

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

F. A. SILCOX, CHIEF
T. W. NORCROSS, *Chief, Division of Engineering*

FOREST SERVICE
MAP STANDARDS

1936

M-5192

For sale by Superintendent of Documents, Government Printing Office. Price 15 cents

INDEX

FOREST SERVICE MAP STANDARDS

WORKS AND STRUCTURES.....	1
BOUNDARIES AND MONUMENTS.....	3
DRAINAGE.....	4
RELIEF.....	5
LETTERING:	
Styles.....	7
Sizes.....	8
ADMINISTRATIVE MAP TITLE AND LEGEND.....	9
SPECIAL MAP LEGENDS:	
Fire.....	10
Range Management.....	11
Recreation.....	12
Forest Management.....	13
Sample Plot Mapping.....	15
Forest Road System.....	16
Proclamation Diagrams and Executive Orders.....	16
Federal Land Ownership.....	17
Air Navigation.....	18
Arrow and Declination Diagram.....	18
Survey Index Record.....	19
Telephone.....	20
MARGINAL DATA, CREDIT NOTE, BAR SCALE, GAGE FOR BORDER AND GAGE FOR MAIN LINE OF TITLE.....	21
MAP SHEET SIZES.....	22
TOWNSHIP PLAT LAYOUT (4 in. = 1 mile).....	23
ATLAS FOLIO SHEET LAYOUT.....	24
ABBREVIATIONS.....	25
COLOR FORMULAS.....	27
COLOR LEGENDS.....	28
SCALES AND EQUIVALENTS.....	29
PLANIMETER CHART.....	31

WORKS AND STRUCTURES

	All weather road
	Main motor highway. Paved road
	(For overlay printing in red between black lines)
	Good motor road. Dirt road
	Poor motor road. Primitive road
	Road not passable to motors.
	Good pack trail.
	Poor pack or foot trail.
	Bridge.
	Ferry.
	Ford.
	Railroad.
	Narrow-gage railroad.
	Juxtaposition of railroads.
	Double-track railroad.
	Steam railroad in highway or street.
	Electric railroad in highway or street.
	Electric railroad.
	Railroad tunnel.
	Railroad station.
	Abandoned railway grade.
	Telegraph line.
	Telegraph line along road.
	Telephone line.
	Telephone line along road.
	Telephone line along trail.
	Electric power transmission line.
	Prominent power transmission line.
	Ditch or canal.
	Pipe line or conduit.
	Flume.
	Barbed-wire fence.
	Smooth-wire fence.
	Forest Supervisor's headquarters.
	District Ranger station (Example: Black River R. S.)
	Guard or Ranger station not permanently occupied.
	Administrative pasture.
	Administrative site (Example: Black River A. S.)
	(On large-scale maps delineate actual limits of site)

WORKS AND STRUCTURES

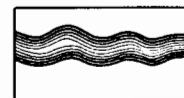
	Camp ground.
	Weather station or tower.
	House, cabin, or other building.
	Abandoned house, cabin, or other building.
	Schoolhouse.
	Church.
	Cemetery.
	Electric power station.
	Telephone station.
	Telegraph office.
	Radio station (followed by FS if Forest Service station).
	Permanent lookout station.
	City or large town.
	Town or village.
	City, town, or village (generalized).
	Dam on large river.
	Dam on small stream.
	Reservoir and dam.
	Windmill.
	Well.
	Mine, or quarry.
	Mine tunnel.
	Shaft.
	Prospect.
	Sawmill—stationary.
	Sawmill—portable.
	Oil wells.
	Dock, pier, or landing.
	Lighthouse.
	Live-saving station.
	Forest Service nursery.

BOUNDARIES AND MONUMENTS

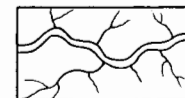
-  National Forest boundary and/or Purchase Unit boundary.
 Adjacent National Forest boundary. Show corners thus: 
 Purchase Unit boundary or Purchase Unit extension boundary.
 (Use only when National Forest boundary symbol appears on same map.)
 National, State, or Province line.
 County line.
 Reservation line (Indian, Military, National Park, or National Monument).
 Game or bird refuge boundary.
 Primitive area boundary.
 Land-grant line.
 Township line—surveyed.
 Township line—unsurveyed.
 Section line—surveyed.
 Section line—unsurveyed.
 1/4-section line.
 Forty subdivision line.
 Boundary monuments.
 Triangulation station.
 Triangulation station and permanent lookout station.
 BM
1235
Permanent bench mark and elevation.
 X 1235
Supplementary bench mark and elevation.
 U. S. Mineral Monument (U. S. M. M.) or U. S. Location Monument (U. S. L. M.).
 Forest Service monument.
 Survey corner searched for and not found.
 Survey corner found but not positively identified.
 Survey corner positively identified.
 Township corner recovered.
 Section corner recovered.
 Projection of township and section lines upon unsurveyed lands on 1/2 and 1/4 inch scale maps.
 On one-inch-scale maps make four dashes to a section, and on maps of larger scale use as many dashes as necessary. Note absence of actual intersections.

DRAINAGE

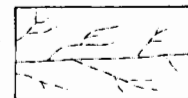
(PRINT IN BLUE ON LITHOGRAPHED MAPS OF TWO OR MORE COLORS)



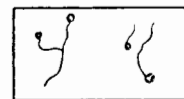
River



Streams



Intermittent streams



Springs and sinks



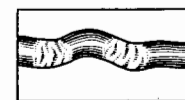
Lakes and ponds
(Waterlining or blue tint)



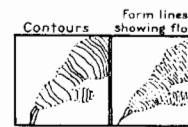
Intermittent lakes



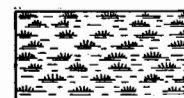
Falls
(Large and small)



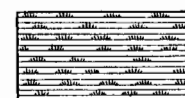
Rapids



Glacier



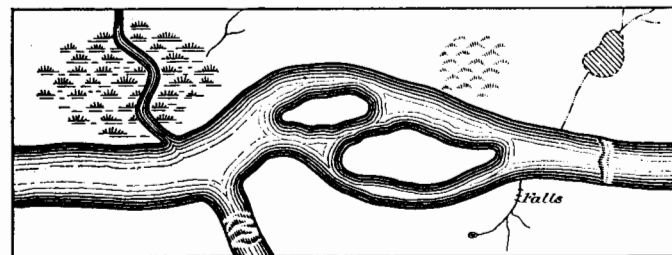
Fresh marsh or
wet meadow



Salt marsh or swamp



Bottom grassland
or dry meadow



Assembled water symbols

RELIEF

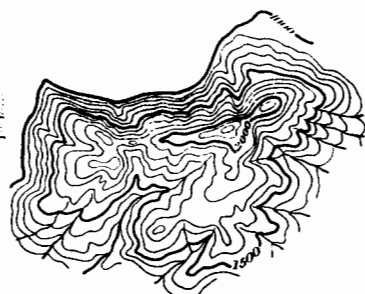
(PRINT IN BROWN ON LITHOGRAPHED MAPS OF THREE OR MORE COLORS)



Perspective view and corresponding contour map



Hachure

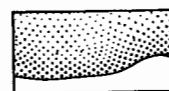


Contour
(Contour interval 100 ft)

Hachured and contoured mountain

RELIEF

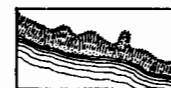
(PRINT IN BROWN ON LITHOGRAPHED MAPS OF THREE OR MORE COLORS)



Sand



Contour system



Bluffs and cliffs



Wash



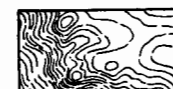
Approximate Contours



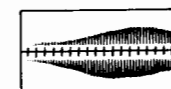
Levee



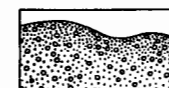
Sand dunes



Form lines without
definite interval



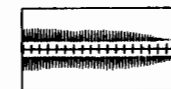
Railroad cut



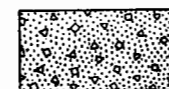
Gravel and rocks



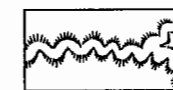
Depressions and
depression contours



Railroad fill



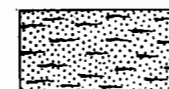
Slide rock



Ridge-hachured



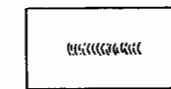
Elevations-hachured



Lava



Cave



Moraine

LETTERING—STYLES

Countries, States, Counties, Townships, Capitals, and Principal Cities. (All capital letters.)

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z &

Towns and Villages. (With capital initials.)

a b c d e f g h i j k l m n o p q r s t u v w x y z

Oceans, Gulfs, Harbors, Straits, Sounds, Bays, Large Rivers, Large Lakes. (All capital letters.)

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z &

Small Rivers, Branches, Creeks, Runs, Brooks, Springs, Small Bays, Washes, Small Lakes, Ponds, Water Holes, Marshes, Glaciers, Swamps, Sinks, Falls, Sloughs, Inlets, Rapids, Lagoons, Licks, Geysers, Seeps. (With capital initials.)

a b c d e f g h i j k l m n o p q r s t u v w x y z

Mountain Ranges, Plateaus, Lines of Cliffs, Large Valleys, National Parks, Grants, Indian Reservations, Bench Marks, Military Reservations, Game or Bird Refuges, Primitive Areas, National Forest names, Township, Range and Section numbers. (All capital letters.)

A B C D E F G H I J K L M N O P Q
R S T U V W X Y Z &

Small Valleys, Prairies, Meadows, Mesas, Divides, Draws, Bottoms, Coulees, Canyons, Gulches, Arroyos, Peaks, Craters, Buttes, Hills, Caves, Spurs, Hollows, Islands, Flats, Ravines, Points, Coves, Bars, Basins, Beaches, Ridges, Plains, Plateaus, Passes, Gaps, Gorges, Crags, Capes, Peninsulas, Bluffs, Ledges, Base lines, Meridians and Parallels. (With capital initials.)

a b c d e f g h i j k l m n o p q r s t u v w x y z

Telephone lines, Radio Stations, Lookouts, Triangulation Stations (when name differs from that of feature), Railroads, Tunnels, Bridges, Ferries, Camps, Roads, Trails, Fords, Dams, Reservoirs, Canals, Wells, Ditches, Ranger Stations, Mills, Mines, Schools, Ranches, Houses, Cabins, Boundary Monuments, Administrative Sites, Power Houses, Levees, Waterworks, Water-tanks, Lighthouses, Docks, Piers, Landings, Airports, Gaging Station, Fish Hatchery, Forest Nursery, Marginal Notes. (As a rule use all capital letters.)

A B C D E F G H I J K L M N O P Q
R S T U V W X Y Z &

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z &
a b c d e f g h i j k l m n o p q r s t u v w x y z

Standard rule when one-stroke lettering is used: Names of natural features, vertical lettering. Names of water features and man-made cultural features, slanting lettering.

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0

LETTERING—SIZES

To be used on administrative maps
(Size of lettering optional on special maps)

APPROXIMATE
Sizes of lettering on tracings prepared on 1/4" scale for 1/4" publication.

APPROXIMATE
Sizes of lettering after reduction has been made to 1/4" and for lettering on 1/4" tracings which are not to be reduced.

IN.

IN.

.20

.10

Countries, Oceans, and National Forests.

.10

.06

(States, Capitals, Principal Cities, Gulfs, Harbors, Bays, Straits, Sounds, Mountain Ranges, Large Ridges, Cliffs, Peaks, Plateaus, Mesas, Valleys, Lakes, Rivers, Islands, etc. Township and Range numbers. National Parks, Land Grants, Indian Reservations, Military Reservations, Game or Bird Refuges, Primitive Areas.

.12

.06

.08

.04

Counties, Towns, Villages, B. M.'s, Boundary Posts, Railroads, Tunnels, Bridges, Ferries, Roads, Trails, Fords, Dams, Reservoirs, Canals, Ditches, Lighthouses, Telephone lines, Lookouts, Ranger and Guard Stations, Radio Stations, Airports, Administrative Sites, Camps, Mills, Mines, Schools, Ranches, Houses, Cabins, Power-houses, Waterworks, Levees, Tanks, Wells, Docks, Piers, or Landings, Fish Hatchery, Forest Nursery, Creeks, Small Rivers, Small Lakes, Branches, Runs, Brooks, Springs, Ponds, Marshes, Glaciers, Falls, Canyons, Gulches, Arroyos, Islands, Points, Meadows, Peaks, Buttes, Hills, Caves, Spurs, Coves, Bars, Basins, Ledges, Bluffs, Peninsulas, Passes, Plains, Gaps, Gorges, Crags, Valleys, Mesas, Points, Capes, Beaches, Inlets, Rapids, Sloughs, Swamps, Sinks, Small Bays, Washes, Craters, Coulees, Bottoms, Hollows, Prairies, Divides, Seeps, Lagoons, Licks, Geysers, Base Lines, Meridians, Parallels, and Marginal Notes.

Above represents average size, but may vary according to size of feature. Where a number of small features are together in groups, size of names may be reduced in ratio to their importance.

TITLE AND CONDENSED LEGEND FOR LITHOGRAPHED MAPS

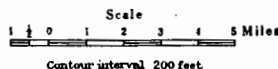
U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
F. A. SILLCOCK, CHIEF
T. W. HORTON, CHIEF, DIVISION OF REPOUNDERING

LINCOLN NATIONAL FOREST (SACRAMENTO DIVISION)

NEW MEXICO

NEW MEXICO PRINCIPAL MERIDIAN

1936



- National Forest Boundary.
- Adjacent National Forest Boundary.
- Good Motor Road. *Disturbed*
- Poor Motor Road. *Disturbed*
- Road not passable to Motors.
- Trail.
- Railroad.
- Telephone Line.
- Telephone Line along Road.
- Telephone Line along Trail.
- Supervisor's Headquarters.
- District Ranger Station.
- Guard or Ranger Station not permanently occupied.
- Permanent Lookout Station.
- Emergency Lookout or Observation Point.
- Patrol Lookout Point.
- Triangulation Station.
- Triangulation Station and Permanent Lookout Station.
- Triangulation Station and Emergency Lookout Point.
- Triangulation Station and Patrol Lookout Point.
- Improved Forest Camp. Improved Recreational Site. Forest Service*
- House, Cabin, or Other Building.
- Main Motor Highway (Red between lines).
- Alienated Land.
- National Forest Land.
- Lands subject to acquisition by exchange under Act of (Green or black ruling).

The above legend is standard. Omit any symbol if not used on the map. If desired, include additional standard symbols if they appear on the map. The wording of the explanations of the symbols must not be changed.

FIRE MAP LEGEND (SPECIAL MAP)

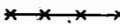
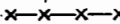
SYMBOLS TO BE
IN BRIGHT RED

- Cooperative watershed boundary (Weeks law as amended by Clarke-McNary law).
- Unit boundary.
- Fire district boundary.
- Fire line or fire break.
- State Forester or similar officer.
- District chief headquarters.
- State, county, or town fire warden headquarters.
- Deputy fire warden headquarters.
- Patrolman camp.
- Fireman.
- Combination lookout-fireman.
- Primary lookout station.
- Emergency lookout or observation point.
- Patrol lookout point.
- Per diem guard.
- Observation tree, steps, and platform.
- Triangulation and observation tree.
- Patrol route.
- Food supply or cache.
- Stocked tool supply box, kiosk, or cache.
- Telephone lines, F. S., and others which are used in the fire control system.
- Fire-hazard areas.

NOTE.—Administrative map standard symbols may be used in addition to above special symbols.

RANGE MANAGEMENT MAP LEGEND

(SPECIAL MAP)

<u>DARK BLUE</u>	Forest boundary.
<u>LIGHT BLUE</u>	Ranger district boundary.
<u>GREEN</u>	Range division or management unit.
<u>VIOLET</u>	Game and recreation.
<u>RED</u>	Private land.
<u>NO COLOR</u>	Open for all stock.
<u>PINK</u>	Open for cattle and horses only.
<u>YELLOW</u>	Open for sheep and goats only.
<u>ORANGE</u>	Closed to all stock.
	Lambing grounds.
<u>BROWN</u>	Driveways.
	Corral.
	Spring, where stock may be watered.
	Well.
	Artesian well.
	Water storage (developed) where stock may be watered.
	Water storage (natural) where stock may be watered.
	Salt trough (for grazing range).
	Sheep camp, cattle camp, etc.
	Range fence (constructed).
	Range fence (proposed).

NOTE.—Administrative map standard symbols may be used in addition to above special symbols.

RECREATION MAP LEGEND

(SPECIAL MAP)

SYMBOLS TO BE
IN BRIGHT RED

	National highway route numbers (preferably at side of road).
	Improved Forest camp.
	Improved picnic grounds.
	Registration booth.
	Forest Service shelter.
	Resort.
	Hotel.
	Store.
	Point of historical interest.
	Hydrant.
	Fountain.
	Permanent incinerator.
	Latrine.
	Boat landing.
	Open-air theater.
	Tent site.
	Camp stove or grate.
	Tables.
	Region of special scenic interest.

NOTE.—Any conventional symbols (Supervisor's headquarters, Ranger or Guard Stations, Primitive Area or Game Refuge boundaries, foot trails, etc.), may be added in red if important to recreation. Mileage table may also be added.
Items in the above legend may be shown in black if suitable map is used for this purpose.

ROAD LEGEND FOR USE ON ROAD AND RECREATIONAL MAPS OF STATES OR REGIONS

PRINT IN RED
IF DESIRED

	Paved or oiled macadam.
	Gravel road.
	Graded road, unimproved—trunk road.
	Graded road, unimproved—other roads.

(Adopted Feb. 26, 1925, as standard for recreation maps.)

FOREST MANAGEMENT MAP LEGEND

(SPECIAL MAP)

-  Logging camp.
-  Log chute.
-  Skidway.
-  Tramway.
-  Rollway.
-  Skidroad.
-  Log driving route (symbol placed along side of stream).

STATUS OF LAND AND TIMBER

-  Land and timber owned by U. S.
-  Timber rights owned by others, land owned by U. S.
-  Timber rights quieted.
-  Status of land unsettled and timber cannot be included in sales without specific authority. Indicate as:
 - R E—Listed under act of June 11, 1906.
 - H E—Entered under act of June 11, 1906.
 - S—School lands claimed by State.
 - M L—Mineral location.
 - M E—Mineral entry.
 - R C—Reconveyed lands not yet accepted.
-  Patented alienations, neither land nor timber owned by U. S. Indicate class of alienation, a record of which is desirable, by proper letters.

AREAS ON WHICH TIMBER SALES ARE PERMITTED

-  Mature timber available for sales, or forest cover not yet classified.
-  Old cuttings not under forest regulations, leaving timber available for sale.
-  Protection areas, on which selection cutting may be allowed.
-  Mature timber available for sales, but classified as inaccessible at present.
-  Timber available but too scattered for profitable sales.
-  Aspen.
-  Timber partly cut under forest regulations, as in removal of special products. Remainder available for sales.

FOREST MANAGEMENT MAP LEGEND—Continued

(SPECIAL MAP)

AREAS ON WHICH NO TIMBER IS AVAILABLE FOR SALES

-  Immature timber of merchantable species too small for sales.
-  Unproductive areas, barren or brush.
-  Parks or grasslands.

RECORD OF CUTTING ON ALIENATED LANDS

-  Alienated lands cut under cooperative agreements, leaving seed trees.
-  Alienated lands cut without leaving seed trees.

RECORD OF BURNS—DATES OF FIRES INDICATED

-  Burn; all mature timber killed; not reproducing.
-  Burn; mature timber partly destroyed.
-  Burn; damage confined to immature timber.

RECORD OF OPERATIONS

-  Boundary of sales, indexed by number.
-  Sales of green timber (Pinon-Juniper, or Woodland type). All products removed which should be cut. Area closed to further sales.
-  Sales of dead timber only. Area cleared of dead timber under free use.

SAMPLE PLOT MAP LEGEND

(SPECIAL MAP)

-  Plot corner.
-  Boundary post.
-  Tree on line.
-  Subplot corner.
-  Quadrat.
-  Transit station or hypsometer hub.
-  Litter station.
-  Soil station.
-  Camera point (arrow shows direction of view).
-  Tree and number.
-  Skid trail.
-  Chute.
-  Fence—barbed or smooth wire.
-  Fence—mesh wire.
-  Stock water hole or tank.
-  Check dams across stream.
-  Gaging station.
-  Rock outcrop.
-  Logged area dragged bare.
-  Logged area partially denuded.
-  Firebreak—raked.
-  Firebreak—raked and burned.
-  Slash—piled.
-  Slash—piled and burned.
-  Slash—spot burned.
-  Slash—lopped and scattered.
-  Slash—as it fell.
-  Slash—windrowed.
-  Slash—windrowed and burned.
-  Log.
-  Dead tree.
-  Snag.
-  Stump.
-  Windfall.
-  Conifers.
-  Hardwoods.

NOTE.—Administrative map standard symbols may be used in addition to these special symbols.

FOREST ROAD SYSTEM MAP LEGEND

(SPECIAL MAP)

FOREST ROAD SYSTEM

- | WIDTH | | |
|----------------|---|--|
| $\frac{1}{4}"$ |  | Forest highways Class 1 (U. S. Highway) and Class 2 (State Highway). |
| $\frac{1}{4}"$ |  | Forest highways—Class 3 (County or Community Road). |
| $\frac{1}{4}"$ |  | Forest development roads and truck trails. |
| $\frac{1}{4}"$ |  | Other roads not on Forest road system. |
| |  | Truck trail firebreak. |

Status of Construction

- | | | |
|---|--|--------------------------------------|
|  | Non existing roads. | |
|  | Proposed truck trail firebreak. | |
|  | Existing roads not constructed to required standard. | |
|  | Roads constructed to required standard. | } Filled in with colors shown above. |
|  | Surfaced roads. | |
|  | Oiled or paved roads. | |

LEGEND FOR PROCLAMATION DIAGRAMS AND MAPS TO ACCOMPANY EXECUTIVE ORDERS

SPECIAL LITHOGRAPHED MAPS

- | | |
|---|--|
|  | Eliminations. |
|  | Additions. |
|  | } Transfers. |
|  | |
|  | |
|  | |
|  | Added by Congress since issue of previous diagram. |
- To be ruled in bright red

FEDERAL LAND OWNERSHIP MAP LEGEND

(SPECIAL MAP)

Means by which established or terminated, and reservations or easements

PUBLIC DOMAIN LAND RESERVED FOR NATIONAL FOREST PURPOSES

DARK GREEN BLOCKS		Unencumbered.
		Listed for entry under Act of June 11, 1906.
		Patented under Act of June 11, 1906.
		Covered by mineral entry.
		Patented under mineral laws.
		Transferred to private ownership through exchange.
		Subject to water-power easement under Public Land laws.
		Subject to R/W easement under Public Land laws.

LAND PREVIOUSLY IN STATE OR PRIVATE OWNERSHIP

YELLOW GREEN BLOCKS		Acquired by purchase.
		Acquired by exchange.
		Transferred from another Department.
		Acquired by donation.
YELLOW BLOCKS		Optioned but not approved.
		Approved for purchase but not acquired.
		Approved and surveyed but not acquired.
		Approved but dropped as not purchasable.

RESERVATIONS AND EASEMENTS

	Timber.	} Supplemental symbols overlaying above classification.
	Mineral.	
	Water power.	
	Rights of way.	
	Grazing.	

AIR NAVIGATION MAP LEGEND

(SPECIAL MAP, OR TO BE USED ON ADMINISTRATIVE MAPS IF DESIRED)

	Army, Navy, or Marine Corps field.
	Commercial or municipal field.
	Intermediate field.
	Marked auxiliary field.
	Airway light beacon (arrows indicate course lights).
	Airway light beacon, flashing.
	Airport light beacon with code light.
	Landmark light beacon with bearing projector.
	Landmark light beacon without bearing projector.

ARROW AND DECLINATION DIAGRAM SYMBOL

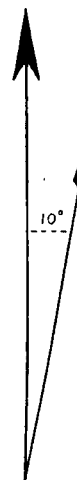
General

N



Special

N



SURVEY INDEX RECORD

The Survey Index Record consists of a comprehensive graphic index record of all *original* surveys and map data affecting the National Forests. The information is posted upon the standard $\frac{1}{4}$ -inch Forest base maps conformable to the legend outlined below.

The regional office will maintain this record, which includes a map of each forest in the region. Each supervisor has a copy of the map of his forest. In each of the two offices the record must be currently and systematically posted to show new survey data coming to the attention of the office. In order to provide an interchange of the new data collected by each office there will be kept a forest map in both the regional office and supervisor's office which will incorporate all the corrections for the current calendar year. At the end of the year the supervisor will transmit to the regional office both his current and permanent survey index maps. The data on the supervisor's current map will be transferred to the regional current map, and from this both the supervisor's permanent map and the regional office's permanent map are posted to date. The supervisor's current map is then destroyed and his permanent index returned. Both the supervisor's office and the regional office will start new current maps each year. If a map is to be compiled in the Washington office the Survey Index map of the Forest to be compiled will be forwarded to Washington with all compilation data. The map will be returned to the region when it has served its purpose.

It is not contemplated that the record shall include information relating to primary control surveys.

	U. S. Geological Survey topography (orange).
	U. S. Geological Survey river plan and profile survey (brown).
	U. S. Coast and Geodetic Survey topography (olive green).
	U. S. Reclamation Service or Indian Service surveys (buff).
	G. L. O. mineral surveys (violet).
	State, county, or private surveys (vermilion).
	Forest Service—Timber surveys (blue green).
	Forest Service—Planting surveys (yellow green).
	Forest Service—Aerial surveys (gray).
	Forest Service—Land classification surveys (blue green).
	Forest Service—Grazing reconnaissance surveys (yellow).
	Forest Service—Miscellaneous surveys (blue).
	Forest Service—(or B. P. R.) road surveys (violet).
	Forest Service—Homestead entry surveys (pink).

G. L. O. public-land surveys are indicated by red or black solid lines and projection over "unsurveyed" lands by dash lines.

NOTE.—All Forest Service surveys should be classified as follows: Topography showing contours to be indicated by full hatching in proper color entirely across area. Drainage mapping to be indicated by hatching along area boundary. All surveys (except those by the G. L. O.) will be definitely identified by a neatly executed red ink notation or in the same color as the feature designated giving the name of the project and the year of survey. Entry surveys need be identified by the H. E. S. number only.

TELEPHONE DIAGRAM MAP LEGEND

(SPECIAL MAP)

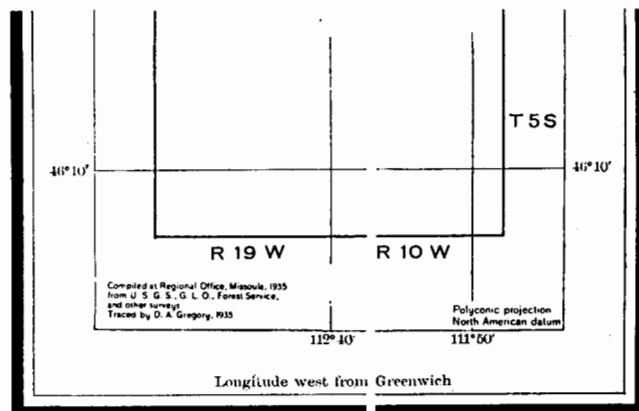
	Grounded line	} Forest Service.
	Metallic line	
	Grounded line	} Commercial.
	Metallic line	
	Grounded line	} Association.
	Metallic line	
	Grounded line	} Farmers'.
	Metallic line	
	Grounded line	} Unclassified—lines not otherwise covered by the above classifications.
	Metallic line	
	Size of wire.	
	Change of size of wire.	
	District ranger headquarters telephone station.	
	Telephone station on lookout.	
	All other Forest Service telephone stations.	
	Commercial telephone station.	
	Association telephone station.	
	Farmers' telephone station.	
	Telegraph station outlet.	
	Mileage between stations.	
	Switching station.	

(Lines operating through a switch terminate in dot while through lines continue to station symbol.)

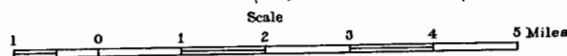
NOTE.—Construction other than tree lines to be indicated by descriptive designations as "pole line" or "pole and tree line."

NOTE.—Administrative map standard symbols may be used in addition to these special symbols.

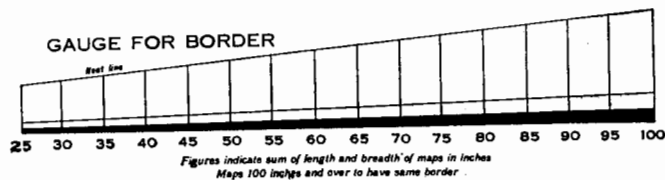
MARGINAL DATA, CREDIT NOTE, BAR SCALE, GAUGE FOR BORDER AND GAUGE FOR MAIN LINE OF TITLE



BAR SCALE (to be placed below title of all base maps)

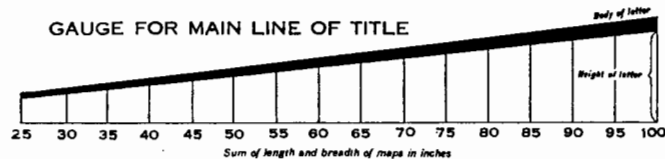


GAUGE FOR BORDER

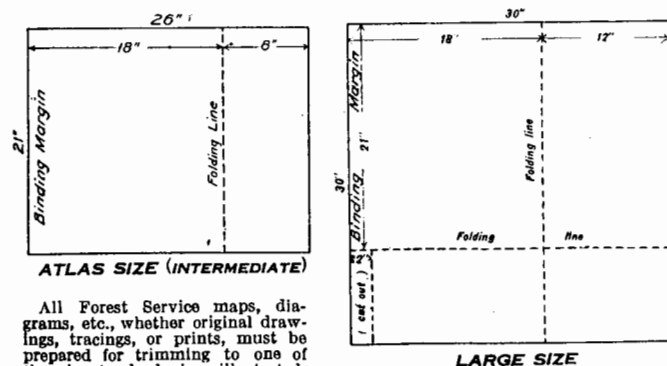
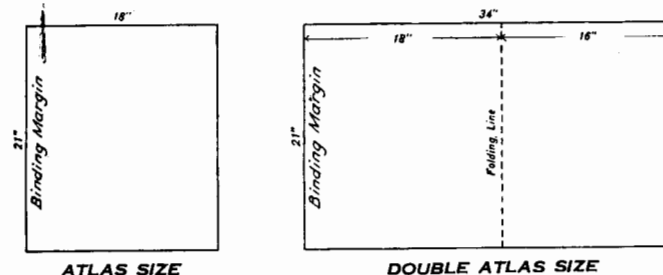
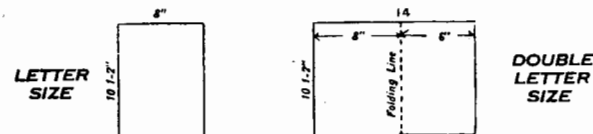


Border to be laid out as perfect rectangle, using central meridian as basis for measurement

GAUGE FOR MAIN LINE OF TITLE



MAP SHEET SIZES



All Forest Service maps, diagrams, etc., whether original drawings, tracings, or prints, must be prepared for trimming to one of the six standard sizes illustrated. A choice of one of the sizes from the selection offered should be found applicable without inconvenience to almost any case.

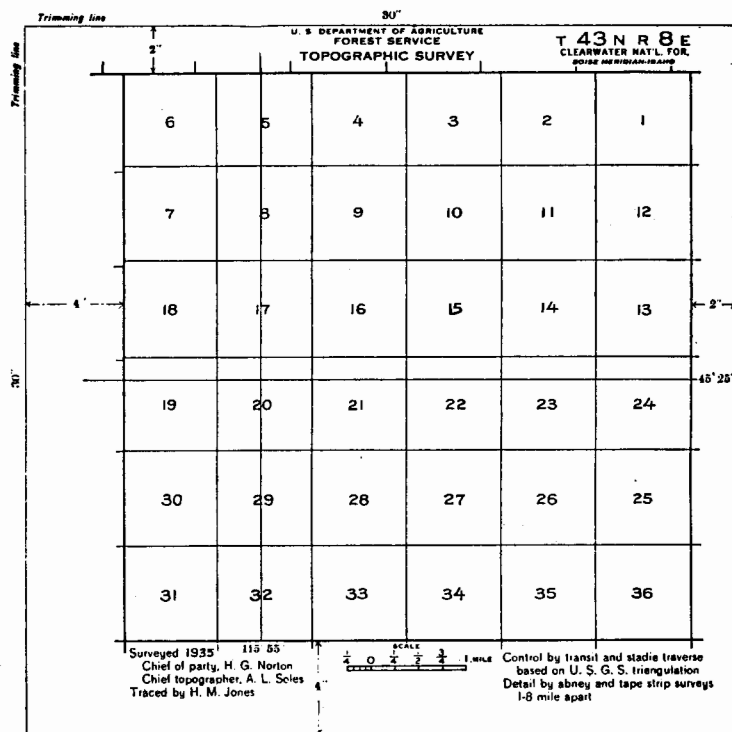
Base maps requiring a larger sheet than the "large size" should be made as small as the map limits permit.

Folding lines indicate proper method of folding for binding.

Double letter size Multilith prints will be 10" x 14".

TOWNSHIP PLAT LAYOUT

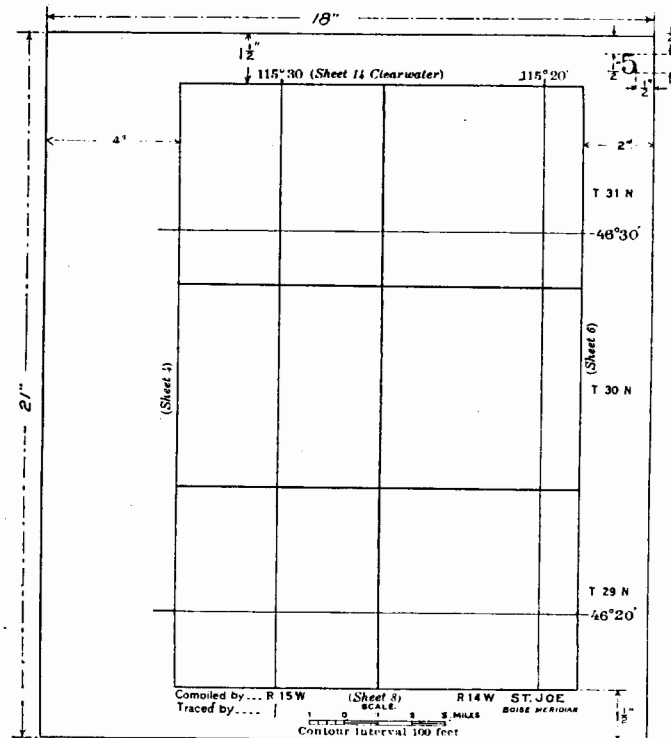
(4 IN.=1 MILE)



Original tracing should contain topographic base data only. Prints including type line, type symbols, legends, estimates, etc., for use in illustrating the results of special project activities as for example, grazing, reconnaissance, land certifications, or timber surveys should be prepared by employing an overlay tracing.

Two inches to the mile township maps shall have the same arrangement as above, but shall be on 18 x 21 inch sheets.

ATLAS FOLIO SHEET LAYOUT



Sheets which are common to the Atlas Folios of two or more Forests should bear the proper sheet number of each preceded by the initial of the Forest to which it refers. Likewise the names of both Forests should appear at the bottom of the sheet, and marginal notes relative to adjacent sheets affecting more than one Forest should so indicate. Boundaries of all Forests appearing on a page should be shown by a solid line and the name of each part of a Forest given.

ABBREVIATIONS

This list agrees with the usage of the principal governmental mapping bureaus, as well as with the instructions of the Public Printer.

Full words should be used when the space permits, but if abbreviations are necessary they must be as indicated. The period after abbreviations should be used as sparingly as possible.

Abbreviation	Name of Feature	Abbreviation	Name of Feature
Alt.	Altitude.	Hdqrs.	Headquarters.
A. S.	Administrative Site.	Hy.	Highway.
Approx.	Approximate.	H. E. S.	Homestead Entry Survey.
A.	Arroyo.	h.	Hours.
Aux. Mer.	Auxiliary Meridian.	H.	House.
B. M.	Bench Mark.	In.	Inch or inches.
Bdy.	Boundary.	Ind.	Indian.
Br.	Branch.	I.	Island.
Br.	Bridge.	Jct.	Junction.
Brk.	Brook.	L.	Lake.
Bldg.	Building.	Lks.	Lakes.
Bu.	Butte.	Lat.	Latitude.
Coop.	Cooperative.	Ldg.	Landing.
C.	Cape.	L. S. S.	Life Saving Station.
Can.	Canyon.	L. H.	Lighthouse.
Cem.	Cemetery.	LT.	Light.
ch.	Chain.	Lit.	Little.
Ch.	Church.	L. O.	Lookout.
C. & G. S.	Coast & Geodetic Survey.	Long.	Longitude.
con.	Concrete.	Mdw.	Meadow.
Cor.	Corner.	Mer.	Meridian.
CO.	County.	Mid.	Middle.
Co.	Company.	m.	Minutes.
Cr.	Creek.	Mil.	Military.
Cul.	Culvert.	Mi.	Miles.
Corp.	Corporation.	M. S.	Mineral Survey.
Dist.	District.	Mon.	Monument.
Div.	Division.	Months.	See next page.
Dr.	Draw.	*Mount, Mt.	Mount.
E.	East.	Mtn.	Mountain.
El. Ry.	Electric Railway.	Mtns.	Mountains.
elev.	Elevation.	N., Natl.	National.
Est.	Estuary.	N.	North.
Elec.	Electric.	NE.	Northeast.
ft.	Foot or Feet.	NW.	Northwest.
Fer.	Ferry.	No.	Number.
Fl.	Flume.	Nos.	Numbers.
Fd.	Ford.	P.	Pond.
F. S.	Forest Service.	Par.	Parallel.
F. For.	Forest.	Pk.	Peak.
F. S. M.	Forest Service Monument.	Pt.	Point.
Fk.	Fork.	P. O.	Post Office.
*Ft.	Fort.	P. H.	Power House.
G. S.	Guard Station.	p. m.	From noon to midnight.
Gl.	Glacier.	Prin. Mer.	Principal Meridian.
G. P. O.	Government Printing Office.	Pub.	Public.
G. Mer.	Guide Meridian.	Penin.	Peninsula.
Gul.	Gulch.		

* Not to be abbreviated when the word is part of the proper name.

ABBREVIATIONS—Continued

Abbreviation	Name of Feature	States and Territories—Continued	
R. R.	Railroad.	D. C.	District of Columbia.
Ry.	Railway.	Fla.	Florida.
R.	Range.	Ga.	Georgia.
R. S.	Ranger Station.	Guam	Not to be abbreviated.
Res.	Reservation.	Hawaii	Not to be abbreviated.
Resvr.	Reservoir.	Idaho	Not to be abbreviated.
Rdg.	Ridge.	Ill.	Illinois.
Rt. of W.	Right-of-Way.	Ind.	Indiana.
R. or Riv.	River.	Iowa	Not to be abbreviated.
Rd.	Road.	Kans.	Kansas.
Rk.	Rock.	Ky.	Kentucky.
S. M.	Sewmill.	La.	Louisiana.
S. H.	School House.	Me.	Maine.
s.	Seconds.	Md.	Maryland.
Sec.	Section.	Mass.	Massachusetts.
Secs.	Sections.	Mich.	Michigan.
S.	South.	Minn.	Minnesota.
SE.	Southeast.	Miss.	Mississippi.
SW.	Southwest.	Mo.	Missouri.
spr.	Spring.	Mont.	Montana.
sq.	Square.	Nebr.	Nebraska.
Std. Par.	Standard Parallel.	Nev.	Nevada.
Ser.	Service.	N. H.	New Hampshire.
Sta.	Station.	N. J.	New Jersey.
str.	Stream.	N. Mex.	New Mexico.
Str.	Straits.	N. Y.	New York.
St.	Street.	N. C.	North Carolina.
Sup. Hdqrs.	Supervisor's Headquarters.	N. Dak.	North Dakota.
Sur.	Survey.	Ohio	Not to be abbreviated.
TLG.	Telegraph.	Okla.	Oklahoma.
TLP.	Telephone.	Oreg.	Oregon.
T. G.	Toll Gate.	Pa.	Pennsylvania.
T.	Township.	P. I.	Philippine Islands.
Tr.	Trail.	P. R.	Puerto Rico.
Tres.	Trestle.	R. I.	Rhode Island.
Tr.	Truss.	Samoa	Not to be abbreviated.
Trans.	Transmission.	S. C.	South Carolina.
U. S.	United States.	S. Dak.	South Dakota.
U. S. G. S.	United States Geological Survey.	Tenn.	Tennessee.
Val.	Valley.	Tex.	Texas.
W. T.	Water Tank.	Utah	Not to be abbreviated.
W. W.	Waterworks.	Vt.	Vermont.
W.	West.	Va.	Virginia.
Yd.	Yard.	Wash.	Washington.
		W. Va.	West Virginia.
		Wis.	Wisconsin.
		Wyo.	Wyoming.
States and Territories		Months of the Year	
Ala.	Alabama.	Jan.	January.
Alaska	Not to be abbreviated.	Feb.	February.
Ariz.	Arizona.	Mar.	March.
Ark.	Arkansas.	Apr.	April.
Calif.	California.	May	Not to be abbreviated.
Colo.	Colorado.	June	Not to be abbreviated.
Conn.	Connecticut.	July	Not to be abbreviated.
Del.	Delaware.	Aug.	August.
		Sept.	September.
		Oct.	October.
		Nov.	November.
		Dec.	December.

COLOR FORMULAS

In showing data relative to timber cover, land classification, etc., two methods of coloring are employed, colored crayon pencils and colored inks mixed and diluted to give various tints. The use of crayons is particularly convenient in the field and in cases where the better appearance possible with ink tints is not essential. Fifteen different shades have been adopted and each is identified by number. The diagram below gives the description of crayon pencils corresponding to each of the standard colors and the one on the following page gives the formulas for preparing the proper tints when inks are used.

Color No.	Color	Corresponding Crayon	Formulas for Tints									
			Stafford's yellow	Carter's green	Higgins' brown	Higgins' violet	Higgins' brick red	Higgins' orange	Higgins' blue	Higgins' black	Water	Total parts
1	Yellow	No. 353 Dixon's "Best" or No. 1200 "Unique"	1								2	3
2	Violet (light)	No. 323 Dixon's "Best" or No. 1210 "Unique" lightly applied				1					15	16
3	Olive Green	No. 325 Dixon's "Best" or No. 1228 "Unique"	4	1	1						3	9
4	Mauve	No. 1225 "Unique" or No. 323½ Dixon's "Best"			1	1	2				8	12
5	Green (light)	No. 354 Dixon's "Best" or No. 1208 "Unique" lightly applied		1							6	7
6	Sepia	No. 335 Dixon's "Best" or No. 1239 "Unique"	2		3			2			10	17
7	Brick Red (light)	No. 1207 "Unique" or No. 349 Dixon's "Best"					1				2	3
8	Blue (light)	No. 320 Dixon's "Best" or No. 1216 "Unique"		1					1		25	27
9	Orange	No. 324 Dixon's "Best" or No. 1214 "Unique"						1			5	6
10	Yellow Green (light)	No. 1238 "Unique" or No. 6608 Eberhard Faber	7	1							12	20
11	Yellow Green (dark)	No. 1218 "Unique" or No. 354½ Dixon's "Best"	3	2							3	8
12	Pink (light)	No. 1217 "Unique" or No. 322 Dixon's "Best"					1				6	7
13	Brown	No. 343 Dixon's "Best"			1						4	5
14	Gray	No. 352½ Dixon's "Best" or No. 1232 "Unique"								1	50	51
15	Violet (dark)	No. 323 Dixon's "Best" or No. 1210 "Unique"				1					3	4

COLOR LEGENDS

Color No.	Color	Classification and stand maps	Grazing* Reconnaissance maps	Timber type maps
1	Yellow	Grassland	Grassland	Grassland
2	Violet (light)	Recent burn		Timber type
3	Olive Green	Timberland more than 10 M. board feet per acre	Browse range (not in conifer timber)	Timber type
4	Mauve		Weed range untimbered	Timber type
5	Green (light)	Timberland 2 to 10 M. board feet per acre	Waste range	Timber type
6	Sepia	Sagebrush	Sagebrush	Sagebrush
7	Brick Red (light)	Cultivated land	Cultivated land	Cultivated land
8	Blue (light)	Water bodies	Water bodies	Water bodies
9	Orange		Meadow	Timber type
10	Yellow Green (light)	Woodland	Woodland range	Timber type
11	Yellow Green (dark)	Timber less than 2 M. board feet per acre	Timber range (conifer)	Timber type
12	Pink (light)	Cut-over land	Aspen range	Timber type
13	Brown	Brushland	Sagebrush range	Brushland
14	Gray	Barren	Barren	Barren
15	Violet (dark)			Timber type

* Color shown by vertical hatching indicates area poorly stocked with forage plants. Color shown by horizontal hatching indicates overgrazed condition. The above legends are not arbitrary but may be changed to suit varying conditions.

SCALES AND EQUIVALENTS

Fractional Scale of Map	Miles per Inch	Feet per Inch	Chains per Inch	Meters per Inch	Inches per 1,000 Feet
1: 500	0.008	41.667	0.631	12.700	24
1: 600	.009	50	.758	15.240	20
1: 1,000	.016	63.333	1.263	25.400	12
1: 1,200	.019	100	1.515	30.480	10
1: 1,500	.024	125	1.894	38.100	8
1: 2,000	.032	166.667	2.525	50.800	6
1: 2,400	.038	200	3.030	60.960	5
1: 2,500	.039	208.333	3.156	63.500	4.800
1: 3,000	.047	250	3.788	76.200	4
1: 3,600	.057	300	4.545	91.440	3.333
1: 4,000	.063	333.333	5.050	101.600	3
1: 4,800	.076	400	6.061	121.920	2.500
1: 5,000	.079	416.667	6.313	127	2.400
1: 6,000	.095	500	7.576	152.400	2
1: 7,000	.110	583.333	8.838	177.800	1.714
1: 7,200	.114	600	9.091	182.880	1.667
1: 7,920	.125	660	10	201.168	1.515
1: 8,000	.126	666.667	10.100	203.200	1.500
1: 8,400	.133	700	10.605	213.360	1.429
1: 9,000	.142	750	11.363	228.600	1.333
1: 9,600	.152	800	12.121	243.840	1.250
1: 10,000	.158	833.333	12.626	254	1.200
1: 10,800	.170	900	13.635	274.321	1.111
1: 12,000	.189	1,000	15.152	304.801	1
1: 13,200	.208	1,100	16.666	335.281	.909
1: 14,400	.227	1,200	18.181	365.761	.833
1: 15,000	.237	1,250	18.938	381.001	.800
1: 15,600	.246	1,300	19.695	396.241	.769
1: 15,840	.250	1,320	20	402.337	.758
1: 16,000	.253	1,333.333	20.200	406.400	.750
1: 16,800	.265	1,400	21.210	426.721	.714
1: 18,000	.284	1,500	22.725	457.201	.667
1: 19,200	.303	1,600	24.240	487.681	.625
1: 20,000	.316	1,666.667	25.250	508.002	.600
1: 20,400	.322	1,700	25.755	518.161	.588
1: 21,120	.333	1,760	26.664	536.449	.568
1: 21,600	.341	1,800	27.270	548.641	.556
1: 22,800	.360	1,900	28.785	579.121	.528
1: 24,000	.379	2,000	30.303	609.601	.500
1: 25,000	.395	2,083.333	31.663	635.001	.480
1: 30,000	.473	2,500	37.879	762.002	.400
1: 31,680	.500	2,640	40	804.674	.379
1: 40,000	.631	3,333.333	50.505	1,016	.300
1: 45,000	.710	3,750	56.818	1,143	.267
1: 48,000	.758	4,000	60.606	1,219.202	.250
1: 60,000	.947	5,000	75.758	1,524	.200
1: 62,500	.986	5,208.333	78.914	1,587.600	.192
1: 63,360	1	5,280	80	1,609.300	.189
1: 80,000	1.263	6,666.666	101.010	2,032	.150
1: 90,000	1.420	7,500	113.636	2,286	.133
1: 96,000	1.515	8,000	121.212	2,438.405	.125
1: 100,000	1.578	8,333.333	126.263	2,540	.120
1: 125,000	1.973	10,416.666	157.828	3,175	.096
1: 126,720	2	10,560	160	3,218.7	.095
1: 200,000	3.157	16,666.666	252.525	5,080	.060
1: 250,000	3.946	20,833.333	315.657	6,350	.048
1: 253,440	4	21,120	320	6,437.4	.0473
1: 380,160	6	31,680	480	9,056.1	.0316
1: 500,000	7.891	41,666.666	631.313	12,700	.024
1: 600,000	12	63,360	960	19,312.2	.0158
1: 760,320	15.783	83,333.333	1,262.626	25,400	.0120
1: 1,000,000					

SCALES AND EQUIVALENTS

Fractional Scale of Map	Inches per Mile	Acres per Square Inch	Square Inches per Acre	Square Miles per Square Inch
1: 500	126.720	0.0399	25.001	0.00006
1: 600	105.600	.0574	17.424	.00009
1: 1,000	63.360	.1594	6.273	.00025
1: 1,200	52.800	.2296	4.356	.00036
1: 1,500	42.240	.3587	2.788	.00056
1: 2,000	31.680	.6377	1.568	.00100
1: 2,400	26.400	.9183	1.089	.0014
1: 2,500	25.344	.9964	1.004	.0016
1: 3,000	21.120	1.4348	.697	.0022
1: 3,600	17.600	2.0661	.484	.0032
1: 4,000	15.840	2.5508	.392	.0040
1: 4,800	13.200	3.6731	.272	.0057
1: 5,000	12.672	3.9856	.251	.0062
1: 6,000	10.560	5.7392	.174	.0090
1: 7,000	9.051	7.8117	.128	.0110
1: 7,200	8.800	8.2645	.121	.0129
1: 7,920	8	10	.100	.0156
1: 8,000	7.920	10.203	.098	.0159
1: 8,400	7.543	11.249	.089	.0176
1: 9,000	7.041	12.913	.077	.0202
1: 9,600	6.600	14.692	.068	.0230
1: 10,000	6.336	15.942	.063	.0249
1: 10,800	5.867	18.595	.054	.0291
1: 12,000	5.280	22.957	.044	.0359
1: 13,200	4.800	27.778	.036	.0434
1: 14,400	4.400	33.058	.030	.0516
1: 15,000	4.224	35.870	.028	.0560
1: 15,600	4.062	38.797	.026	.0606
1: 15,840	4	40	.025	.0625
1: 16,000	3.960	40.812	.024	.0638
1: 16,800	3.771	44.995	.022	.0703
1: 18,000	3.520	51.653	.019	.0807
1: 19,200	3.300	58.770	.017	.0918
1: 20,000	3.168	63.769	.016	.0996
1: 20,400	3.106	66.345	.015	.1037
1: 21,120	3	71.111	.014	.1111
1: 21,600	2.933	74.380	.013	.1162
1: 22,800	2.779	82.874	.012	.1295
1: 24,000	2.640	91.827	.011	.1435
1: 25,000	2.534	99.639	.010	.1557
1: 30,000	2.110	143.480	.007	.2242
1: 31,680	2	160	.006	.2500
1: 40,000	1.580	255.076	.004	.3985
1: 45,000	1.408	322.830	.0031	.5044
1: 48,000	1.320	367.309	.0027	.5739
1: 60,000	1.050	573.921	.0017	.8967
1: 62,500	1.014	622.744	.0016	.9730
1: 63,360	1	640	.0016	1
1: 80,000	.792	1,020.304	.0009	1.5942
1: 90,000	.704	1,291.322	.00077	2.0173
1: 96,000	.660	1,469.240	.00068	2.2057
1: 100,000	.633	1,594.225	.000627	2.4909
1: 125,000	.506	2,490.976	.000401	3.8922
1: 126,720	.500	2,560	.000390	4
1: 200,000	.316	6,376.900	.000157	9.9639
1: 250,000	.253	9,963.906	.000100	15.5086
1: 253,440	.250	10,240	.000093	16
1: 380,160	.167	23,040	.0000434	36
1: 500,000	.127	39,855.626	.0000250	62.2744
1: 760,320	.083	92,160	.0000109	144
1: 1,000,000	.063	159,422.507	.0000063	249.0976

PLANIMETER CHART

Showing Value in Acres of Multiples of Vernier Unit for Various Map Scales
(For planimeters with a vernier unit of 0.01 square inches)

Scale of Map	Vernier								
	1	2	3	4	5	6	7	8	9
$\frac{1}{4}$ in. = 1 mi.	102.4	204.8	307.2	409.6	512.0	614.4	716.8	819.2	921.6
$\frac{1}{2}$ in. = 1 mi.	25.6	51.2	76.8	102.4	128.0	153.6	179.2	204.8	230.4
1 in. = 1 mi.	6.4	12.8	19.2	25.6	32.0	38.4	44.8	51.2	57.6
2 in. = 1 mi.	1.6	3.2	4.8	6.4	8.0	9.6	11.2	12.8	14.4
4 in. = 1 mi.	.4	.8	1.2	1.6	2.0	2.4	2.8	3.2	3.6
8 in. = 1 mi.	.1	.2	.3	.4	.5	.6	.7	.8	.9
16 in. = 1 mi.	.025	.050	.075	.100	.125	.150	.175	.200	.225
1 in. = 50 ft.	.00057	.00115	.00172	.00229	.00287	.00344	.00401	.00458	.00516
1 in. = 100 ft.	.00230	.00459	.00689	.00918	.01148	.01377	.01607	.01836	.02066
1 in. = 200 ft.	.00918	.01836	.02755	.03673	.04591	.05509	.06427	.07346	.08264
1 in. = 300 ft.	.02066	.04132	.06198	.08264	.10331	.12397	.14463	.16529	.18595
1 in. = 400 ft.	.03673	.07346	.11019	.14692	.18365	.22039	.25712	.29385	.33058
1 in. = 500 ft.	.05739	.11478	.17218	.22957	.28696	.34435	.40174	.45914	.51653
1 in. = 1,000 ft.	.22957	.45914	.68870	.91827	1.14784	1.37741	1.60698	1.83654	2.06611
1 in. = 2,000 ft.	.91827	1.83655	2.75482	3.67309	4.59137	5.50964	6.42791	7.34618	8.26446
1 in. = 4,000 ft.	3.6731	7.3462	11.0193	14.6924	18.3655	22.0386	25.7117	29.3847	33.0578
$\frac{1}{62500}$ or 1 in. = 5,208 ft.	6.2274	12.4547	18.6821	24.9094	31.1368	37.3642	43.5915	49.8189	56.0463
$\frac{1}{125000}$ or 1 in. = 10,417 ft.	24.909	49.818	74.728	99.638	124.547	149.457	174.366	199.276	224.185

EXAMPLE.—The full planimeter reading, including vernier, is 5328 (53.28 square inches) for a definite area on a 2 in. = 1 mile map. Reading along the line for this map scale on the chart:
5 units of the vernier = 8.0 acres, or 5,000 units = 8,000 acres;
3 units of the vernier = 4.8 acres, or 300 units = 480 acres;
2 units of the vernier = 3.2 acres, or 20 units = 32 acres;
and 8 units = 13 acres;

and the total acreage for the reading is 8,525 acres.

The map scales given on the chart are those most frequently used, but additional scales may be computed, and added as desired.