

N-1-35

**THE BANDLESS FILING ENVELOPE**  
(EXCLUSIVE PATENTS)



MANUFACTURED BY  
THE SMEAD MANUFACTURING COMPANY  
HASTINGS, MINNESOTA, U. S. A.



No. 8

~~IN OLD LARGE METAL CABINET~~

~~NO. 35~~

Letters to and from W. J. Powell (Major)  
Re Surveys of Texas and Pacific Ry. Lands  
West of the Pecos Blks 53-55  
Township 182 Map within

N-1-35

copy 2249

March 12 46

Mr Paul McCoy

Asst. Dir. U.S. Geol. Surv.

Austin



Sir

In reply to your letter of this date I will say that an examination of your recent work in determining the Southern Boundary of the G. P. Reserve West of the 103 Meridian, discloses the fact that grave errors were made in the original certifying of said Reserve and that most of the ~~ex-~~cesses are larger on the ground than called for in the field notes. The result of this excess made the Reserve, at some points from three to four miles wider than contemplated.

To reduce the excess and bring the Reserve within the eight miles defined by law, I propose, and the State Land Board ~~is~~ <sup>is</sup> willing to cut the excess in ~~land~~ <sup>land</sup> from ~~the~~

P. M. C.

2

South line of the Reserve and not disturb the lines and corners of Townships, Blocks and Sections as they were marked in the original Survey.

To do this will necessitate a careful measurement on the ground of the original work and a return of field notes giving the exact length of the lines between old corners where they can be found. Patents will then issue for what may be found in each original Survey, whether the quantity be 640 acres or as in some cases 768 acres. The Certificates which are on Surveys cut off, will be cancelled by applying portions of each to the excess over 640 in the patented Surveys.

Where corners were not made

P. M. C. 9

for the original surveys they should  
be made, now, conforming strictly  
to those heretofore made, and full  
description of each corner be  
given in the new field notes.

Should you at any time de-  
sire fuller instructions or any  
information from this office let  
me know

Yours Respectfully  
W. A. Washburn

March 12, 1884

Mr. Paul McCombs  
Agt. Ld. Dept. T. & P. Ry. Co.  
Austin, Texas

Dear Sir:

Replying to your letter of this date I will say that an examination of your recent work in determining the Southern Boundary of the T. P. Reserve West of the 101 Meridian, discloses the fact that grave errors were made in the original sectionizing of said Reserve and that most of the surveys are larger on the ground than called for in the field notes. The result of this excess made the Reserve, at some points from three to four miles wider than contemplated.

To reduce this excess and bring the Reserve exactly to eighty miles defined by law, I prefer, and the State Land Board concurs with me, to cut the excess in [back] from [the] south line of the Reserve and not disturb the lines and corners of Township, Blocks, and Surveys as they were marked in the original Survey.

To do this will necessitate a careful measurement on the ground of the original work and a return of field notes giving the exact length of the lines between old corners where they can be found. Patents will then issue for what may be found in each original survey, whether the quantity be 640 acres or as in some cases 713 acres. The certificates which are on surveys cut off, will be cancelled by applying portions of each to the excess over 640 acres in the patented surveys.

Where corners were not set for the original surveys they should be made, now, conforming strictly to those heretofore made, and full descriptions of said corners be given in the new field notes.

Should you at any time desire further instructions or any information from this office let me know.

Yours Respectively,

W. C. Walsh  
Commissioner

March 12, 1884

Mr. Paul McCombs  
Agt. Ld. Dept. T. & P. Ry. Co.  
Austin, Texas

Dear Sir:

Replying to your letter of this date I will say that an examination of your recent work in determining the Southern Boundary of the T. P. Reserve West of the 101 Meridian, discloses the fact that grave errors were made in the original sectionizing of said Reserve and that most of the surveys are larger on the ground than called for in the field notes. The result of this excess made the Reserve, at some points from three to four miles wider than contemplated.

To reduce this excess and bring the Reserve exactly to eighty miles defined by law, I prefer, and the State Land Board concurs with me, to cut the excess in [back] from [the] south line of the Reserve and not disturb the lines and corners of Township, Blocks, and Surveys as they were marked in the original Survey.

To do this will necessitate a careful measurement on the ground of the original work and a return of field notes giving the exact length of the lines between old corners where they can be found. Patents will then issue for what may be found in each original survey, whether the quantity be 640 acres or as in some cases 713 acres. The certificates which are on surveys cut off, will be cancelled by applying portions of each to the excess over 640 acres in the patented surveys.

Where corners were not set for the original surveys they should be made, now, conforming strictly to those heretofore made, and full descriptions of said corners be given in the new field notes.

Should you at any time desire further instructions or any information from this office let me know.

Yours Respectively,

W. C. Walsh  
Commissioner

ALPHONSE KLOH, DAVID RUMSEY AND HAROLD J. ABRAMS

PROPRIETORS OF THE LANDS FORMERLY BELONGING TO  
THE TEXAS & PACIFIC RAILWAY CO.

H. J. ABRAMS, GENERAL AGENT  
502 REPUBLIC BANK BUILDING  
DALLAS, TEXAS

P. B. BERT  
CHIEF CLERK  
NORTHROP & CARR  
FIELD REPRESENTATIVES

RAY MCDOWELL  
SPECIAL AGENT  
W. J. POWELL  
ENGINEER

May Third - 1930

Hon. J. H. Walker,  
Com'r. G. L. O.,  
Austin, Texas.

Dear Sir:

In accordance with the provisions of Senate Bill No.39 - 41st Legislature, 5th Called Session, and following Mr. Clark's examination of our records here yesterday, we are forwarding to you from our files the original records listed below.

It is understood that you will make photostatic copies of these records for file in the General Land Office and return the originals to our files as promptly as may be practicable.

The records forwarded are as follows - our file number being given for our convenience in returning the records to the files:

DRAWINGS:

- ✓ ① Mitchell County - H & T C Ry surveys Conflict - Paul McCombs, 28-39  
1884 - File B.
- (748?) ✓ ② Surveys of 16 mile Reservation East of Colorado River - File B.
- ✓ ③ Murray Harris Survey from S.E. corner New Mexico to south boundary 63-72  
T & P Reserve - File B.
- ✓ ④ Resurvey of center line Big Spring to Douro by Murray Harris, 1885-90-103  
File B.
- ✓ ⑤ Survey from South line New Mexico to South boundary T & P Reserve 2-16  
North of Ft. Davis by Murray Harris - File B.
- ✓ ⑥ Kuechler's work in El Paso, Presidio and Pecos Counties (negatives) 49A-62  
File B.
- ✓ ⑦ North half of T & P Reserve in Palo Pinto, Stephens and Shackelford 40-49  
Counties - File B.
- ✓ ⑧ South half of T & P Reserve in Palo Pinto, Stephens and Shackelford 17-27  
Counties - File B.
- ✓ ⑨ Meanders of Pecos River by Murray Harris, 1884 - File C. 1
- ✓ 10. Boundary of Texas and New Mexico by Murray Harris, 1884- File C.

J.H.Walker #2.

- ✓ 11. ✓ Rio Grande Surveys by Murray Harris, 1884 - Blocks 1, 2, 3, 4, 5, 6, 7 and 8, 3 tracings, - File A.
- ✓ 12. ✓ Dawson County - File A - Map of Resurvey, Blocks 34 and 35, Tsp. 5-North - Murray Harris, 1915 - 2 tracings.
- ✓ 13. ✓ Dawson County - File A - T & P Blocks 33, 34, 35, Tsp. 2, 3, 4 and 5, correct and incorrect lines by Champlin and Peck, 1875-76
- ✓ 14. ✓ El Paso County - File A - Block 78, Tsp. 4 - Eubank survey near San Elizario.
- ✓ 15. ✓ Glasscock County - File A-2 - Blocks 31, 32, 33 -Tsp. 3 & 4. Resurvey by Seay & McCombs, 1906.
- ✓ 16. ✓ Jeff Davis County - File A-2 - Blocks 55 to 62, Tsp. 10, South boundary 80 mile reserve, McCombs 1893.
- ✓ 17. ✓ Mitchell County, File A-2 - Block 28, Resurvey by Paul McCombs, 1905.
- ✓ 18. ✓ Reeves County - File A-12 - Application and sketch attached for patent of lands in Reeves County.
- ✓ 19. ✓ Reservation - File A-13 - 16 and 80 mile Reserve Fort Phantom Hill to Fort Bliss.
- ✓ 20. ✓ Reservation - File A-13 - Center line from 11 miles west of Angle to the Colorado River.
- ✓ 21. ✓ Sterling County - File A-2 - Conflict with H & T C Blocks Nos. 21 and 22.
- ✓ 22. ✓ Reeves Co - File A - 2 - Blocks 48 to 52 - 1886.

84-88

75-83

✓ 17A ✓ Jeff Davis & Precious Bkks 1+2 T&P.P.C. -

73-74

23 ✓ El Paso - blocks - 59 to 65 - Tsp. 1+2 -

24 ✓ Nolan & Mitchell Co. Bkks. 23 to 25 -

25 ✓ Mitchell Co. Bkks 26 and 27

26 ✓ Reeves & El Paso Blocks 57 + 58



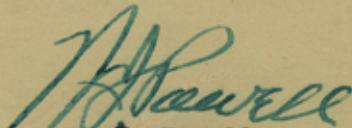
J.K.Walker No.3.

FIELD BOOK NUMBERS:

1 ✓	21 ✓	41 ✓	81 ✓	101 ✓	121 ✓	I ✓
2 ✓			82 ✓	102 ✓	122 ✓	II ✓
2a ✓	23 ✓	43 ✓	83 ✓	103 ✓	123 ✓	III ✓
3 ✓	24 ✓		84 ✓	104 ✓	124 ✓	IV ✓
4 ✓	25 ✓		85 ✓		125 ✓	V ✓
5 ✓	26 ✓		86 ✓	106 ✓	126 ✓	VI ✓
6 ✓	27 ✓		87 ✓	107 ✓	127 ✓	VII ✓
7 ✓			88 ✓	108 ✓	128 ✓	VIII ✓
8-A ✓	29 ✓	48 ✓	89 ✓	109 ✓	129 ✓	IX ✓
9 ✓	30 ✓	49 ✓	90 ✓	110 ✓	130 ✓	X ✓
10 ✓	31 ✓	50 ✓	91 ✓	111 ✓	131 ✓	XI ✓
10-a ✓	32 ✓	52 ✓	92 ✓	112 ✓	132 ✓	XII ✓
11 ✓	33 ✓		93 ✓	113 ✓	133 ✓	XIII ✓
12 ✓	34 ✓	54 ✓	94 ✓	114 ✓	134 ✓	XIV ✓
13 ✓	35 ✓	55 ✓	95 ✓	115 ✓		XV ✓
14 ✓	36 ✓		96 ✓	116 ✓		XVI ✓
15 ✓	37 ✓		97 ✓	116-a ✓		XVII ✓
16 ✓	38 ✓		98 ✓	117 ✓		XVIII ✓
16-b ✓			99 ✓	118 ✓		XIX ✓
16-e ✓		60 ✓	100 ✓	119 ✓		XX ✓
17 ✓				120 ✓		XXI ✓
18 ✓						XXII ✓
						XXIII ✓
20 ✓						XXIV ✓

Books corresponding to the omitted numbers above are missing from our files.

Very truly yours.

  
W. J. Powell  
Consulting Engineer.

WJP-h

Also copy of Williams & McCombs field notes in Reeves County which need not be returned.

CC- Mr. Edward Crane,  
Santa Fe Bldg.,  
Dallas, Texas.

*all the foregoing copies  
this day received 5/6/30  
J.K. Walker Com*

12  
number 60882

C O P Y

Dallas, Texas, 16 May 1910.

Mr. W. H. Abrams,  
General Agent.

Dear Sir:

In compliance with your instructions, I went to Pecos and secured a Surveyor, Geo. F. Williams and two chainmen, and went up to the New Mexico line. Williams bought tickets for himself and one man and I bought the other two. We went as far as Orla, and there secured wagon transportation to Mont Clair, where we stopped until the survey was finished. It was impossible to secure sufficient hands to conduct the survey properly, so I had to work short handed. I Paid all the expenses except Williams salary and the two R.R.fares he paid, and for which he submitted an account and I approved.

I attach herewith the Williams Field Notes and the map I compiled from same.

Respectfully.

(Signed ) Paul McCombs.

Blocks 57 & 58 Township 1  
T & P Ry Surveys  
Reeves and El Paso Cos. Texas.

C O P Y

Pecos, Texas

May 14th A.D. 1910.

Judge W. H. Abrams,  
Dallas Texas.

Dear Sir:

Following is my report of surveying done May 10th to 13th inclusive, under the superintendency of Mr. Paul McCombs, T & P Ry Co lands Blks. Nos. 57-58, Township No.1.

Begin May 11th A.D.1910, at U.S.Govt. Mound on line of Texas and New Mexico (Vernier 11 45 E) Gaudaloupe Peak brs S 81 3/4 W, Gap in hills brs. S 86 3/4 E, <sup>Tower</sup> at Mt.Clair brs. S 4 1/2 E. Boulder on side of hill brs. S 52 E.

Thence west 263 ft center of Ry. 2223 ft to stone Md. by Keuchler N W 6- N E 1, blocks 57 & 58 (fell 15 ft.south = 25') Set over mound Gaudaloup pk South 82 W. Tower at Mt.Clair S 13 1/2 E. H. B. Scott house N 18 W-J.P.Scott house N 34 W. W.R.Jackson house N 23 1/2 W. Continue west 1883 ft to 8 ft. S of U S md. (mk T on South side -N.Mcc, Northside - on E edge ) 2875 ft. to 47 ft south of rk md. 5433 ft to 16 ft north of Keuchler md. rk.NW1-NE 2 Tower at Mt.C. S 31 1/2 E. Continue W. 5358 ft F.K. Md. NW 2 - NE 3, Tower at Mt.C. brs. S. 44 3/4 E.

Afternoon began at U.S.Md. 263 East of Ry. Thence E 3117 ft to 37 ft. N of Keuchler <sup>md</sup>/rk NE 6, NW 5 blk. No.57, Mesq. 2" brs N 41 E 32 ft. Mesq 1 in. N 54 W 33 ft. House N 56 W. Continue E 3113 ft. to U.S. Md. on W bank Pecos River mkd. N M Apr. 1859 - T (fell 7 ft. south)

Return to Common Cor. Nos. 5 & 6 (Vernier 11° 30' E) Run South 2225 ft edge of Canyon, 100 ft across, 5275 ft. fell 21 ft E of rk md S.W. 5 - N.E. 7 - Ezell's house in Canyon N 16 1/2 W. Jackson V. Scott houses N 41 W. Tower at Mt.C. S 12 1/2 W. Continue S 5280 ft. sta.rk md. Tower at Mt.C. S 29 W. Gap in hills S.88.3° W. Mt. S. 57° W S.E.Cor 7- N W 17. Continue South 5280. Sta. & Md. SW 17 - N E 19 - Tower at Mt.C. N 48 1/2 W Proctor's house N 54 1/2 W. Thence West 1233 ft to Ry center. Quit for night.

(Signed) Geo. F. Williams, Surveyor, Private.

Lt  
Conto 60884

C O P Y

Second Days Surveying

Pecos, Texas.

May 12-

(Vernier  $11^{\circ} 30' E$ )

Begin at NE Cor. 19 SW 17 Run South 3400 ft center Ry. 5280 ft Sta and Earth Md SE 19 - NW 29 tower at Mt.C. N  $15\frac{1}{4} W$   
Thence East 689 ft center Ry. 5280 ft. SW 21 - NE 29 - Tower at Mt.C. bra N 46 W. - Thence E 5280 ft Sta Md NW 27 - SE 21 Thorn bush N 18 W, thorn bush on hill S 10 E, pt of bluff N  $80\frac{1}{2} E$ , Sand spot on river N  $75\frac{1}{2} E$ . Thence South 5280 ft crossing hill and valley. Sta. Rk Md. SW 27- NE 33 - twin bushes on cone hill N  $51\frac{1}{2} E$ , Mesq. 1 in. S 34 W 28 ft. Thorn bush S  $42\frac{1}{2} W$ .  
Continue South 5280 ft sta. RK Md. N.W.39 - S.E.33. Thorn bush on hill N 75 W - Thorn bush N  $76\frac{1}{2} W$ . Tower at Mt.C. N. 35 W.  
Thence turn west 3677 ft. take dinner, center Ry. course S  $30\frac{1}{2} E$  5280 ft sta md S.W.33 - N.E. 41, Tower at Mt.C. N. 22 W bush on hill N  $39\frac{1}{2} W$ , bush on hill N 80 W.  
Continue West 829 ft rk md on hill Jagger on side of hill N  $-39\frac{3}{4} W$  - bush on hill N  $18\frac{1}{4} W$  - 5280 ft. sta. rk md. NW 41 - SE 31 tower at Mt.C. N 6 W bush on small hill S  $27\frac{1}{2} W$  - bush on point small hill N  $13\frac{1}{2} W$ .  
Continue west 5280 ft sta. Md. NE 37 B 58 - S.W. 31. B 57 - com+ south 85 W - Gap S  $81-\frac{3}{4} W$  - Cone N 50 W  
Continue west 5280 ft. sta. md. RK. N.W. 37- S.E.35 - Gap Mt.S 80 W. Cone S 84 W. Thence North 5280 ftSta. & R.K.Md., N.E. 35 - S.W. 25 Mesq. 3" N  $35\frac{1}{2} E$  134 ft. Mesq. 3" S 36 W 28 ft. bush on top of hill N  $6\frac{1}{2} E$ .  
Continue N 5280 ft. sta Md. N.W. 25 - S.E. 23 - Rk Md cone hill S 21 E, bush on same hill cone S 20 E. boulder on side of hill S 34 W. Thence East 5280 ft. sta. & Md. no bearings - Stop for night.

(Signed) Geo. F. Williams, Private Surveyor.

25

C O P Y

Third day's Surveying

Pecos, Texas.

May 13th A.D. 1910,

(Vernier 11° 30' E)

Begin at N.W. 17 - S.E.7 - Thence West to Ry. center 3136 ft. Co.  
S.19 E. 5339 ft. sta. rk. md. S.W. 7 B 57 - N.E. B 58. Tower at  
Mt. Clare - S 43½ E. Jackson's house, N 4 W - Proctor house S.3 9 E.  
Continue west 5433 ft. SE 11 - NW 13. no bearings.  
Continue west 5358 ft. Sta.rk md. Sw 11 - NE 15- no bearings.  
Continue west 5335 ft. sta.rk. md. S.E.9 - N.W. 15 - no bearings.  
Continue west 5370 ft. sta. rk.Md. S.W.9 - NE 17 - No bearings.

Stop for the noon - return to Pecos 11 o'clock P.M.

I, Geo. F. Williams, surveyor, do hereby certify that the forgoing  
report is true and correct in every detail.

Geo. F. Williams, Private,  
Surveyor.

(Paul McCombs )  
General Superintendent )  
and flagman )

(John Cousin, Chairman  
( Neely Carrier

W. J. POWELL  
MEM. AM. SOC. C. E.  
CONSULTING CIVIL ENGINEER  
DALLAS

14

1932

515 REPUBLIC BANK BUILDING

May Twenty-first  
1930

Hon. J. H. Walker,  
Com'r. General Land Office,  
Austin, Texas.

Dear Sir:

Receipt is acknowledged of the following records of those previously furnished to your office for copy and file. The numbers in the list below are the corresponding numbers in the list of records sent you contained in my letter of May 3.

- No.10 - Boundary of Texas and New Mexico by Murray Harris.
- No.11 - Rio Grande Surveys by Murray Harris.
- No.12 - Dawson County Resurvey - Blocks 34 and 35 - two tracings.
- No.14 - El Paso County Eubank Survey.
- No.15 - Glasscock Co., Blocks Nos.31,32,33 - Tsp. 3 & 4.
- No.16 - Jeff Davis County, Blocks Nos. 55 to 62, Tsp. 10.
- No.17 - Mitchell County, Block 28.
- No.19 - Reservation - Fort Phantom Hill to Fort Bliss.
- No.20 - Reservation - Center Line angle to Colorado River.
- No.21 - Sterling County conflict with H & T C Blks. 21 and 22.

Very truly yours.

W. J. Powell  
Consulting Engineer.

WJP-h

RECEIVED

MAY 22 1930

REFERRED TO L&F

ALPHONSE KLOH, DAVID RUMSEY AND HAROLD J. ABRAMS

PROPRIETORS OF THE LANDS FORMERLY BELONGING TO  
THE TEXAS & PACIFIC RAILWAY CO.

P. B. BERT  
CHIEF CLERK  
NORTHRUP & CARR  
FIELD REPRESENTATIVES

H. J. ABRAMS, GENERAL AGENT  
502 REPUBLIC BANK BUILDING  
DALLAS, TEXAS

RAY McDOWELL  
SPECIAL AGENT  
W. J. POWELL  
ENGINEER

2400

August Fourteenth

1930

RECEIVED

2

AUG 15 1930

REFERRED TO FILE

*For reply, see  
Letter Book 1780  
133*

Hon. J. H. Walker,  
Com'r. G. L. O.,  
Austin, Texas.

Dear Sir:

Referring to various conversations in your office in regard to the extensive surveys of The Texas and Pacific Ry. lands in Loving County and West of the Pecos River, it is my recollection that the following understanding as to the construction based on our surveys has been reached as between your office, Mr. Paul McCombs and myself.

1. In Loving County and Reeves County, in that portion of the lands patented on Champlin's and Peck's field notes, the northern line of these surveys will coincide with the monumented State line as established by the United States Government. The block and section corners on the State line will be established from Champlin's call for crossing the Pecos River, allowing 1900 varas per mile. From the block corners so established, meridians will be run south to the south line of Township 2, in Blocks 54 to 57 inclusive. The north-east corner of Section 1, Block 56, Township 3 will tie to the southeast corner of Section 45, Block 56, Township 2, from which point the north-east corner of Section 10, Block 56, Township 3 will be established at 1900 varas per mile. At the latter point, a new meridian will be established and run south to the south-west corner of Block 55, Tsp. 5 to serve as a base line for construction of Blocks 53, 54 and 55 in Townships 4 and 5.
2. West of Block 57, Jacob Kuechler's lines will be retraced and the construction will be hung on Kuechler's corners wherever such corners can be found and identified. Where two or more such corners are found on a line, they will establish that line between them. Where only one corner was originally set on a north and south line, that line will be established by passing through it a true meridian.

It is my further understanding that when these surveys or portions thereof have been completed and mapped, and when

Hon. J.H.Walker #2

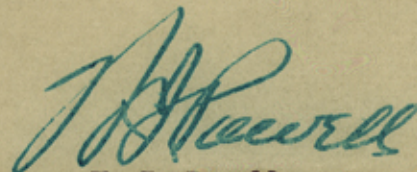
the General Land Office is assured of the correctness of such surveys, the General Land Office will approve and recognize our surveys, and upon submission by us of corrected field notes and surrender of the old patents, the General Land Office will issue new patents on such corrected field notes.

All of the above is written as a memorandum of our various conversations for the purpose of confirmation and record as between ourselves.

I will appreciate it if you will write me, either confirming the above memorandum or else making such corrections as you deem necessary.

Thanking you for the many courtesies extended to Mr. McCombs and myself in securing basic information for these surveys, I am

Very truly yours.



W. J. Powell  
Consulting Engineer.

WJP-h



ALPHONSE KLOH, DAVID RUMSEY AND HAROLD J. ABRAMS

PROPRIETORS OF THE LANDS FORMERLY BELONGING TO  
THE TEXAS & PACIFIC RAILWAY CO.

2193

P. B. BERT  
CHIEF CLERK  
NORTHRUP & CARR  
FIELD REPRESENTATIVES

H. J. ABRAMS, GENERAL AGENT  
502 REPUBLIC BANK BUILDING  
DALLAS, TEXAS

RAY MCDOWELL  
SPECIAL AGENT  
W. J. POWELL  
ENGINEER

June Twenty-first

1930

(1)

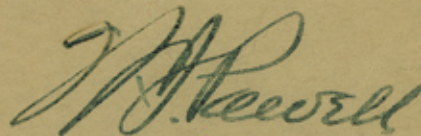
Hon. J. H. Walker,  
Com'r. G. L. O.,  
Austin Texas.

Dear Mr. Walker:

I am sending you herewith a copy of the specifications under which I am proposing to make surveys of Texas and Pacific Ry. lands West of the Pecos River. Any criticism or suggestions that you may be able to offer in connection with these specifications or the methods of doing the work will be greatly appreciated.

You will note that the main idea is to retrace the lines run by Jacob Kuechler and Paul McCombs, and definitely and accurately establish the location on the ground of the points set by them; thereby establishing a base net of lines of primary traverse from which later surveys may be run.

Very truly yours.



W. J. Powell  
Consulting Engineer.

WJP-h

RECEIVED

JUN 23 1930

REFERRED TO FILE

*SPECIFICATIONS ° FOR ° RESURVEYS*

*FOR*

*TEXAS & PACIFIC  
RAILWAY ° LANDS*

*WEST ° OF ° PECOS ° RIVER*

**W. J. POWELL**  
CONSULTING CIVIL ENGINEER  
REPUBLIC BANK BUILDING  
DALLAS, TEXAS

PARTY ORGANIZATION

W. J. Powell	Principal Surveyor
Paul McCombs	Special Surveyor and Consultant on Old Land Lines
H. L. George	Chief of Party

Primary Traverse Party

H. L. George	Instrument
R. A. Lindemann, Jr.	Head Chainsman
Jim Jones	Rear Chainsman
Weldon Carter	Front Flagman
R. W. Smith	Stake Carrier & Driver
	Axemen

Plane Table

W. L. Powell	Plane table & Computations
Glenn Bert	Rodman

Triangulation

W. W. Browning	Triangulation Signals, Computations & Monuments
	Helper
	Helper
	Cook
	Camp Man

SPECIFICATIONS FOR RESURVEYS  
OF  
TEXAS AND PACIFIC RAILWAY LANDS  
WEST OF PECOS RIVER

---

1.

SCOPE OF WORK

- a. RETRACING KUECHLER LINES
- b. RETRACING MCCOMBS LINES
- c. TRIANGULATION
- d. EXTENSION SURVEYS - Consisting of running out Block and Section Lines not previously marked.
- e. SPECIAL SURVEYS
  - 1. LOCATION OF MINING CLAIMS IN THE BLACK SHAFT DISTRICT
  - 2. TOPOGRAPHY OF SECTION 23, BLOCK 51, TSP. 8
  - 3. TOPOGRAPHY ALONG PECOS RIVER IN RED BLUFF PROJECT
  - 4. OTHER SPECIAL SURVEYS AS THEY MAY BE REQUIRED
- f. MARKING CORNERS

2.

GENERAL PROCEDURE

The first work undertaken will be the retracing of the Kuechler and McCombs lines, which will be run as indicated on the general map. While these lines are being run, as many as possible of the U.S. triangulation stations will be located and marked with suitable tripods and flags. As the old survey lines are run, sufficient secondary triangulation points will be selected and tied in to the survey to enable a check of the entire line to be made by triangulation from the U.S. established points. After this check has been made and the positions of the various points have been computed and adjusted, the corners will be monumented as hereinafter specified.

At each old corner found and definitely identified as an original corner set by either Kuechler or McCombs, the following photographs will be taken:

1. A close up of the corner as found, showing as clearly as possible the evidence of identification.
2. A view of Paul McCasbs standing at the corner.
3. One or more views showing the more prominent witness bearings. In each such view a range pole shall be held one or two hundred feet from the corner in such manner that it will indicate the exact point observed in the witness bearing (this applies to mountain bearings only). A careful record shall be kept of all photographs so that they may be properly marked and permanently filed.

The completion of the above described work will effect a base net of primary traverse, with points accurately located from which the more detailed block and special surveys can be run. These detailed surveys will be handled by a permanent survey party to be organized after the retracement work is well under way.

3.

DETAILED SPECIFICATIONS

A - PRIMARY TRAVERSE

a - TRANSIT WORK ON LINE.

AZIMUTH - All lines will be run by azimuth, measuring azimuth from the south. The initial azimuth will be taken between two U. S. triangulation stations and azimuths will be carried forward to a tie on another triangulation station. In the notes both the back azimuth and the forward azimuth will be written.

FORESIGHTS and BACKSIGHTS - Foresights and backsights will be used in running all lines, and in no case will the needle be used except as a check. The needle bearing, however, will be noted for every azimuth and every witness bearing. In running the lines butterflies may be used where practicable for back sights. Foresights shall be established by sending forward a flagman to set a point as far ahead as possible, the flagman to remain in place until the transit is brought up. The lines shall be run between tack points in the hubs and on every hub on which azimuth is read the tack point shall be set by double centering. Whenever such double centering indicates an appreciable error, the transit shall be adjusted forthwith.

WITNESS BEARINGS - At every corner and every point on the line occupied by the transit, careful witness bearings, together with exact

azimuths will be required. Such bearings shall be taken to all objects in sight which can possibly serve as aids in reestablishing the point, particularly shall such bearings be taken to mountain peaks and other prominent features of the landscape, windmills, houses or other structures and nearby trees, if any. Witness trees shall be properly blazed and the distances to them measured and noted.

**LINING CHAIN** - The transitman will line in the front chainman at each chain length and the setting of a chain point without line from the instrument will not be permitted. To accomplish this it will be necessary to set intermediate hubs and follow the chaining closely with the transit. Azimuths, however, will be read only between main hubs as set by the forward flagman as described above.

**TRANSIT NOTES** - The transit man will keep a full set of notes which shall be so clear that the notes may be sent into the office and plotted without any question as to their interpretation. All notes will be taken in the loose leaf field books provided for the purpose.

#### CHAINING

**CHAINS** - The chains to be used shall be 50 vara steel tapes. At least one spare tape shall be carried with the party at all times. A standardized 100 foot steel tape shall be kept at headquarters and the tapes used in the field shall be frequently compared with the standardized tape. The standardized tape shall be used for no other purpose whatsoever.

**BUSHING LINES** - All lines will be brushed where necessary in such manner that the chain may be kept perfectly straight and be in clear sight of the instrument at all times. Brush cut will not be left lying in the path of the chain, but must be thrown to one side clear of same.

**CHAINING** - No matter how carefully the instrument work is done or what precautions are taken to secure accuracy, the value of the whole work falls if the chaining is not correct - therefore, extra precaution will be taken to see that no pins are lost, no chains dropped and that the chain is tight, straight and as nearly level as possible at each measurement. Each chainman shall carry a plum bob and shall be required to use it on slopes, breaking the chain where necessary to keep it level. The transitman shall exercise constant supervision over the chain, and shall keep track of the chain lengths as the pins are set.

**PEG NOTES** - Each chainman shall keep a set of peg notes in which shall be entered the date, the name of the chainman and the name of the line being run, and the plus to every hub and every plus made. At every hub the transitman shall require the chainman to compare their peg notes with each other and with his notes in order that no discrepancies may occur.

The peg notes will be filed as a permanent record along with the transit notes, and must be clearly and neatly made. Crowding of notes will not be permitted.

**PLUSSES** - Pluses will be taken on line to all objects enumerated in sub-paragraphs 4, 5 and 6 of Appendix 1 to these specifications, and to any other objects that may be of interest. At each such plus a stake shall be driven on which shall be marked the plus as read and all such pluses shall be entered in the peg notes. The plus stakes called for herein are for the benefit of the plane table party in making the field sketches.

**STAKES** - Hub stakes shall be 2" X 2" X 6" and shall be driven flush with the ground and marked with a guard stake on one side of which shall be written the plus of the hub and on the other side the name of the corner if the hub is set at a corner. Guard stakes and plus stakes shall be 1" X 2" X 15" and shall be driven firmly in the ground. At the points where guard stakes are invisible for some distance along the line, line markers shall also be driven. Line markers and butterflies shall be building lathe firmly driven in the ground with the top wrapped with white cloth. Butterflies will be so driven that the top is exactly on line, and line markers will be set about one foot off line and driven at an angle.

c -

PLANE TABLE WORK ON LINE

**FIELD SKETCHES** - Field sketches will be made by a plane table party on standard sheets and on a scale of one inch equals 200 varas. The plane table party will follow the transit party as closely as possible, and will show on the field sketch all of the information called for in sub-paragraphs 1 to 17 inclusive of Appendix 1 to these specifications. At least once each day the transitman will see that the plane table operator gets on his field sketches all of the witness bearings taken by the transitman during the day. The plane table will occupy every hub, every section corner passed and every plus stake on line for the purpose of locating and sketching, in as much detail as practicable, the objects called for in Appendix 1.

**ELEVATIONS** - The plane table party will carry a surveying aneroid and will keep a record of elevations at each point occupied. It will also by means of vertical angles record the slopes of the land in the immediate vicinity of the point occupied and the height of nearby hills. The aneroid must be checked at a bench mark or other point of known elevation, whenever opportunity to do so occurs. Such readings will be recorded in the notes.

d. DIARY and LOG

**DIARY** - The diary shall contain a daily record of the work done and events of the day, together with remarks as to the weather conditions, and any other items of interest.

**LOG** - In the log shall be entered the time leaving and returning to camp or headquarters each day, remarks as to weather conditions, and principally, a detailed log of the road traversed, going out and coming in, together with a description of the line run during the day. The road log shall show the car mileage to prominent points along the road, turnouts, with the approximate direction, and any other information which will enable another car to follow the route traversed by the party.

**ROAD MARKS** - Turnouts and other places along the road where there might be doubt as to the course followed will be marked with strips of colored cloth tied in a bush or on a lathe. The color of the markers used shall be noted in the log.

B - TRIANGULATION

c- TRIANGULATION RECONNAISSANCE

The triangulation reconnaissance party will locate all of the U. S. triangulation stations, and will erect thereon small tripods. These tripods will normally be constructed with 2 X 4 timbers 12 feet long, and shall have a 2 X 4 flag pole set vertically and centered over the point.

b- OBSERVATION

Triangulation observation shall be done in substantial accordance with U.S.G.S. specifications for Third Order Triangulation, the essentials of which are quoted in Appendix 11

c- **SECONDARY TRAVERSE** - Secondary traverse will be used in running out block and section lines and on special surveys. Secondary traverse will begin on points established by primary traverse, and end either on another point so established or on the initial point of the secondary traverse. The normal secondary traverse will be the four sides of a block and no secondary traverse will be longer than the equivalent of the perimeter of two standard blocks without tying in on some point established by primary traverse.

Secondary traverse will be done in accordance with the same specifications as heretofore set out for primary traverse, except that the setting of points by forward flagman may be omitted. The secondary traverse must close within the limits of closure specified in Appendix 1.



4.

MARKING LINES AND CORNERS

The traverse having been run on the ground and adjusted, the corners will be monumented as described below.

The standard corner mark shall be built as nearly in accordance with the accompanying drawing as conditions will permit. The standard corner mark will be a brass cap cemented into a 2" iron pipe, the pipe being set in the ground and surrounded with concrete as shown on the drawing. The underground mark shown on the drawing will be used only at block corners which have been definitely identified as original corners, and the description of the mark made in the field will state whether or not an underground mark is used.

The brass caps of both underground and surface mark shall be plainly stamped with steel dies at the time set by plainly stamping thereon the numbers of the blocks, townships and sections pertaining to the corner.

The monuments will always be set the specified depth in the ground unless it is impossible to complete the excavation, in which case the monument will be planted as deep as conditions will permit, and the necessary support will be secured by a stone mound.

Where the corner point falls upon solid surface rock, preventing excavation, a hole will be chiseled in the rock and a standard brass cap marker will be cemented into same.

Wherever stone can be obtained within a reasonable haul, a large stone mound shall be built around the corner.

In the case of original corners identified as those set by Jacob Kuechler, the monument described herein shall be set as a witness corner, and the old original corner shall not be disturbed but shall be reinforced by placing around it a ring of the largest stone that can be obtained and handled, leaving the original mound in as nearly the condition found as practicable.

Where a corner falls within a roadway, a standard underground mark will be placed at the true corner and a witness corner will be established at some suitable point, preferably on a surveyed line outside of the roadway.

Where a corner falls upon insecure ground, or in an inaccessible place, a witness corner will be established at some suitable point, preferably on a surveyed line where the monument may be permanently constructed.

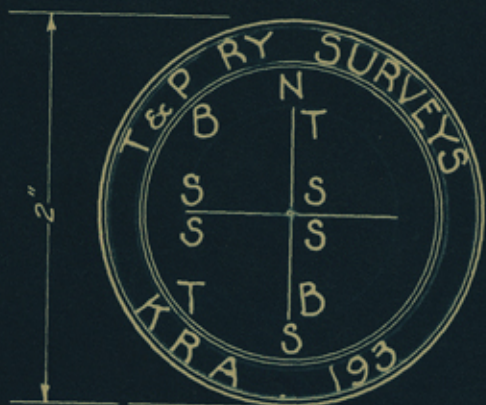
The surveyor will be expected to exercise his best judgment in selecting the position for a witness corner, with a view to affording a definite and

convenient connection from the witness corner to the true point for the monument, for use in subsequent surveys to recover the legal position of the true corner. Extra effort will be exerted to accomplish the permanent establishment of a monument at its true corner point, wherever this is feasible, in order to avoid as much as possible the confusion to settlers and others caused by witness corners.

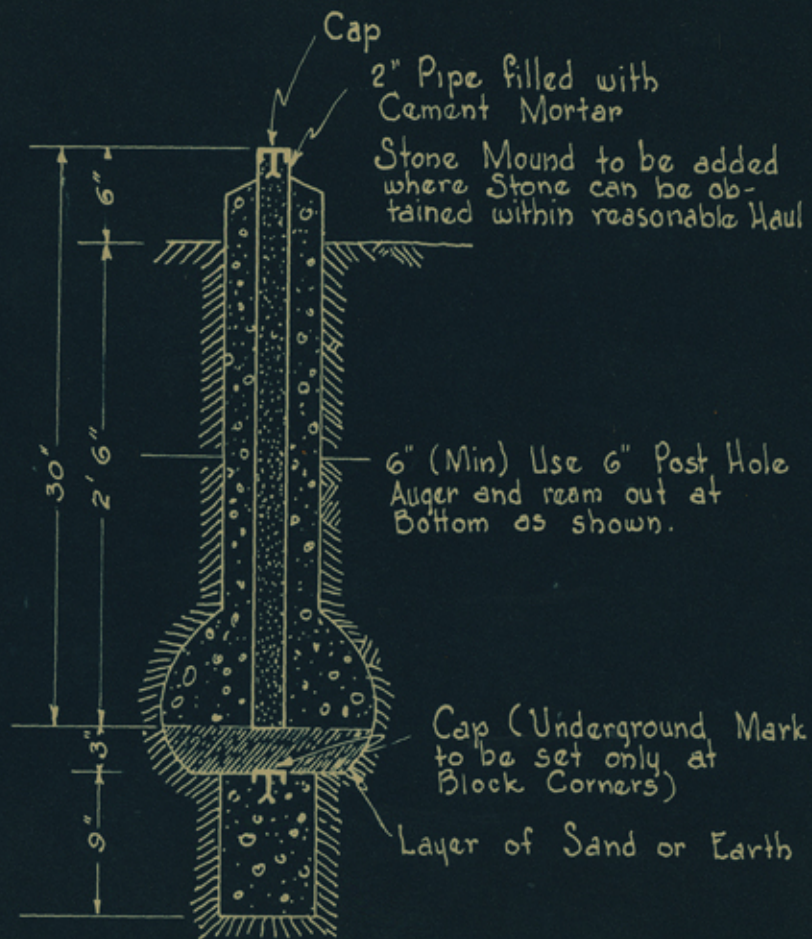
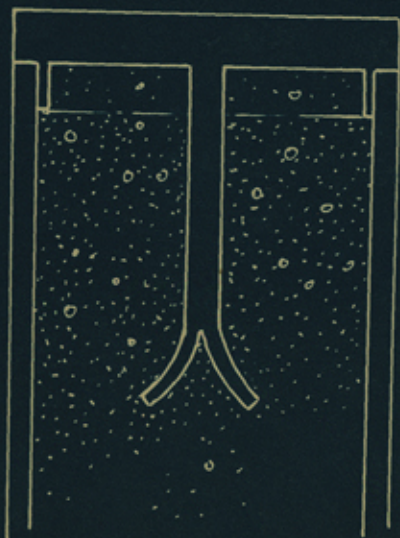
Only one witness corner will be established in each instance, and the same will be placed upon any one of the surveyed lines leading to a corner, if a suitable place, within a distance of 50 varas, is available, but if there is no secure place to be found on a surveyed line within the stated limiting distance, the witness corner may be located in any direction within a distance of 10 varas.

The field notes will show every detail of the relation of a witness corner to the true point for a monument, and the direct connecting course and distance will be shown upon the plat of the survey.

Plan of Cap



Cross-section



STANDARD CORNER MONUMENT  
FOR TEXAS & PACIFIC RAILWAY  
SURVEYS

## APPENDIX I

### SUMMARY OF OBJECTS TO BE NOTED, ALLOWSABLE ERROR, ETC.

The field notes and plat of a survey are designed to furnish not only a technical record of the procedure, but also of equal importance a report upon the character of the land, soil and timber traversed by the survey, and a detailed schedule of the topographical features along every line, with accurate connections showing the relation of the rectangular surveys to other surveys, to natural objects and to improvements. A triple purpose is thus served: (a) the technical procedure is made a matter of official record; (b) general information relating to a region is gathered; and (c) the "calls" of the field notes and the representations of the plat in respect to objects along the surveyed lines furnish important evidence by which the locus of the survey becomes practically unchangeable as contemplated by law.

The "error of closure" of a survey may be defined, in general terms, as the ratio of the length of the line representing the equivalent of the errors in latitude and departure (as found by a table of latitudes and departures) to the length of the perimeter of the figure constituting the survey; but, with due regard for the controlling coordinate governing lines of a rectangular survey, pronounced accuracy in latitude will not be permitted to offset gross error in departure, or vice versa, and, in order to be consistent with this fundamental theory, a double test must be applied in place of the one expressed in general terms. The "limit of closure" fixed for the T & P Railway Land surveys may be expressed by the fraction  $\frac{1}{777}$  provided that the limit

of closure in neither latitude nor departure exceeds  $\frac{1}{1100}$ , and where a survey qualifies under the latter limit the former is bound to be satisfied; thus an accumulative error of 2.00 varas per mile of perimeter, in either latitude or departure, will not be exceeded in an acceptable survey.

The latitudes and departures of a normal section shall each close within 8 varas of a normal block, within 56 varas. The boundaries of any irregular survey should close within a limit to be determined by the fraction  $\frac{1}{1100}$  when the error in either latitude or departure is considered separately.

Surveyors are required to compute all doubtful closings while in the field in the immediate vicinity of a particular line, or series of lines, in question, and to accomplish all necessary corrective work before concluding a survey.

The following technical and topographical features are to be carefully observed and recorded in the field during the progress of the surveys:-

1. The precise course and length of every line run, noting all necessary offsets therefrom, with the reason for making them, and method employed.
2. The kind and diameter of all bearing trees, with the course and distance of the same from their respective corners, and the markings; all bearing objects and marks thereon, if any; and the precise relative position of witness corners to the true corners.
3. The kind of material of which corners are constructed, their dimensions and markings, depth set in the ground, and their accessories.
4. Trees on line. The name, diameter and distance on line to all trees which it intersects, and their markings.

5. Intersections by line of land objects. The distance at which the line intersects every fence line, the boundary lines of every reservation, townsite, or private claim, noting the exact bearing of such fences and boundary lines, and the precise distance to the nearest boundary corner; if such corner is within one-half mile of the line, the center line of every railroad, canal, ditch, electric transmission line, or other right-of-way across the lands, noting the width of the right-of-way and the precise bearing of the center line; the change from one character of land to another, with the approximate bearing of the line of demarcation, and the estimated height in feet of the ascents and descents over the principal slopes, ~~typifying~~ the topography of the country traversed, with the direction of said slopes; the distance to and the direction of the principal ridges, spurs, divides, rim rock, precipitous cliffs, etc.; the distance to where the line enters or leaves heavy or scattering timber, with the approximate bearing of the margin of all heavy timber, and the distance to where the line enters or leaves dense undergrowth.

6. Intersections by line of water objects. All unmeandered rivers, creeks and smaller water-courses which the line crosses; the distance measured on the true line to the center of the same in the case of the smaller streams, and to both banks in the case of the larger streams, the course downstream at points of intersection, and their widths on line, if only the center is noted. All intermittent water-courses, such as ravines, gulches, arroyos, dry drains, etc.

7. The land's surface; whether level, rolling, broken, hilly or mountainous.

8. The soil; whether rocky, stony, gravelly, sandy loam, clay, etc., and condition of grass or crops. Note also any cattle or other stock seen grazing on the land.

9. Timber; the several kinds of timber and undergrowth, in the order in which they predominate.

10. Bottom lands to be described as upland or over-flowed, noting the extent and approximate position of the latter, and depth of overflow at seasonal periods.

11. Springs of water, whether fresh, saline, or mineral, with the course of the stream flowing therefrom. The location of all streams, springs, or water-holes, which because of their environment may be deemed to be of value in connection with the utilization of grazing lands, and which may be designated as watering places, will be specially noted.

12. Lakes and ponds, describing their banks, tributaries and outlet, and whether the water is pure or stagnant, deep or shallow.

13. Improvements; towns and villages; post offices; occupancy; houses or cabins, windmills, fields, or other improvements, with owners names; mineral claims; United States monuments, and all other monuments or marked corners will be located by azimuth and distance or by intersecting azimuths from given points.

14. All ore bodies, with particular description of the same as to quality and extent; all mining surface improvements and underground workings; and salt licks. All reliable information that can be obtained respecting these objects, whether they be on the line or not, will appear in the general description.

15. Roads and trails, with their directions, whence and whither.

16. Rapids, cataracts, cascades, or falls of water, in their approximate position and estimated height or their fall in feet.

17. Stone quarries and ledges of rock, with the kind of stone they afford.

18. Natural curiosities, petrifications, fossils, organic remains, etc.; also all archaeological remains, such as cliff dwellings, mounds, fortifications, or objects of like nature.

19. The general average of the magnetic declination in the block, with maximum known range of local attraction and other variations, will be stated in the general description, and the general average for the block, subject to local attraction, will be shown upon the plat.

APPENDIX II

FROM USGS MANUAL OF SECOND AND THIRD ORDER TRIANGULATION  
AND TRAVERSE.

Chapter 2. - Second and Third Order Triangulation.  
Specifications, Second-Order Triangulation.

The following specifications for angle measurements on second-order triangulation were approved by the Director of the Coast and Geodetic Survey on December 10, 1928, and supersede all previous instructions for work of this character. Specifications for third-order triangulation will be found on page 83.

**ACCURACY.** - Either a direction or a repeating instrument may be used in triangulation of this class, though the required results can usually be obtained more quickly and economically with a direction theodolite with micrometers. The immediate requirements which the angle measurements must meet are that the average closure of the triangles in the main scheme shall not exceed 3 seconds, that an effort be made to keep the average closure down to 2.5 seconds, and that the maximum closure shall but seldom exceed 6 seconds.

**OBSERVATIONS WITH REPEATING THEODOLITE.** - A set of observations should consist of six repetitions of the angle with the telescope in the direct (or reversed) position, followed immediately by six repetitions of the supplement of the angle with the telescope in the reversed (or direct) position. With the ordinary type of 7-inch repeating theodolite equipped with verniers reading to 10 seconds, the accuracy specified for second-order triangulation will usually be obtained by making from two or three sets of observations on each angle.

**CIRCLE SETTINGS.** - When two or more sets of observations with either a direction or a repeating theodolite are made on the same angle the initial setting for each set should differ by an amount depending upon the number of positions to be observed and the number of verniers or micrometers on the theodolite. The interval in degree between successive settings with a 2 micrometer or a 2-vernier theodolite is given by a formula  $I = \frac{360}{m \cdot n}$  deg. where I is the interval in degrees, m the number of verniers or micrometers, and n the number of positions or sets. In addition an increment represented by the value of one division of the circle divided by the number of sets to be observed should be added to the difference in degrees between settings in order to eliminate the error of graduation of the verniers or the run of the micrometers. For instance, with a circle graduated to 10 minutes and with two sets observed on an angle, the setting would be 0 deg. 00' 00" and 90 deg. 05' 00".

**PROGRAM OF OBSERVING.** - With a repeating theodolite, measure only the single angles between adjacent lines of the main scheme, including the angle necessary to close the horizon. In the comparatively rare cases in which the failure of adjacent signals to show at the same time prevent carrying out this program make as near an approach to it as possible and then take the remaining signals in another series together with some one, and only one, of the signals observed in the first series and measure in the new series only the angles between the signals which have not been observed upon and the angle necessary to close the horizon. In other words, the measurement of an angle which is the sum of two or more observed angles should be avoided. With this scheme of observing no local adjustment is necessary, except to distribute each horizon closure uniformly among the angles measured in that series.

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**INCOMPLETE SERIES, DIRECTION THEODOLITE . -** It frequently happens that one or more signals are not visible during all or a part of the time that observations are being made upon the other stations. Little time should be spent in waiting for a signal or a light to show. The positions missing from the first series can be observed later, using the same initial as was used during the first series, or some other main-scheme station observed upon during that series. Not more than two initials should be used at any one station. With this system of observing, no local adjustment is necessary aside from that arising from observing back upon the initial at the middle of each position and using the mean of all readings upon the initial. (See fig. 54, p. 86).

**OBSERVATIONS ON INTERSECTION STATIONS. -** An intersection station is one which is not occupied, the position of which is determined by observations upon it from stations of the main scheme or from supplementary stations. It may be a signal over a marked point or it may be a well-defined natural or artificial object, such as a tank, church spire, or sharp mountain peak. In these specifications the term "intersection station" is used in a restricted sense to mean a station located by intersections with fewer observations than are specified for second-order triangulation. A line to such a station must not be used as a base from which to start second-order triangulation.

The direction method of observation should be used in observation upon intersection stations even if the theodolite is a repeater. Each series of observations on intersection station should contain some one line, and only one, of the main scheme. Two positions should be observed upon each intersection station with a vernier instrument or with a direction instrument reading to two seconds. One position is adequate with a direction instrument reading to one second, but in this case a second round of pointings should be made with the telescope either direct or reversed in order to provide a check on the readings of degrees and minutes on the on the first position. It is advisable to observe upon each intersection station from at least three stations in order to obtain a check upon the position, and the directions from at least two of the stations should, if practicable, form a good angle of intersection at the object to be located. A possible intersection station should not be disregarded if only two directions to it can be secured. Even one direction may sometimes be of value when used with another direction to the same object taken during a different season's work.

**VALUE OF INTERSECTION STATIONS. -** In selecting intersection stations it should be kept in mind that the geographic value of triangulation depends upon the number of points determined, the size of the area over which they are distributed, and the permanence with which they are marked. The geographic value of a triangulation is lost for a given area when stations can not be recovered within that area. The chance of permanency is made greater by increasing the number of stations as well as by thorough marking. For the reasons stated there should be determined as intersection stations many artificial objects of a permanent character, such as lighthouses, church spires, cupolas, towers, chimneys, and standpipes. Make the description definite whenever practicable. Instead of describing the object as "church spire" with the name of the town, make its identity certain by giving street location and denomination of church.

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TRIGONOMETRIC LEVELING. - No measurements of vertical angles for the determination of the elevation of stations need be made on second or third order triangulation unless specifically provided for in the instructions for a particular project. When such observations are authorized a sufficient number of lines should be observed over in both directions to provide a check value of the elevation of each station. Nonreciprocal observations of vertical angles are of little value in carrying elevations through a scheme of triangulation but are necessarily used in determining the elevations of intersection stations. Vertical angles should always be measured on prominent peaks lying outside the limits of plan-table sheets. When practicably, connections should be made at frequent intervals to bench marks established by spirit levels or to the water level of the sea or to that of lakes and tidal rivers. In connecting to water level it is sufficient to record an observed vertical angle to the water's edge and an approximate measured or scaled distance to the point sighted upon, with a note as to the time of the observation or to the height of the tide when the water's edge is sighted upon. (See p. 81). Record and computation forms are shown as pages 104-110.

PLANE OF REFERENCE. - All heights will be referred to mean sea level.



## HORIZONTAL ANGLE MEASUREMENT INSTRUMENTAL PROCEDURES, REPETITION METHOD

The procedure used in making a set of observations is as follows: Set the circle approximately at one of the readings given in the appropriate table of circle settings on page 34 and record the exact reading. Point on the left-hand object by means of the lower clamp and tangent screw, which does not change the reading. Then unclamp the upper motion and point upon the right-hand object, perfecting the pointing with the upper clamp and tangent screw. Record the approximate reading of the circle. This completes one measure of the angle. The lower clamp is then released and the operation repeated, except that the circle is not read. The circle reading, if made, would equal the original setting plus twice the angle measured. The process of adding the angle to itself is continued until several measures, usually six, are accumulated on the circle. A reading of the circle is made and recorded after the third repetition as a check on the value of a single angle, and a reading is also made at the completion of the sixth repetition. Next revolve the telescope about its horizontal axis, keeping the upper clamp tight and point upon the right-hand object by means of the lower clamp and screw. Then loosen the upper clamp, move the telescope clock-wise, and point upon the left-hand object. This completes one measure of the supplement of the angle. Make the same number of measures of the supplement as was made of the angle, when the circle reading should be nearly the same as on the original setting. The circle should then be read. (For sample of record, see fig. 52). Before beginning another set, the circle reading should be changed in order that an error in reading may not effect two angles.

## INSTRUMENTAL PROCEDURES DIRECTION METHOD

The direction method of measuring angles consists of measuring the direction to each station from some one station taken as an initial. The directions are the angles measured clockwise from the initial station to each of the other stations. The angle at a station between any two observed stations is the difference of their directions.

In observing, a pointing is made on the initial station and then upon each station around the horizon in a clockwise direction; the telescope is then reversed and the readings made back in a reverse direction. A direction theodolite does not usually have a slow motion screw for the lower motion, though the direction method of observing may be used with a theodolite arranged for repetitions by keeping the lower motion clamped. A direction theodolite is almost invariably read by means of micrometer microscopes. On first-order triangulation the horizon is not closed on each position, though an occasional reading is taken back on the initial just before and immediately after reversing to ascertain if any indications of drag are present. On second-order triangulation, however, where the number of positions taken is small, the horizon should be closed on each half position. The form of record is shown in Figure 54.

The theodolite having a graduated circle 9 inches or more in diameter is usually read by micrometers to single seconds. Eight-inch direction theodolites are usually read to the nearest even second. The least division on the micrometer drum of a 6-inch direction theodolite is usually equal to 10 seconds and the readings should be estimated to the nearest even second. The range of the readings secured with any theodolite will determine the refinement with which it should be read. For instance, if a number of readings of a single setting with the circle clamped shows a range of 2 or 3 seconds all readings should be taken to single seconds, but if the range is 4 or 5 seconds readings to the nearest even second are all that are warranted. When a comparatively small number of readings are taken, as with the Wild theodolite (seep. 60 and fig. 40 p. 45), readings may be made to a fraction of a second.

## PROGRAM FOR OBSERVING VERTICAL ANGLES

On practically all theodolites used in the Coast and Geodetic Survey for second-order and third-order triangulation the vertical circle is of the type having the graduated circle rigidly attached to the horizontal axis of the telescope and the level bubble attached to the vernier circle. With this mechanical arrangement either one of two observing programs may be used. When using the first method level the theodolite, then with the circle right and the object near the vertical wire (a) bisect the object with the horizontal wire, using the telescope-clamp slow-motion screw; (b) bring the bubble to the center of the level vial; (c) read both verniers; (d) turn the instrument 180 deg. in azimuth and transit the telescope, then repeat (a), (b), and (c) in the same order. Do not change the adjustment of the level on the vertical circle between the two pointings of a set. With the second method, level the theodolite and with circle right perform operations (a), (b), and (c) as described above on each object around the horizon, then transit the telescope and again perform the same operations upon each object. This is a more rapid method than the one first described.

If the vertical circle is graduated clockwise from zero to 360 deg., as is usually the case, the reading with circle right minus the reading with the circle left is equal to twice the zenith distance. When the graduation is counterclockwise the subtraction is made in the inverse order. If the system of graduation is different from that described above, a statement and diagram showing the kind of graduation should be made in the record book when the first observations with the instrument are recorded.

When observing upon an object at a considerable elevation, using a straight eyepiece, care should be taken to eliminate the parallax as completely as possible, for otherwise a constant error may enter into the observations. When observing upon stars near the prime vertical for the determination of local time the error in the derived times due to parallax is of opposite sign for east and west stars.

## CORRECTIONS OF RECORDS

All observations should be recorded clearly and distinctly on the proper forms. The numbers must be written so plainly that there is no chance of misunderstanding them. If for any reason a temporary record must be made and the observations transferred later to the record book, the temporary record should be sent to the office with the record book.

Erasures must never be made in the original records; if it is necessary to change a figure, it should be lightly crossed out and the correct figure placed above it or to one side. If a figure is changed after the complete set of observations have been recorded and no chance exists of checking the reading by a reobservation, the initials of the person making the change must be placed near the alteration.

More uncertainty in the results is caused by hurried and ill-considered changes in the record figures to correct supposed discrepancies than from any other one source. The doubt is greatly increased if the original figures are illegible. The observer must make certain before beginning work that the recorder understands the importance of observing the requirements of this section.

I, J. H. Walker, Commissioner of the General Land Office of the State of Texas, do hereby certify that pages Nos. 1 to \_\_\_\_\_ inclusive of this volume, are true and correct copies of the original Field Books Nos. \_\_\_\_\_ made by the surveyors in locating the original and corrected surveys of land, by virtue of certificates issued by the State of Texas to the Texas & Pacific Railway Company and its predecessors in title:

That said Field Books are now in the custody of Alphonse Kloh, David Rumsey and Harold J. Abrams, 502 Republic Bank Bldg., Dallas, Texas, proprietors of the lands formerly belonging to the Texas & Pacific Railway Company;

That said copies were procured, verified and filed in the General Land Office in accordance with Senate Bill No 39 Chapter 59, passed by the 5th called session of the 41st Legislature, March 1930.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the seal of this office to be affixed this 5 day of January A D 1931.

*J. H. Walker*  
 Commissioner, General Land Office

3

February Twelfth

1931

Hon. J. H. Walker,  
Com'r. General Land Office,  
Austin, Texas.

Dear Sir:

We are about ready now to make the construction of the surveys in Blocks 58 to 65 inclusive, Townships 1 and 2, based on the corners set by Jacob Kuechler, the original surveyor, in 1879, which we have traced out and tied in to our surveys.

Mr. Kuechler's line starts at the northeast corner of Section 1, Block 58, Tsp. 1, and zigzags through the blocks above named to the northeast corner of Section 43, Block 65, Tsp. 1, with several branch lines. On the north line of Tsp. 1, we have found and identified Kuechler's corners Nos. 0, 1, 2, 3 and 4, in Blk. 58. Nos. 90, 91 and 94 in Block 63 and No. 88 in Block 65. In Block 58 these corners lie very close to the 32nd parallel of latitude, but a few varas north of the United States mile corners set to mark the boundary between Texas and New Mexico. In Blocks 63 and 64, the Kuechler corners lie some distance south of the 32nd parallel, and something over 200 varas south of the United States mile corners which are north of the parallel. It is our thought that the north line of these blocks should be constructed beginning at K-No. 4, and coinciding with the 32nd parallel to the northwest corner of Block 62. In Blocks 63 and 64, the north line will be determined by the Kuechler corners as they are established on the ground to K-No. 88, from which point the line can be moved north to coincide with the United States mile corners marking the boundary between Texas and New Mexico. This will leave a vacancy between the Kuechler corners and the United States mile corners along the north line of Block 63 and part of Block 64.

P Co. No 60909

Hon. J. H. Walker #2

Mr. Kuechler's lines reached the south line of Tsp. 2 in the above named blocks at only one point; namely, the southeast corner of Section 47, Block 64, Tsp. 2 - therefore, our conclusion is that the construction of the south line of Township 2 should properly follow a parallel of latitude passing through that corner from the east line of Block 58 to the West line of Block 65.

The intermediate block line and section lines running east and west through this system of surveys are all controlled by Kuechler's corners as found on the ground, and should be constructed, we believe, by connecting corresponding corners where such exist, and where such do not exist, by making distances north and south on the extreme block lines correspond to, or proportional to the north and south distances between the nearest Kuechler corners. The intermediate block lines and section lines running north and south are to be constructed in accordance with the paragraph numbered two in our letter to you of August 14, 1930, which was approved by your letter of September 19, 1930, and which reads as follows:

"West of Block 57, Jacob Kuechler's lines will be retraced and the construction will be hung on Kuechler's corners wherever such corners can be found and identified. Where two or more such corners are found on a line, they will establish that line between them. Where only one corner was originally set on a north and south line, that line will be established by passing through it a true meridian."

The accompanying photostat of a working sketch map for the construction of the surveys in Blocks 64 and 65, Tsp. 1 and 2, illustrates, in detail, the methods above described and is submitted for your approval. The south line of Tsp. 2 is to be established by turning 90 degrees from an observed meridian at K-103 and the section corners on this line running west are to be set on tangential offsets from the transit line at distances apart equal to the departure between Kuechler's corners on the diagonal

Hon. J. H. Walker #3

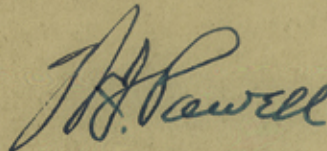
line plus the convergence of the meridians through those corners, to the southeast corner of Section 45, Block 65. The south line of Section 45 will be equal to the departure between K-95 and K-79 plus the convergence of the meridians; the south line of Section 44 will be the departure between K-79 and K-77 plus the convergence of the meridians.

There is no Kuechler corner on the west line of Block 65, therefore, the south line of Section 43, Block 65, Tsp. 2 will be made equal to the field note call which is 1976 varas, and at the southeast corner of Section 43 so established, a meridian will be observed and a true north line run for the west line of Block 65.

The east line of Block 64 will be established by a meridian passing through K-No.59. The north and south section lines in Tsp. 1 will be established by meridians running north from the Kuechler corners except where established by more than one corner.

If the constructions described above meet with your approval, we will appreciate your indicating same on the attached copy of this letter for our guidance, as we expect to follow as nearly as practicable, the same procedure throughout the remainder of the work.

Very truly yours,



W. J. Powell  
Consulting Engineer.

APPROVED:

February 14 1931.

Com'r. General Land Office.

*Original signed by J. H. Walker Comr.*

*W. J. Powell, Chief Draftsman - of returned to Maj. Powell. 2/14/31*

W. J. POWELL  
MEM. AM. SOC. C. E.  
CONSULTING CIVIL ENGINEER  
DALLAS  
March 25, 1932

REPUBLIC BANK BUILDING

File 51-20-041

Hon. J. H. Walker  
Commissioner General Land Office  
Austin, Texas

RECEIVED  
MAR 28 1932  
REFERRED TO MAP

Dear Sir:

I am forwarding herewith as a sample one sheet (unfinished) of the map that we are preparing of the resurvey of Texas & Pacific lands in the 80-mile Reservation. The original Kuechler corners, as found on the ground, are shown on the map, and a construction has been made in accordance with my letter to you of February 12, 1931 which was approved by you February 14, 1931.

The map is in sectional sheets, which cover the whole territory permitting the other lands to be shown thereon if at some future date surveys of those lands may be made. The map is plotted on the polyconic projection with 105 degrees as the central meridian, and by use of the "Grid System of Progressive Maps in the United States" as described in Special Publication #59 of the U. S. Coast Geodetic Survey. The grid lines shown on the map are at 10,000 vara intervals. The azimuths shown on the map are grid azimuths, which can be converted to true azimuths by applying a correction which of course varies going East or West. The correction can be obtained at any block line by subtracting the true South grid azimuth from 360 degrees, and is proportional between the block lines.

The purpose of sending you this map now, and the above explanation of its construction, is to acquaint you with our plan of preparation of the maps. We expect shortly to have ready two major groups of the T & P lands for filing in your office. I will appreciate if you will advise me as to what steps may be necessary to put these maps in shape for your approval as official records of this resurvey, also whether or not it will be necessary to file with the maps corrected field notes of each section, and if so, any suggestions you may wish to make in regard to the form of such field notes.

Assuring you of our appreciation of your kindness and cooperation all the way through on this work, I am

Sincerely yours,

*W. J. Powell*  
W. J. Powell

WJP/R

4-2-32

1069  
5

DAVID RUMSEY, HAROLD J. ABRAMS AND GEORGE C. FRASER, JR.  
PROPRIETORS OF THE LANDS FORMERLY BELONGING TO  
THE TEXAS & PACIFIC RAILWAY CO.

P. B. BERT  
CHIEF CLERK  
NORTHRUP & CARR  
FIELD REPRESENTATIVES

RAY MCDOWELL, GENERAL AGENT  
REPUBLIC BANK BUILDING  
DALLAS, TEXAS

W. J. POWELL  
ENGINEER

April 4-1932

FILE 51-20-041

Hon. J. H. Walker  
Commissioner G L O

Austin, Texas

Dear Mr. Walker:

I thank you for your letter of the 2nd instant in regard to the file of maps of the resurvey of lands in the 80 mile Reservation. We shall govern ourselves accordingly.

In regard to the variance in distances south from the south corners of surveys Nos. 7, 8 and 9, Block 61, Tsp. 2, noted in the second paragraph of your letter, beg to advise that these north and south distances are fixed by a string of original Kuechler corners running north and south in Block 62, Tsp. 2, which appear on the next sheet of the maps. The south line of Township 2 is controlled by Kuechler's corner #103 at the south-west corner of Section 48, Blk. 64, Tsp. 2; that being the only corner set by Kuechler on the south line of Township 2, in this group of surveys.

Thanking you for your co-operation, I am

Yours very truly,

*W. J. Powell*  
W. J. Powell  
Consulting Engineer.

WJP-h

APR 5-1932

REFERRED TO MAP

encl 60913



POWELL  
WOOD, POWELL & WAGGENER  
CONSULTING ENGINEERS  
REPUBLIC BANK BUILDING  
DALLAS, TEXAS

6

1968

E. A. WOOD  
M. A. M. S. O. C. E.  
W. J. POWELL  
M. A. M. S. O. C. E.  
R. G. WAGGENER  
M. A. M. S. O. C. E.  
W. L. POWELL

March 31, 1933.

File No. 251-041

Honorable J. H. Walker, Commissioner,  
General Land Office,  
Austin, Texas.

Dear Mr. Walker:

I am enclosing for your files copy of memorandum  
of conference at your office last Monday. I will appreciate  
your advising me whether or not the memorandum is correct accord-  
ing to your recollection.

With best personal regards, I am

Yours very truly,

*W. J. Powell*  
W. J. Powell.

WJP/w

Enclosure

4-5-33

RECEIVED

APR 1 1933

REFERRED TO COMR.

Tv  
counter 60914

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MEMORANDUM OF CONFERENCE AT GENERAL LAND OFFICE, MARCH 27, 1933.

PRESENT - Commissioner Walker, Judge Clark, Mr. Bluecher, Ray McDowell, W.J. Powell.

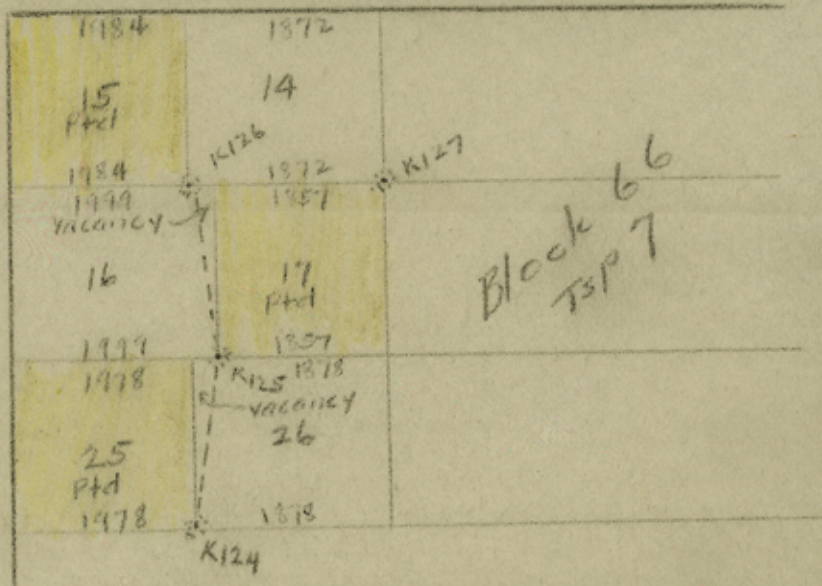
SUBJECT: Construction of Surveys in Areas where Corners have been pulled apart by Paul McCombs. Corrections of the Patent Field Notes.

It was the decision of the Commissioner that when approval of the Land Office was given to the plan of construction of the T & P Surveys set out in our letter of August 14, 1930, approved by Commissioner Walker's letter of September 19, 1930, and our letter of February 12, 1931, approved by Commissioner Walker and Judge Clark, February 14, 1931, the fact that in certain instances and certain areas the corrections made by Paul McCombs of the Kuechler field notes pulled apart common corners had been overlooked; that while such destruction of adjoiner calls might not have been correct construction, and while at this time the General Land Office probably would not approve such construction, nevertheless, at the time the field notes were corrected, such action was actually taken and the patents were issued on the field notes as corrected, with these certain corners pulled apart; and that the General Land Office could not go back of the patents.

In the discussion the following points were made:

That the General Land Office cannot issue a new patent on corrected field notes calling for more acreage than that covered by the original patent.

That if the rejoining of these separated corners is attempted, the patented railroad sections cannot be changed, for the above reason, and the result would be a vacancy between the railroad section and the school section; as, for example, in the following specific case;



That if it is desired to rejoin the corners in the portions of the work already constructed, or in the Yates survey, the Land Office will accept corrected field notes rejoining the corners, provided they are accompanied by agreements of all land owners affected accepting the construction; but that

Memorandum of Conference -----#2.

the Land Office recommends adherence to the patent construction, corrected field notes on this basis to begin at the same point and tie to the same lines and corners as called for in the patent, adjusting distances to make the calls fit.

That the Land Office would issue patents to Mr. Yates on the basis of the old field notes now on file there, which would leave everything just as it is now.

McCombs' original map, from which his corrections were made, now on file in the Land Office, was examined. On this map McCombs shows the Kuechler corners that he found and other corners that he set in conformity with the Kuechler corners; the opinion was expressed by the Land Office that where the additional corners set by McCombs are called for in the patents and can be identified on the ground, they are valid corners; that where such corners are not called for in the patents, but can be identified on the ground and fit the calls reasonably well, they may still be valid corners by reason of the fact that they have been recognized as such for many years.

1855'  
421  
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April 5, 1933

Mr. W. J. Powell,  
Consulting Engineer,  
Republic Bank Bldg.,  
Dallas, Texas

Dear Sir:

This acknowledges receipt of your letter of the 31st ult., enclosing copy of memorandum of your understanding of a conference when here a few days ago, concerning certain T&P Ry Co lands.

As expressed in the conversation referred to, that since patents have issued to surveys in the certain areas in question on corrected field notes fixing their corners by certain calls or ties relating to each other, that same should be recognized and respected. The field notes of the school surveys or even numbered sections, have likewise been corrected to harmonize with the lines and corners of the railroad patented surveys and sales made accordingly, is a further reason why their construction should not be disturbed.

The purchasers of school surveys in these particular areas will be required to pay for same on the basis of their field notes now on file in this office, and patents may issue thereon. However, if desired, corrected field notes following the same order of construction and calls with reference to each other, based on such original corners as may be identified on the ground, leaving no space or vacancies between them, may be filed, on which - if otherwise correct - patents may issue.

In regard to boundary agreements, upon further consideration, I am of the opinion that this department can not accept corrected field notes that would change the lines and corners of surveys from that shown by the field notes on file.

Very truly yours,

Commissioner

SCC:emb

copy 60917

W. J. POWELL  
MEM. AM. SOC. C. E.  
CONSULTING CIVIL ENGINEER  
DALLAS

December 16, 1933.

2573  
2022 REPUBLIC BANK BUILDING

File 251 - 041

Mr. C. F. K. Blucher,  
General Land Office,  
Austin, Texas.

Dear Blucher:

I am enclosing map of the Red Bluff project with the section lines shown on it in accordance with the construction as called for by the patent field notes. I am also enclosing data showing the relative positions of the McCombs' corner that we found in Blocks 56 and 57 and the corners as constructed above.

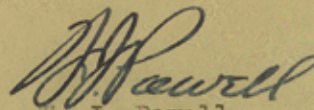
The question that needs to be decided now is whether those corners of McCombs' shall be recognized or ignored. And, also, if McCombs' corners are recognized, will they control the construction eastward in Blocks 55 to 53; Townships 1 and 2.

The latter question is of immediate importance because the T & P Coal and Oil Company has a party in the field now attempting to make a well location on Section 40, Block 54, Township 1.

I am leaving here Monday for Pecos in connection with the latter question. If you can advise me with regard to these matters so that the letter will reach me here Monday morning, please do so. If you cant do that and can get the letter to me at Pecos, care of Hotel Brandon, Tuesday or Wednesday that would be the next best.

Thanking you for Your cooperation, I am,

Yours very truly,

  
W. J. Powell.

WJP/w  
Encl.

RECEIVED

DEC 18 1933

REFERRED TO MAP

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1875

335-6

Dec. 18, 1933

Mr. W. J. Powell,  
Hotel Brandon,  
Pecos, Texas

Dear Sir:

Your letter of December 16th enclosing sketches showing T&P blocks in the vicinity of the proposed Red Bluff Dam in Reeves and Loving counties, was received this morning.

I find upon looking into this matter that an extensive investigation will be necessary to give you a satisfactory reply as to how I believe these T&P blocks should be constructed.

I note that blocks 58 townships 1 and 2 were put in by Kuechler in 1878, running from the boundary monuments on the Texas-Mexico line. Blocks 57 and 56 Tsp 1 and 2 were put in by W P Champlin and James L Peck in 1876 and take their positions from the Eastward. According to the judgment in the case of The State of Texas VS Chas J Canada et al, the individual sections in these last named blocks were held down to 640 acres. For this reason, I do not believe that blocks 57-56-55 and 54 should be put in from the Kuechler corners, but will have to be constructed from their own corners, or from their field note calls.

The Champlin and Peck field notes do not mention specifically marked corners but call for stakes and earth mounds, etc. Have you found any of these corners which could be recognized as original?

I note that W D Twichell in 1902 surveyed public school block C-20 and claims to have found the SE corner of section 43 ~~Blk~~ 55 Tsp 2. If this be true and if no other original corners can now be found, it is very probable that the excess between this corner and the East line of Blocks 58 should be given to the school surveys. This could be done by running continuous lines thru the blocks North and South at two-mile intervals and

then shortening <sup>Comm</sup> their widths East and West for each individual section; that is, railroad section, to give it 620 acres, throwing the excess into the school section.

The field notes for this section #3 and for section #4 Blk C-20 should be on file in the surveyor's records at Pecos.

It would appear that there is excess East and West between the SW corner of section 45 Blk 53 Tsp 2 and the above mentioned SE corner of 43 Blk 55 Tsp 2. The excess would seemingly have to be given to the school fund in this instance similarly to the one suggested next above.

I hesitate to make any final suggestions which would be conclusive as to the construction of this whole system of surveys until I have a little more time to go thoroughly into the matter and to pass on any additional data which you may be able to give me.

Very truly yours,

Commissioner

Blucher:eb

1876  
475  
⑩

December 23, 1933

Major W. J. Powell,  
Brandon Hotel,  
Pecos, Texas.

Dear Sir:

On looking into the construction of T&P Blocks 57, 56, 55, 54, and 53 Townships 1 and 2 Loving and Reeves Counties, I find that apparently the only marked corner used or connected with is the New Mexico-Texas monument on the West bank of the Pecos. Consequently the construction of these surveys should begin at that point going eastward and southward course and distance for these surveys to the lines of surveys on the south and the east of the T&P lands. The effect of this will be to create a vacancy along the East line of Block 54, Township 1 and the East line of Block 53 Township 2.

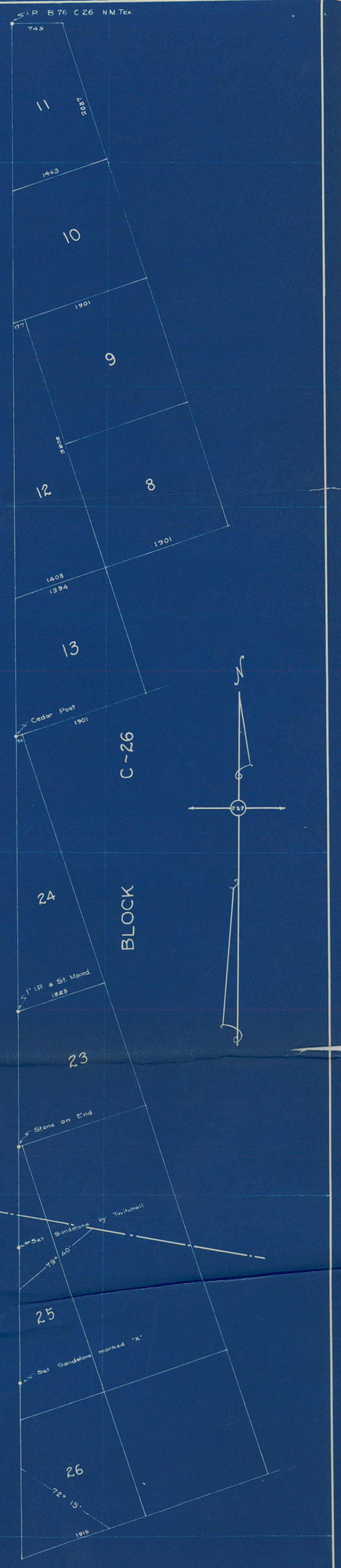
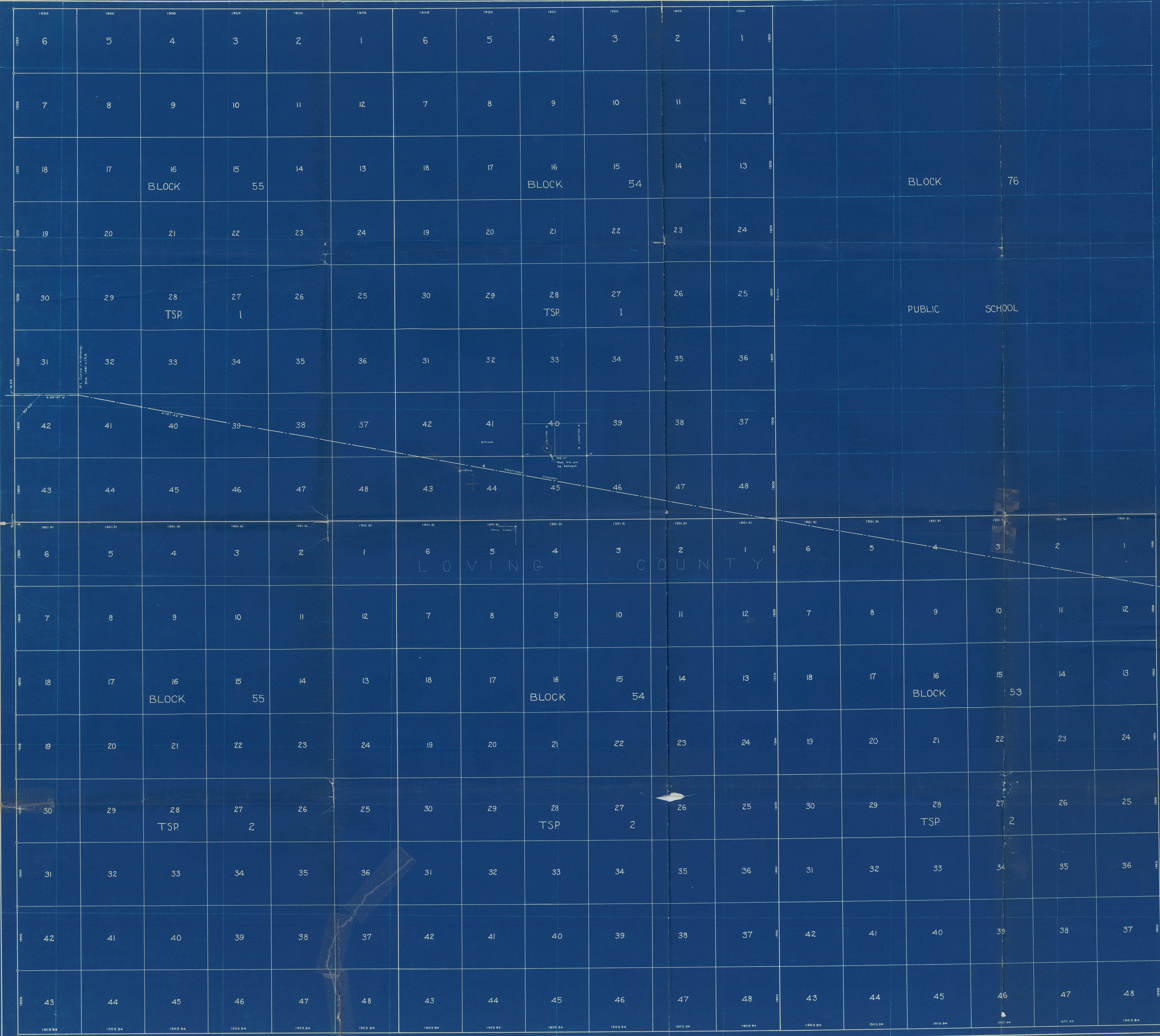
I would like to know if you are willing to survey out and sectionize these two areas and return field notes therefor to this department. If so what will be your charges for this work.

Very truly yours,

Commissioner

Blucher/k





LOVING COUNTY

BLOCKS 53-55  
TOWNSHIPS 1 & 2  
TEXAS & PACIFIC RAILWAY LANDS  
IN THE 80-MILE RESERVATION  
December, 1933 Scale: 1" = 1000 yards.  
POWELL & POWELL - ENGINEERS

LEGEND:  
McCombs Monument ⊕  
Iron Pipe +IP  
K.R.A. Standard Monument ○

*Presented in by May  
W.J. Powell on  
1/11/34  
[Signature]*

W. J. POWELL  
M. AM. SOC. C. E.  
CONSULTING ENGINEER

POWELL & POWELL  
ENGINEERS  
REPUBLIC BANK BUILDING  
DALLAS, TEXAS

W. L. POWELL  
JUN. AM. SOC. C. E.

January 12, 1934.

Our File No. 251-041

Mr. G. B. Finley,  
State Highway Division Engineer,  
Pecos, Texas.

Dear George:

At the conclusion of a conference at the General Land Office yesterday in regard to the construction of Blocks 56 and 57, Townships 1 and 2, Reeves and Loving Counties, I sent you the following telegram:

"Construction Blocks Fifty Six and Fifty Seven Townships one and two west from east line Block Fifty Six as monumented Nineteen Hundred varas per section stop Ignore McCombs corners Stop Land Office approves this construction - Letter follows."

We decided that it would not be safe to attempt to construct these blocks to conform with the McCombs' corners, but that they must be constructed in accordance with the original field notes; that is, using our east line of Block 56 as established from the Pecos River in accordance with the field notes calls and constructing west from that line 1900 varas per Section.

Owing to a slight excess between the NE corner of Section 5, Block 57, Township 1, and Kuechler's rock mound for the NE corner of Section 1, Block 58, Township 1 and to the fact the Railroad Sections are entitled to 640 acres only, it will be necessary to jog the line between the two western tiers in Block 57, to throw all of the excess into the even numbered sections. I think, however, that this will not affect your work as you do not go that far west, and all the other North - South lines in the two blocks are straight lines.

I trust this information will enable you to proceed with the work.

With best wishes, I am,

Yours very truly,



W. J. POWELL.

WJP/w  
CC- J. H. Walker, Commissioner  
General Land Office,

COPY

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W. J. POWELL  
M. AM. SOC. C. E.  
CONSULTING ENGINEER

POWELL & POWELL  
ENGINEERS  
REPUBLIC BANK BUILDING  
DALLAS, TEXAS

W. L. POWELL  
JUN. AM. SOC. C. E.

(11)

October 5, 1934

File No. 251-041

The Honorable J. H. Walker,  
Commissioner of General Land Office,  
Austin, Texas.

Dear Mr. Walker:

I am forwarding to you under separate cover a blue print of our map of Blocks 56 and 57, Townships 1 and 2, T. & P. Railway Surveys, which shows the construction of the lands involved in the Red Bluff District. An original corner (Kuechler's No. 0) is shown at the N. W. 6, B. 57, T. 1. Other corners, set by us in 1930, are shown along the North line of B. 56, T. 1. These corners were set in accordance with the field notes of Peck and Champlin, from the call to the Pecos River. This construction has been discussed with you in detail on several occasions, and I think you are thoroughly familiar with it. The courses on the map are all north and south, and east and west, and distances are shown.

The map also shows our traverse lines run in 1930 and the rock mounds supposed to have been set by Paul McCombs, which in accordance with your instructions, we ignored in the construction of these surveys.

Trusting that this will give you all the information needed, I am,

Very truly yours,

*W. J. Powell*  
W. J. Powell

WJP/mhp

cc--Hubbard and Kerr  
Pecos, Texas-

cc--Vernon L. Sullivan  
Pecos, Texas

RECEIVED

OCT 6 - 1934

REFERRED TO MAP




## MEMORANDUM

TEXAS GENERAL LAND OFFICE • GEORGE P. BUSH • COMMISSIONER

---

**Date:** January 12, 2017

**To:** Letters to and from Major W. J. Powell regarding surveys of Texas and Pacific Railway Lands west of the Pecos, Blocks 53-55 Township 1 and 2 – Map # 2249

**From:**  Susan Smith Dorsey, Director and Records Management Officer, Archives and Records Program Area

**Subject:** Addition of records to existing PDF

Responding to a research request from a member of the surveying profession, reference was found in the PDF for Map # 2249 for a letter from Powell and Powell on October 10, 1934 referencing and replying to a letter of the 9<sup>th</sup> instant from J. H. Walker, Commissioner of the General Land Office.

Upon careful review of digital images in the PDF, no image was found for an October 9, 1934 letter.

Further research done through microfilmed records revealed a letter on Reel 1184-ES in Book 1905 dated October 9, 1934 from Commissioner J. H. Walker to W. J. Powell, which Powell has concerns about.

The condition of the microfilmed record was “poor quality” and a transcription of the same was created.

As of this date, the copy from microfilm and its transcription have been added to the hard copy file for Map # 2249, digital images created and appended to the existing PDF in order to facilitate future researching on these blocks.

Oct. 9, 1934

Mr. W. J. Powell,  
Republic Bank Bldg.,  
Dallas, Texas

Dear Sir:

This acknowledges receipt of your letter of September 8th and your map referred to therein, which reached this office on the 8th instant, which map shows T&P surveys in the vicinity of the location of the proposed Red Bluff reservoir.

In examining this map, I note that you have run North and South lines on true meridian, the effect of the divergence coming South resulting in the placing of excess in individual, as well as, school sections. Reference to the field notes of these T&P sections, particularly those made by Beck & Champlin, would seem to indicate rather clearly that these sections should all be squares; that is to say, 1900 yards on a side, the lines being run at right angles to the North line of the T&P reserve.

It was for this reason that I advised you last September that these sections should be run on course and distance from the Knechler corner on the West of the Pecos, taking account of course, with the special construction of the 2 western tiers North and South in blk 57.

It occurs to me that you are facing very possible difficulties or trouble in the future, if you attempt to give excess, particularly to the individual sections in the T&P blocks. It is true that the effect of this construction would not be very great to those sections for which the district wishes to split out portions which will be inundated by the Red Bluff lake.

It will be a simple matter, I believe, to make those corrections; but if this construction is extended over a distance to the Eastward and Southward, aside from the fact of excess, as above referred to, it is quite possible that

-2-

conflict will exist with blocks adjoining the T&P lands.

I would like to know if the distance in azimuth, shown on your map between the East line of blk 56 and the west line of blk 57, intended to conform to the difference in variation, given in the field notes as patented for sections along those lines.

I shall hold the field notes submitted until the differences referred to above, have been cleared up.

Very truly yours,

*[Handwritten Signature]*  
Commissioner

Blusher:eb  
cc: Hubbard & Kerr,  
Pecos

Oct. 9, 1934

Mr. W. J. Powell,  
Republic Bank Bldg.,  
Dallas, Texas

Dear Sir:

This acknowledges receipt of your letter of September 5<sup>th</sup> and your map referred to therein, which reached this office on the 8<sup>th</sup> instant, which map shows T&P surveys in the vicinity of the location of the proposed Red Bluff reservoir.

In examining this map, I note that you have run North and South lines on true meridian, the effect of the divergence, coming South resulting in the piecing of excess in individual, as well as, school sections. References to the field notes of the T&P sections, particularly those made by Peck & Champlin, would seem to indicate rather clearly that these sections should all be squares; that is to say, 1900 varas on a side, the lines being run at right angles to the North line of the T&P reserve.

It was for this reason that I advised you last September that these sections should be run on course and distance from the Kuechler corner on the West of the Pecos, taking account of course, with the special construction of the 2 western tiers North and South in blk 57.

It occurs to me that you are facing very possible difficulties or trouble in the future, if you attempt to give excess, particularly to the individual sections in the T&P blocks. It is true that the effect of this construction would not be very great to those sections for which the district wishes to split out portions which will be inundated by the Red Bluff lake.

It will be a simple matter, I believe, to make those corrections; but if this construction is extended over a distance to the Eastward and Southward, aside from the fact of excess, as above referred is, it is quite possible that

-2-

conflict will exist with blocks adjoining the T&P lands.

I would like to know if the distance inasmuch, shown on your map between the East line of blk 56 and the west line of block 57, intended to conform to the difference in variation, given in the field notes as patented for sections along those lines.

I shall hold the field notes submitted until the differences referred to above, have been cleared up.

Very truly yours,

[signature]  
Commissioner

Blucher: eb  
cc: Rubbard & Kerr,  
Pecos



W. J. POWELL  
M. AM. SOC. C. E.  
CONSULTING ENGINEER

POWELL & POWELL  
ENGINEERS  
REPUBLIC BANK BUILDING  
DALLAS, TEXAS

12

409

W. L. POWELL  
JUN. AM. SOC. C. E.

October 10, 1934

RECEIVED

OCT 11 1934

File No. 251-041

Hon. J. H. Walker, Commissioner,  
General Land Office,  
Austin, Texas.

REFERRED TO MAP

Attention Mr. Blucher

Dear Sir:

Replying to your letter of the 9th instant, I beg to advise that I read with considerable surprise your statement that the sections should all be squares instead of being determined by meridians, because such construction would be at variance with our construction of all of the T&P lands in the Eighty Mile Reservation, as agreed upon and approved by you long ago. See my letter to you of February 12, 1931, which was approved by Commissioner Walker and by Judge Clark on February 14, 1931. Further than that, the original field notes for all of these lands call for North and South courses, and you will remember that such lines as were run on the original survey, were run with a compass, which, of course, would follow meridians.

All of the original field notes in the Eighty Mile Reservation, including Kaechler's, call for sections 1900 varas each way. But if you should insist on so literal a following of those field notes, as to require that all the sections be square, ignoring the curvature of the earth, you would destroy all of the work that we have done in the Eighty Mile Reservation under the construction heretofore approved by you and create a problem that, to my mind, would be impossible of solution, unless you introduced small "V" shaped vacancies between each tier of sections.

You also say that the sections should be 1900 varas on a side, the lines being run at right angles to the North line of the T. & P. Reserve. Please bear in mind that the North line of the T. & P. Reserve is the 32nd parallel of latitude, which is a curve and not a straight line on the ground. Therefore, lines running perpendicular to it will be meridians, just as we have shown them on the map. The divergence of the meridians is an actual physical fact which cannot be evaded, and, stretched over 150 miles of longitude, there is a great deal of difference between North at one end and North at the other end. In so far as the excess created by this divergence is concerned, I doubt if you could find in all West Texas ten sections of land whose actual boundaries on the ground vary less from the written field notes than those developed by our construction.

copy to 60924

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Hon. J. H. Walker--2--October 10, 1934

With reference to the fifth paragraph in your letter, I beg to advise that this construction has already been extended Eastward to the East line of Blk. 54, Tsp. 1, and the East line of Blk. 53, Tsp. 2, and fails to reach the West line of the adjoining school blocks by a considerable amount, as has heretofore been reported to you. It has also been extended Southward through the T.&P. lands in Blks. 53 to 57, Tsps. 3, 4, and 5, without creating any conflicts that I know of.

Referring to the sixth paragraph in your letter, the azimuth shown for the East line of Blk. 56 and the West line of Blk. 57 are the computed grid azimuths of the meridians for those lines. You will note that the meridian, as determined by observation on Polaris, differs from the computed true meridian by only 21".

I trust you will give this matter your careful consideration, because I think we have made the only practicable construction of these lands and that the construction suggested in your letter of the 9th would be practically impossible, or at least would create vastly more trouble and difficulties than the one we have used.

Very truly yours,

POWELL AND POWELL

  
W. J. Powell

WJP/mhp

cc--Hubbard and Kerr  
Pecos, Texas