w. 1.9'
str.18'wd.x2.8'd.,f.
banks low and marshy

No. 110.
w. pk. hw. br.
25' l. x 10' wd.
abut. st. on poor
h. a. w. 2.1'
str.28'wd.x3.1'd.,f.
banks low and marshy

No. 111.
w. pk. hw. br.
13.8' l. x 11' wd.
abut. st. on fair
h. a. w. 2.6'
str.10'wd.x1.8'd.,f.
banks low and marshy

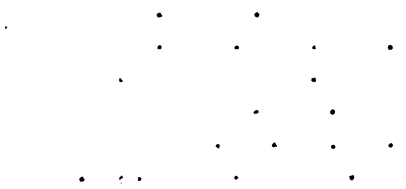
No. 112.
w. pk. hw. br.
16' l. x 12' wd.
abut. st. on poor
h. a. w. 2.6'
str.14'wd.x2'd.,f.
banks low

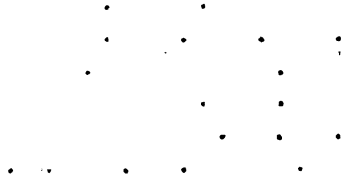
No. 113.
w. pk. hw. br.
15' l. x 12' wd.
abut. st. cn good
h. a. w. 2.6'
str.10'wd.x1'd.,f.
banks low

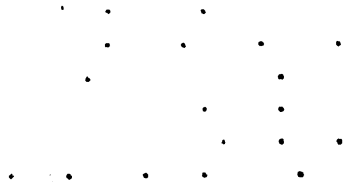
No. 114.
w. pk. hw. br.
13' l. x 10' wd.
abut. st. cn fair
h. a. w. 2'
str.12'wd.x1.8'd.,f.
banks low and sloping

No. 115.
w. pk. hw. br.
8' l. x 11' wd.
abut. st. cn fair
h. a. w. 2'
str.10'wd.x2.2'd.,f.
banks low and sloping

No. 116.
w. pk. hw. br.
7' l. x 11' wd.
abut. st. cn good
h. a. w. 2'
str.6'wd.x1.6'd.,f.
banks low





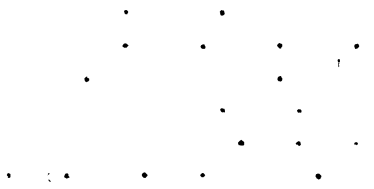


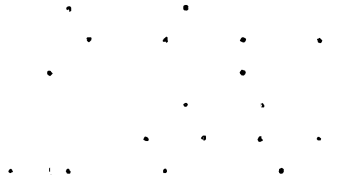
No. 117.
w. pk. hw. br.
8' l. x 12' wd.
abut. st. cn poor
h. a. w. 2.9'
str.6'wd.x2'd.,f.
banks low and sloping

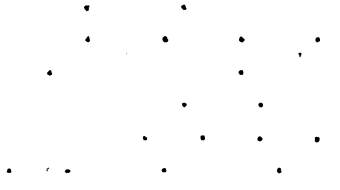
No. 118.
w. pk. hw. br.
12' l. x 10' wd.
abut. st. cn fair
h. a. w. 2'
str.30'wd.xl.3'd.,f.
banks low and sloping

No. 118½.
w. pk. hw. br.
15' l. x 12' wd.
abut. st. cn good
h. a. w. 5.6'
str.10'wd.xl'd.,f.
banks sloping

No. 119.
w. pk. hw. br.
28' l. x 12' wd.
abut. st. cn good
h. a. w. 3.5'
str.20'wd.x2'd.,f.
banks low







No. 120.
w. pk. hw. br.
35' l. x 12' wd.
abut. st. cn poor
h. a. w. 6.4'
str.20'wd.x3'd.,n.f.
banks low

No. 120½.
w. pk. hw. br.
10' l. x 12' wd.
abut. st. cn good
h. a. w. 3'
banks low

No. 121.
w. pk. hw. br.
11.4' l. x 12.9' wd.
abut. st. cn poor
h. a. w. 2.6'
str.8'wd.x2'd., f.
banks low

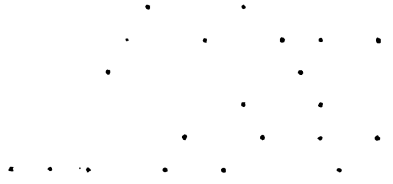
No. 121½.
w. pk. hw. br.
10' l. x 13' wd.
abut. st. cn poor
h. a. w. 6'
str.8'wd.x2'd.,f.
banks low

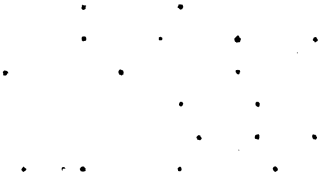
No. 122.
w. pk. hw. br.
14' l. x 12.7' wd.
abut. st cn good
h. a. w. 2'
str.10'wd.x1'd.,f.
banks low

No. 123.
w. pk. hw. br.
13.8' l. x 12' wd.
abut. st. cn good
h. a. w. 3'
str.8'wd.xl'd.,f.
banks low

No. 124.
w. q.p. hw. br.
36' l. x 14' wd.
abut. st. cn good
h. a. w. 18.3'
str.40'wd.x5.6'd.,n.f.
banks high and rocky

No. 125.
w. pk. hw. br.
16' l. x 12.8' wd.
abut. st. cn good
h. a. w. 5'
str.7'wd.xl'd.,f.
banks low





No. 126.
w. pk. hw. br.
11.9' l. x 14.1' wd.
abut. st. cn poor
h. a. w. 3.9'
str.10'wd.x1.6'd.,f.
banks low

No. 127.
w. pk. hw. br.
20.4' l. x 11' wd.
abut. st. cn fair
h. a. w. 3.4'
str.21'wd.x2.3'd.,f.
banks sloping

No. 128.
w. pk. hw. br.
14' l. x 13.3' wd.
abut. st. cn poor
bottom dry
banks sloping

No. 128½.
w. pk. hw. br.
23' l. x 13' wd.
abut. st. cn poor
h. a. w. 9'
str.8'wd.x2'd.,f.
banks sloping

No. 129.
w. pk. hw. br.
17.7' l. x 13' wd.
abut. st. cn poor
h. a. w. 3'
str.15'wd.x1.6'd.,f.
banks low
fill 5' h. x 300' l.

No. 130.
w. pk. hw. br.
15.5' l. x 11.7' wd.
abut. st. cn poor
h. a. w. 4'
str.10'wd.x2'd.,f.
banks low

No. 131.
w. pk. hw. br.
17' l. x 11.6' wd.
abut. st. cn poor
h. a. w. 2.9'
str.15'wd.x1'd.,f.
fill 5' h. x 300'l.

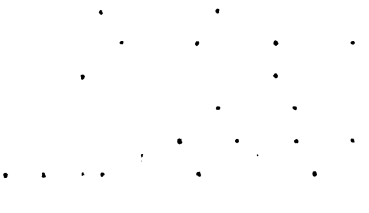
No. 131½.
w. pk. hw. br.
24' l. x 16' wd.
abut. st. cn good
h. a. w. 4.6'
str.20'wd.x2'd.,n.f.
banks low

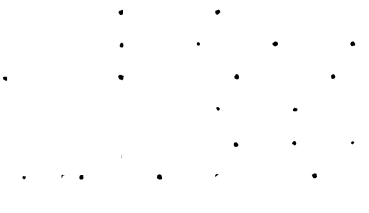
No. 132.
w. pk. hw. br.
11.9' l. x 11.5' wd.
abut. st. cn good
h. a. w. 2'
str.9'wd.x1.4'd.,f.
banks low and sloping.

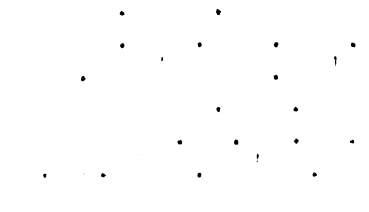
No. 133.
w. pk. hw. br.
9'l. x 13.5' wd.
abut. st. cn poor
h. a. w. 4'
str.11'wd.x1'd.,f.
banks low

(Photograph same as No. 113.)

No. 134.
w. pk. hw. br.
14' l. x 12' wd.
abut. st. cn good
h. a. w. 3.6'
str.10'wd.x1'd.,f.
banks low







No. 135.
w. pk. hw. br.
9' l. x 15.9' wd.
abut. st. cn poor
h. a. w. 2.9'
str.6'wd.x2'd.,f.
banks low

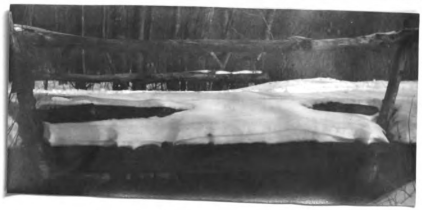
No. 136.
16' l. x 14' wd.
abut. st. cn good
h. a. w. 2'
str.12'wd.x2'd.,f.
banks low
fill 2' h.

(Photograph same as No. 135.)

No. 137.
w. pk. hw. br.
10.5' l. x 14' wd.
abut. st. cn poor
h. a. w. 1.9'
str.10'wd.x2'd.,n.f.
banks low

(Photograph same as No. 135.)

No. 138.
w. pk. hw. br.
7' l. x 14.8' wd.
abut. st. cn good
h. a. w. 3.5'
str.5'wd.x1'd.,f.
banks low



No. 139.
w. pk. hw. br.
10' l. x 15.4' wd.
abut. st. cn good
h. a. w. 2'
str.6'wd.x1'd.,n.f.
banks low

(Photograph same as No. 25.)

No. 140.
con. hw. br. (rein. s. gir.)
11' l. x 22' wd.
abut. st. cn good
h. a. w. 2.8'
str.10'wd.x1.6'd.,f.
banks low

No. 141.
w. pk. hw. br.
14.6' l. x 12' wd.
abut. st. cn poor
h. a. w. 2'
str.13'wd.x1.2'd.,f.
banks low

No. 142.
w. pk. hw. br.
8' l. x 12' wd.
abut. st. cn good
h. a. w. 3'
str.5'wd.x1'd.,f.
banks low

No. 143.
w. pk. hw. br.
8.3' l. x 11.6' wd.
abut. st. cn poor
h. a. w. 3.6'
str.5'wd.x1'd.,f.
banks low

No. 144.
w. pk. hw. br.
16' l. x 12' wd.
abut. st. cn good
h. a. w. 3.6'
str.15'wd.x2'd.,f.
banks low

No. 145.
w. pk. hw. br.
15' l. x 15' wd.
abut. st. cn good
h. a. w. 3'
banks low

No. 146.
w. pk. hw. br.
17' l. x 14' wd.
abut. st. cn good
h. a. w. 4'
str.15'wd.x2'd.,f.
banks low

No. 147.
w. pk. hw. br.
24' l. x 14' wd.
abut. st. cn good.
h. a. w. 5'
str.20'wd.x4'd.,f.
banks low

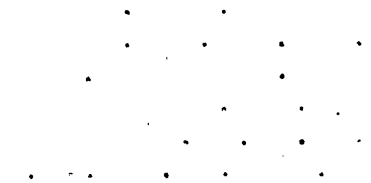
No. 148.
w. pk. hw. br.
14' l. x 16.8' wd.
abut. st. cn good
h. a. w. 6.9'
str.12'wd.x1.5'd.,f.
banks low

No. 149.
w. pk. hw. br.
12.2' l. x 13.8' wd.
abut. st. cn poor
h. a. w. 3.5'
str.10'wd.x2'd.,f.
banks low

No. 150.
w. pk. hw. br.
11' l. x 12.9' wd.
abut. st. cn good
h. a. w. 4'
str.10'wd.x2'd.,f.
banks low

No. 151.
w. pk. hw. br.
14.9' l. x 14' wd.
abut. st. cn good
h. a. w. 6.9'
str.10'wd.x1'd.,f.
banks sloping

No. 152.
w. pk. hw. br.
13' l. x 11' wd.
abut. st. cn poor
h. a. w. 3.6'
str.8'wd.x1.6'd.,f.
banks low



No. 153.
w. pk. hw. br.
11.8' l. x 13.9' wd.
abut. st. cn poor
h. a. w. 2'
str.5'wd.x1.6'd.,f.
banks low

No. 154.
w. pk. hw. br.
10.9' l. x 14' wd.
h. a. w. 3.8'
str.8'wd.x1'd.,f.
banks low

No. 155.
w. pk. hw. br.
11.9' l. x 16.9' wd.
abut. st. cn good
h. a. w. 4'
str.6'wd.x1'd.,f.
banks low

No. 156.
w. pk. hw. br.
21' l. x 12.7' wd.
abut. st. cn poor
h. a. w. 2.5'
str.15'wd.x2'd.,f.
banks low

No. 157.
w. pk. hw. br.
18.7' l. x 16.9' wd.
abut. st. cn good
h. a. w. 9.2'
str.15'wd.x1.5'd.,f.
banks sloping

No. 158.
w. pk. hw. br.
13' l. x 14' wd.
abut. st. cn fair
h. a. w. 5.4'
str.6'wd.x1.8d.,f.
banks low

No. 159.
w.R.R.tres.(s.gir.)
31.4' l. x 7.2' wd.
d. of gir. 1.4'
h. a. w. 8'
banks low
abut. st. cn good
fill 2' h.

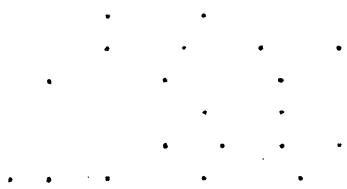
No. 160.
w. pk. hw. br.
21.1' l. x 12.4' wd.
abut. st. cn fair
h. a. w. 5.2'
str.15'wd.x1.8'd.,f.
banks low

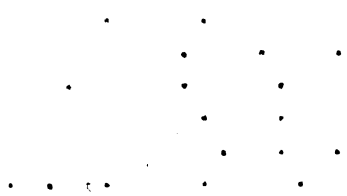
No. 161.
w. pk. hw. br.
9' l. x 12.6' wd.
abut. st. cn poor
h. a. w. 4.5'
str.10'wd.x1'd.,f.
banks low

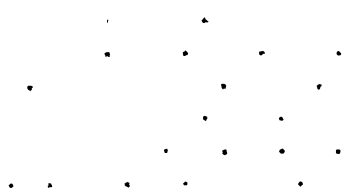
No. 162.
w. pk. hw. br.
9' l. x 10.6' wd.
abut. st. cn poor
h. a. w. 1.6'
str.6'wd.x2'd.,n.f.
banks low

No. 163.
w. pk. hw. br.
9' l. x 9.9' wd.
abut. st. cn poor
h. a. w. 2'
str.7'wd.x2'd.,n.f.
banks low

No. 164.
w. pk. hw. br.
18.6' l. x 12' wd.
abut. st. cn good
h. a. w. 4.4'
str.10'wd.x1.5'd.,f.
banks sloping







No. 165.
w. pk. hw. br.
12.8' l. x 12.5' wd.
abut. st. on fair
h. a. w. 4.4'
str.10'wd.xl.5'd.,f.
banks sloping

No. 166.
w. pk. hw. br.
11.5' l. x 14.5' wd.
abut. st. on good
h. a. w. 1'
str.11'wd.x9.4'd.,l.f.
banks low
fill 1' h. x 1500' l.

No. 167.
w. pk. hw. br.
10.9' l. x 13.6' wd.
abut. st. on good
h. a. w. 4'
str.8'wd.xl.6'd.,f.
banks low

No. 168.
w. pk. hw. br.
15.3' l. x 10.8' wd.
abut. st. on poor
h. a. w. 3.7'
str.8'wd.xl'd.,f.
banks low

No. 169.
s. gir. hw. br.
21' l. x 19.8' wd.
abut. st. on good
h. a. w. 12.2'
str.10'wd.xl'd.,f.
banks sloping
fill 10' h. x 150' l.
d. of gir. 1'

No. 170.
w. pk. hw. br.
56' l. x 12' wd.
abut. st. cn good
h. a. r. 19'

No. 171.
w. pk. hw. br.
13.9' l. x 14' wd.
abut. st. cn poor
h. a. w. 3.4'
str. 10'wd.x1.6'd.,f.
banks low

No. 172.
w. pk. hw. br.
8' l. x 14.3' wd.
abut. st. cn good
h. a. w. 3'
str.5'wd.x1'd.,f.
banks low

No. 173.
s. gir. hw. br.
32' l. x 16.2' wd.
d. of gir. 1.5'
abut. st. cn good
h. a. w. 7.8'
str.15'wd.x2'd.,f.
banks sloping

No. 174.
w. pk. hw. br.
23' l. x 16' wd.
abut. st. cn fair
h. a. w. 6.8'
str.20'wd.x2'd.,f.
banks sloping

No. 175.
w. pk. hw. br.
21.6' l. x 17' wd.
abut. st. cn good
h. a. w. 7'
str.15'wd.x1.6'd.,f.
banks sloping

No. 176.
st. Ar. hw. br.
20' l. x 18.3' wd.
abut. st. cn good
h. a. w. 20.7'
str.20'wd.x1'd.,f.
banks low and sloping

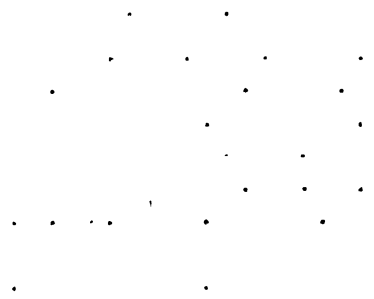
No. 177.
s.Warren tr.hw. br.
48' l. x 20' wd.
d. of gir. .5'
abut. st. cn good
h. a. w. 8.8'
str.17'wd.x1.4'd.,f.
banks sloping
fill 2' h. x 500' l.

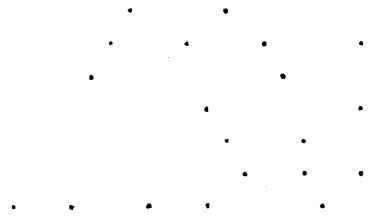
No. 178.
s. gir. hw. br.
39.6' l. x 20' wd.
d. of gir. 1'
abut. st. cn good
h. a. w. 8'
str.30'wd.x6'd.,n.f.
banks low and sloping
fill 2' h. x 500' l.

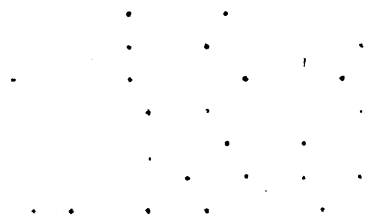
No. 179.
s. gir. hw. br.
32' l. x 20' wd.
d. of gir. 1'
abut. st. cn good
h. a. w. 10'
str.16'wd.x1.3'd.,f.
banks low

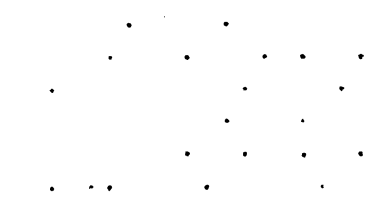
No. 180.
s. gir hw. br.
34.3' l. x 16.6' wd.
d. of gir. 1.5'
abut. st. cn good
h. a. w. 7.6'
str.30'wd.x1.4'd.,f.
banks sloping

No. 181.
w. k.p. hw. br.
26.2' l. x 21' wd.
abut. st. cn fair
h. a. w. 9.4'
str.15'wd.x1'd.,f.
banks sloping







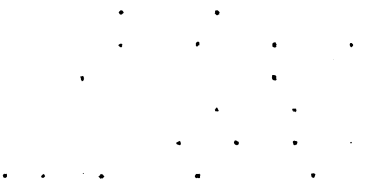


No. 182.
w. pk. hw. br.
21.7' l. x 16' wd.
abut. st. cn fair
h. a. w. 6.5'
str.27'wd.xl.8'd.,f.
banks low and sloping

No. 183.
w. pk. hw. br.
7' l. x 12' wd.
abut. st. cn poor
h. a. w. 3'
str.3'wd.xl'd.,f.
banks low

No. 184.
w. pk. hw. br.
11.4' l. x 14.2' wd.
abut. w. cn poor
h. a. w. 3'
str.9'wd.x5'd.,f.
banks low and sloping

No. 185.
w. pk. hw. br.
19' l. x 15' wd.
abut. st. cn good
h. a. w. 5.5'
str.15'wd.x2'd.,f.f.
banks low



No. 186.
w. pk. hw. br.
11' l. x 15.9' wd.
abut. w. cn fair
banks low

No. 187.
w. pk. hw. br.
20.5' l. x 14' wd.
abut. st. cn good
h. a. w. 6.2'
str.16'wd.x1.6'd.,f.
banks low and sloping

No. 188.
w. pk. hw. br.
20.3' l. x 13' wd.
abut. st. cn good
h. a. w. 9.7'
str.15'wd.x2'd.,n.f.
banks low and sloping

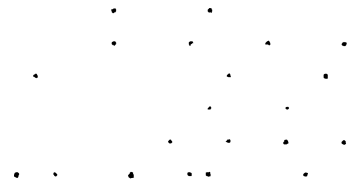
No. 189.
w. pk. hw. br.
20.6' l. x 14' wd.
abut. st. cn good
h. a. w. 5.6'
str.8'wd.x1.2'd.,f.
banks low

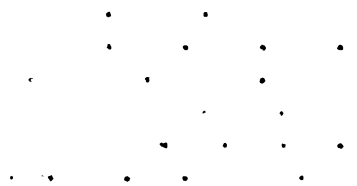
No. 190.
w. pk. hw. br.
16.8'' l. x 14' wd.
abut. st. cn good
h. a. w. 5.4'
str.10'wd.x1.4'd.,f.
banks low

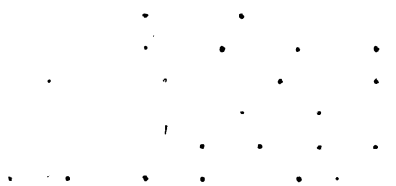
No. 191.
w. pk. hw. br.
19' l. x 14.6' wd.
abut. st. cn good
h. a. w. 4'
str.10'wd.x3'd.,f.
banks low

No. 192.
w. pk. hw. br.
14' l. x 14.4' wd.
abut. st. cn fair
h. a. w. 5.3'
str.10'wd.x1.9'd.,f.
banks sloping

No. 193.
w. pk. hw. br.
8.2' l. x 14.5' wd.
abut. st. cn poor
h. a. w. 6.2'
str.8.6'wd.x1.5'd.,f.
banks sloping







No. 194.
w. pk. hw. br.
10' l. x 11'wd.
abut. st. cn poor
h. a. w. 4'
str.8'wd.x1'd.,f.
banks sloping

No. 195.
w. pk. hw. br.
16' l. x 10' wd.
abut. st. cn good
h. a. w. 3'
str.10'wd.x2'd.,f.
banks low

No. 196.
w. pk. hw. br.
23.1' l. x 12' wd.
abut. st. cn poor
h. a. w. 2.7'
str.20'wd.x3'd.,f.
banks low

No. 197.
w. pk. hw. br.
10' l. x 13' wd.
abut. st. cn poor
h. a. w. 2'
str.10'wd.x2'd.,f.
banks low

No. 198.
w. pk. hw. br.
13' l. x 14' wd.
abut. st. cn poor
h. a. w. 3'
str.10'wd.xl'd.,f.
banks low

No. 199.
w. pk. hw. br.
9' l. x 14' wd.
abut. st. cn poor
h. a. w. 5'
str.6'wd.xl'd.,f.
banks sloping

No. 200.
w. pk. hw. br.
13' l. x 13' wd.
abut. st. cn poor
h. a. w. 4'
str.10'wd.xl'd.,f.
banks sloping

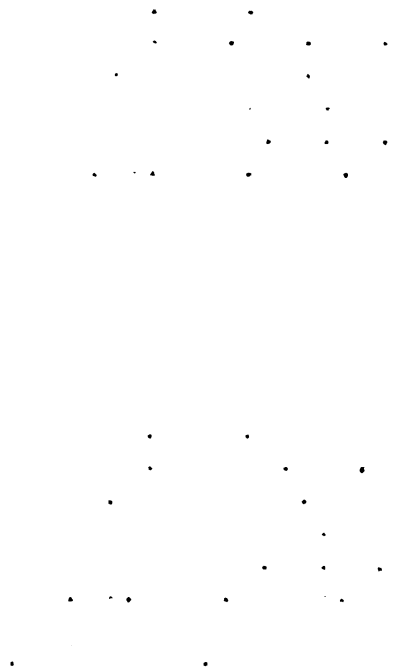
No. 201.
w. pk. hw. br.
10' l. x 12' wd.
abut. st. cn poor
h. a. w. 4.6'
str.8'wd.xl'd.,f.
banks low

No. 202.
w. pk. hw. br.
10' l. x 15' wd.
abut. st. cn good
h. a. w. 2'
str.8'wd.xl'd.,f.
banks low

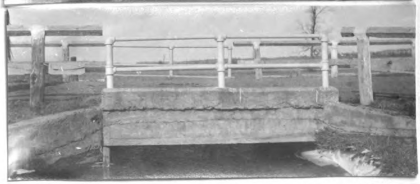
No. 203.
st, Ar. hw br.
28' l. x 25' wd.
abut. st. cn good
h. a. w. 24'
str.25'wd.xl'd.,f.
banks low
fill 20' h. x 100' l.

No. 204.
w. pk. hw. br.
26' l. x 12' wd.
abut. st. cn good
h. a. w. 6.6'
str.20'wd.x2'd.,f.
banks low

No. 205.
con. hw. br. (rein.
s. gir.)
10' l. x 22' wd.
abut. st. cn good
h. a. w. 5'
str.6'wd.xl'd.,f.
banks low



No. 206.
con. hw. br. (rein.
s, gir)
6' l. x 22' wd.
abut. con. cn good
h. a. w. 3'
str.6'wd.x1'd.,f.
banks low



No. 207.
con. hw. br. (rein.
s. gir.)
10' l. x 22' wd.
abut. con. cn good
h. a. w. 3'
str.8'wd.x2'd.,f.
banks low

No. 208.
w. pk. hw. br.
12' l. x 11' wd.
abut. st. cn poor
h. a. w. 3'
str.10'wd.x2'd.,f.
banks low

No. 209.
con. hw. br. (rein.
s. gir.)
12' l. x 22' wd.
abut. st. cn good
h. a. w. 4'
banks low

No. 210.
w. pk. hw. br.
15' l. x 15' wd.
abut. st. cn poor
h. a. w. 3.8'
banks low

No. 211.
w. pk. hw. br.
10.6' l. x 18.4' wd.
abut. st. cn poor
h. a. w. 2.4'
str.8'wd.x2'd.,f.
banks low

No. 212.
w. pk. hw. br.
14' l. x 14' wd.
abut. st. cn poor
h..a. w. 5'
str.10'wd.x1.4'd.,f.
banks sloping

No. 213.
w. pk. hw. br.
15.5' l. x 15.5' wd.
abut. st. cn poor
h. a. w. 7.8'
str.12'wd.x2'd.,f.
banks low

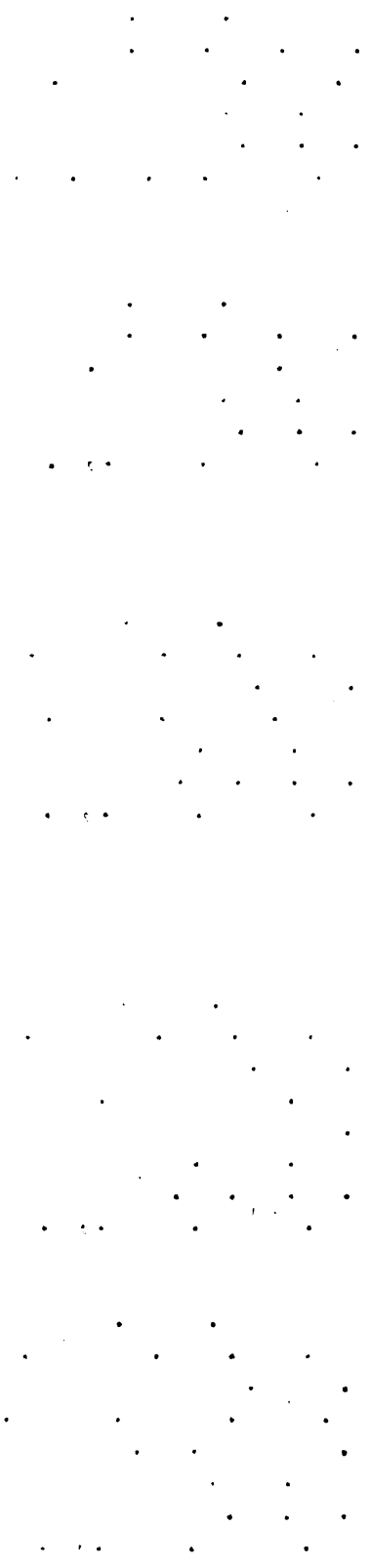
No. 214.
w. pk. hw. br.
15.1' l. x 11' wd.
abut. st. on poor
h. a. w. 3'
str.10'wd.x1.6'd.,f.
banks low

No. 215.
w. pk. hw. br.
27' l. x 15' wd.
abut. st. on poor
h. a. w. 4'
str.20'wd.x2'd.,f.
banks sloping

No. 216.
con. hw. br. (rein.
s. gir.)
11' l. x 16.8' wd.
abut. con. on good
h. a. w. 7.6'
str.10'wd.x1'd.,f.
banks sloping

No. 217.
con. hw. br. (rein.
s. gir.)
48'l. x 20' wd.
d. of gir 1'
abut. con. on good
h. a. w. 6.8'
str.40'wd.x2'd.,f.
banks low

No. 218.
con. hw. br. (rein.
s. gir.)
15.4' l. x 21.4' wd.
d. of gir. 1.5'
abut. st. on good
h. a. w. 8'
str.14'wd.x2'd.,f.
banks low



No. 219.
w. pk. hw. br.
9.6' l. x 12' wd.
abut. w. cn poor
h. a. w. 3'
str.10'wd.x1'd.,f.
banks low

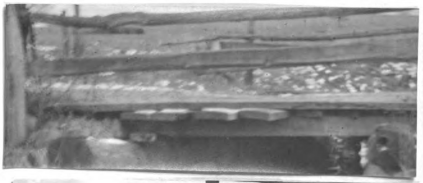
No. 220.
con. hw. br. (rein.
s. gir.)
7.7' l. x 15' wd.
abut. con. cn good
d. of gir. .9'
h. a. w. 6.4'
str.6'wd.x1.5'd.,f.
banks low

No. 221.
w. pk. hw. br.
84' l. x 16' wd.
abut. st. cn good
h. a. r. 25'

No. 222.
w. pk. hw. br.
15' l. x 11' wd.
abut. st. cn good
h. a. w. 3.9'
str.10'wd.x1'd.,f.
banks low

No. 223.
w. pk. hw. br.
13' l. x 13' wd.
abut. st. cn poor
h. a. w. 3'
str.10'wd.x1'd.,f.
banks low

No. 224.
w. pk. hw. br.
9.6' l. x 13' wd.
abut. st. cn poor
h. a. w. 2'
str.6'wd.xl'd.,f.
banks low



No. 225.
w. pk. hw. br.
10' l. x 11' wd.
abut. st. cn poor
h. a. w. 3'
str.8'wd.xl'd.,f.
banks low

No. 226.
w. pk. hw. br.
17.2' l. x 12.9' wd.
abut. st. cn poor
h. a. w. 6.7'
str.8'wd.xl'd.,f.
banks sloping

No. 227.
s. gir. R. R. br.
36.5' l. x 11' wd.
d. of gir.3.4'
abut. st. cn good
h. a. w. 26.9'
str.8'wd.xl'd.,f.
banks low
fill 20' h. x 800' l.

S T R E A M S

With the exception of the Connecticut River, which merely cuts across the northeast corner, there are no large rivers of considerable size on this quadrangle. Along the coast there are the Menunketesuck River, which flows into Westbrook, Indian River, Hammonasset River, Neck River, East River and West River. These rivers are only brooks which are navigable for some little distance up from the Sound for small power-boats. They are affected in depth by the tides which are five or six feet along this shore. The tides affect the depth of these streams for about three miles from the shore. In the northern part of the quadrangle are several brooks which flow into the Connecticut River. All of these streams, except for a short distance back from the shore line, are small rapid brooks flowing, in many cases, along rocky bottoms. Dams have been constructed at many points and a small amount of water-power has been developed.

There are small stretches of marsh at points along the brooks and there are a number of small ponds, but neither are extensive.

T O W N S A N D V I L L A G E S

HIGGANUM
Population - 150
Principal industries - Agriculture and manufacturing (four factories).
General character of buildings - wooden, two brick factories.
Extent of communication - telephone, telegraph and railroad.
Water supply - reservoir and wells, no shortage, good.

HADDAM
Pop. - 150
Prin. ind. - agriculture.
Gen. char. of build. - wooden, four stone buildings.
Ext. of com. - telephone, telegraph and railroad.
Wat. sup. - wells, no shortage, good.

DURHAM
Pop. - 200
Prin. ind. - agriculture and manufacturing.
Gen. char. of build. - wooden (two stories).
Ext. of com. - telephone, railroad station three miles distant.
Wat. sup. - wells and reservoir, shortage in very dry seasons, good.

ROCKLAND
Pop. - 50
Prin. ind. - agriculture.
Gen. char. of build. - wooden.
Ext. of com. - telephone.
Wat. sup. - wells, no shortage, good.

KILLINGWORTH
Pop. - 50
Prin. ind. - agriculture.
Gen. char. of build. - wooden, no post office.
Ext. of com. - telephone.
Wat. sup. - reservoir and wells, no shortage, good.

NORTH MADISON
Pop. - 25
Prin. ind. - agriculture.
Gen. char. of build. - wooden, no post office.
Ext. of com. - telephone.
Wat. sup. - wells, no shortage, good.

NORTH GUILFORD
Pop. - 50

Prin. ind. - agriculture.
Gen. char. of build. - wooden, no post office.
Ext. of com. - telephone.
Wat. sup. - wells, no shortage, good.

NUT PLAINS
Pop. - 75
Prin. ind. - agriculture.
Gen. char. of build. - wooden, no post office.
Ext. of com. - telephone.
Wat. sup. - wells, no shortage, good.

LEETE ISLAND
Pop. - 160
Prin. ind. - stone quarries, agriculture, fishing.
Gen. char. of build. - wooden.
Ext. of com. - telephone. telegraph, railroad and electric line.
Wat. sup. - wells, shortage at very dry seasons, good.

SACHEM'S HEAD
Pop. - transient.(summer colony).
Prin. ind. - agriculture.
Gen. char. of build. - wooden.
Ext. of com. - telephone, railroad and electric line.
Wat. sup. - wells, shortage in dry seasons, good.

GUILFORD
Pop. - 1700
Prin. ind. - manufacturing, brass castings, etc., carriages, oyster beds and agriculture in the outlying sections.
Gen. char. of build. - brick factory buildings, stores, Town Hall, Armory Building, concrete sub-station of electric line and wooden dwellings.
Ext. of com. - telephone, telegraph, railroad and electric line.
Wat. sup. - reservoirs and water works pipe-line from Killingworth; wells, no shortage, good.

EAST RIVER
Pop. - 350
Prin. ind. - manufacturing crayons; agriculture and fishing.
Gen. char. of build. - wooden.
Ext. of com. - telephone, electric line and railroad.
Wat. sup. - pipe-line from Killingworth and wells, no shortage, good.

MADISON

Pop. 800
Prin. ind. - manufacturing carriages and accessories, agriculture.
Gen. char. of build. - wooden dwellings, brick stores, post office and library.
Ext. of Com. - telephone, telegraph, railroad and electric line.
Wat. sup. - pipe-line from Killingworth and wells, no shortage, good.

CLINTON

Pop. - 800
Prin. ind. - manufacturing "Pond's Extract" and tool handles, agriculture and fishing.
Gen. char. of build. - wooden dwellings, large brick and stone school.
Ext. of com. - telephone, telegraph, railroad and electric line.
Wat. sup. - pipe-line from Killingworth and wells, no shortage, good.

HAMMOCK AND KELSEY POINTS

Pop. - transient (Summer colony).
Gen. char. of build. - wooden, post office during Summer months.
Wat. sup. - wells, pipe-line from Killingworth, no shortage, good.

C O M M A N D I N G P O S I T I O N S

This quadrangle is very rough and broken and it is possible to select a strong position at almost any point of high ground. Most of the area is covered with wood and brush and a number of positions could be selected which would give an opportunity for operations along any extended line. Each position has been selected because it offers an advantageous point covering some particular town or line of communication.

X1 is located on a hill to the northeast of Clinton and covers the railroad and electric line to the south, the town of Clinton on the southwest and the macadam road leading north out of Clinton along the west flank of the hill.

X2 is a position north of Madison along the line of hills which cover the railroad and electric lines to the south and cuts off a main travelled road leading north from Madison.

X3 is a position north of Guilford where artillery would cover railroad and electric lines leading northwest and southeast from Guilford. The macadam road to southwest would be covered as would the main travelled road leading north along west flank of the hill. Prospect Hill gives an unobstructed view to the south over Long Island Sound.

X4 is a hill to the southwest of Guilford which covers railroad and electric line to the south.

X5 is Long Hill, which covers roads on either side leading north and west. This position taken in connection with X6, X7, and X8, form a general north and south line for ten or twelve miles along west side of main travelled road leading north from Guilford and covers this road very thoroughly, as well as cutting off all roads leading east and west.

X9 is a position located on two hills which cover the main travelled east and west road at this point and main travelled north and south road to the east.

X10 is a position on a high hill and covers the crossroads at North Madison as well as the other roads in this immediate vicinity.

X11 is a position on the west bank of the Connecticut River, between Haddam and Higganum, which covers the Connecticut River, the railroad and macadam road at this point.

X12 is on a hill to the south of Higganum, which covers the main travelled road leading south from Higganum, passing along the west flank, the village of Higganum to the north, macadam road leading north through Higganum toward Hartford, railroad along the west bank of the Connecticut River and the Connecticut River to the south.

X13 is on Cranberry Hill, covers the town of Durham and the macadam road between Middletown and New Haven which passes along the west flank. This position offers a good view of the roads to the northwest and southwest of this point.

X14 is a position on Mt. Pisgah, which covers the main travelled road south from Durham.

X15 is a position along high hills which form a northern portion of the general line formed by X5, X6, X7, X8 and covers the east and west roads at this point, railroad in northwest corner of the quadrangle between New Haven and Willimantic and macadam road to the southeast. Pistapaug Mountain, which forms a part of this line, is a very high and steep hill, difficult of access and covered with a dense undergrowth, which renders it poor for observation purposes.

C A M P S I T E S

A number of possible camp sites have been selected on this quadrangle. Only a limited number could be used to advantage because of the difficulty of getting supplies from the railroad. There is a plentiful supply of wood in the vicinity of all camp sites selected except A1 and A2, which are to the south and in a more cleared section.

A1 will accommodate 25000 troops. Plentiful supply of water from the city supply. Located on main macadam road and railroad. Drainage south.

A2 will accommodate 100000 troops. Water supply very poor. Located on good roads and hear railroad. Drainage to the south.

A3 will accommodate 80000 troops. Plentiful water supply from the East River. Located on good dirt road. Drainage south.

A4 will accommodate 25000 troops. Plentiful water supply from West River. Located on good dirt road leading north from Guilford. Drained to the south.

A5 will accommodate 30000 troops. Plentiful water supply from Quonnipaug Lake. Located on road leading north from Guilford. Drainage south.

A6 will accommodate 30000 troops. Water supply is poor as it will come from small streams in the vicinity and from wells. On very poor roads. Drainage east and west.

A7 will accommodate 60000 troops. Water supply is poor. Drainage south. Located on main road from Clinton to Higganum.

A8 will accommodate 60000 troops. Water supply from the Connecticut River. Located on macadam road and railroad above Haddam. Drainage good.

A9 will accommodate 10000 troops. Water supply from Ponset Brook, plentiful. Located three miles south of Higganum, near road leading south to Clinton. Drainage good.

A10 will accommodate 20000 troops. Water supply

comes from Coginchaug River. On macadam road, two miles from railroad at Middlefield and Durham. Drainage to the north, good.

A11 will accommodate 35000 troops. Water supply from Coginchaug River. Drainage to the north, good. On macadam road and railroad. This site could not be used if A10 was occupied on account of drainage.

A12 will accommodate 25000 troops. Water supply comes from Pistapaug Pond, plentiful. Drainage south and east. Located on macadam road four miles from railroad at East Wallingford.

D O C K S

D1 300' l. x 75' wd.
h. a. w. 6'
Retaining wall of logs and concrete, dirt and stone fill.
condition poor
depth of water 5'
Storage facilities - poor Coal bins 60' x 50' x 20'

D2 141' l. x 32' wd.
h. a. w. 6.2'
Stone
Condition poor
d. of w. 7.4'
Stor. fac. - poor

D3 355' l. x 7.3' wd.
h. a. w. 10.6'
Wood
Condition poor
d. of w. 6.3'
Stor. fac. - none

D4 75' l. x 28' wd.
h. a. w. 5'
Wood
condition poor
d. of w. 10'
Stor. fac. - none. Used for loading stone on barges and small tug-boats for shipments.

D5 64' l. x 23' wd.
h. a. w. 7'
Wood
condition poor
d. of w. 30'
Stor. fac. - poor. building 23' x 26' x 8'

R O A D S

The roads in this quadrangle are divided into three classes. The roads shown in red are excellent macadam roads. Roads shown in brown are main travelled dirt roads which are fair roads leading between principal points. Roads shown in yellow are, in most cases, poor roads.

The main road from New London to New Haven passes along the South through Clinton, Madison, East River and Guilford, continuing on to New Haven.

A macadam road leads north from Clinton to Killingworth. This will, no doubt, be continued north to join the Saybrook-Hartford road near Higganum.

The Saybrook-Hartford road cuts across the northeast corner of the quadrangle and is the main road on the west side of the Connecticut River leading through Middletown to Hartford.

There is a macadam road leading from Middletown southwest to New Haven. This is shown in the northwest corner of the quadrangle where it passes through Durham and Durham Center,,continuing southwest to New Haven.

A fair road extends from Madison through North Madison and Rockland into Durham Center.

Another main road extends north from Guilford

through North Guilford, along the west bank of Lake Quonnipaug, to Durham Center.

The best road across the quadrangle north of the New Haven-New London road is a road leading west from Chester which passes just south of Cedar Lake Reservoir continuing west through North Madison and just south of North Guilford through North Branford to New Haven.

R A I L R O A D S

The main lines of the New York, New Haven and Hartford Railroad, between New York and Boston, cross the southern part of this quadrangle passing through the towns of Clinton, Madison, East River and Guilford. This is a double-track road. The shipping facilities are given for each town.

Two other short lines appear in this quadrangle. The Valley Line from Saybrook Junction to Hartford cuts across the northeast corner of the quadrangle, passing through Haddam and Higganum. This is a single-track road. Passing across the northwest corner of the quadrangle is the Air Line Division of the New York, New Haven and Hartford Railroad, between New Haven and Willimantic. This is a single-track road. The depot for the village of Durham is located just off the map on the northern edge of the sheet.

CLINTON
5 sidings - capacity 137 cars.
Platforms - passenger 7100 sq. ft., freight 2000 sq. ft.
Depots - passenger 81' x 24' x 12', freight 50' x 20' x 12'.

MADISON
5 sidings - capacity 190 cars.
Platforms - 4000 sq. ft.
Depot - 81' x 24' x 12', storehouse 50' x 20' x 12'

EAST RIVER
1 siding - capacity 10 cars.
Platforms - passenger 2600 sq. ft., freight 1280 sq. ft.
Depot - 55' x 20' x 12'.

GUILFORD
9 sidings - capacity 900 cars.
Platforms - passenger 4500 sq. ft., freight 2500 sq. ft.
Depots - passenger 62' x 20', freight 78' x 38'.

SACHEM HEAD
Only a small wooden structure for summer use only.
This is a flag stop. No sidings. Platform 3000 sq, ft.

LEETE ISLAND
2 sidings - capacity 27 cars.
Platforms - passenger 4000 sq. ft., freight 2000 sq. ft.
Depots - passenger 81' x 24' x 12', freight 25' x 20' x 10'.

ARNOLD
2 sidings - capacity 22 cars.
Platform 140 sq. ft.
Storehouse 50' x 20' x 15'.

HADDAM
1 siding - capacity 22 cars.
Platform - 2000 sq. ft.
Storehouse - 50' x 20' x 15'.

HIGGANUM
3 sidings - capacity 30 cars.
Platforms - passenger 3000 sq. ft., freight 75000 sq. ft.
Storehouse - 75' x 20' x 15'.

A E R O P L A N E L A N D I N G S

Except along the southern border, it has been rather difficult to select many good places for aeroplane landings on this quadrangle, due to the large areas covered with woods and swamp. Instructions have been carried out in selecting the best available sites in each five-mile square of territory and when they are not well distributed, it is due to the topography of the land where stone fences or woods form obsrtuctions.

TWO COPIES

OF THE

MAP INCLOSED

THE BASE MAP

AND

THE COMPLETED SHEET