5205

5205

5 Topo 529 Corps file

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

Topographic } *Sheet No.* T-5205
~~*Hydrographic*~~ }

State FLORIDA

LOCALITY

St. Johns River

Federal Point and Vicinity.

Photographs - Feb. 27,28 & Mar. 1, 1935

193

CHIEF OF PARTY

Riley J. Sipe

U. S. GOVERNMENT PRINTING OFFICE: 1934

applied to Chart Comp. 686 January 15, 1940 H.S. MacKenzie

applied to chart comp. 685. May 1540. L.A. McGann

Form 537a
Ed. Nov., 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. .....

REGISTER NO. T5205

State Florida

General locality St Johns River

Locality Federal Point and Vicinity

Scale See below Date of ~~survey~~ photographs Feb-Mar., 1935

Vessel .....

Chief of Party R. J. Lepo

Surveyed by .....

Inked by See map data sheet, Descriptive Report T5205

Heights in feet above .....to ground to tops of trees

Contour, Approximate contour, Form line interval .....feet

Instructions dated March 4, 1935

Remarks: Compiled at scale of 1:10 100
Temporary file copy scale 1:10 100
Reproduced and printed at scale 1:10 000

T5205

TIME SHEET
Field Sheet No. 18
Register No. T-5202

Transferring data from other sheets	19 hrs.
Detailing roads, bldgs, fences, trails, etc.	192 "
Detailing symbols	83 "
Detailing shoreline	19 "
Field Inspection	58 "
Reports (Writing and typing)	34 "
Field review of sheet	30 "
Overlay	18 "
Total - - - -	453 hrs

(1)

T5205

NOTES ON COMPILATION

Sheet No 18 (Field)

Register No. T-5205

PHOTOGRAPHS: See next page for dates of field inspection and supplemental surveys.

5 Lens " Flight No. 10 No. 537

5 " " " 12 " 303 - 304

5 " " " 14 " 594 to 614

5 " " " 15 " 615 to 634

SCALE PLOTS: H. A. Paton

SCALE FACTOR USED: 0.99

PROJECTION BY: Washington Office

CONTROL PLOTTED BY: H. A. Paton

CONTROL CHECKED BY: F. R. Gossett

SMOOTH RADIAL PLOT BY: H. A. Paton

TOPOGRAPHY TRANSFERRED BY: H. A. Paton & F. R. Gossett

TOPOGRAPHY CHECKED BY: F. R. Gossett & R. J. Sipe

SHORELINE INKED BY: D. R. Shallenberger

DETAIL INKED BY: D. R. Shallenberger

OVERLAY SHEET BY: D. R. Shallenberger

DESCRIPTIVE REPORT BY: D. R. Shallenberger

REVIEWED BY: R. J. Sipe & H. O. Fortin

AREA OF DETAIL INKED: 22.5 Sq. Stat. Miles

LENGTH OF SHORELINE (Over 200 m): 9.7 Statute Miles

LENGTH OF SHORELINE (Under 200 m): 8.5 Statute Miles

LENGTH OF SHORELINE OF SMALL LAKES: == Statute Miles

Reference Sta.:—
Federal, 1935 29-44-51.634 (1589.8) (adjusted)
81-32-52.536 (1411.6)

x = 326,119.15

y = 1,968,501.10

AIR PHOTOGRAPHIC SURVEY T-5205

Field Inspection and Supplemental Surveys.

Photographs taken - February 27, February 28, and March 1935.
Field Inspection, 1937, 1938 and in April and July 1939.

Details on T-5205 are of the date of the photographs, except for the following:

1. Piers, piling, stakes, and small sections of shoreline located by Graphic Control Surveys in May and June 1935.

2. Minor details of new construction since the date of the photos, located by Field Inspection, date not given. Notes shown on Field Photos Nos. 4594c, 598c, 602c, Acc. No. 943.

(2)

DESCRIPTIVE REPORT

Field Sheet NO. 18
Register No. T-5205

July 24, 1939

GENERAL INFORMATION.

This map drawing was compiled from Air Photographs taken by the U. S. Army Air Corps using a five lens Camera No. 32-2.

The scale factor of Flight 14 was 0.995, Flight 15 was 0.990 and the projection was made with a scale factor of 0.99.

Unimportant small buildings were not shown on this map drawing in accordance with recent instructions.

CONTROL

A total of 23 described control stations were plotted on this map drawing, 22 of which fall within the tracing limits. Of these, 12 were triangulation stations established by this party in 1933, 3 were traverse stations established by the Florida Mapping Project, and 12 were triangulation stations established by this party in 1935, and 5 were topographic stations from the Graphic Control Sheets.

Topographic Station "Slo" and triangulation station "Tocoi, barn, tin roof W. Gab, 1935" were the same station. As the positions differed by 3 meters the triangulation values were used.

RADIAL PLOT

Radial lines were drawn directly on this map drawing.

INTERPRETATION OF PHOTOGRAPHS

No difficulty was experienced with the photographs except in the vicinity of Riverdale and Racy Point. Flight No. 14, which covers this section, was flown to far inland which placed the shoreline at the tracing limits of the wing prints. Difficulty was experienced in locating the high water line and the highway in this area. The road from the vicinity of triangulation station Riverdale to the curve north of Topographic signal Mullen was run in by planetable on G. C. Sheet "HH", July 21, 1939. It is believed that the error in the location of the highway and shoreline in this area is not in error more than 5 meters. Shapes and location of houses and buildings in this area were indistinct and distorted and only those which could be accurately located on photographs were shown. The detail and shoreline on the extreme tip of Racy Point being beyond the tracing limits of Flight No. 14, was taken from the last photograph of Flight No. 12, No. 304. At least two more photographs should have been taken on this flight in order to accurately map this point.

FIELD INSPECTION AND SUPPLEMENTAL SURVEYS See Page of Sheets

Field inspection was made in 1937 and 1938. Additional field inspection was made by truck April 4,5,& 6 and July 3, 1939. Measurements to new buildings, wharves and roads taken in the field are recorded on the following Field photographs. A-608, C-594, C-598, C-600, C-602 of Flight No. 14.

GRAPHIC CONTROL SHEETS

This map drawing is covered by Graphic Control Sheets HH, JJ, and KK. Differences in shore line are as follows:

9 meters at second wharf south of Triangulation Sta. Federal, 1935.
11 " between two wharf ruins just east of Racy Point.
10 " about 400 meters north of USE Sta. Ref. Pipe, Racy Pt, '33.

Between topographic signal Lov and triangulation station Tocoi, barn, tin roof, west gable, 1935, a connecting wharf between two offshore buildings differs as shown on Field Photograph C-598.

The second wharf ruins north of triangulation station "Tocoi, barn, tin roof, west gable, 1935", could not be located from the photographs or by field inspection. As this area contains numerous ruins of wharves it was labeled "foul area" on this map drawing.

The two houses shown at Federal Point differed in location by approximately 10 meters.

A section of road shown at Federal Point does not check in azimuth.

The west end of section of road shown at topographic signal Betty differs by approximately 6 meters.

The building listed as landmark in G. C. Sheet HH descriptive report and described as House Riverdale Postoffice is no longer a postoffice.

Topographic signal Pot which is the southwest gable of warehouse should be deleted on Graphic Control Sheet KK. The house is gone and only the platform remains.

Topographic signal Lov which is the west gable of house on dock should be deleted on Graphic Control Sheet HH. The house is gone and the dock is in ruins.

All details on the above Graphic Control Sheets within the area of this map drawing are shown except; The Magnetic Declination, Temporary stations for the control of hydrography.

HYDROGRAPHIC SURVEYS

Comparison with hydrographic surveys was not made as copies of these surveys were not on hand.

COMPARISON WITH CHARTS NO. 638 & NO. 684

Charts compared favorably as well as could be determined due to the large difference in scale. Differences in names are discussed under Geographical Names.

COMPARISON WITH SURVEY OF 1878 (7746 5)

This survey compares very well with the present Map drawing. The majority of differences in shoreline occur in swampy areas. The largest disagreement is between Triangulation station Moccasin and Moccasin Creek where the difference is approximately 50 meters.

	Remarks		Decisions
1		✓	297815
2		✓	"
3		✓	"
4		✓	"
5		✓	298815
6		✓	297815
7	Board decision for McCullough Cr. 3/5/41	✓	"
8	decision rendered. To be referred to DGN: use McCullough until	✓	"
9	Do not use.	✓	298815
10		✓	297815
11		✓	298815
12		✓	297815
13		✓	298815 U S G B
14		✓	"
15	Already dltd. GNS 683	✓	"
16	See East Tocoi, above	✓	"
17		✓	"
18		✓	297815
19		✓	USGB
20			
21			
22			
23			
24			
25			
26			
27			

M 234

GEOGRAPHIC NAMES

Survey No. T-5202

Name on Survey	On Chart No. 683 & 684 A	On previous survey No. 1465-1584 B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
BETTY BRANCH				X						1
CODY ISLANDS				X						2
COLSENS CREEK				X	X					3
DEEP CREEK	X	X	X	X	X					4
EAST TOCOI	X			X						5
FEDERAL PT.	X	X	X	X	X			X		6
FUTCH ISLAND				X						7
MC CULLOUGH CREEK	X	X			X					8
MICHIGAN AVENUE ?										9
MOCCASIN BRANCH	X	X	X	X	X					10
PAINES BRANCH				X						11
PINE ISLAND				X	X					12
RACY PT.	X	X		X	X			X		13
RIVERDALE				X	X					14
ST. JOHNS R. R. Gone	X	X								15
TOCOI (or E. Tocoi)	X	X			X			X		16
TOCOI PT.				X						17
WHITE OAK ISLAND				X	X					18
St. Johns River										19

Authorities for local information: 20

A. Dixon, Elkton, Fla.; J. Hersey, Star Route, St. Augustine, Fla. 21

Frank Curry, Riverdale, Fla., Sam LaBeau, Star Route, St. Augustine, Fla. 22
(Above men have resided in this area for 10 to 58 years)

Names underlined in red approved by L. Heck 8/28/39

M 234 VR

SURVEYS BY OTHER ORGANIZATIONS

U. S. Geological Survey, Elkton Quadrangle, 1937, which overlaps this map drawing on the east compares very well.

PREPARATION FOR INKING

Inking of this map drawing had been begun before the use of carbonate of magnesia was recommended. That portion not treated with carbonate of magnesia consists of all shoreline, first class roads, all swamps and all detail south of State Highway No. 47.

LANDMARKS

The building at Riverdale used as a landmark and described on G. C. Sheet HH as west gable of Postoffice is no longer a Postoffice.

Respectfully submitted,

D. R. Shallenberger

Forwarded:

_____

GEOGRAPHIC NAMES

BETTY BRANCH.

A stream flowing into the St. Johns River between McCullough Creek and Racy Point.

CODY ISLANDS.

Between Moccasin Branch and McCullough Creek, near the shore of the St. Johns River, several areas of high land virtually surrounded by swamp and accessible only by foot paths.

COLSENS CREEK.

A tributary of Moccasin Branch flowing in a south westerly direction mostly through swamp. Known to a small extent locally as Brushy Creek.

DEEP CREEK.

A stream flowing in a northwesterly direction into the St. Johns River just north of Federal Point.

EAST TOCOI.

A very small settlement at the intersection of State Highway No. 47 and No. 95. All sources except Chart No. 683 and Graphic Control Sheet HH show this locality as Tocoi. According to local usage the name "East Tocoi" was adopted to prevent confusion with the community of West Tocoi on the west shore of the St. Johns River and the name "East Tocoi" is therefor recommended.

FEDERAL PT.

An agriculture community on a prominent point of the same name just south of Deep Creek.

FUTCH ISLAND.

In the eastern part of the main swamp about one half mile south of State Highway No. 47. It is a small area of high land surrounded by swamp and approachable only by foot paths. The name is supposed to have originated from the fact that during the Civil War a deserter by the name of "Futch" used this place as a refuge. U. S. Geological Survey Quadrangle, Elkton, shows this as Fotch Island, which is not recognized by local inhabitants. One local authority uses the name Futch Field but this form is not recommended.

McCULLOUGH CREEK.

A stream flowing in a south westerly direction into the St. Johns River about one half mile east of Betty Branch. considerable disagreement in the spelling of this name has been noted on the various sources available.

McCulloch Creek - Fla. Forest Service Fire Control Map '34
McCollough Creek - U.S.G.Survey Quadrangle, Elkton, 1937.
McCullach Creek - U.S.C. & G.Survey Chart 684
G.C.Sheet "JJ"
U.S.C.& G.Survey 1878-Register 1564
McCullough Creek - U.S.C.& G.S.Sec.Aero.Chart "Orlando"
U.S.G.S.Soil Map, 1917
U.S.G.S.State of Fla. 1932

Although no one interviewed had any idea of the proper spelling the pronunciation used by all authorities indicate the spelling as McCullough. No recommendation can be made.

MICHIGAN AVENUE.

The name given to State Highway No. 95 at East Tocoi. The proposed development of this section by a Michigan real estate concern was responsible for the name.

MOCCASIN BRANCH.

A stream flowing through dense swamp and emptying into the St. Johns River about one mile north of Deep Creek.

PAINES BRANCH.

A swampy stream flowing into the St. Johns River about one mile south of Tocoi Point. The name is shown as Payne Branch on U.S.G.S.Soil Map, St. Johns County, 1917. On the U.S.C. & G.Survey of 1878, the estate of T. Paine is indicated near this stream. As the spelling "Paine" is substantiated by present local usage it is recommended.

PINE ISLAND.

In the swamp south of Deep Creek and east of Federal Point, two dry areas which are probably connected in extreme dry weather.

RACY PT.

The prominent point between Betty Branch and Riverdale. County Commissioners Map of Putnam County, 1914, calls this Race Pt. but this name is not otherwise substantiated.

RIVERDALE.

A community halfway between Racy Pt. and East Tocoi. The Riverdale Postoffice mentioned in descriptive reports for G.C. Sheet HH and Hydrographic Sheet 23 has been abolished.

ST. JOHNS R.R.

An abandoned railroad on which in the area covered by this map drawing has been built State Highway No. 95. As mentioned in descriptive report for Hydrographic Sheet No. 23, this name should be deleted from Chart No. 683.

TOCOI.

Original name of East Tocoi. See East Tocoi.

TOCOI Pt.

Prominent point at East Tocoi. Recommended as mentioned in descriptive report for G. C. Sheet HH.

WHITE OAK ISLAND.

On the north bank of Deep Creek about a mile from the St. Johns River, an area of hammock land surrounded by swamp and accessible only by water.

REVIEW OF AIR PHOTO COMPILATION NO.

Chief of Party: Riley J. Sipe Compiled by: D.M.S

Project: HT-168 Instructions dated: 3/4/35

1. The charts of this area have been examined and topographic information necessary to bring the charts up to date is shown on this compilation. (Par. 16a, b,c,d,e,g and i; 26; and 64)

   Yes

2. Change in position, or non-existence of wharfs, lights, and other topographic detail of particular importance to navigation which affect the chart, is discussed in the descriptive report. (Par. 26; and 66 g,n)

   Yes

3. Ground surveys by plane table, sextant, or theodolite have been used to supplement the photographic plot where necessary to obtain complete information, and all such surveys are discussed in the descriptive report. (Par. 65; and 66 d,e)

   Yes

4. Blue-prints and maps from other sources which were transmitted by the field party contain sufficient control for their application to the charts. (Par. 28)

   None

5. Differences between this compilation and contemporary plane table and hydrographic surveys have been examined and rectified in the field before forwarding the compilations to the office and are discussed in the descriptive report.

   Hydrographic surveys not available.

6. The control and adjustment of the photo plot are discussed in the descriptive report. Unusual or large adjustments are discussed in detail and limits of the area affected are stated. (Par. 12b; 44; and 66 c,h,i)

   Yes

7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, and 44)

   Yes

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Refer also to the pamphlet "Notes on the Compilation of Planimetric Line Maps from Five Lens Air Photographs." M-87

8. The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41)

None

9. Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57)

Yes

10. A list of landmarks was furnished on Form 567 and instructions in the Director's letter of July 16, 1934, Landmarks for Charts, complied with. (Par. 16d, e; and 60)

None

11. All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)

Yes

12. Geographic names are shown on the overlay tracing. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and 66k)

Yes

13. The geographic datum of the compilation is NA 1927 and the reference station is correctly noted.

Yes

14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j)

Yes

15. The drafting is satisfactory and particular attention has been given the following:

1. Standard symbols authorized by the Board of Surveys and Maps have been used throughout except as noted in the report.

Yes

2. The degrees and minutes of Latitude and Longitude are correctly marked.

Yes

3. All station points are exactly marked by fine black dots.
Yes

4. Closely spaced lines are drawn sharp and clear for printing.
Yes

5. Topographic symbols for similar features are of uniform weight.
Yes

6. All drawing has been retouched where partially rubbed off.
Yes

7. Buildings are drawn with clear straight lines and square corners where such is the case on the ground.
Yes

(Par. 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48)

16. No additional surveying is recommended at this time.
None

17. Remarks: The location of the highway north from triangulation station "Riverdale", Racy Point north to Topographic Station "Mullen" was taken from a Topo survey made on G.C.Sheet HH in July 1939. It is believed that the survey in this vicinity is not in error more than 5 meters.

18. Examined and approved;

_____
Chief of Party

19. ~~Remarks after review in office:~~

Section of Field Records

REVIEW OF AIR PHOTOGRAPHIC SURVEY T-5205
August 18, 1939

Comparison with Graphic Control Surveys.

CS-160M (1:10,000) 1935
CS-161M (1:10,000) 1935
CS-162M (1:10,000) 1935.

These surveys were made primarily for the location of control for hydrographic surveys and do not include much shoreline detail. Comparison between T-5205 and the above surveys showed good agreement for the most part. All differences were investigated. Some details along the shoreline (which were not clear on the photos), such as pier ruins, stakes and piling, were transferred to T-5205 by the field party.

All detail on the above surveys now in existence and within the area covered by T-5205 are shown on T-5205 except temporary topographic stations and magnetic declination. Magnetic declinations have been compared with chart covering the area and agree within less than 2 degrees.

For comparison made by the field party see page 3 of the Descriptive Report for T-5205.

Comparison with Contemporary Hydrographic Surveys.

H-6298 (1:10,000) 1935
H-6299 (1:10,000) 1935.

The above surveys had been reviewed by the hydrographic verifying unit prior to comparison with T-5205. Shoreline from T-5205 has not been added to H-6298 and H-6299. Other omissions have been noted on the smooth sheets in pencil and have been reported to the hydrographic verifying unit. There were a number of piles and fish stakes shown on the above surveys which did not appear on the photographs and were, therefore, not added to T-5205.

Comparison with Previous Topographic Surveys.

Comparison of T-5205 with the previous topographic surveys shows numerous cultural changes. Shoreline changes have been small for the most part. T-5205 is considered complete and adequate to supersede the sections of these surveys which it covers.

Comparisons made by the field party may be found on page 3 of the Descriptive Report for T-5205.

T-1465a (1:20,000) 1878.
T-1564 (1:10,000) 1884-85.
T-2027 (1;80,000) 1875.

Comparison with Charts 683 December 7, 1938 and 684 December 3, 1937.

T-5205 shows numerous corrections and additions to cultural details, also minor shoreline changes.

Fixed aids to navigation were located by triangulation and are shown on T-5205.

Landmarks in this area are listed in Chart Letters 539 (1935) and 581 (1935). The following changes in landmarks were noted: (Letter 581) Warehouse on dock, S. W. gable (Pot) is no longer in existence and (Letter 539) House - Riverdale Post Office. Post Office has been abandoned.

The azimuth of Racy Point Range is shown on Graphic Control Survey CS 161M as 1° 29'. The azimuth was obtained by inverse computation between triangulation stations.

Recoverable Topographic Stations.

Five descriptions, Form 524, for recoverable topographic stations on T-5205 are filed under T-5205.

Conclusion.

The descriptive report and compilation of details on T-5205 are complete and the drawing is very good.

Reviewed in office by - H. D. Reed, Jr.

Inspected by - B. J. Jones.

Examined and approved:

T. B. Reed,
Chief, Section of Field Records.

K. T. Adams
Chief, Division of Charts.

Fred. L. Peacock
Chief, Section of Field Work.

Chief, Division of H. & T.

M-350

T-5205

PLANE COORDINATE GRID SYSTEM

Positions of grid intersections used for fitting the grid to this compilation were computed by Division of Geodesy and the computation forms are included in this report.

Positions plotted by S. Kass

Positions checked by S. K (on Ruling Machine)

Grid inked on machine by S. K.

Intersections inked by S. K.

Points used for plotting grid:

φ 29-50	φ 29-45
λ 81-33	λ 81-29
φ 29-50	x
λ 81-29	y
φ 29-48	x
λ 81-31	y
φ 29-45	x
λ 81-33	y

Triangulation stations used for checking grid:

1. John 1935	5.
2. Federal 1935	6.
3.	7.
4.	8.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 744 a
June 1938

T 5205

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

(CALCULATING MACHINE COMPUTATION)

State Fla. Zone East Station 29 50 / 81 33

λ (Central meridian) ° ′ ″

φ ° ′ ″ λ

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) ′ Δλ (Central meridian − λ)

Δλ (in sec.) − 1980″

		$\left(\frac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
Cor. for second dif.	+ 0	Cor. for second dif.	+ 0
H	88.079244	V	1.062357
		Tabular difference of y for 1″ of φ	
a	− 0.730		
b	+ 9.090	y (for minutes of φ)	
		y (for seconds of φ)	
$H\,(\Delta\lambda'')$	174,396.90	Tabular y	1,999,237.13
ab	− 6.64	$V\left(\frac{\Delta\lambda''}{100}\right)^2$	416.49
x'	−174,390.26		
	500,000.00	c	− .08
x	325,609.74	y	1,999,653.54
$\frac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\frac{\phi+\phi'}{2}$	
		$F\,(\Delta\lambda)^3$	
$\frac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta\alpha''$	″
$\sin\frac{\phi+\phi'}{2}$		$\Delta\alpha$	° ′ ″

$$x' = H\Delta\lambda + ab \qquad y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

$$x = x' + 500{,}000 \qquad \Delta\alpha'' = \Delta\lambda'' \sin\frac{\phi+\phi'}{2} + F\,(\Delta\lambda'')^3$$

U. S. GOVERNMENT PRINTING OFFICE 11—12148

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 744 a
June 1933

(2) T 5205

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

(CALCULATING MACHINE COMPUTATION)

State Fla. Zone East Station 29 50 / 81 29 ° ′ ″

λ (Central meridian) ____

φ ____ ° ′ ″ λ ____

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) ____ ′

Δλ (Central meridian − λ) ____

Δλ (in sec.) − 1740″

		$\left(\frac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
		Cor. for second dif.	+ 0
Cor. for second dif.	+ 0	V	1.062357
H	88.079244		
		Tabular difference of y for 1″ of ϕ	
a	− 0.730		
b	+ 8.359	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
$H\,(\Delta\lambda'')$	153257.88	Tabular y	1,999,237.13
ab	− 6.10	$V\left(\frac{\Delta\lambda''}{100}\right)^2$	321.64
x'	−153,251.78		
	500,000.00	c	− .06
x	346,748.22	y	1,999,558.71
$\frac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\frac{\phi+\phi'}{2}$	
		$F\,(\Delta\lambda)^3$	
$\frac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\frac{\phi+\phi'}{2}$		Δa	° ′ ″

$$x' = H\Delta\lambda + ab \qquad y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

$$x = x' + 500{,}000 \qquad \Delta a'' = \Delta\lambda'' \sin\frac{\phi+\phi'}{2} + F\,(\Delta\lambda'')^3$$

U. S. GOVERNMENT PRINTING OFFICE 11—12148

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 744 a
June 1938

(3) T5205

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

(CALCULATING MACHINE COMPUTATION)

State Fla Zone East Station 29 48 / 81 31 ° ' "

λ (Central meridian) _____

° ' "

φ _____ λ _____

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) ′ _____

Δλ (Central meridian − λ) _____

Δλ (in sec.) −1860"

		$\left(\frac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
Cor. for second dif.	+ .60	Cor. for second dif.	+ 3
H	88.108474	V	1.061631
		Tabular difference of y for 1″ of φ	
a	− 0.732		
b	+ 8.743	y (for minutes of φ)	
		y (for seconds of φ)	
H ($\Delta\lambda''$)	163,881.76	Tabular y	1,987,115.67
ab	− 6.40	$V\left(\frac{\Delta\lambda''}{100}\right)^2$	367.28
x'	− 163,875.36		
	500,000.00	c	− .07
x	336,124.64	y	1,987,482.88
$\frac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\frac{\phi+\phi'}{2}$	
		$F\,(\Delta\lambda)^3$	
$\frac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	"
$\sin\frac{\phi+\phi'}{2}$		Δa	° ' "

$$x' = H\Delta\lambda + ab \qquad y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

$$x = x' + 500{,}000 \qquad \Delta a'' = \Delta\lambda'' \sin\frac{\phi+\phi'}{2} + F\,(\Delta\lambda'')^3$$

U. S. GOVERNMENT PRINTING OFFICE 11—12148

DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey
Form No. 744 a
June 1938

(4) T 5205

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

(CALCULATING MACHINE COMPUTATION)

State Fla. Zone East Station 29 45 / 81 33 / ° ' "

λ (Central meridian) _____

φ _____ λ _____

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) _____ ′ .

Δλ (Central meridian − λ) _____

Δλ (in sec.) −1980″

		$\left(\frac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
Cor. for second dif.	+ 93	Cor. for second dif.	+ 4
H	88.152262	V	1.060540
		Tabular difference of y for 1″ of ϕ	
a	− 0.734		
b	+ 9.090	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
$H(\Delta\lambda'')$	174,541.48	Tabular y	1,968,933.61
ab	− 6.67	$V\left(\frac{\Delta\lambda''}{100}\right)^2$	415.77
x'	174,534.81		
	500,000.00	c	− .08
x	325,465.19	y	1,969,349.30
$\frac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\frac{\phi+\phi'}{2}$	
		$F(\Delta\lambda)^3$	
$\frac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\frac{\phi+\phi'}{2}$		Δa	° ′ ″

$x' = H\Delta\lambda + ab$

$x = x' + 500{,}000$

$y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$

$\Delta a'' = \Delta\lambda'' \sin\frac{\phi+\phi'}{2} + F(\Delta\lambda'')^3$

U. S. GOVERNMENT PRINTING OFFICE 11—12148

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM NO. 744 a
June 1933

(5) T 5205

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

(CALCULATING MACHINE COMPUTATION)

State Fla. Zone East Station 29 45 / 81 29 ° ' "

λ (Central meridian) _____

° ' "

φ _____ λ _____

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) ′ _____ Δλ (Central meridian − λ) _____

Δλ (in sec.) −1740"

		$\left(\frac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
		Cor. for second dif.	+ 4
Cor. for second dif.	+ 93	V	1.060540
H	88.152262		
		Tabular difference of y for 1″ of φ	
a	− 0.734		
b	+ 8.359	y (for minutes of φ)	
		y (for seconds of φ)	
H ($\Delta\lambda''$)	153,384.94	Tabular y	1,968,933.61
ab	− 6.14	$V\left(\frac{\Delta\lambda''}{100}\right)^2$	321.09
x'	153,378.80		
	500,000.00	c	− .06
x	346,621.20	y	1,969,254.64
$\frac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\frac{\phi+\phi'}{2}$	
		$F\,(\Delta\lambda)^3$	
$\frac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	"
$\sin\frac{\phi+\phi'}{2}$		Δa	° ' "

$x' = H\Delta\lambda + ab$

$x = x' + 500{,}000$

$y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$

$\Delta a'' = \Delta\lambda'' \sin\frac{\phi+\phi'}{2} + F\,(\Delta\lambda'')^3$

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
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PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

(CALCULATING MACHINE COMPUTATION)

State Fla. Zone East Station John 1935

λ (Central meridian) 81° 00' "

φ 29° 49' 33.100 λ 81 33 16.937

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) 9'.551667 Δλ (Central meridian − λ)

Δλ (in sec.) − 1996".937

		$\left(\frac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
Cor. for second dif.	+ 14	Cor. for second dif.	+ 1
H	88.085797	V	1.062195
		Tabular difference of y for 1″ of ϕ	
a	− 0.730		
b	+ 9.137	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
$H\ (\Delta\lambda'')$	175,901.79	Tabular y	1,996,519.90
ab	− 667	$V\left(\frac{\Delta\lambda''}{100}\right)^2$	42358
x'	− 175,895.12		
	500,000.00	c	− .08
x	324,104.88	y	1,996,943.40
$\frac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\frac{\phi+\phi'}{2}$	
		$F\ (\Delta\lambda)^3$	
$\frac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta\alpha''$	"
$\sin\frac{\phi+\phi'}{2}$		$\Delta\alpha$	° ′ ″

$$x' = H\Delta\lambda + ab \qquad y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

$$x = x' + 500{,}000 \qquad \Delta\alpha'' = \Delta\lambda'' \sin\frac{\phi+\phi'}{2} + F\ (\Delta\lambda'')^3$$

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 744 a
June 1938

T 5205

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

State Fla. Zone East Station Federal, 1935

λ (Central meridian) 81° 00′ ″

φ 29° 44′ 51.634 λ 81 32 52.536

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) 4′.8605667 Δλ (Central meridian − λ) 32

Δλ (in sec.) −1972.536

		$\left(\frac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
Cor. for second dif.	+ 93	Cor. for second dif.	+ 4
H	88.296077 → 154295	V	1.060489
		Tabular difference of y for 1″ of φ	
a	− 0.735		
b	+ 9.069	y (for minutes of φ)	
	3,887.52	y (for seconds of φ)	
H ($\Delta\lambda''$)	174,167.19	Tabular y	1,968,088.55
ab	− 6.67	$V\left(\frac{\Delta\lambda''}{100}\right)^2$	412.63
x'	−174160.52 → −173880.85		
	500,000.00	c	− .08
x	? → 326,119.15	y	1,968,501.10
$\frac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\frac{\phi+\phi'}{2}$	
		$F\,(\Delta\lambda)^3$	
$\frac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\frac{\phi+\phi'}{2}$		Δa	° ′ ″

33.78

$x' = H\Delta\lambda + ab$

$x = x' + 500{,}000$

$y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$

$\Delta a'' = \Delta\lambda'' \sin\frac{\phi+\phi'}{2} + F\,(\Delta\lambda'')^3$

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