

MINING
TRANSIT BOOK

No. 422F

#733 734

CITY OF SAN DIEGO

CITY OF SAN DIEGO
OFFICE OF HYDRAULIC ENGINEER
WATER DEPARTMENT

No. 51

W.O. NO. 16-5-9

INFORMATION REQUEST

DATE 8/13/48



TO Don E. Leonard FROM W.C. Brown

Perform routine staking and checking for Alvarado Filtration Plant construction continuing from day to day as required by field conditions and as directed.

REFERENCES: DRAWING NO. Alv. F.P. Spec 10

USE REVERSE SIDE IF NEEDED
FIELD BOOK NO. _____

REPORT BY _____ TO _____ DATE _____

INFORMATION ON DRAWING NO. _____

USE REVERSE SIDE IF NEEDED
DATA IN BOOK _____

NOTE: PINK COPY TO ASSISTANT HYDRAULIC ENGINEER

This Field Book is manufactured of
Grade 50% Rag Paper having a W
RESISTING SURFACE, and is sewed
Bing Special Enamel Waterproof th

Made in U. S. A.

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- 40

FORM 211-A

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6 + (20 - 16) * 2 or 2 ft. added to 22.6 = 24.6. For slopes of 1 on 1 1/2 see inside of back cover.
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| | | | | | | | | | | | |
|----|------|------|------|------|------|------|------|------|------|------|----|
| 37 | 45.0 | 45.1 | 45.2 | 45.3 | 45.4 | 45.5 | 45.6 | 45.7 | 45.8 | 45.9 | 37 |
| 38 | 46.0 | 46.1 | 46.2 | 46.3 | 46.4 | 46.5 | 46.6 | 46.7 | 46.8 | 46.9 | 38 |
| 39 | 47.0 | 47.1 | 47.2 | 47.3 | 47.4 | 47.5 | 47.6 | 47.7 | 47.8 | 47.9 | 39 |
| 40 | 48.0 | 48.1 | 48.2 | 48.3 | 48.4 | 48.5 | 48.6 | 48.7 | 48.8 | 48.9 | 40 |

APRIL 16, 1948.

NOTE: ALL REFERENCES TO CARDINAL DIRECTIONS, N., S., E., OR W., REFER TO THE FILTER PLANT LAYOUT AXES AND NOT TO A TRUE CARDINAL DIRECTION.

Don E. Leonard.

INDEX - CONTD.

| PURPOSED FENCE LINES: | PAGE |
|--|------------|
| 52- | |
| PROPOSED ROAD, KIOWA DRIVE TO TRUCK SCALE. | 62, 63, 64 |
| Proposed Fence Line May 10 to 16 - | 66 to 70 |
| 1 1/2" WATER LINE TO HOUSE AT 5550 Kiowa Dr. | 58. |
| R.R. SPUR TRACKS, LAYOUT WITHIN PLANT 74-75 | |
| 4" sewer to Filter Plant operators house at Alvarado | P-76 |

Indexed con 1-30-51

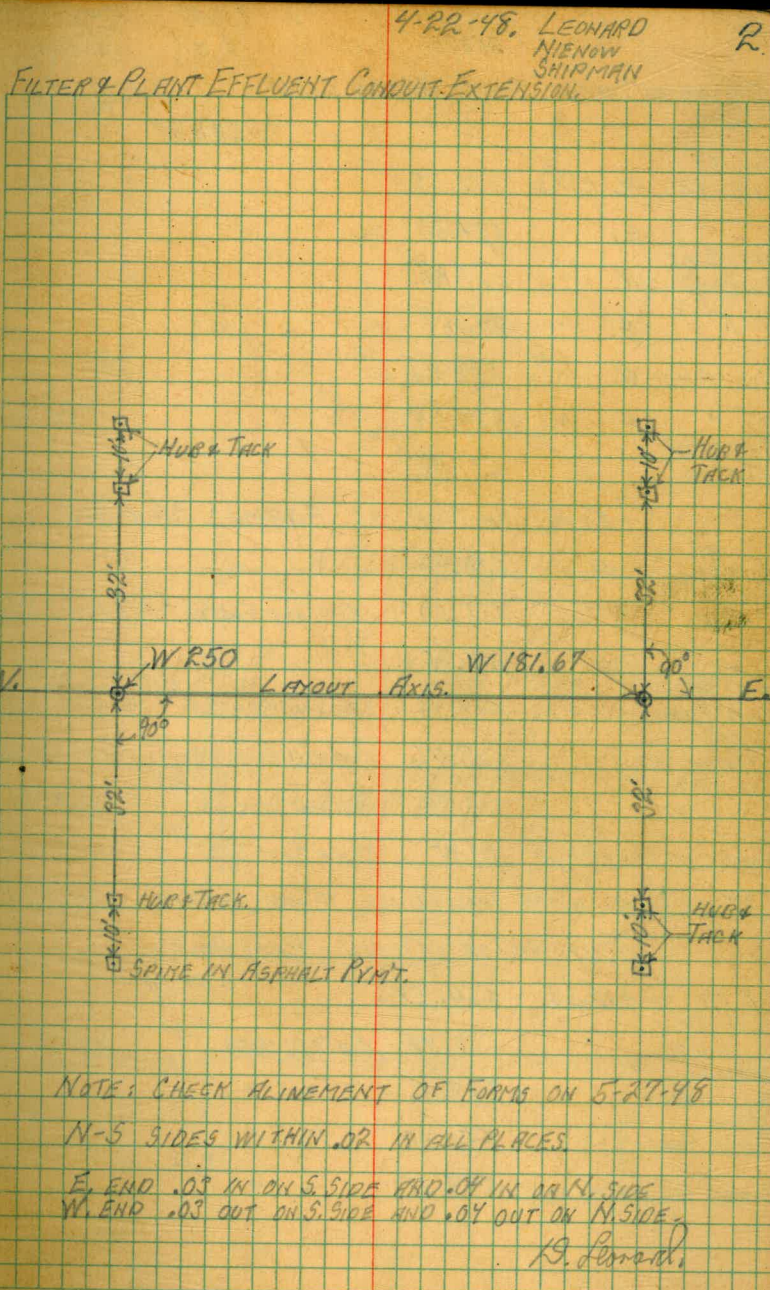
INDEX.

| | PAGE. |
|--|---------------------|
| SALT STORAGE BASIN OFFSET CORNERS | 1. |
| FILTER EFFLUENT & PLANT EFFLUENT CONDUIT EXT. | 2. |
| ACTIVATED CARBON TANK LAYOUT. | 3. |
| 72" EFFLUENT LINE & VENTURI METER HOUSE. | 4. |
| WASH WATER STORAGE TANK FOUNDATION. | 5-11. |
| 4" VALVE PIT, INFLUENT METER STR. BY-PASS FLUME AND BY-PASS STRUCTURE-OFFSETS: | 31 |
| | 20. |
| B.M.'S ON MON'S & OTHERS, FILTER PLANT. | 41. |
| WATER LINE ON KIOWA DRIVE. | 19. |
| UNDERGROUND PIPING | 24, 21. |
| RESERVOIR INLET STRUCTURE | 30, 22. |
| SEWAGE DISPOSAL - IN FIELD | 23. |
| 18" DRAIN LINE LAYOUT | 24. |
| TRUCK SCALE | 25. |
| " " ELECT. CONDUIT FROM. | 44. |
| OPEN DITCH TOPOGRAPHY | 46. |
| 68" PIPE CONNECTION TO BY-PASS STRUCTURE | 47. |
| CITY PIPE LINE CORRECTS ON WEST END OF SITE. | 28. |
| 72" RESERVOIR INLET PIPE, INVERT GRADE OF ENDS & JOINTS | 29, 20. |
| 4" STEEL DRAIN FROM BY-PASS STR. | 32. |
| WASH WATER RATE OF FLOW CONTROL STR. | 36, 31. |
| 9" SANITARY SEWER, RELOCATION. | 37. |
| 6" PUMP SUCTION LINE TO EFFLUENT METER STR. | 38. |
| CARBON TANK STR. TRENCH AND SUMP. | 40. |
| " " 2" SUMP PUMP DISCHARGE | 46. |
| TURNING CIRCLE: | 41, 42, 43, 44, 47. |
| ZEOLITE GALLERY, EXCAVATION | 50. |
| DITCH, 54" OVERFLOW | 34. |

| | + | GRADE | - | 5-21-48 ELEV. | LEONARD NIENOW SHIPMAN |
|------------|---------|---------------------------------|---------|------------------|------------------------------|
| CHECK | | GROUND ELEV. IN BOTTOM OF PIT ✓ | | | |
| R.M. | + 2.30 | 540.34 | | 538.04 | COND MON. 0+00 AXIS. |
| T.P. | | | - 11.61 | 528.73 | |
| | + 1.30 | H.P. 530.03 ✓ | | | |
| | | GRADE | | ACTUAL | |
| W181.67 | 4 | 521.58 ✓ | - 8.53 | 21.50 ✓ | |
| " | 12' N | 521.58 ✓ | - 8.52 | 21.51 ✓ | |
| " | 12' S | 521.58 ✓ | - 8.51 | 21.52 ✓ | |
| W199.00 | 4 | 521.49 ✓ | - 8.61 | 21.42 ✓ | |
| " | 12' N | 521.49 ✓ | - 8.59 | 21.44 ✓ | |
| " | 12' S | 521.49 ✓ | - 8.57 | 21.46 ✓ | |
| W216.00 | 4 | 521.41 ✓ | - 8.66 | 21.37 ✓ | |
| " | 12' N | 521.41 ✓ | - 8.69 | 21.34 ✓ | |
| " | 12' S | 521.41 ✓ | - 8.61 | 21.42 ✓ | |
| W233.00 | 4 | 521.33 ✓ | - 8.72 | 21.31 ✓ | |
| " | 12' N | 521.33 ✓ | - 8.78 | 21.25 ✓ | |
| " | 12' S | 521.33 ✓ | - 8.72 | 21.31 ✓ | |
| W250.00 | 4 | 521.25 ✓ | - 8.77 | 21.26 ✓ | |
| " | 12' N | 521.25 ✓ | - 8.79 | 21.24 ✓ | |
| " | 12' S | 521.25 ✓ | - 8.83 | 21.20 ✓ | |
| W260 | 4 | 520.00 | - 10.04 | 519.99 ✓ | |
| T.P. | | | - 1.29 | 528.74 | |
| | + 11.60 | 540.34 | | | |
| CHECK R.M. | | | - 2.30 | 538.04 | 0+00 COND MON. |

NOTE: ELEVATIONS TAKEN 5-21-48 CON

CKD 5-21-48 CON



APRIL 20, 1948 LEONARD
NIENOW
SHIPMAN

5.

WASH WATER TANK FOUNDATION

| | + | GRADE | 6. Rod. - | ELEV. | |
|------|--------|--------|--------------|--------|---------|
| R.M. | + 1.74 | 538.13 | | 536.39 | ON DAM. |

TOP OF 2" RIM = 536.67 -1.46

TOP OF FLOOR = 536.50 -1.63

TOP OF BOLTS = 537.73 -0.40

4-22-48
CHECK FORMS: +2.65 539.04 536.39 ON DAM.

TOP OF FORM, 536.67 2.37

TOP OF BOLTS: 537.73 1.31

BOLT CIRCLE RADIUS = 24.25 FT.

4-27-48 CHECK FORMS DURING POUR.

R.M. 2.89 539.28 536.39 ON DAM.

TOP FLOOR -2.78 536.50

TOP BUSH IN 1" LINE 2.70 536.58

WASH WATER STORAGE TANK.

4-26-48

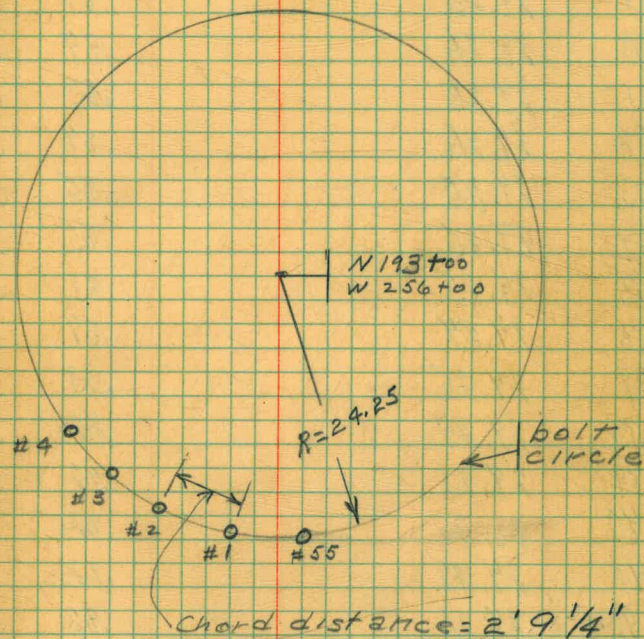
LEONARD - Notes
NIENOW - T.
SHIPMAN. No

6.

ELEVATIONS AND RADIUS CHECK ON BOLTS:
BEFORE CONCRETING.

| R.M. | BOLTS. RADIAL LENGTH. | H.I. | 536.39 | ON DAM. TOP OF BOLT. ELEV. |
|------|-----------------------------|-------|--------|----------------------------------|
| #1. | 24.26 | +2.18 | 538.57 | .86 537.71 |
| #2. | 24.27 | | | .86 537.71 |
| #3. | 24.26 | | | .83 537.74 |
| #4. | 24.26 | | | .85 537.72 |
| #5. | 24.27 | | | .85 537.72 |
| #6. | 24.25 | | | .85 537.72 |
| #7. | 24.27 | | | .85 537.72 |
| #8. | 24.25 | | | .85 537.72 |
| #9. | 24.27 | | | .86 537.71 |
| #10. | 24.27 | | | .85 537.72 |
| #11. | 24.27 | | | .86 537.71 |
| #12. | 24.27 | | | .84 537.73 |
| #13. | 24.25 | | | .86 537.71 |
| #14. | 24.25 | | | .85 537.72 |
| #15. | 24.23 | | | .86 537.71 |
| #16. | 24.25 | | | .86 537.71 |
| #17. | 24.26 | | | .86 537.71 |
| #18. | 24.27 | | | .86 537.71 |
| #19. | 24.25 | | | .83 537.74 |
| #20. | 24.24 | | | .80 537.77 |
| #21. | 24.26 | | | .84 537.73 |
| #22. | 24.26 | | | .84 537.73 |
| #23. | 24.25 | | | .84 537.73 |

1ST. BOLT WEST OF N-S. AXIS IN S.W. QUADRANT
READING CLOCKWISE AROUND THE CIRCLE.



↑
WORKING
NORTH

| | RADIAL LENGTH | + | H. I. 538.57 | - | TOP OF BOLTS. ELEV. |
|-----|------------------|---|-----------------|-----|------------------------|
| #24 | 24.26 | | | .84 | 537.73 |
| #25 | 24.25 | | | .85 | 537.72 |
| #26 | 24.26 | | | .85 | 537.72 |
| #27 | 24.27 | | | .85 | 537.72 |
| #28 | 24.25 | | | .85 | 537.72 |
| #29 | 24.25 | | | .84 | 537.73 |
| #30 | 24.26 | | | .84 | 537.73 |
| #31 | 24.26 | | | .83 | 537.74 |
| #32 | 24.26 | | | .84 | 537.73 |
| #33 | 24.25 | | | .85 | 537.72 |
| #34 | 24.25 | | | .85 | 537.72 |
| #35 | 24.25 | | | .83 | 537.74 |
| #36 | 24.24 | | | .84 | 537.73 |
| #37 | 24.25 | | | .83 | 537.74 |
| #38 | 24.24 | | | .82 | 537.75 |
| #39 | 24.23 | | | .82 | 537.75 |
| #40 | 24.26 | | | .82 | 537.75 |
| #41 | 24.24 | | | .82 | 537.75 |
| #42 | 24.26 | | | .82 | 537.75 |
| #43 | 24.24 | | | .83 | 537.74 |
| #44 | 24.27 | | | .83 | 537.74 |
| #45 | 24.24 | | | .81 | 537.76 |
| #46 | 24.25 | | | .84 | 537.73 |
| #47 | 24.24 | | | .82 | 537.75 |
| #48 | 24.24 | | | .83 | 537.74 |

| | RADIAL LENGTH. | H. I. 538.57 | - | TOP OF BOLTS ELEV. |
|--------------------|----------------|-----------------|-------|-----------------------|
| #49 | 24.24 | | .82 | 537.75 |
| #50 | 24.26 | | .82 | 537.75 |
| #51 | 24.25 | | .83 | 537.74 |
| #52 | 24.27 | | .83 | 537.74 |
| #53 | 24.27 | | .83 | 537.74 |
| #54 | 24.25 | | .83 | 537.74 |
| #55 | 24.26 | | .83 | 537.74 |
| CHECK B.M. ON DAM. | | | -2.18 | 536.39 |

CHECK ELEV. ON TOP OF FORM, GRADE = 536.67.

| LOCATION. | 538.57 | | | |
|-----------|--------|-------|--------|-------|
| S. | | -1.89 | 536.68 | + .01 |
| SW. | | -1.91 | 536.66 | - .01 |
| W. | | -1.90 | 536.67 | 0.00 |
| N.W. | | -1.91 | 536.66 | - .01 |
| N. | | -1.91 | 536.66 | - .01 |
| N.E. | | -1.90 | 536.67 | 0.00 |
| E. | | -1.89 | 536.68 | + .01 |
| S.E. | | -1.91 | 536.66 | - .01 |

| BOLT NO. B.M. | RADIAL DISTANCE: | | H.I. | ELEV. ON TOP BOLTS | LEONARD NIENOW SHIPMAN, ON DAM. |
|------------------|------------------|----------------------|--------|-----------------------|--|
| | CENTER BOLTS | OUTSIDE CONCRETE. | | | |
| | | +3.16 | 539.55 | 536.39 | |
| 1. | 24.24 | 25.96 | -1.83 | 537.72 | |
| 2. | 24.25 | 25.94 | -1.83 | 537.72 | |
| 3. | 24.24 | 25.97 | -1.81 | 537.74 | |
| 4. | 24.24 | 25.93 | -1.85 | 537.70 | |
| 5. | 24.26 | 25.91 | -1.84 | 537.71 | |
| 6. | 24.27 | 25.93 | -1.83 | 537.72 | |
| 7. | 24.25 | 25.89 | -1.83 | 537.72 | |
| 8. | 24.27 | 25.89 | -1.83 | 537.72 | |
| 9. | 24.25 | 25.90 | -1.84 | 537.71 | |
| 10. | 24.24 | 25.87 | -1.83 | 537.72 | |
| 11. | 24.26 | 25.88 | -1.84 | 537.71 | |
| 12. | 24.27 | 25.87 | -1.82 | 537.73 | |
| 13. | 24.24 | 25.89 | -1.84 | 537.71 | |
| 14. | 24.24 | 25.88 | -1.83 | 537.72 | |
| 15. | 24.22 | 25.87 | -1.84 | 537.71 | |
| 16. | 24.23 | 25.88 | -1.84 | 537.71 | |
| 17. | 24.24 | 25.91 | -1.85 | 537.70 | |
| 18. | 24.25 | 25.93 | -1.84 | 537.71 | |
| 19. | 24.25 | 25.93 | 1.81 | 537.74 | |
| 20. | 24.24 | 25.95 | 1.78 | 537.77 | |
| 21. | 24.26 | 25.95 | 1.82 | 537.73 | |
| 22. | 24.24 | 25.96 | 1.82 | 537.73 | |

539.55 ELEV. ON
TOP FORM.

| | |
|------|--------|
| 2.87 | 536.68 |
| 2.88 | 536.67 |
| 2.87 | 536.68 |
| 2.86 | 536.69 |
| 2.87 | 536.68 |
| 2.87 | 536.68 |
| 2.87 | 536.68 |
| 2.87 | 536.68 |
| 2.88 | 536.67 |
| 2.88 | 536.67 |
| 2.88 | 536.67 |
| 2.87 | 536.68 |
| 2.87 | 536.68 |
| 2.88 | 536.67 |
| 2.87 | 536.68 |
| 2.88 | 536.67 |
| 2.88 | 536.67 |
| 2.87 | 536.68 |
| 2.88 | 536.67 |
| 2.88 | 536.67 |
| 2.87 | 536.68 |
| 2.88 | 536.67 |
| 2.88 | 536.67 |
| 2.87 | 536.68 |
| 2.88 | 536.67 |

NOTE: BOLTS NUMBERED CLOCK-
WISE, STARTING WITH #1
AT THE WEST SIDE OF
THE SOUTH END OF N-S
AXIS. SEE SKETCH PAGE 6.
READINGS ON FORM TAKEN
ON RADIAL LINE OPPOSITE
BOLT.

| BOLT No. | RADIAL BOLTS | DISTANCE CONCRETE | H.I. 539.55 | ELEV. ON BOLTS |
|----------|--------------|-------------------|-------------|----------------|
| 23. | 24.23 | 25.94 | -1.83 | 537.72 |
| 24. | 24.23 | 25.94 | -1.83 | 537.72 |
| 25. | 24.22 | 25.94 | -1.84 | 537.71 |
| 26. | 24.23 | 25.94 | -1.84 | 537.71 |
| 27. | 24.25 | 25.96 | -1.84 | 537.71 |
| 28. | 24.24 | 25.95 | -1.84 | 537.71 |
| 29. | 24.25 | 25.96 | -1.83 | 537.72 |
| 30. | 24.25 | 25.96 | -1.83 | 537.72 |
| 31. | 24.25 | 25.95 | -1.82 | 537.73 |
| 32. | 24.25 | 25.94 | -1.82 | 537.73 |
| 33. | 24.26 | 25.92 | -1.83 | 537.72 |
| 34. | 24.26 | 25.93 | -1.83 | 537.72 |
| 35. | 24.26 | 25.98 | -1.81 | 537.74 |
| 36. | 24.26 | 25.97 | -1.82 | 537.73 |
| 37. | 24.25 | 25.97 | -1.81 | 537.74 |
| 38. | 24.26 | 25.97 | -1.81 | 537.74 |
| 39. | 24.26 | 26.00 | -1.80 | 537.75 |
| 40. | 24.28 | 26.02 | -1.80 | 537.75 |
| 41. | 24.27 | 26.01 | -1.81 | 537.74 |
| 42. | 24.27 | 26.07 | -1.81 | 537.74 |
| 43. | 24.26 | 26.03 | -1.81 | 537.74 |
| 44. | 24.28 | 26.04 | -1.79 | 537.76 |
| 45. | 24.28 | 26.03 | -1.82 | 537.73 |
| 46. | 24.28 | 26.05 | -1.80 | 537.75 |
| 47. | 24.26 | 26.05 | -1.80 | 537.75 |

10.

| 539.55 | ELEV. ON FORM. |
|--------|----------------|
| -1.89 | 536.66 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.87 | 536.68 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.87 | 536.68 |
| -1.89 | 536.66 |
| -1.89 | 536.66 |
| -1.87 | 536.68 |
| -1.87 | 536.68 |
| -1.88 | 536.67 |
| -1.87 | 536.68 |
| -1.87 | 536.68 |
| -1.87 | 536.68 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.88 | 536.67 |
| -1.89 | 536.66 |
| -1.88 | 536.67 |
| -1.89 | 536.66 |

| | RADIAL BOLTS | DISTANCE CONCRETE | 539.55 - | ELEV. ON BOLTS |
|-----|-----------------|----------------------|-------------|-------------------|
| 48. | 24.28 | 26.07 | 1.80 | 537.75 |
| 49. | 24.27 | 26.06 | 1.80 | 537.75 |
| 50. | 24.27 | 26.05 | 1.80 | 537.75 |
| 51. | 24.26 | 26.01 | 1.81 | 537.74 |
| 52. | 24.29 | 26.00 | 1.81 | 537.74 |
| 53. | 24.26 | 25.98 | 1.82 | 537.73 |
| 54. | 24.26 | 25.98 | 1.82 | 537.73 |
| 55. | 24.26 | 25.97 | 1.81 | 537.74 |

CHECK B.M.

June 14, 1918

LEONARD
NIENOW
SHIPMAN

SET CHECK POINTS ON RIM OF WASH WATER TANK.

2" SQUARE CHISELED ON 4 SIDES OF TANK. GRADE = 536.67

B.M. +3.805 540.195 536.39 ON DAM

S. SIDE 2' LG. OF CENTER. -3.505 536.690 +.02

W. " -3.545 536.650 -.02

N. " -3.545 536.650 -.02

E. " -3.510 536.685 +.015

CHECK B.M. -3.805 536.39

See page 31 This book

| H.d. 539.55 | ELEV. ON FORM. |
|----------------|-------------------|
| -4.88 | 536.67 |
| -2.89 | 536.66 |
| -2.88 | 536.67 |
| -2.88 | 536.67 |
| -2.89 | 536.66 |
| -2.88 | 536.67 |
| -2.88 | 536.67 |
| -2.88 | 536.67 |

-3.16 536.39 ON DAM

| | + | - | ELEV. | CORRECT ELEV. |
|--|------|--------|--------|------------------|
| CHECK LEVELS IN BOTTOM OF SALT STORAGE TANK. | | | | |
| R.M. | + | H.d. | - | 543.44 |
| | 2.09 | 545.53 | | IN POLE |
| | | | -12.19 | 533.24 |
| | 1.99 | 535.23 | | |

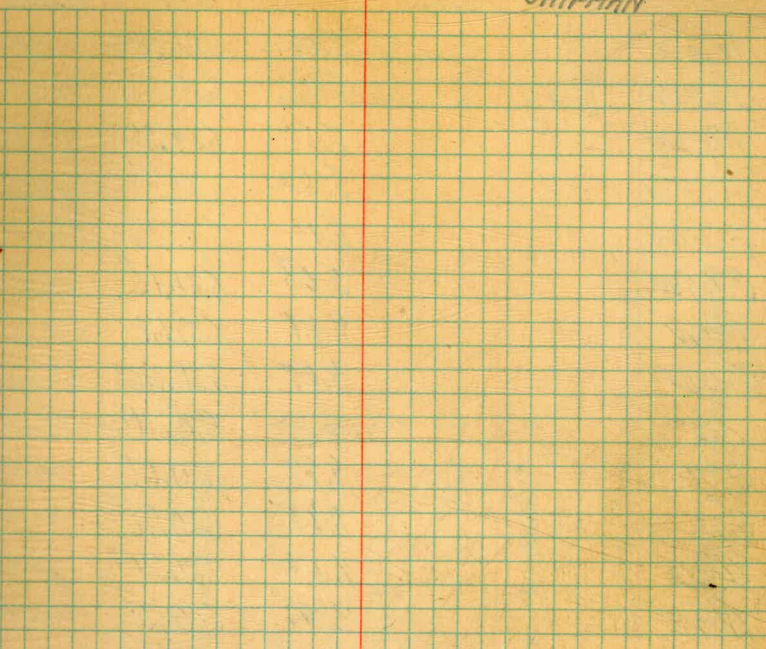
0+6 N UNPADDED SEC

| | | | | |
|-------|--|------|--------|------------------|
| 3.0W | | 4.68 | 530.65 | 530.67 |
| 5.0W | | 4.50 | 530.83 | 530.97 |
| 16.0W | | 4.79 | 530.54 | 530.57 |
| 18.6W | | 5.64 | 530.69 | 529.75 |
| 23.6W | | 5.64 | 530.69 | 529.75 |
| 24.9W | | 4.90 | 530.43 | 530.57 |
| 30.8W | | 4.66 | 530.67 | 30.73 |
| 32.8W | | 4.60 | 530.73 | 530.97 |
| 42.0W | | 4.45 | 530.88 | 531.00 530.67 |
| 2 | | 6.20 | 529.13 | 529.19 |
| 7.6E | | 4.80 | 530.53 | 30.67 |
| 5.0E | | 4.55 | 530.78 | 30.97 |
| 16.8E | | 4.82 | 530.51 | 30.57 |
| 18.7E | | 5.58 | 529.75 | 29.75 |
| 23.4E | | 5.57 | 529.76 | 29.75 |
| 24.8E | | 4.79 | 530.54 | 30.57 |

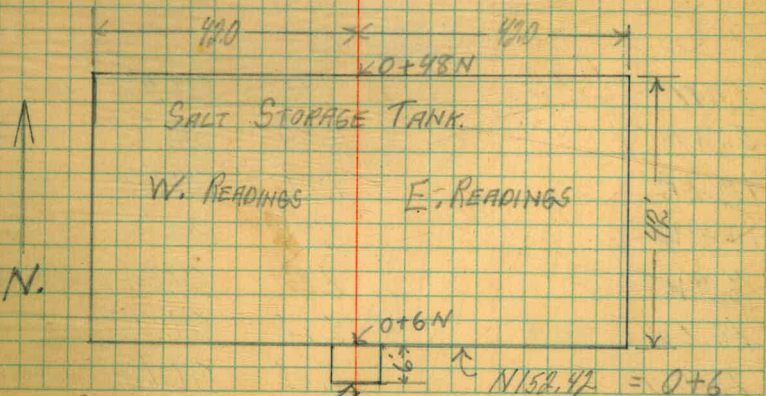
0+12 N PADDED SEC

| | | | | |
|-------|--|------|--------|-------|
| 3.0W | | 4.87 | 530.46 | 30.67 |
| 5.0W | | 4.45 | 530.88 | 30.92 |
| 10.2W | | 4.65 | 530.68 | 30.73 |

5-3-48. LEONARD
NIENOW
SHIPMAN 12.



NOTE: CENTER LINE OF TANK USED AS 0 LINE FOR ALL CHECK LEVELS, AND OUTSIDE OF 6 FT BOX ON SOUTH SIDE IS 0+00 N FOR ALL READINGS.

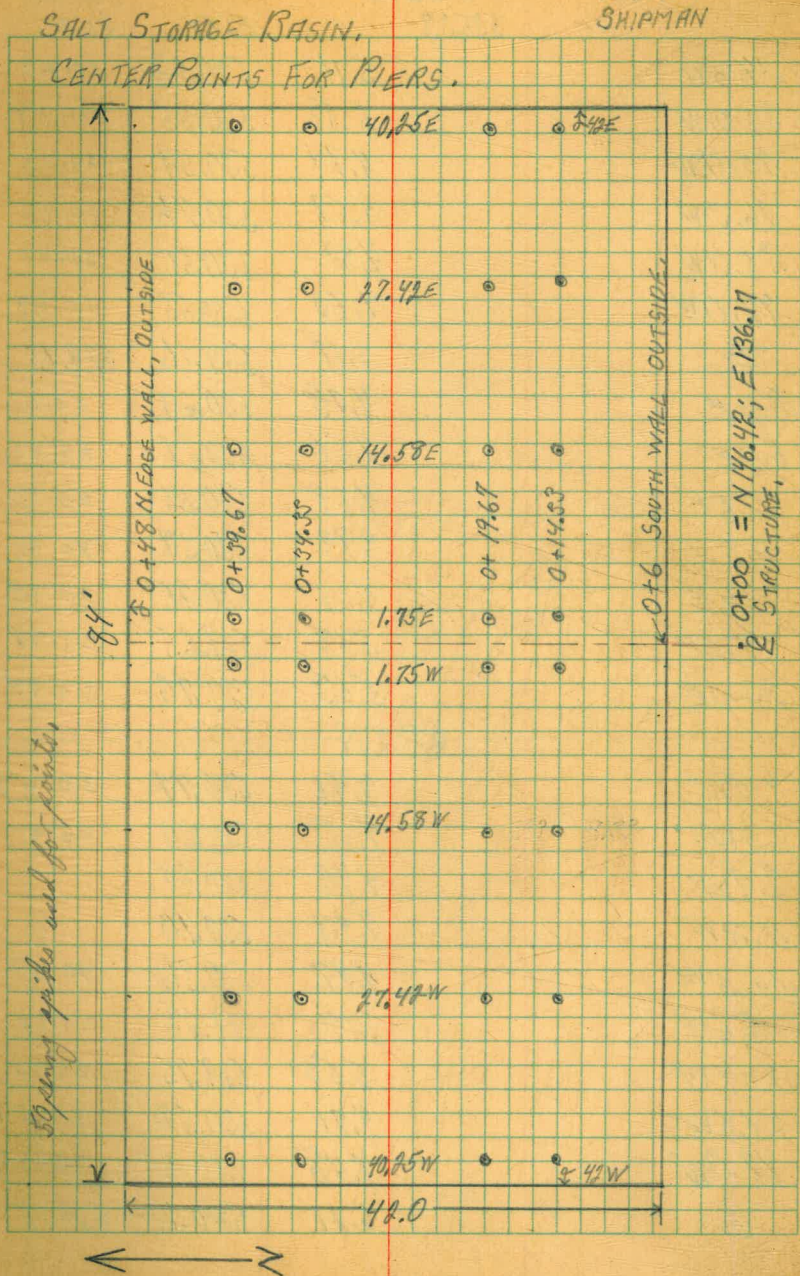


START BASE LINE 0+00 = 136.17 E N146.42

| | 0+12 N | | ELEV. | CORRECT ELEV. |
|-------|--------|------|-----------------|---------------|
| 18.0W | 535.39 | 5.01 | 530.32 | 30.29 |
| 16.4W | | 5.03 | 530.30 | 30.29 |
| 18.2W | | 5.53 | 529.80 | 29.75 |
| 23.3W | | 5.62 | 529.71 = 529.75 | |
| 25.0W | | 5.11 | 530.27 = 530.29 | |
| 30.5W | | 5.08 | 530.25 = 530.29 | |
| 37.8W | | 4.69 | 530.64 = 530.73 | |
| 42.0W | | 4.77 | 530.56 = 530.67 | |
| 2 | | 6.23 | 529.10 = 529.19 | |
| 3.0E | | 4.80 | 530.53 | 30.67 |
| 5.0E | | 4.47 | 530.86 | 30.92 |
| 10.3E | | 4.59 | 530.74 | 30.73 |
| 11.9E | | 5.02 | 530.31 | 30.29 |
| 17.3E | | 5.07 | 530.26 | 30.29 |
| 19.2E | | 5.69 | 529.64 | 29.75 |
| 22.9E | | 5.61 | 529.72 | 29.75 |

| | 28.5 N | | Padded Sec | |
|-------|--------|------|------------|-------|
| 3.1W | | 4.85 | 530.48 | 30.67 |
| 5.0W | | 4.50 | 530.83 | 30.92 |
| 10.2W | | 4.51 | 530.82 | 30.73 |
| 12.0W | | 5.05 | 530.28 | 30.29 |
| 16.9W | | 5.08 | 530.25 | 30.29 |
| 18.6W | | 5.76 | 529.57 | 29.75 |
| 23.0W | | 5.61 | 529.72 | 29.75 |

MAY 10, 1948 LEONARD NIENOW SHIPMAN 13.



Bypassing spikes used for points.

| | + | 23.5N 535.33 | - | ELEV. | CORRECT ELEV. |
|-------|---|-----------------|------|--------|------------------|
| 24.6W | | | 5.11 | 530.22 | 30.29 |
| 30.0W | | | 5.18 | 530.25 | 30.29 |
| 30.4W | | | 4.74 | 530.59 | 30.73 |
| 36.3W | | | 4.57 | 530.76 | 30.92 |
| 38.3W | | | 4.82 | 530.51 | 30.67 |
| 47.0W | | | 4.80 | 530.53 | 30.67 |
| Σ | | | 6.17 | 529.16 | = 529.17 |
| 3.0E | | | 4.78 | 530.60 | 30.67 |
| 5.0E | | | 4.56 | 530.77 | 30.92 |
| 10.6E | | | 4.69 | 530.64 | 30.73 |
| 11.8E | | | 4.99 | 530.54 | 30.29 |
| 17.4E | | | 5.08 | 530.25 | 30.29 |
| 18.8E | | | 5.68 | 529.65 | 29.75 |
| 23.0E | | | 5.63 | 529.70 | 29.75 |

2740 N *un padded*

| | | | | | |
|-------|--|--|------|--------|----------------|
| 3.0W | | | 4.86 | 530.47 | 30.67 |
| 5.0W | | | 4.53 | 530.80 | 30.97 |
| 9.9W | | | 4.49 | 530.84 | |
| 11.3W | | | 4.93 | 530.40 | |
| 16.5W | | | 4.97 | 530.86 | 30.57 |
| 18.6W | | | 5.75 | 529.58 | 29.75 |
| 23.4W | | | 5.58 | 529.75 | 29.75 |
| 24.8W | | | 4.81 | 530.57 | 30.57 |
| 47.0W | | | 4.45 | 530.95 | 31.00 30.67 |
| Σ | | | 6.21 | 529.12 | = 529.17 |

2740 N Contd,

+

535.33

-

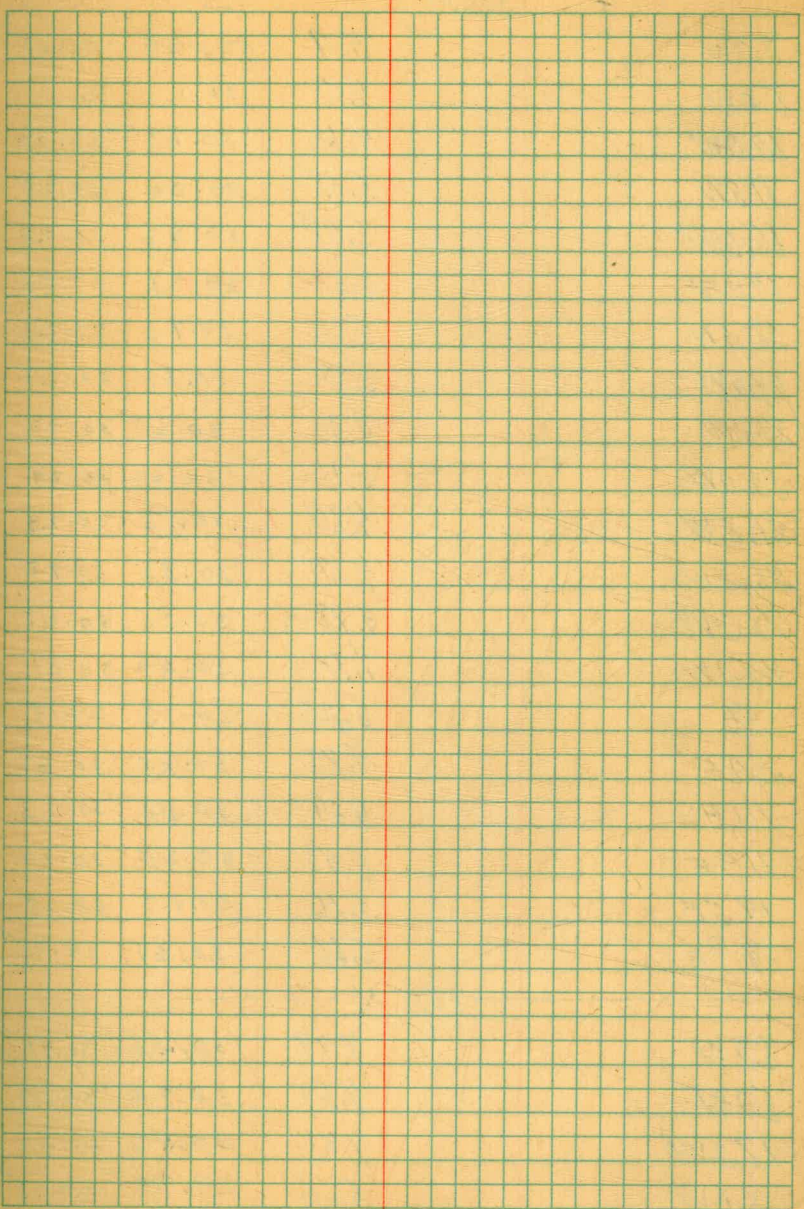
ELEV.

CORRECT ELEV.

| | | | |
|-------|------|--------|-------|
| 3.0E | 4.67 | 530.66 | 30.67 |
| 5.0E | 4.52 | 530.81 | 30.97 |
| 16.9E | 4.70 | 530.63 | 30.57 |
| 19.2E | 5.67 | 529.66 | 29.75 |
| 23.0E | 5.65 | 529.68 | 29.75 |

31.0 N Padded

| | | | |
|-------|------|-----------------|-------|
| 3.0W | 4.95 | 530.88 | 30.67 |
| 5.0W | 4.50 | 530.83 | 30.92 |
| 9.5W | 4.55 | 530.78 | 30.73 |
| 11.2W | 5.04 | 530.29 | 30.29 |
| 16.5W | 4.97 | 530.36 | 30.29 |
| 18.5W | 5.72 | 529.61 | 29.75 |
| 23.5W | 5.62 | 529.71 | 29.75 |
| 24.8W | 5.09 | 530.24 | 30.29 |
| 30.0W | 5.04 | 530.29 | 30.29 |
| 31.0W | 4.59 | 530.74 | 30.73 |
| 36.5W | 4.60 | 530.73 | 30.92 |
| 37.2W | 4.82 | 530.51 | 30.67 |
| 42.0W | 4.72 | 530.61 | 30.67 |
| C | 6.21 | 529.17 = 529.17 | |
| 3.0E | 4.70 | 530.63 | 30.67 |
| 5.0E | 4.57 | 30.76 | 30.92 |
| 10.9E | 4.59 | 30.74 | 30.73 |
| 17.0E | 5.07 | 30.31 | 30.29 |
| 17.5E | 5.07 | 30.26 | 30.29 |
| 18.4E | 5.66 | 29.67 | 29.75 |



| | 42.0 N padded | | | |
|-------|------------------|------|--------|-------|
| | 535.83 | - | ELEV. | |
| 3.0W | | 5.11 | 530.22 | 30.67 |
| 5.0W | | 4.51 | 30.82 | 30.92 |
| 10.0W | | 4.66 | 30.67 | 30.73 |
| 11.5W | | 5.18 | 30.20 | 30.29 |
| 15.5W | | 5.07 | 30.26 | 30.29 |
| 17.0W | | 5.67 | 29.71 | 29.75 |
| 22.5W | | 5.60 | 29.73 | 29.75 |
| 24.0W | | 5.12 | 30.21 | 30.29 |
| 25.0W | | 5.06 | 30.27 | 30.29 |
| 30.0W | | 5.11 | 30.22 | 30.29 |
| 31.5W | | 4.60 | 30.73 | 30.73 |
| 36.5W | | 4.50 | 30.83 | 30.92 |
| 38.5W | | 4.78 | 30.55 | 30.67 |
| 42.0W | | 4.71 | 30.62 | 30.67 |
| 4 | | 6.20 | 29.13 | 29.17 |
| 3.0E | | 4.78 | 30.60 | 30.67 |
| 10.4E | | 4.69 | 30.64 | 30.73 |
| 11.9E | | 5.08 | 30.25 | 30.29 |
| 17.5E | | 4.16 | 31.17 | 30.29 |
| 18.9E | | 5.66 | 30.67 | 29.75 |
| | 48.0 N UN padded | | | |
| 3.0W | | 4.77 | 30.56 | 30.67 |
| 5.0W | | 4.59 | 30.74 | 30.97 |
| 17.2W | | 4.81 | 30.52 | 30.57 |
| 18.6W | | 5.56 | 29.77 | 29.75 |

48.0 N Contd.

+ 535.83 -

| | | | |
|--------|------|--------|----------------|
| R.2W | 5.57 | 529.76 | 29.75 |
| R.4.9W | 4.69 | 30.64 | 30.57 |
| 48.0W | 4.40 | 30.93 | 31.00 30.67 |
| Σ | 6.11 | 29.22 | 29.17 |

| | | | |
|------------|--------|-----------------|--|
| T.P. | -0.39 | 534.94 | |
| +11.04 | 545.98 | | |
| Check R.M. | -2.53 | 543.45 = 543.44 | |

MAY 10, 1948;

LEONARD
NIENOW
SHIPMAN.

COMPLETION OF CHECK LEVELS IN SALT STORAGE TANK.

| | | | |
|--------------------|--------|--------|-------|
| R.M. in Pole +2.64 | 546.08 | 543.44 | |
| T.P. | -10.60 | 535.48 | |
| +0.15 | 535.63 | - | ELEV. |
| N 6 | | | |

| | | | |
|--------|-------|--------|---------|
| E 23.9 | -6.77 | 528.86 | 29.75 ✓ |
| E 24.7 | -5.08 | 30.55 | 30.57 ✓ |
| E 39.7 | -4.76 | 30.87 | 30.97 ✓ |
| E 40.0 | -4.71 | 30.98 | 30.97 ✓ |
| E 42.0 | -4.69 | 30.94 | 31.00 ✓ |

N 16.5 padded

| | | | |
|--------|-------|-------|---------|
| E 23.9 | -5.98 | 29.70 | 29.75 ✓ |
| E 24.7 | -5.24 | 30.59 | 30.29 |
| E 39.7 | -5.06 | 30.57 | 30.67 ✓ |
| E 40.0 | -5.04 | 30.59 | 30.67 ✓ |
| E 42.0 | -5.04 | 30.59 | 30.67 ✓ |

| | + | H.d. | - | ELEV. | |
|--------|---|--------|-------|--------|---------|
| | | 535.63 | | | |
| | | N 27.0 | | | |
| E 23.9 | | | -5.88 | 529.75 | 29.75 ✓ |
| E 24.7 | | | -4.95 | 530.68 | 30.57 ✓ |
| E 39.7 | | | -4.63 | 531.00 | 31.00 ✓ |
| E 40.0 | | | -4.63 | 531.00 | 31.00 ✓ |
| E 42.0 | | | -4.62 | 531.11 | 31.00 ✓ |
| | | N 37.5 | | Padded | |
| E 23.9 | | | -5.95 | 29.68 | 29.75 ✓ |
| E 24.7 | | | -6.31 | 30.32 | 30.29 ✓ |
| E 39.7 | | | -5.09 | 30.55 | 30.67 ✓ |
| E 40.0 | | | -6.06 | 30.59 | 30.67 ✓ |
| E 42.0 | | | -5.06 | 30.57 | 30.67 ✓ |
| | | N 48.0 | | | |
| E 23.9 | | | -5.88 | 29.75 | 29.75 ✓ |
| E 24.7 | | | -5.12 | 30.51 | 30.57 ✓ |
| E 39.7 | | | -4.70 | 30.93 | 30.97 ✓ |
| E 40.0 | | | -4.66 | 30.97 | 30.97 ✓ |
| E 42.0 | | | -4.62 | 31.01 | 31.00 ✓ |

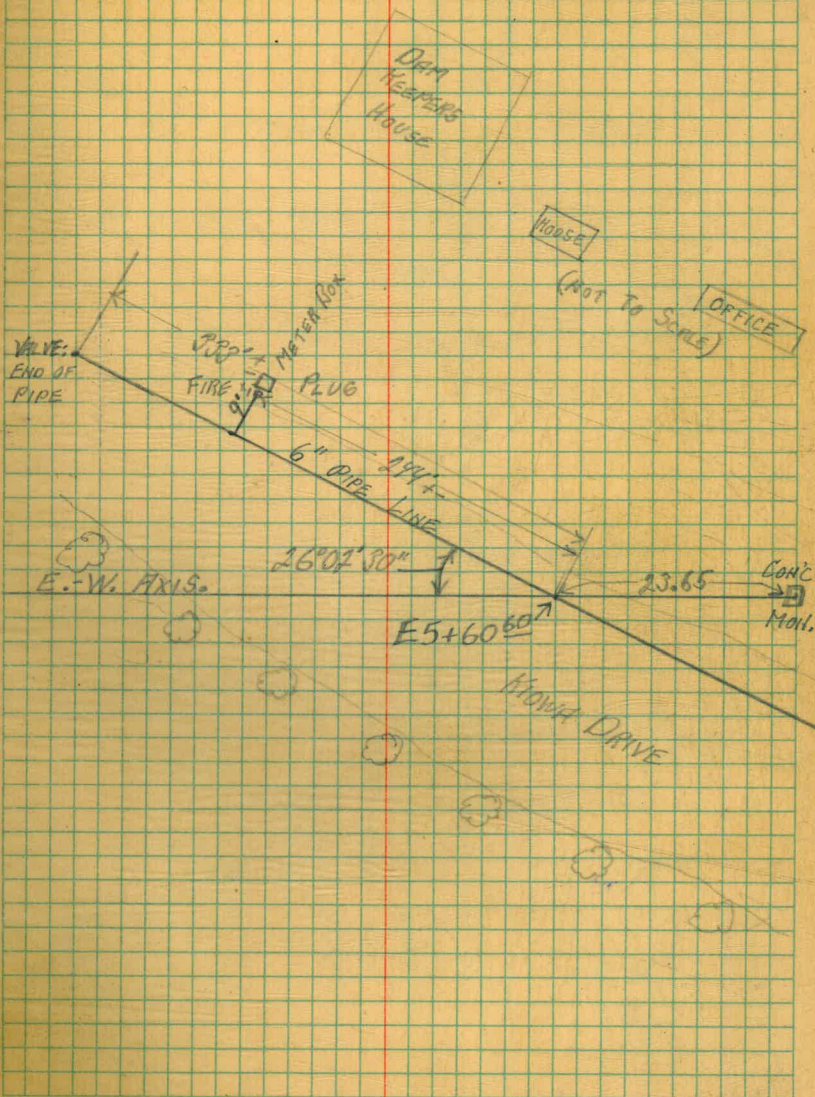
CONTINUED NEXT PAGE.

RECHECK ON HIGH POINTS IN SALT STORAGE TANK.

| | 535.63 | - | ELEV. | |
|---|--------|-------|--------|---|
| | | | ACTUAL | CORRECT |
| N. 6 W 42.0 | | -4.83 | 530.80 | 531.00 530.67 |
| N12, W12.0 | | -5.29 | 30.34 | 30.29 |
| N12, W18.7 | | -5.77 | 29.86 | 29.75 |
| N23, S, W10.2 | | -4.83 | 30.80 | 30.73 |
| N23, S, E11.8 | | -5.31 | 30.32 | 30.29 |
| N27, W42.0 | | -4.79 | 30.84 | 31.00 30.67 |
| N27, E16.9 | | -5.03 | 30.60 | 30.57 |
| N31, W9.5 | | -4.87 | 30.76 | 30.73 |
| N31, W16.5 | | -5.31 | 30.32 | 30.29 |
| N42, E17.5 | | -5.47 | 30.16 | 30.29 |
| N42, E18.9 | | -5.97 | 29.66 | 29.75 |
| N48, W24.9 | | -5.02 | 30.61 | 30.57 |
| N48, W42.0 | | -4.65 | 30.98 | 31.00 30.67 |
| N48, C | | -6.39 | 29.24 | 29.17 |
| SET T.B.M. | | -1.20 | 534.43 | STEEL DRILL ROD IN N. BANK OF PIT. |
| +11.45 | 545.88 | | | |
| CHECK R.M. | | -2.44 | 543.44 | IN POLE |
| CHECK FORMS FOR 4' x 18" SHEAR BLOCK. | | | | |
| T.B.M. | | | 534.43 | ROD IN BANK. |
| +1.19 | 535.56 | | | |
| TOP OF BLOCK. | | -4.89 | 530.67 | |
| CHECKED DURING POUR, ALL POINTS WITHIN 0.02 | | | | |

5-11-48 LEONARD NIENOW P.

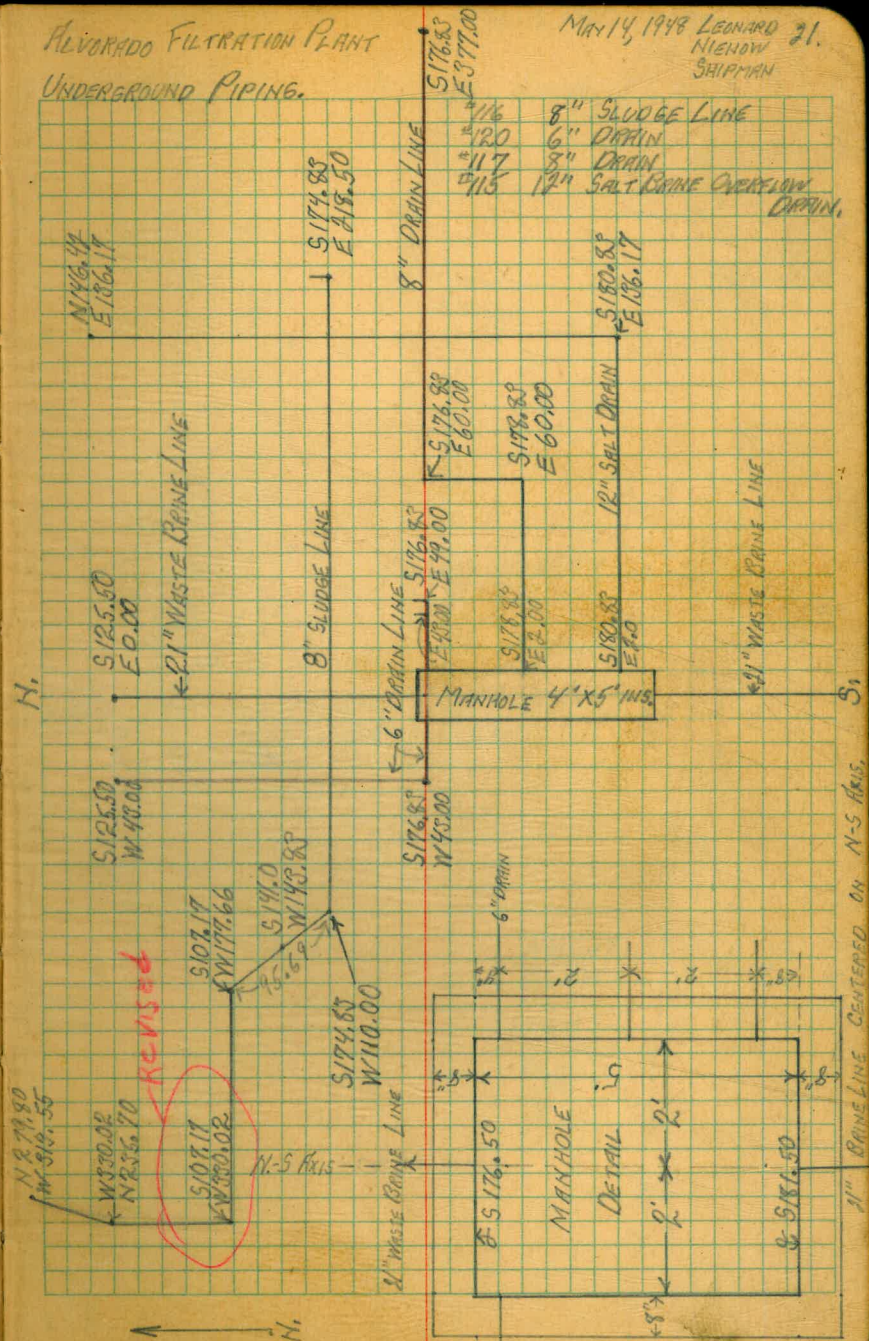
6" WATER LINE ON KIOWA DRIVE.
LAKE MURRAY, FILTER PLANT SITE.



SEE LEVEL BOOK # 736, PAGE R TO
FOR CUTS ON THESE LINES.

ALVARADO FILTRATION PLANT
UNDERGROUND PIPING.

MAY 14, 1948 LEONARD
NIENOW
SHIPPAN 21.



| | |
|-----|--------------------------------|
| 116 | 8" SLUDGE LINE |
| 120 | 6" DRAIN |
| 117 | 8" DRAIN |
| 115 | 12" SALT BRINE OVERFLOW DRAIN. |

REVISED

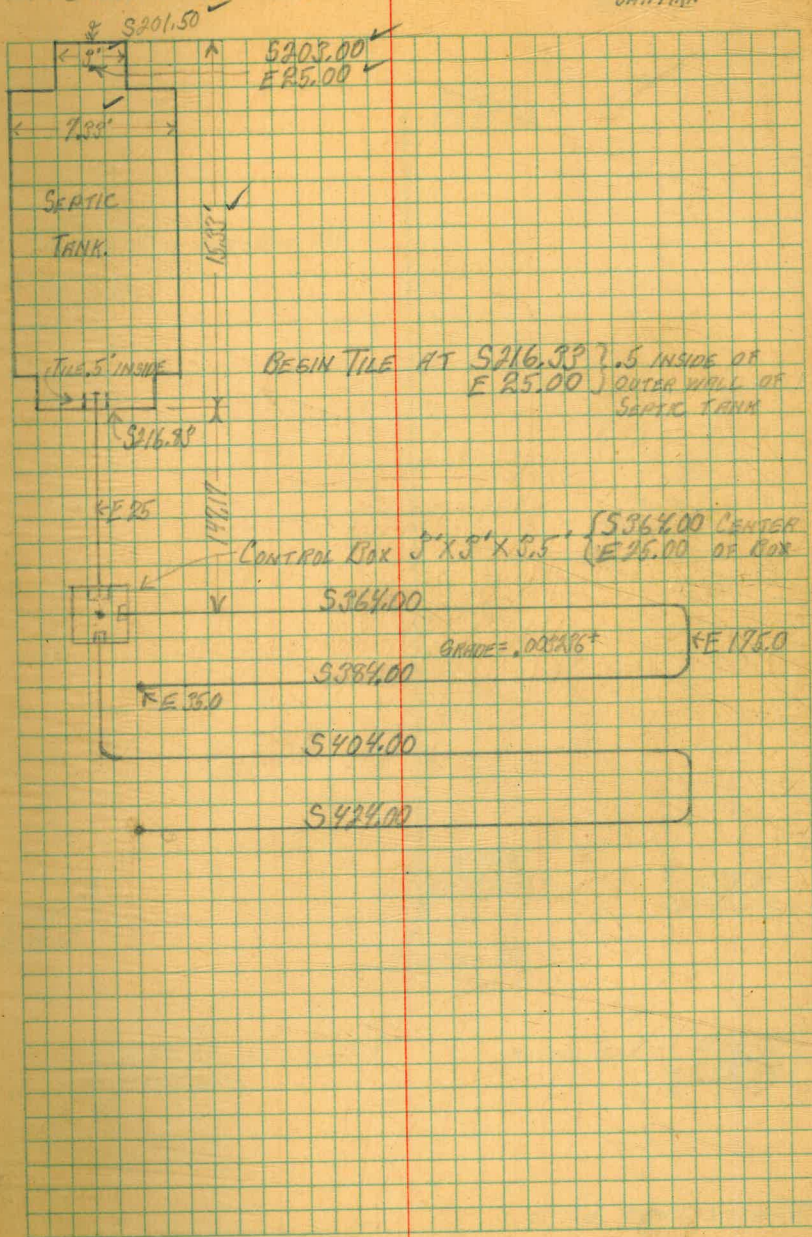
N

8" BRINE LINE CENTERED ON N-S AXIS

UNDERGROUND PIPING:
SEPTIC TANK & TILE FIELD

MAY 16, 1948 LEONARD
NIENOW
SHIPPAN

23.



18" DRAIN LINE # 113.

5-30-48

LEONARD
NIENOW
SHIPMAN
DARRY

24.

SEE PAGE 10 OF LEVEL BOOK # 756

FOR GRADES

N 822.83 ✓
E 227.00 ✓

N 110.83 ✓
E 144.00 ✓

N 110.83 ✓
E 227.00 ✓

Inv. Elev. 531.07

N 110.83 ✓
E 227.00 ✓

N 74.83 ✓
E 144.00 ✓
Inv. Elev. 531.66

N 76.83 ✓
E 223.00 ✓
Inv. Elev. 531.65

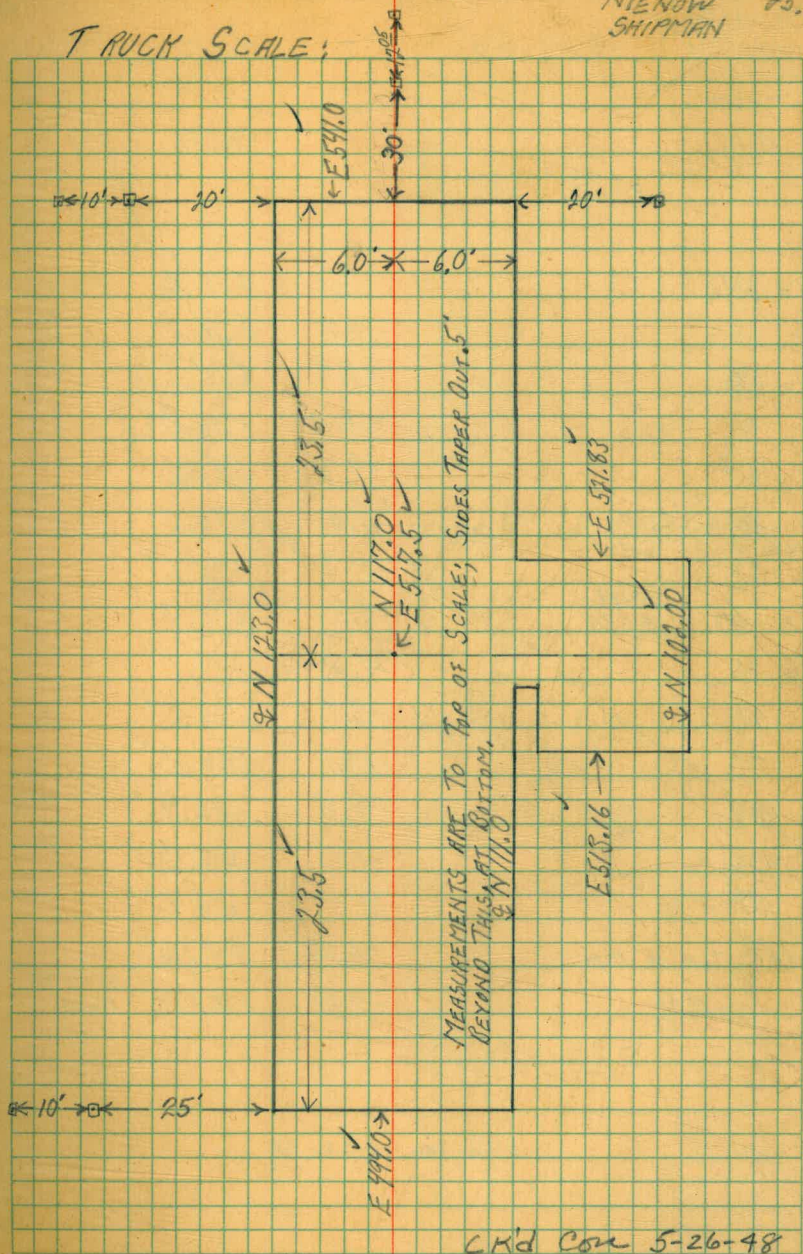
CK'd con 5-26-48

5-24-48

LEONARD
NIENOW
SHIPPAN

25.

TRUCK SCALE:



CK'd Cor 5-26-48



DITCH BOTTOM
OPPOSITE
BASELINE
STATION

B.M.

+

H.d.

-

ELEV.

+2.84

546.28

543.44

NW 150

-15.1 531.2

" 130

-11.6 534.7

" 100

-10.7 535.6

" 75'

-10.0 536.3

" 69'

-9.7 536.6

" 56'

-9.8 536.5

" 33'

-9.7 536.6

0+00 = N 170
E 375

-9.6 536.7

SE 25

-9.2 537.1

50

-9.4 536.9

75

-10.1 536.7

100

-9.4 536.9

125

-9.5 536.8

137

10.0 536.3

152 TOP OF PIPE

-6.72 540.06

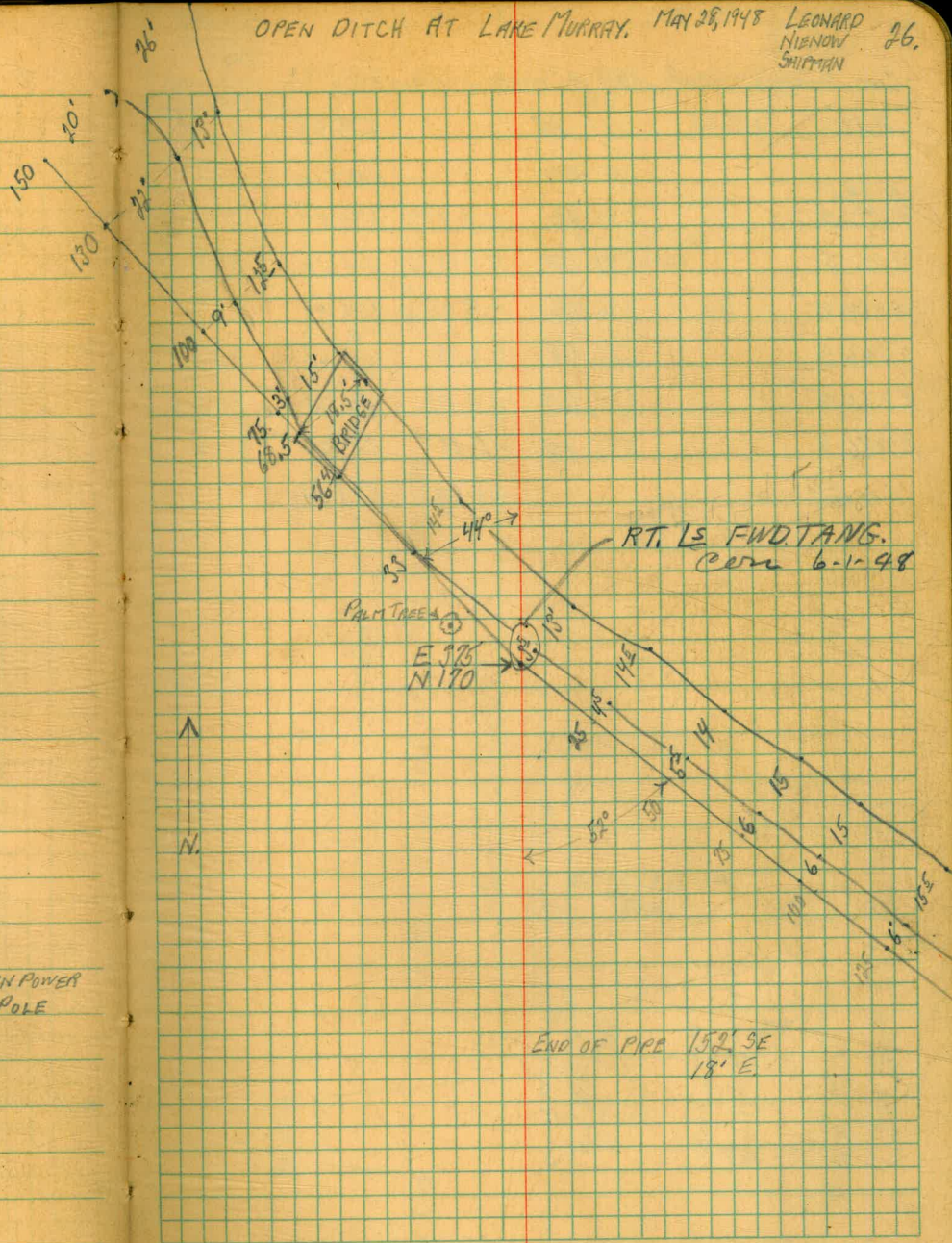
CHECK B.M.

-2.84 543.44

IN POWER
POLE

CKD con 5-28-48

OPEN DITCH AT LAKE MURRAY. MAY 28, 1948 LEONARD NIENOW SHIPTON 26.



OCT. 20, 1948.

LEONARD
SHIPMAN
WEST,

CUT STAKES FOR 68" ELEMENTA PIPE LINE.

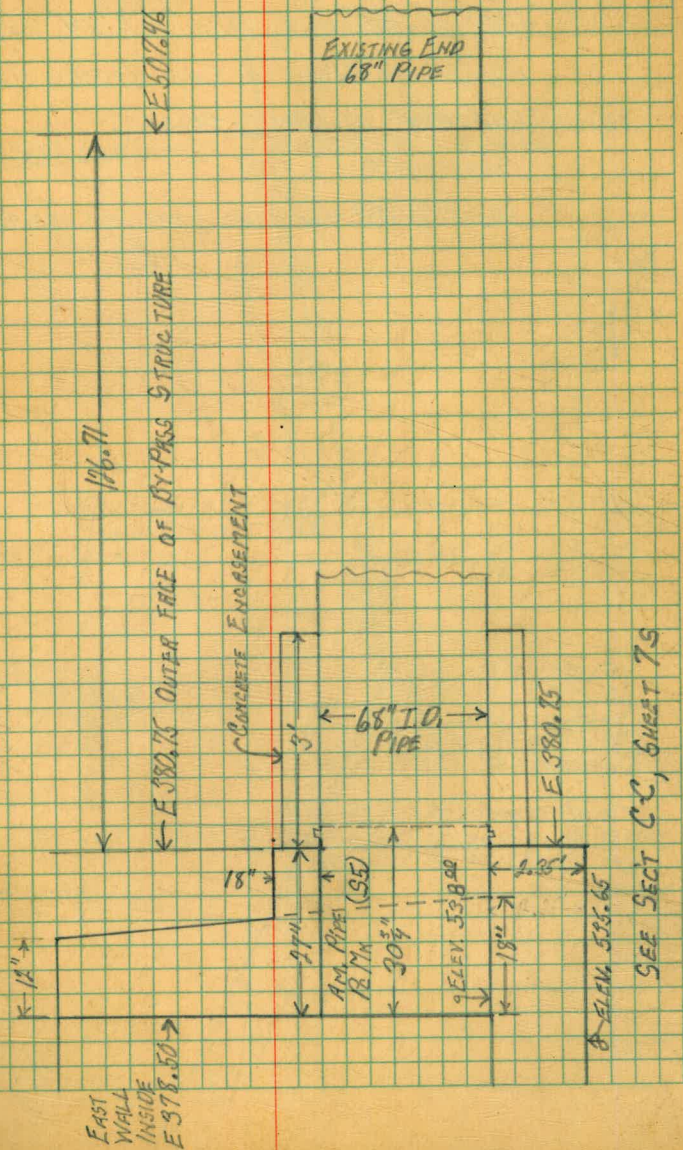
| R.M. | +9.48 | H.I. 547.95 | | 538.47 | CONC. MON 583.5 |
|------------|-------|----------------|-------|-----------|--------------------|
| | | INV. GRADE | - | HUB ELEV. | CUT |
| N 88.5 | | 537.52 | -8.97 | 538.99 | 1.46 |
| E 396.8 | | 537.04 | -7.45 | 540.50 | 5.46 |
| E 412.8 | | 536.56 | -8.56 | 539.99 | 2.85 |
| E 438.8 | | 536.08 | -9.82 | 539.68 | 3.55 |
| E 444.8 | | 535.60 | -5.02 | 542.83 | 7.83 |
| E 460.8 | | 535.12 | -6.15 | 541.80 | 6.68 |
| E 476.8 | | | -9.48 | 538.47 | |
| CHECK R.M. | | | | | |

6-4-47

LEONARD
NIENOW
SHIPMAN

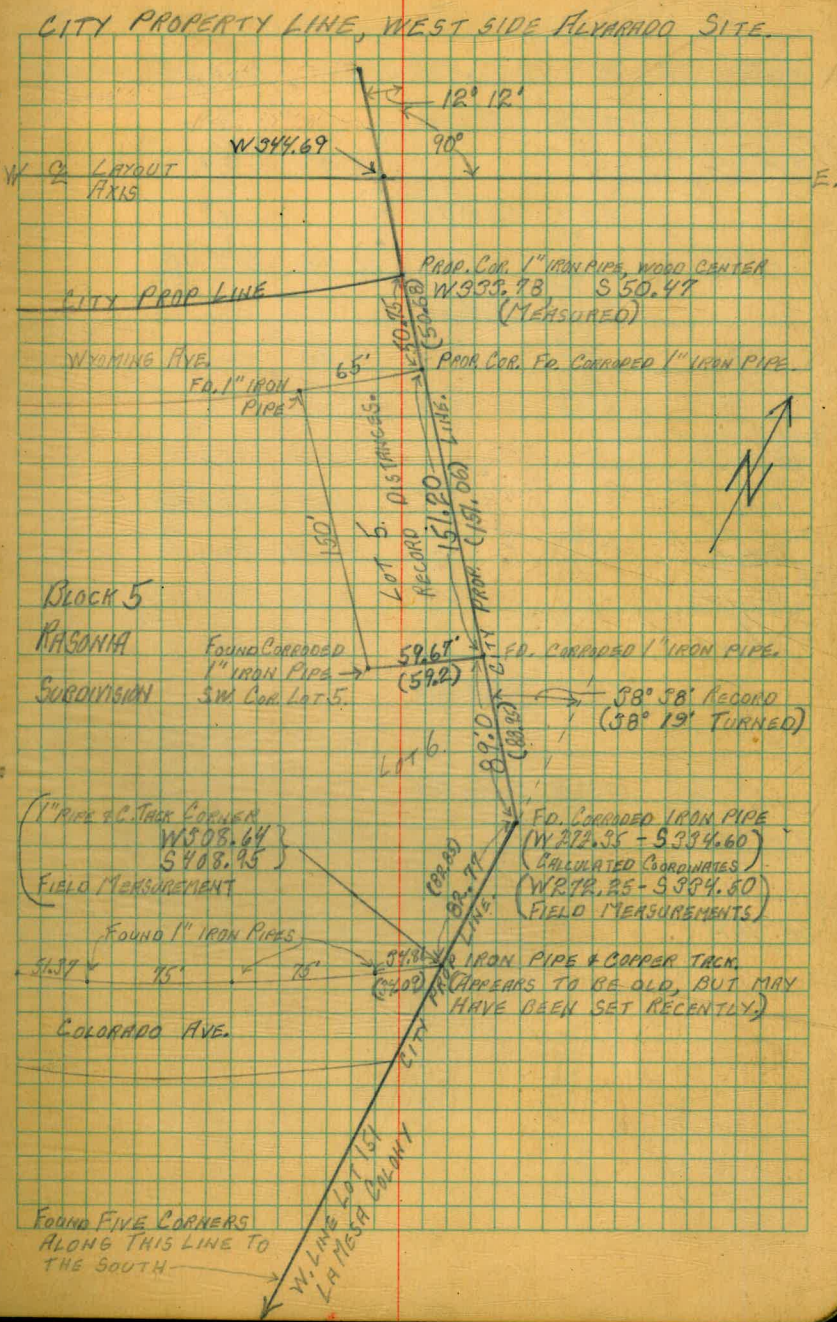
27.

LOCATION 68" PIPE EAST OF BY-PASS STRUCTURE.



NOTE: CHAINED DISTANCES THAT DIFFER FROM THE RECORD DISTANCES TAKEN FROM MAP OF RASONIA, MAP No. 2134, SHEET 2, ARE SHOWN BENEATH THE RECORD DISTANCE AND ARE IN PARANTHESES.

SEE F.B. 723 FOR TOPO ALONG THIS LINE. PAGE 66.



7-28-48

Baker
Shipman
Elev.

INVERT ELEV. OF 72" PIPE: ENDS & JOINTS

| | | | | |
|------------------|-------|--------|--------|-------------------------------|
| B.M. | | | 536.39 | ON DAM |
| | 0.77 | 537.16 | | |
| T.P.#1 | | | 12.97 | 524.19 ON ROCK |
| | 0.77 | 524.96 | | |
| T.P.#2 | | | 12.48 | 512.48 ON ROCK |
| | 2.16 | 514.64 | | |
| T.P.#3 | | | 4.60 | 510.04 SET B.M. ON INLET END. |
| | 1.68 | 511.72 | | |
| West End of Pipe | | | 4.54 | 507.18 |
| 1st Joint EAST | | | 4.06 | 507.66 |
| 2nd Joint EAST | | | 3.62 | 508.10 |
| East End of pipe | | | 3.26 | 508.46 |
| T.P.#4 | | | 1.68 | 510.04 ON FND. |
| | 4.55 | 514.59 | | |
| T.P.#5 | | | 0.34 | 514.25 ON ROCK |
| | 12.32 | 526.57 | | |
| T.P.#6 | | | 0.49 | 526.08 |
| | 11.28 | 537.36 | | |
| ON DAM | | | 0.97 | 536.39 536.39 |

CKD 8-2-48 com

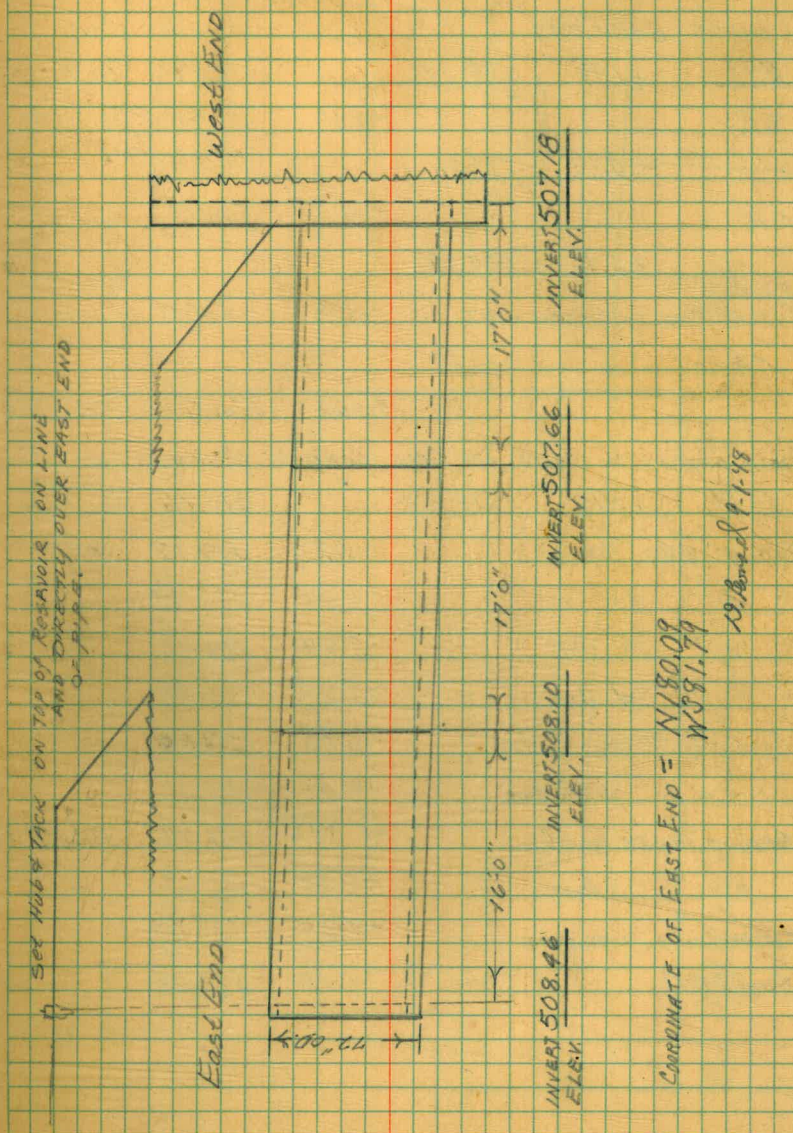
7-28-48

Baker
Shipman

49

72" RESERVOIR INLET PIPE

INVERT & GRADE: ENDS & JOINTS



LEONARD
BAKER
SHIPMAN

8-10-48

9-1-48

LEONARD
SHIPMAN
WEST

30.

RECHECK INVERT ELEV. AT END OF 72" PIPE IN
RESERVOIR AT CONNECTING POINT TO PIPE FROM
INLET STRUCTURE.

| | | | | | |
|------------------------------------|-------|--------|--------|--------|---------------------|
| R.M. | +1.98 | 538.37 | 536.39 | ON PIP | |
| T.P. | | | -6.60 | 531.77 | ON HUB |
| | +0.59 | 532.86 | | | |
| T.P. | | | -10.95 | 521.41 | ON HUB |
| | +2.98 | 524.39 | | | |
| EAST END OF PIPE IN EMBANKMENT. | | | -15.93 | 508.46 | USED ROD & TAPE. |

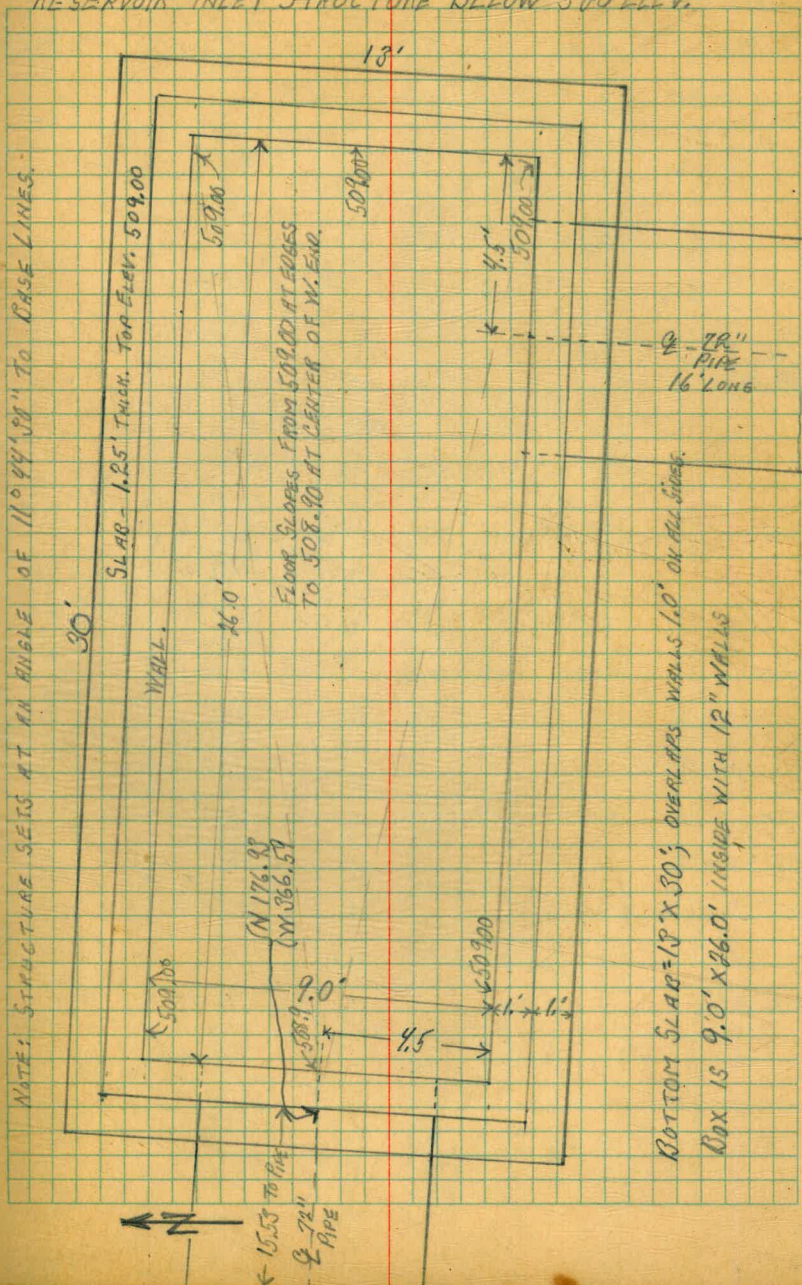
CHECKS ELEV. ON PAGE 29.

9-248 LEONARD, SHIPMAN, WEST.

CHECK LEVELS ON FORMS FOR BASE SLAB OF RESERVOIR INLET STR.

| | | | | |
|------------------------------|-------|--------|--------|------------------------|
| R.M. | +2.18 | 512.22 | 510.04 | ARCH IN RES. INLET. |
| TOP OF SLAB N.W. COR. | | -3.25 | 508.97 | 509.00 |
| " " " N.E. COR. | | -3.23 | 508.99 | " |
| " " " SE COR. | | -3.24 | 508.98 | " |
| " " " S.W. COR. | | -3.24 | 508.98 | " |
| RECESS TO 72" PIPE S.E. COR. | | -3.98 | 508.24 | |
| " " " " W. END | | -4.01 | 508.21 | |
| GROUND UNDER W. END | | -5.70 | 506.52 | 506.75 |
| " " " S.E. END | | -5.75 | 506.47 | " |
| TOP OF EXTRA SLAB W. END | | -4.84 | 507.88 | |
| CHECK R.M. | | -2.18 | 510.04 | |

RESERVOIR INLET STRUCTURE BELOW 520 ELEV.



8-2-48 BAKER
Shipman

WASH WATER TANK

LEVEL CHECK POINTS ON BIM OF WASH WATER TANK

| | | | | |
|---------|------|--------|--------|--------|
| BM | 6.81 | 543.20 | 536.39 | ON DAM |
| N SIDE | | 6.55 | 536.65 | |
| E " | | 6.51 | 536.69 | |
| T.P. #1 | | 6.81 | 536.39 | |
| | 4.11 | 540.50 | | |
| W SIDE | | 3.85 | 536.65 | |
| S " | | 3.81 | 536.69 | |
| CK B.M. | | 4.11 | 536.39 | 536.39 |

(see page 11)

CK'd 8-2-48 CORN

SEE PAGE
11

CHECK LEVELS ON RIM WASH WATER TANK

ALVARADO FILTER PLANT

| | | | | |
|-----------|------|---------|---------|---------|
| BM | 3.36 | 539.75 | 536.39 | ON DAM |
| N. Side □ | | 3.11 | 536.64 | .650 |
| W. Side □ | | 3.11 | 536.64 | .650 |
| 11 | 6.38 | 543.283 | 2.847 | 536.903 |
| S. Side □ | | 6.606 | 536.677 | .690 |
| E. Side □ | | 6.607 | 536.676 | .685 |
| CK B.M. | | 6.887 | 536.396 | |

JAN. 25 1952
BERTY
LEONARD
FOOTBALL

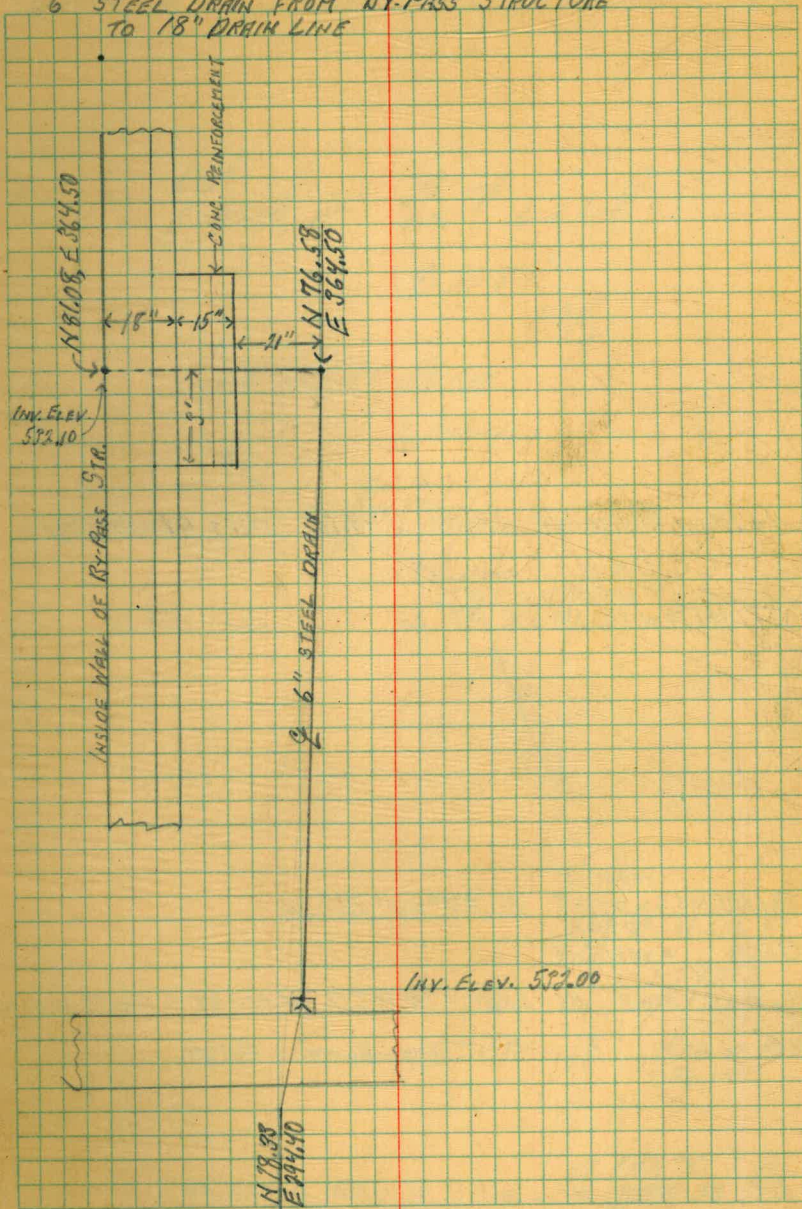
CUT STAKES FOR 6" STEEL DRAIN FROM BY-PASS STR.

| R.M. | | | | | |
|------------|-----------|------------|--------|------------|-----------|
| | +6.50 | 544.97 | | 538.47 | |
| N 81.08 | INSIDE | INV. ELEV. | | HUB. ELEV. | CUT |
| E 364.50 | WALL END | 532.10 | -9.07 | 535.90 | 3.80 |
| N 76.58 | | | | | |
| E 364.50 | P.I. | 532.09 | -9.42 | 535.55 | 3.46 |
| E 347.0 | | 532.07 | -9.57 | 535.40 | 3.30 |
| E 332.0 | | 532.05 | -9.29 | 535.68 | 3.63 |
| E 317.0 | | 532.03 | -5.56 | 539.41 | 7.38 |
| E 302.0 | | 532.01 | -3.35 | 541.62 | 9.61 |
| N 78.33 | INLET IN | | | | ON TOP OF |
| E 294.42 | 18" DRAIN | 532.00 | -12.25 | | FLANGE |
| T.P. | +11.09 | 547.13 | -8.92 | 536.04 | HUB. |
| CHECK R.M. | | | -8.66 | 538.47 | |

9-2-48 LEONARD SHIPMAN WEST

37.

6" STEEL DRAIN FROM BY-PASS STRUCTURE TO 18" DRAIN LINE



SEPT. 20, 1948

LEONARD
SHIPMAN
WEST, SS.

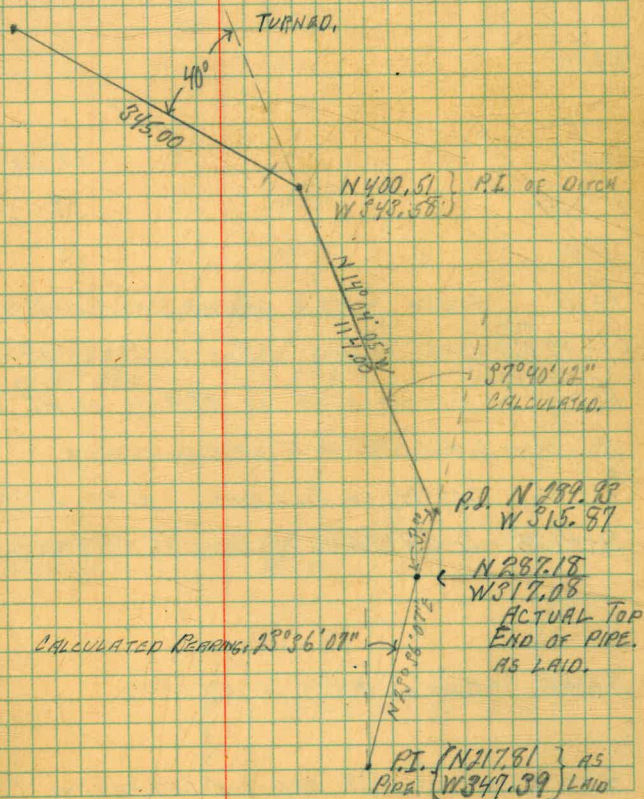
DITCH FOR 54" OVERFLOW TO ALVARADO CANYON

Void - Not used.

9-21-48

LS

SEE NEXT PAGE



1+19 DITCH INV. GRADE 509.14 MEETS GROUND 509.16

USING SLOPE .0557

N 400.51

P.I. 1+17 = W 848.58 L. 40° LT. ELEV. 509.89

N 289.95
0+03 P.I. = W 315.87 L. 87° 40' 12" LT.

N 287.18

0+00 = W 317.08

END OF PIPE AS LAID = N 287.18, W 317.08 = 0+00 OF DITCH

" " " " INV. GRADE = 515.84

P.I. OF PIPE AS LAID = N. 217.81, W 847.39

LINE "B" FOR DITCH FROM 54" OVERFLOW TO ALV. CANYON.

Pt 56 END OF LINE.
MARK ON HARDENED SACK OF CEMENT.

COORDINATES = N 405.17 }
W 347.88 }
P.O. 1+32.50 } BACK TAIL IS
25° 19' LT. } 45' FROM DAM AXIS

COORDINATES = N 324.92 }
W 300.66 }

COORDINATES = N 287.18 }
W 317.08 }
P.O. 0+41.42 } 45' FROM DAM AXIS,
54° 20' LT. }

N 287.18 } END OF EXISTING
W 317.08 } 54" PIPE

3+56 END OF LINE IN BOTTOM OF GULLY. 475.5
BOTTOM OF FILL FOR REG. 39' LT

3+00 " " " 30' LT 482.6

2+50 " " " 24' LT 497.3

2+00 " " " 25' LT 499.5

1+50 " " " 25' LT 506.2

1+20 " " " 19' LT

1+00 " " " 16' LT

1+35 GRADE MEETS GROUND SURFACE: ELEV. 508.31

P.O. 1+32.50³⁷ L. 25° 19' LT. REG. FILL BASE 24' LT.

BOTTOM OF BUTTRESS #25 IS 38.4 FT. OF P.I. AT GROUND LINE

BUTTRESS SLOPES 1.42' IN 5' VERTICAL DISTANCE.

0+86¹⁶ BOTTOM OF FILL DIRT. ELEV. 515.8

P.O. 0+41.42 L. 54° 20' LT., PARALLEL TO AXIS OF MURRAY DAM

0+00 = END OF EXISTING 54" PIPE.

NOTE: SLOPE OF .0558 USED FOR DETERMINING "DAYLIGHT" POINT.

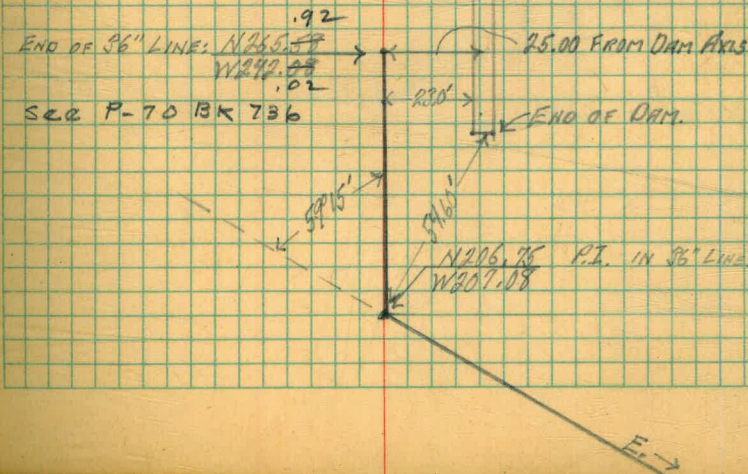
36" FORCE MAIN LINE - EXTENDED.

DISTANCES TO BASE OF DAM BUTTRESSES.

NOT SHOWN IN MATCH:
 BUTTRESS #25 16.5' RT
 " #27 15.5' RT.

BUTTRESS BATTER'S
 SLOPE OUTWARD FROM
 TOP AT APPROX. .28' TO 1.0'

WEST EDGE OF WALKWAY
 IS 25.0' FROM $\frac{1}{2}$ OF ARE.

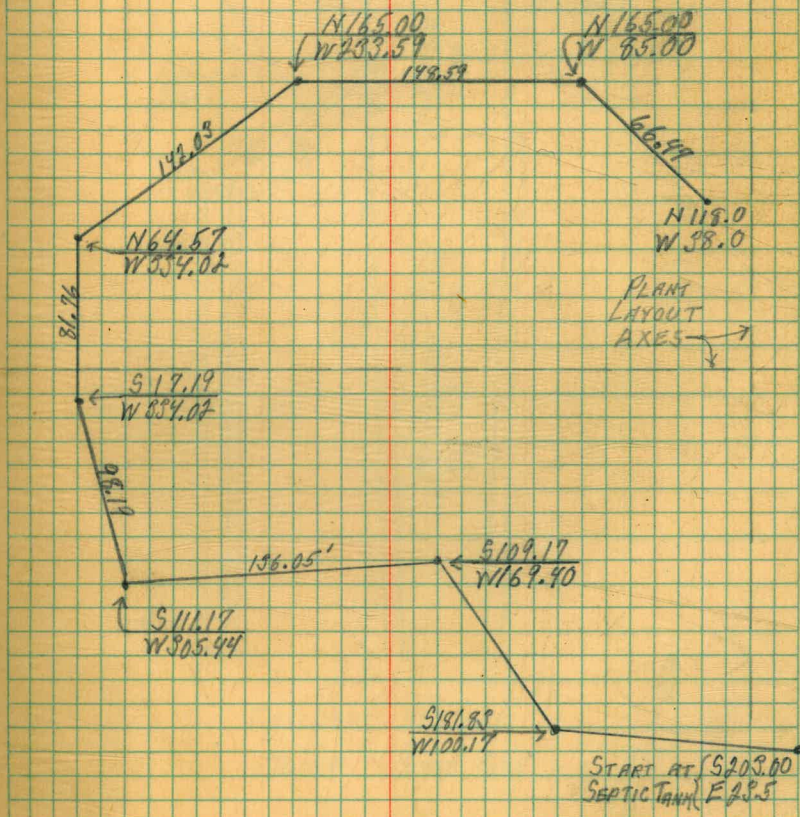


OCT. 7, 1948

LEONARD
SHIPMAN 37.
WEST.

8" SANITARY SEWER - RELOCATION.

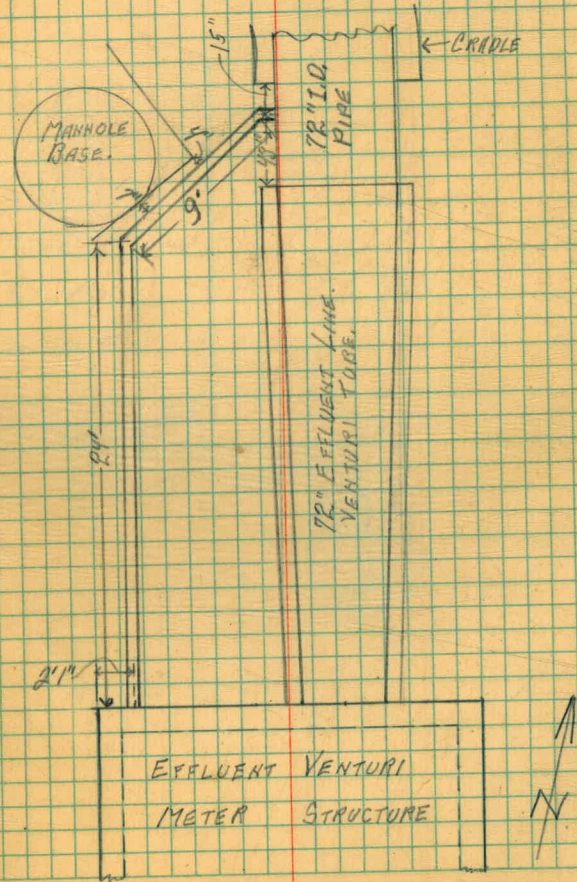
LINE MOVED TO PROVIDE FOOTING ON UNDISTURBED
GROUND.



Oct. 21, 1948.

LEONARD. J8.

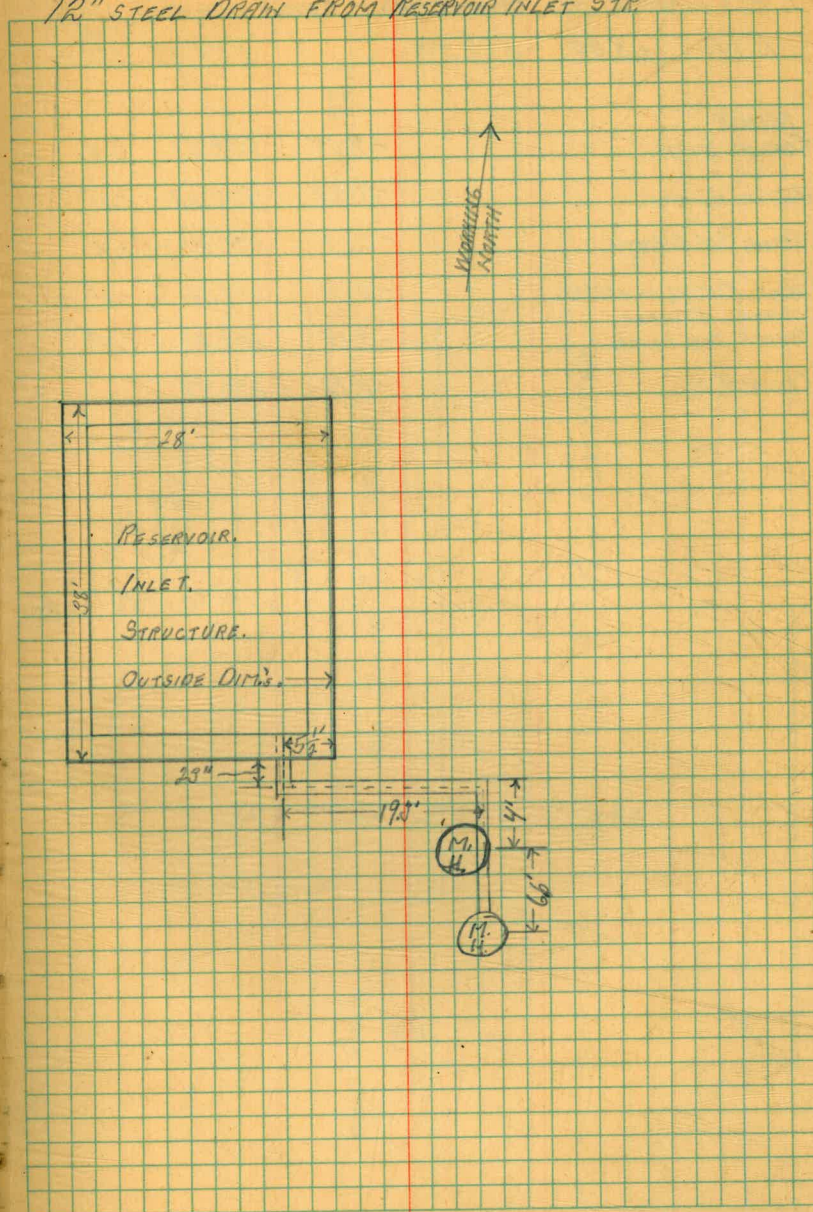
6" PUMP SUCTION LINE.



Oct. 26, 1948

LEONARD
SHIPMAN
WEST. 99.

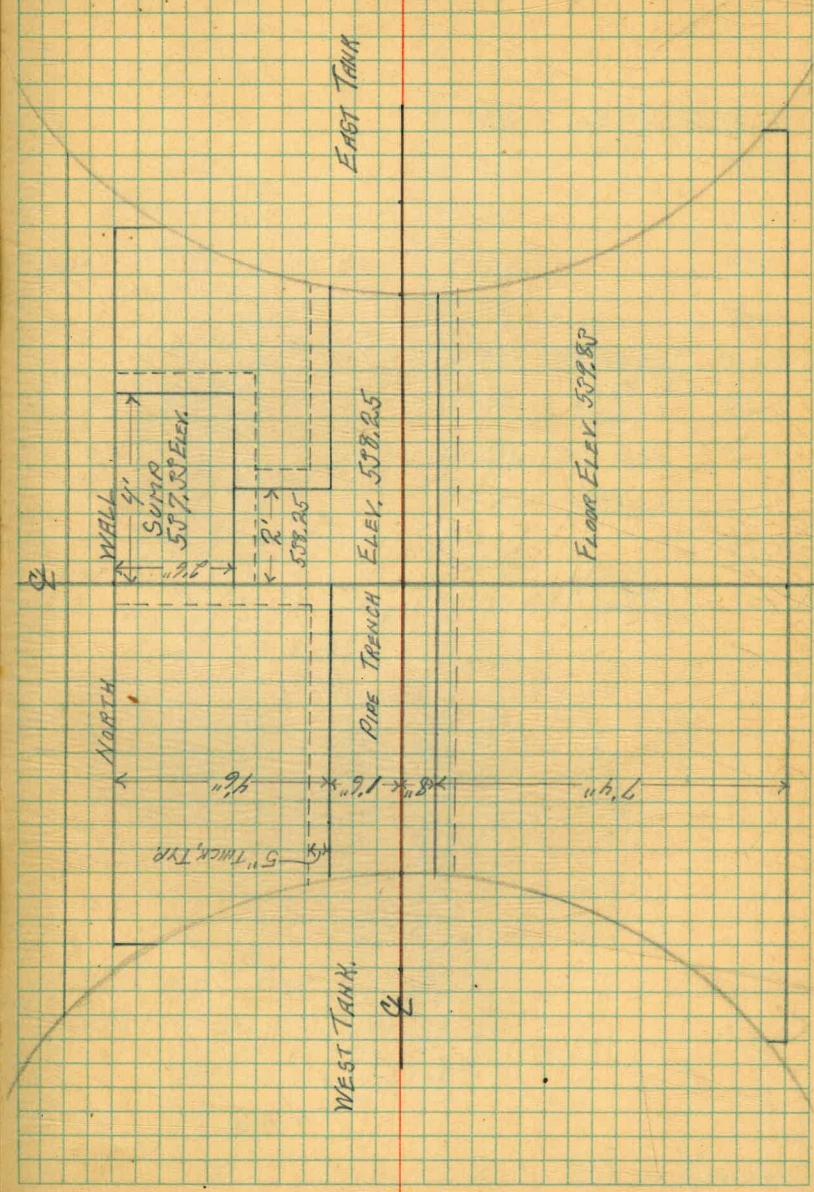
12" STEEL DRAIN FROM RESERVOIR INLET STR.



CHECK LEVELS ON TRENCH AND SUMP

| | | | | |
|---------------------------------|--------|--------|--------|----------------|
| B.M. | +8.90 | 547.57 | 598.47 | MON. AT 583 E. |
| TRENCH TOP OF FORMS | -7.54 | 539.83 | 0.11 | |
| BOTTOM OF FORMS | -9.14 | 538.23 | -0.2' | |
| SUMP TOP OF FORMS | -7.53 | 539.84 | +0.1' | |
| SUMP BOTTOM OF FORMS | -10.05 | 537.22 | -0.1' | |
| CHANNEL BETWEEN TRENCH AND SUMP | -9.14 | 538.23 | -0.2' | |
| CHECK R.M. | -8.90 | 538.47 | | |

CARRON STORAGE TANKS; PIPE TRENCH AND SUMP.



STATION. DEFLECTION

| | | |
|---------|---------------------------|------------|
| 1+87.54 | P.C.C. | 15° 10' |
| 1+80 | | 14° 33' |
| 1+60 | | 12° 56' |
| 1+40 | | 11° 19' |
| 1+20 | | 9° 42' |
| 1+00 | $\Delta = 80^{\circ} 20'$ | 8° 05' |
| 0+80 | $T = 96.02'$ | 6° 28' |
| 0+60 | $R = 354.23$ | 4° 51' |
| 0+40 | $L = 182.54$ | 3° 14' |
| 0+20 | | 1° 37' 1/2 |
| 0+00 | P.C. | |

LEONARD
WEST
PAINE 41.

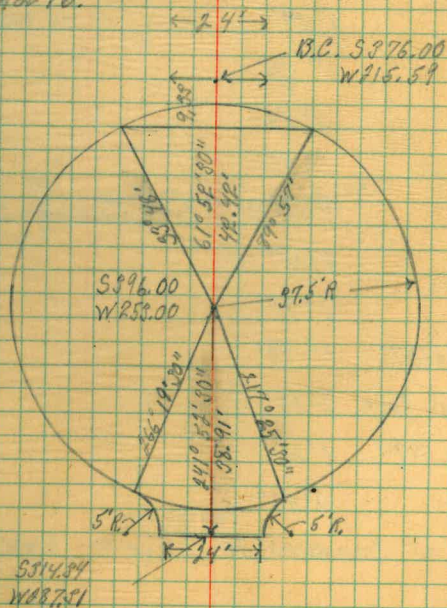
CIRCLE AND ROADWAY IN S.W. CORNER OF FILTER PLANT SITE.

P.C.C. S 248.25
W 80.60

P.I. S 850.78
W 150.91

Void
12-31-48.

SEE PAGE 46.



NOTE: BEARINGS IN CIRCLE ARE AZIMUTHS BASED ON PLANT LAYOUT.

CENTER LINE COLORADO AVE; ENTRANCE TO FILTER PLANT

CENTER OF CURVE LINE →

14.92' 2+11.3

S 89° 40' 18" E. REC. 25' → 1+53.57
1" PIPE FT.
S.E. COR. LOT 7.

S 35° 34' 45" E. REC. 25' → 0+76.78
S.E. COR. LOT 8.
S.W. COR. LOT 7.

92° 02' 46"
S 31° 29' 12" E. REC. 25' → 0+00
S.W. COR. LOT 8.
1" PIPE FT.

| | | |
|--|--------------------|-------------------------------|
| 2+11.3 | 5° 38' | RADIUS LINE OF CURVE ENTRANCE |
| 2+10 | 5° 36' | |
| 2+00 | 5° 20' | |
| 1+75 | 4° 40' | |
| 1+67.05 | 4° 21' 30" | CITY BOUNDARY LINE |
| 1+53.27 | 4° 05' 30" | |
| 1+25 | 3° 20' | |
| 1+00 | R=1075 2° 40' | |
| 0+76.78 | DEF' / FT = 2° 08' | |
| 0+50 | 1.599' 1° 20' | |
| 0+25 | 0° 40' | |
| 0+00 = C _L OF COLORADO ST. 25' FROM S.W. COR. LOT #8. | | |

ANGLES AND DISTANCES TO POINTS IN E COLORADO
 AVE. FROM S396.00, W253.00, CENTER OF PROPOSED

TURNING CIRCLE; AZIMUTHS ARE FROM PLANT LAYOUT.

| POINT # | AZIMUTH BEARING. | DISTANCE | SOUTH COORDINATE | WEST COORDINATE | REMARKS |
|---------|------------------|----------|------------------|-----------------|---|
| 1. | 88°12' | 73.44' | 593.69 | 279.60 | |
| 2. | 119°16' | 30.28 | 410.80 | 226.58 | |
| 3. | 215°42'30" | 36.54 | 425.67 | 274.33 | |
| 4. | 238°51' | 81.90 | 458.37 | 323.09 | PROP LINE INTERSECTION OF STREET OFF PROP. COR. |
| 5. | 241°19' | 94.95 | 441.57 | 336.30 | |

OBJECT: BEARINGS & DISTANCES TO APPROX CENTER:

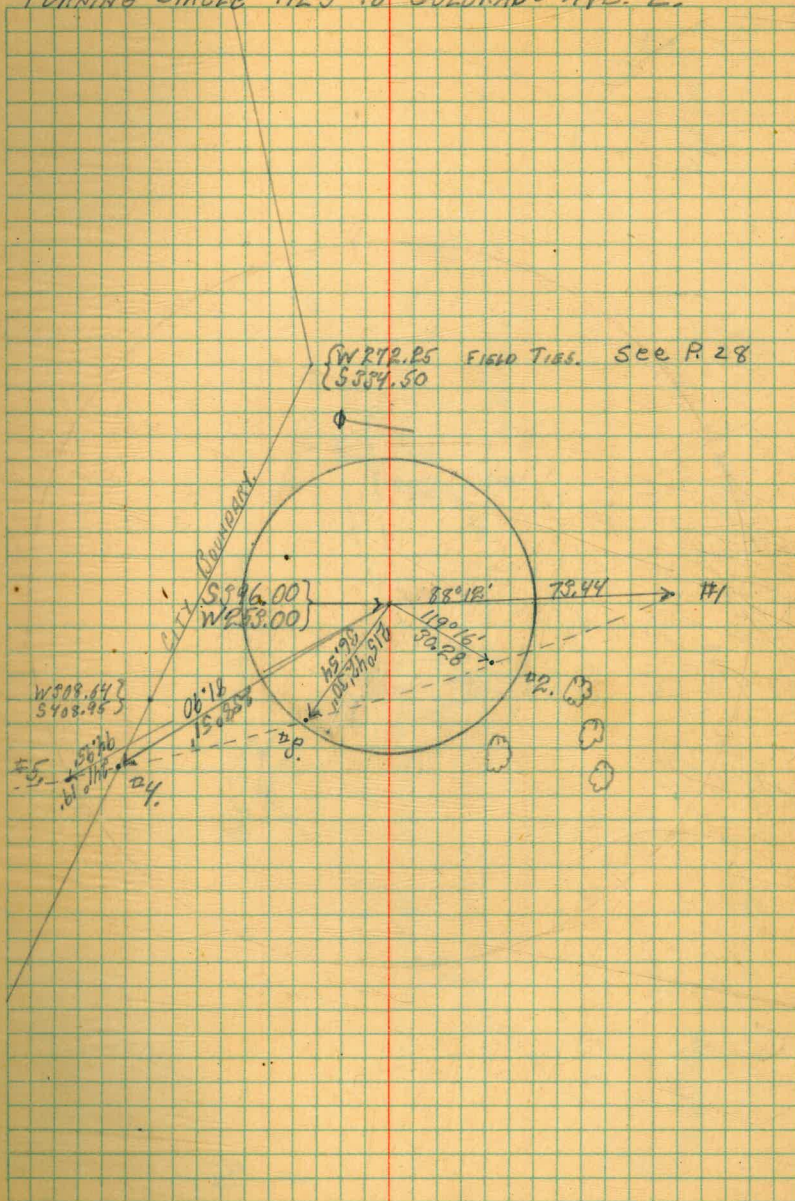
| | | | |
|----------|---------|-------|-------------|
| TREE | 108° | 48.0' | 2' Dia. |
| " | 115°44' | 56.0' | 1' " |
| " | 118°22' | 64.7' | 1 1/2' " |
| " | 140°48' | 51.0' | 1 1/2' " |
| P. POLE | 347°58' | 60.5' | 1' " |
| GUY WIRE | 70°14' | 57.8' | GROUND LINE |

DEC. 23, 1948

LEONARD
 WEST
 PRYNE.

43.

TURNING CIRCLE TIES TO COLORADO AVE. E.

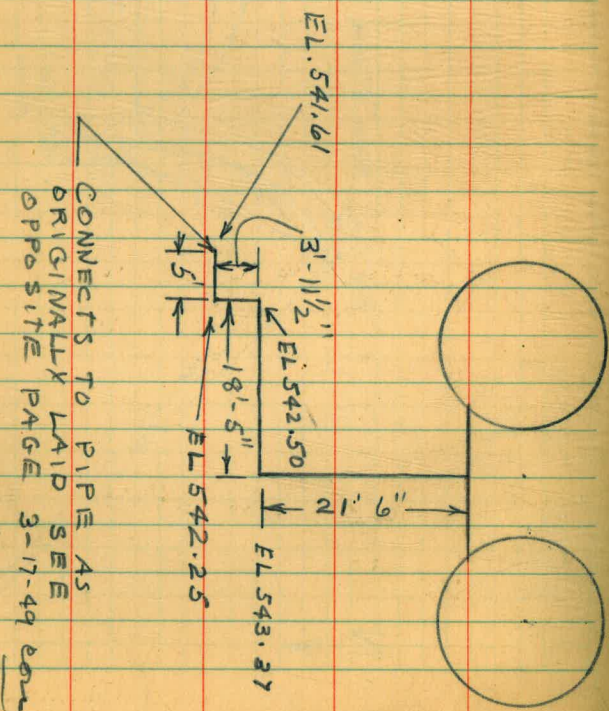
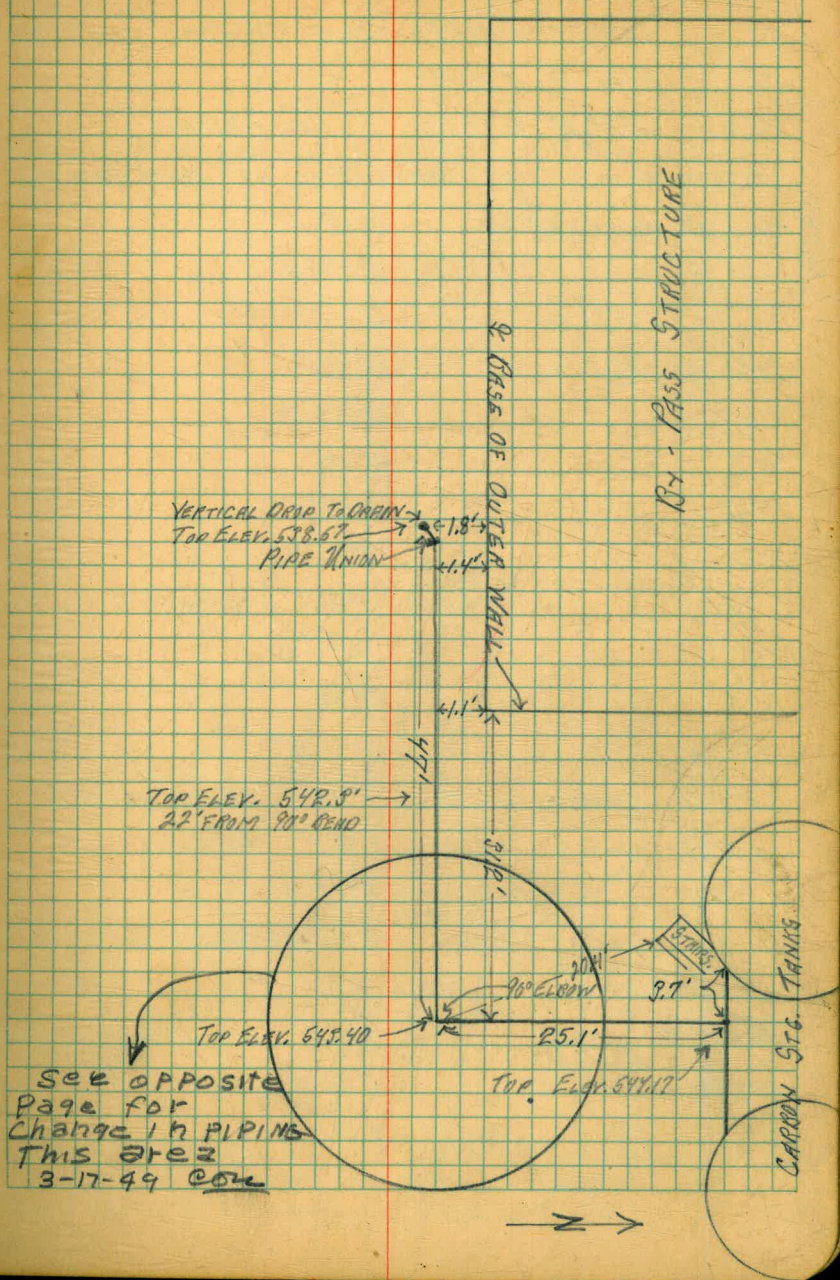


Dec. 30, 1948

LEONARD
WEST
WYNE.

45.

2" SUMP PUMP DISCHARGE FROM CARBON TANKS:



ENTRANCE ROAD, REVISED

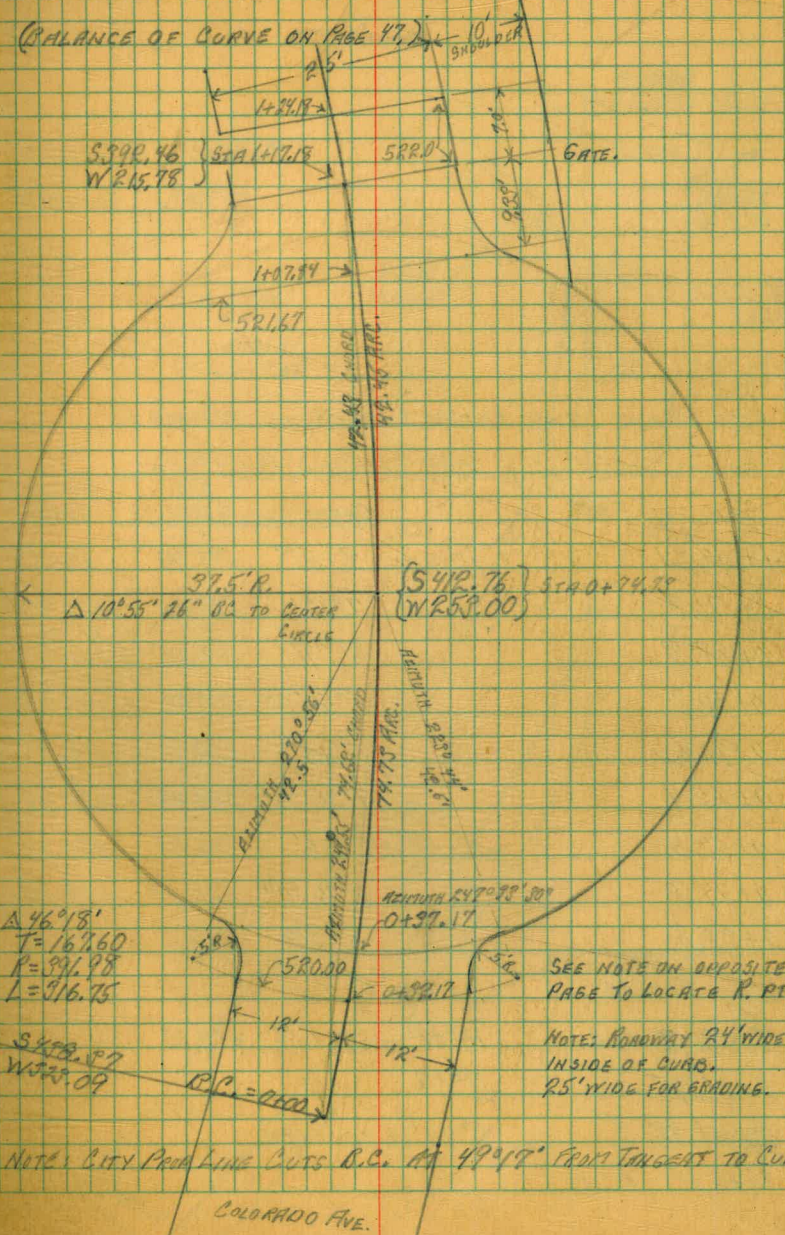
| STATION | | DEFLECTION |
|---------|-----------------|--------------------------------------|
| B.C. | S438.37 W323.09 | $\Delta = 46^{\circ}18' \text{ Lt.}$ |
| P.I. | S396.13 W160.90 | $T = 167.60$ |
| | | $L = 316.75$ |
| P.C.C. | S249.68 W79.40 | $R = 391.98$ |
| | | DEF. PER FT. = 4.3851' |

OFFSET POINTS, ALONG RADIAL LINES, TO 5' RADIUS POINTS.

| NOTE: | STATION | POINT | DEFLECTION | DESCRIPTION |
|-------|---------|----------------------|---------------------|---|
| | 0+36.63 | RAD. PT. 17' RT. | $2^{\circ}40'30''$ | |
| | 0+34.95 | RAD. PT. 17' LT. | $2^{\circ}33'15''$ | |
| | 3+16.75 | P.C.C. | $23^{\circ}09'$ | |
| | 3+00 | | $21^{\circ}55'30''$ | |
| | 2+75 | | $20^{\circ}06'$ | |
| | 2+50 | | $18^{\circ}16'$ | |
| | 2+25 | | $16^{\circ}26'30''$ | |
| | 2+00 | | $14^{\circ}37'$ | |
| | 1+75 | | $12^{\circ}47'30''$ | |
| | 1+50 | | $10^{\circ}58'$ | |
| | 1+24.18 | | $9^{\circ}4'30''$ | |
| | 1+18.68 | | $8^{\circ}40'30''$ | CENTER OF WIRE FENCE |
| | 1+17.18 | CHORD = 116.72 | $8^{\circ}34'$ | CENTER OF GATE |
| | 1+07.84 | CHORD = 107.53 | $7^{\circ}53'$ | GRADE CNG. 521.67 |
| | 1+00 | | $7^{\circ}18'30''$ | |
| | 0+74.83 | CHORD = 74.62 | $5^{\circ}28'08''$ | CENTER OF CIRCLE. |
| | 0+52.17 | | $3^{\circ}49'$ | |
| | 0+35.76 | | $2^{\circ}39'$ | CENTER OF ENTRANCE TO CIRCLE. |
| | 0+32.17 | | $2^{\circ}21'$ | START 520.00 GRADE |
| | 0+25 | | $1^{\circ}49'30''$ | |
| | 0+20 | | $1^{\circ}27'30''$ | LEFT |
| | 0+00 | B.C. S438.37 W323.09 | | & COLORADO AVE. AT INTERSECTION WITH CITY PROP. LINE. |
| | | | | DEFLECTION PER FT. = 4.3851' |

ENTRANCE ROAD

REVISED LOCATION TRAFFIC CIRCLE:



JAN 3, 1949

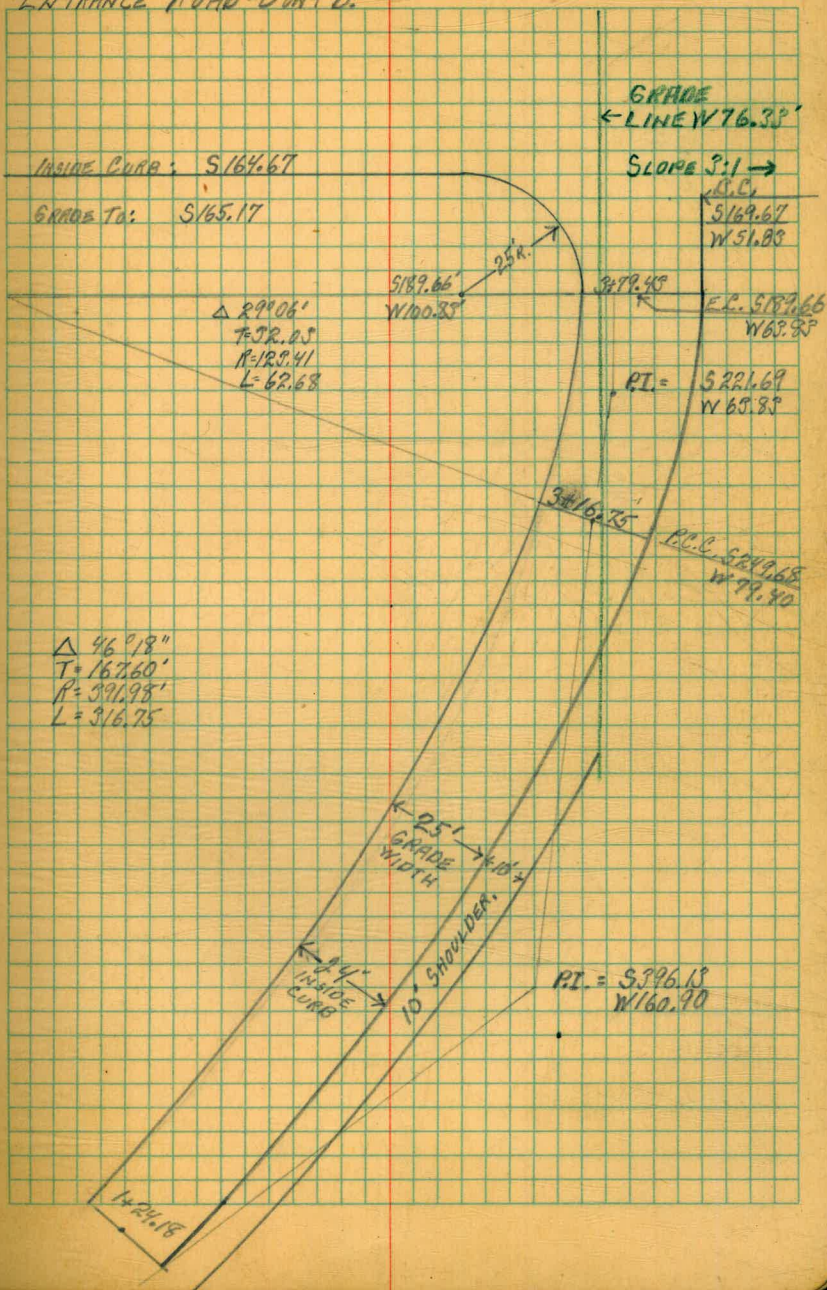
LEONARD WEST FISHE

46.

JAN. 3, 1949

47.

ENTRANCE ROAD - CONT'D.



RATE OF SLOPE ALONG CENTER LINE EQUALS .022 PER FT.

POINTS THRU CURVE FOR GRADING PURPOSES:

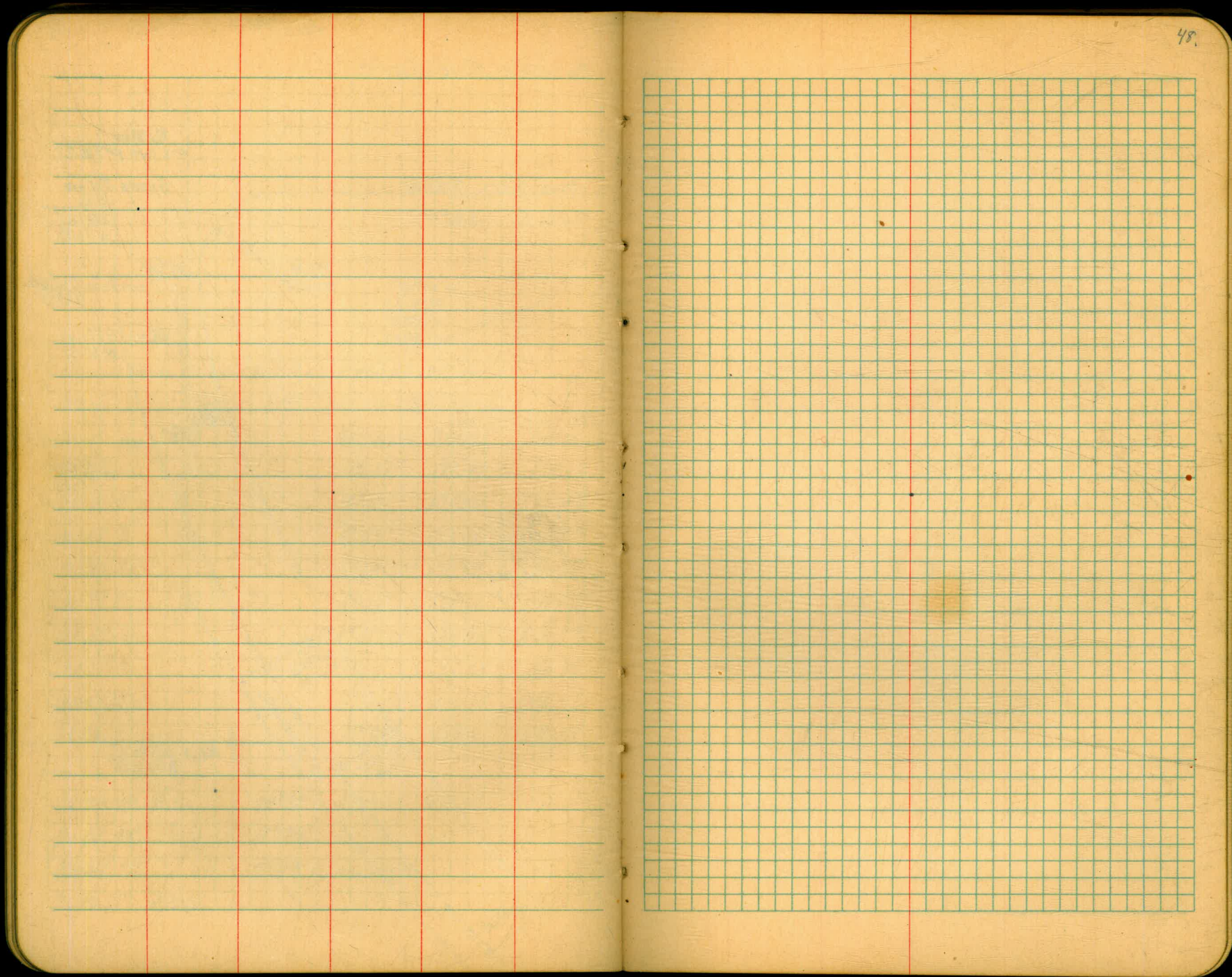
| STA: | DEFLECTION | SUB GRADE: | FINISHED GRADE: |
|---------|------------|------------|-----------------|
| 1+07.84 | 7°58' | 521.42 | 521.67 |
| 0+98.8 | 7°13' | 521.22 | 521.47 |
| 0+89.8 | 6°34' | 521.02 | 521.27 |
| 0+80.8 | 5°54'30" | 520.82 | 521.07 |
| 0+71.8 | 5°16' | 520.62 | 520.87 |
| 0+62.8 | 4°35'30" | 520.42 | 520.67 |
| 0+53.8 | 3°56' | 520.22 | 520.48 |
| 0+44.8 | 3°16'30" | 520.05 | 520.28 |
| 0+35.8' | 2°37' | 519.85 | 520.08 |

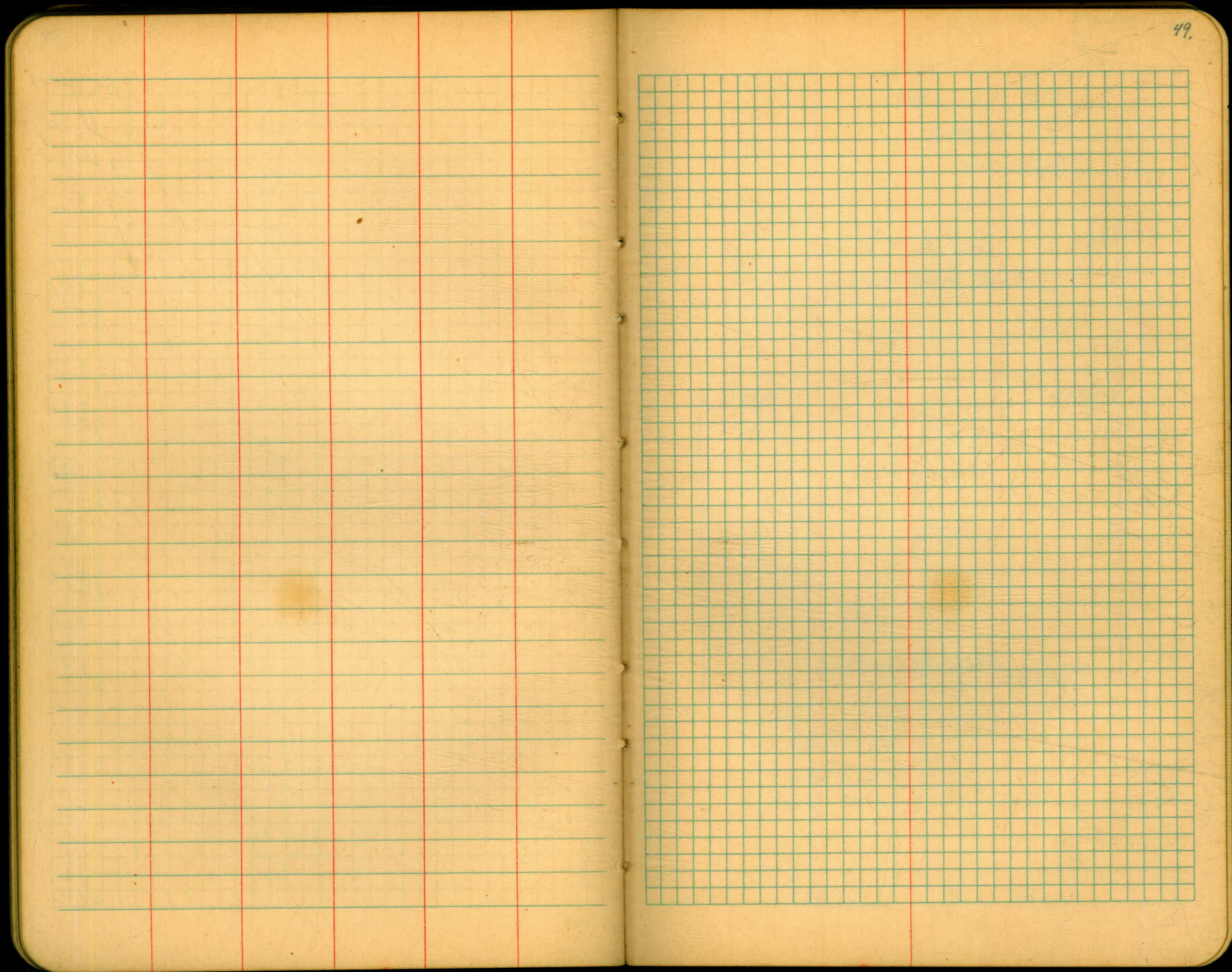
3+79.45 E.C. 14°53' 5189.66 W 69.89

3+66.75 11°58'

3+41.75 5°49' LT. CHORD 24.96

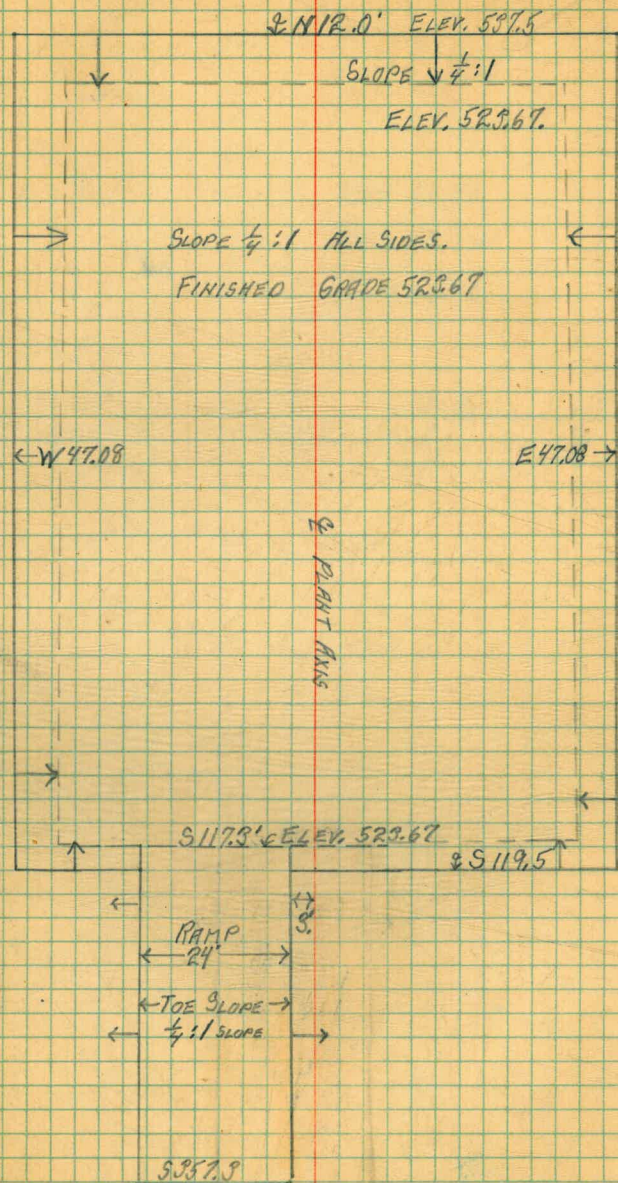
3+16.75 P.C.C.



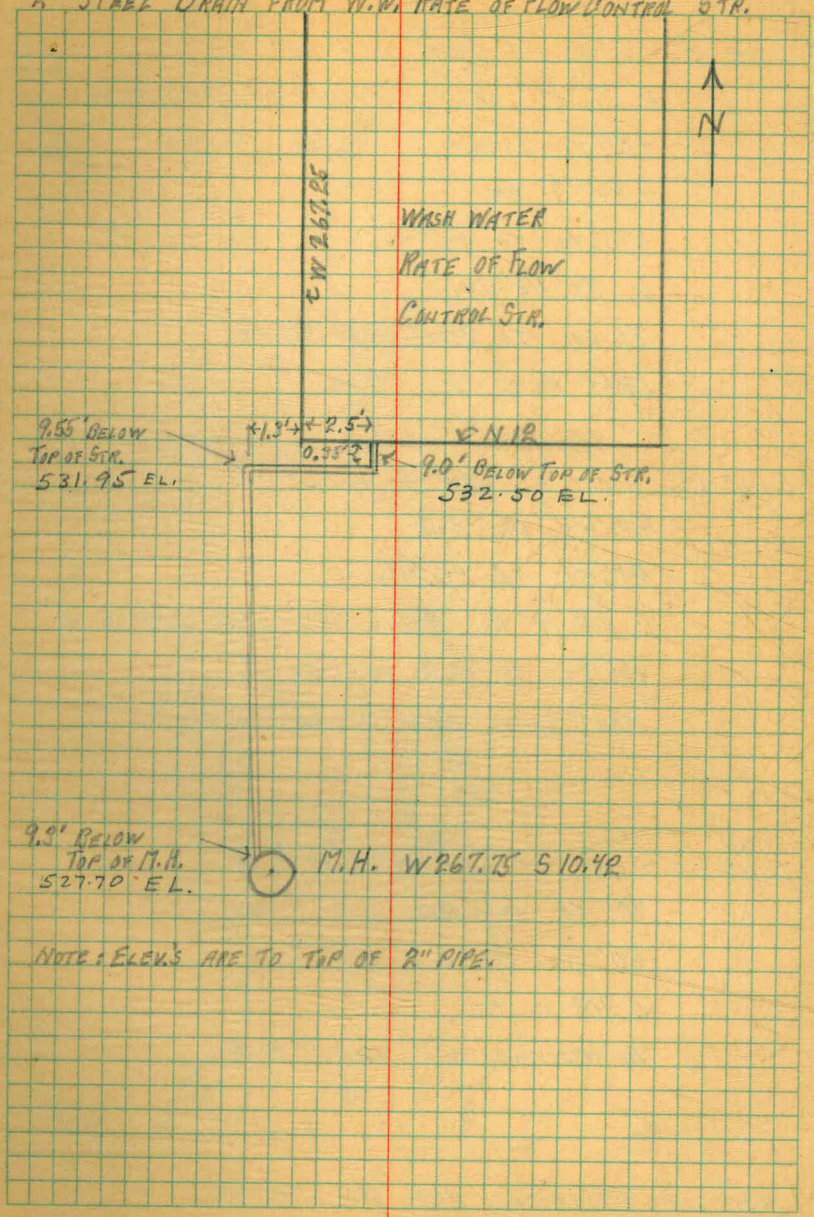


JAN 12, 1949 LEONARD WEST PAYNE 50.

FUTURE ZEOLITE GALLERY - EXCAVATION FOR.



2" STEEL DRAIN FROM W.W. RATE OF FLOW CONTROL STR.



NOTE: ELEV'S ARE TO TOP OF 2" PIPE.

LINE A: START AT BASE OF PIER # 13.

L. $75^{\circ}18''$ FROM S.E. END OF DAM AXIS.

189 FT, STADIA, TO PT. #1.

L. $44^{\circ}0'$ RT.

492 FT. TO PT. # 2.

L. $39^{\circ}46'$ LT.

86 FT. TO CITY PROP. CORNER.

LARGE ROCKS, 1st. 55 FT.

LINE B: START AT BASE OF PIER # 14.

90° TO DAM AXIS

216 FT. TO PT. #1.

L. $29^{\circ}18'$ RT. ALONG SAME LINE USED IN A.

456 FT. TO PT. R. OF LINE A.

MANY LARGE ROCKS IN 1st. 52 FT.

LINE C: START AT BASE OF PIER # 15.

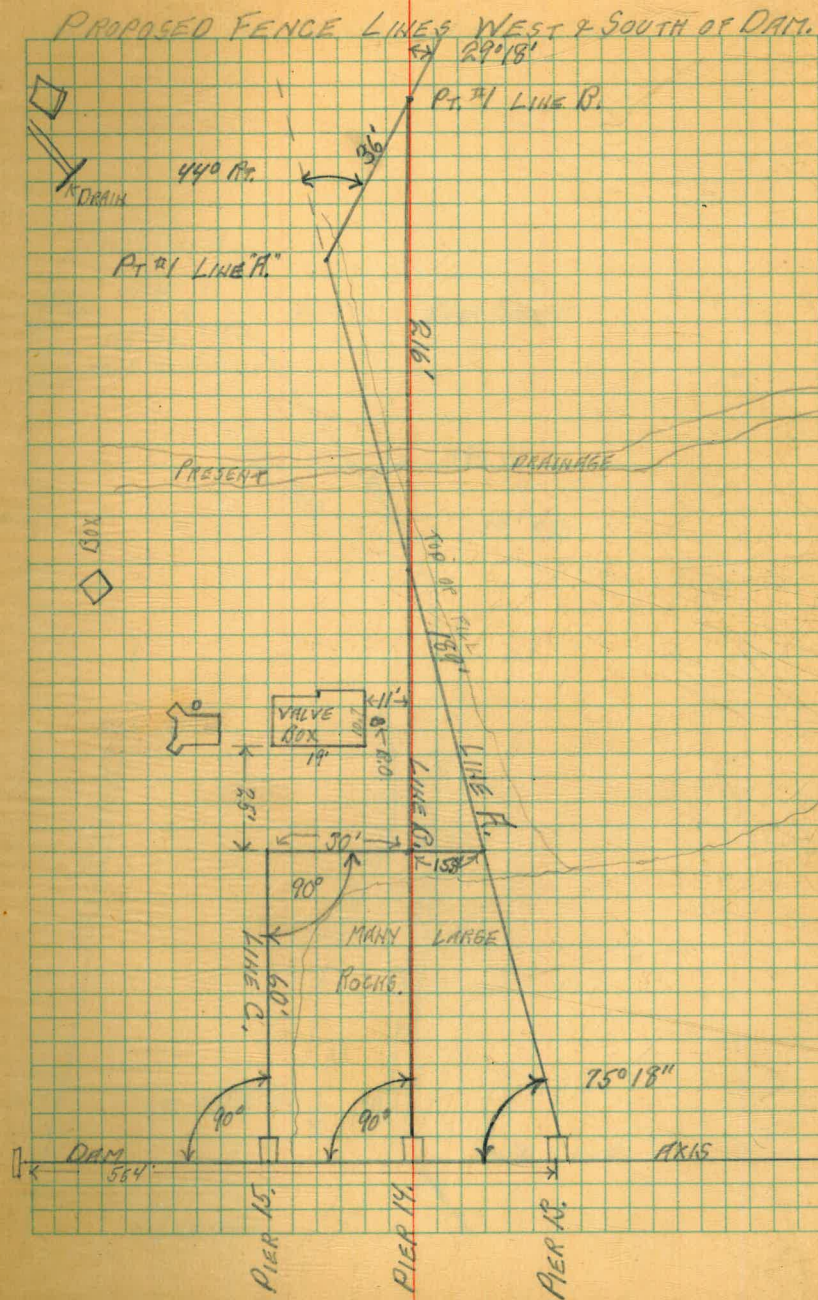
90° TO DAM AXIS.

60' TO PT. #1.

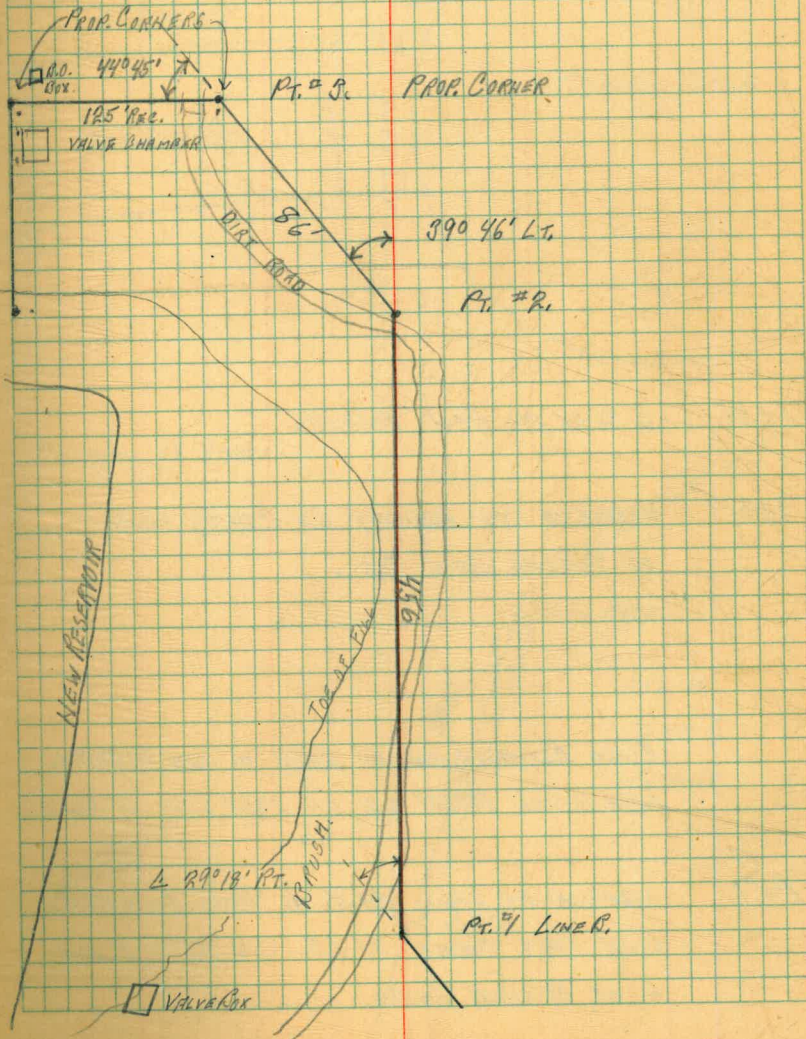
L. 90° TO RT.

INTERSECT EITHER LINE A, OR B.

NOTE: ALL DISTANCES ARE BY STADIA.



FENCE LINE AROUND NEW RESERVOIR, CONT'D



R+19 L: 130' 20" LT ALONG E. EDGE OLD ROAD.

1+41 S. EDGE OF NEW ROADWAY.

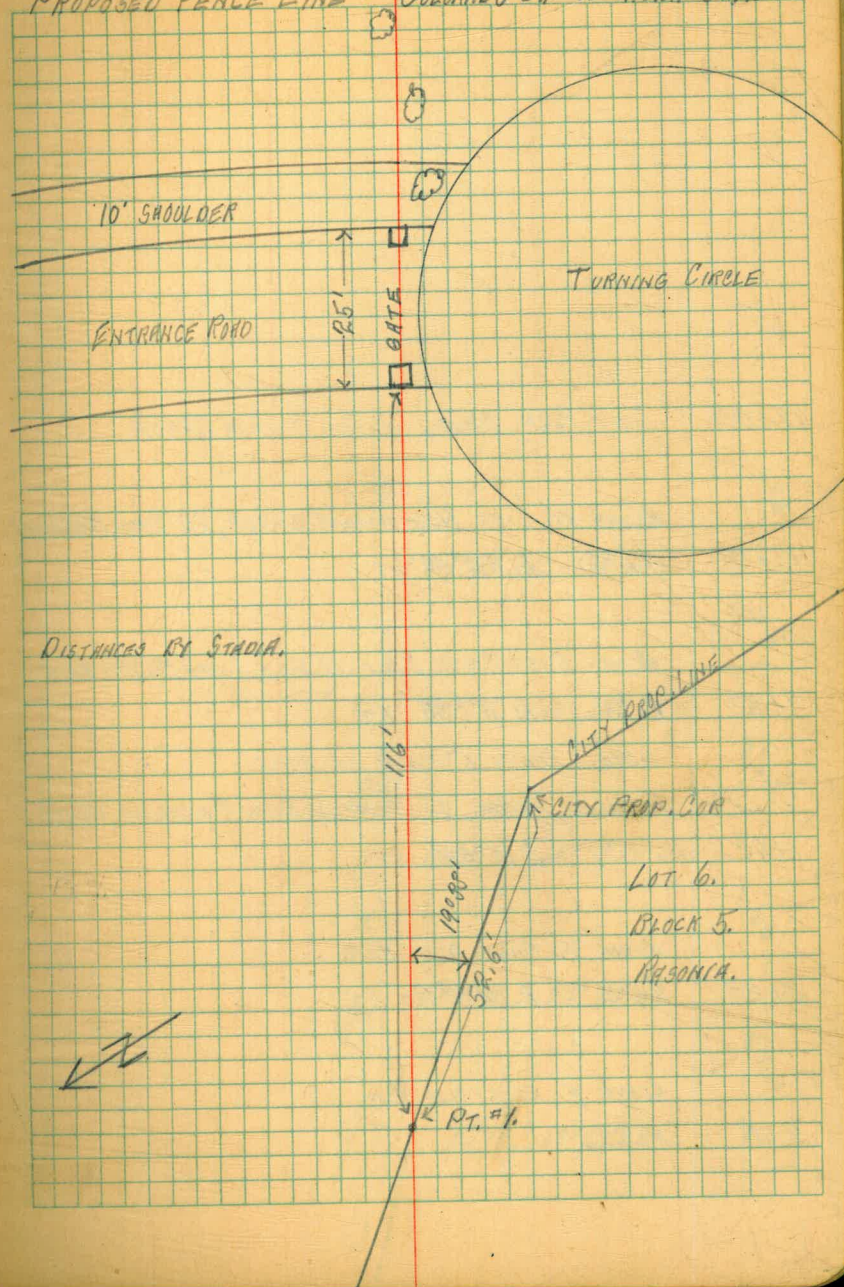
1+16 N. EDGE OF NEW ROADWAY ON CENTER LINE
OF FUTURE GATE POST.

ALONG RADIAL LINE OF GATE IN NEW ROADWAY,
LINE BEARS 19° 55' LT. OF PROP. LINE TO SOUTH.

Pt. #1, STARTING AT POINT 52.6' N. ALONG CITY PROP.
LINE FROM CORNER AT S.E. COR. LOT 6, BLOCK
5, OF RASONCA SUR'D.

MARCH 5, 1949 LEONARD PAYNE. 54.

PROPOSED FENCE LINE - COLORADO ST. TO KIOWA DRIVE



19+00 CITY PROP. LINE, N. END KIOWA DRIVE.

670

ALONG W. SIDE NEW KIOWA DRIVE, 60' FROM PROP LINE.

12+80 Pt. #6. L. 82° 52' LT.

2 x 3

ALONG CITY PROP. LINE N. SIDE LANE MURRAY BLVD.

9+87 Pt. #5 L. 15° 35' LT.

2 1/2

LINE, ABOUT 5' NORTH OF SAME.

PARALLEL, APPROX., TO IRRIGATION DIST. TRANSITE WATER

7+62 Pt. #4 L. 15° 55' RT.

2 3/5

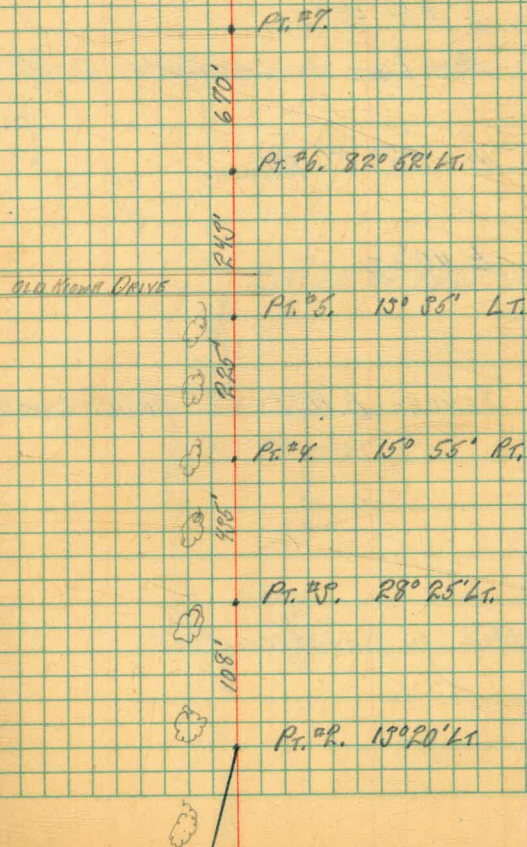
ALONG N. EDGE OLD ROAD

3+27 Pt. #3. L. 28° 25' LT.

0 1/2

ALONG E. EDGE OLD ROAD.

2+19 Pt. #2.



ALTERNATE FENCE LINE FROM TURNING CIRCLE TO LAKE

9+59 CITY PROP. COR. N.E. COR. OLD KAWA DRIVE.

∠ 22° 43' LT.

8+85 PROP. LINE ON LAKE MURRAY BLVD.

4+85' ∠ 33° 30' RT.

1+00 ∠ 40° LT.

0+00 FENCE: ∠ 10° LT. OF RADIAL LINE TO ROAD

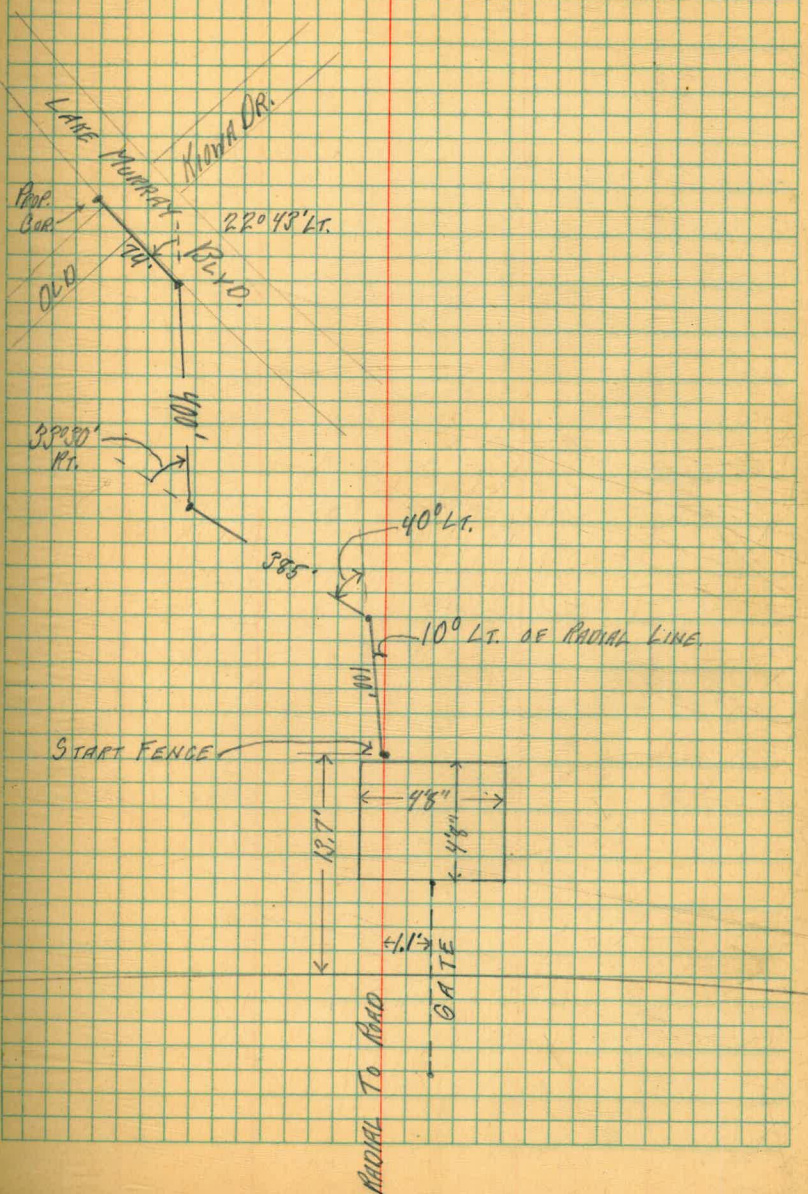
STA. 1+18.2 ON ENTRANCE ROAD.

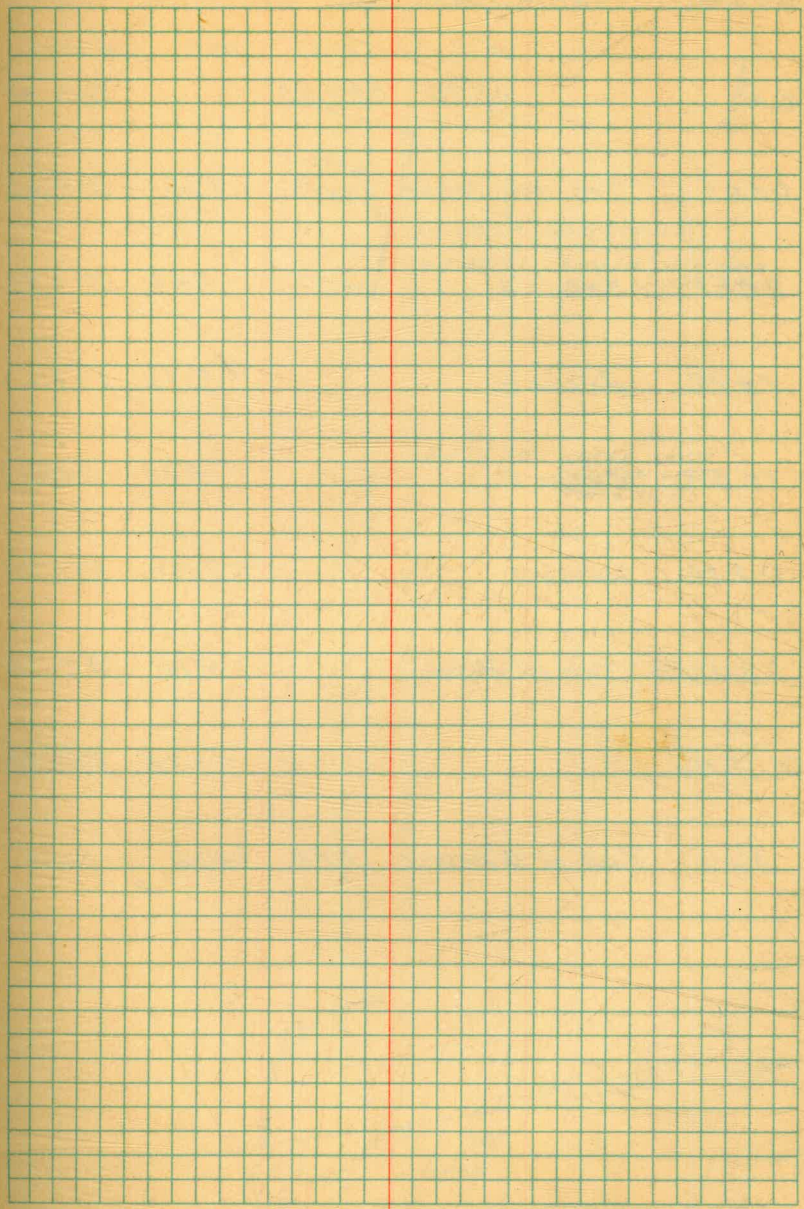
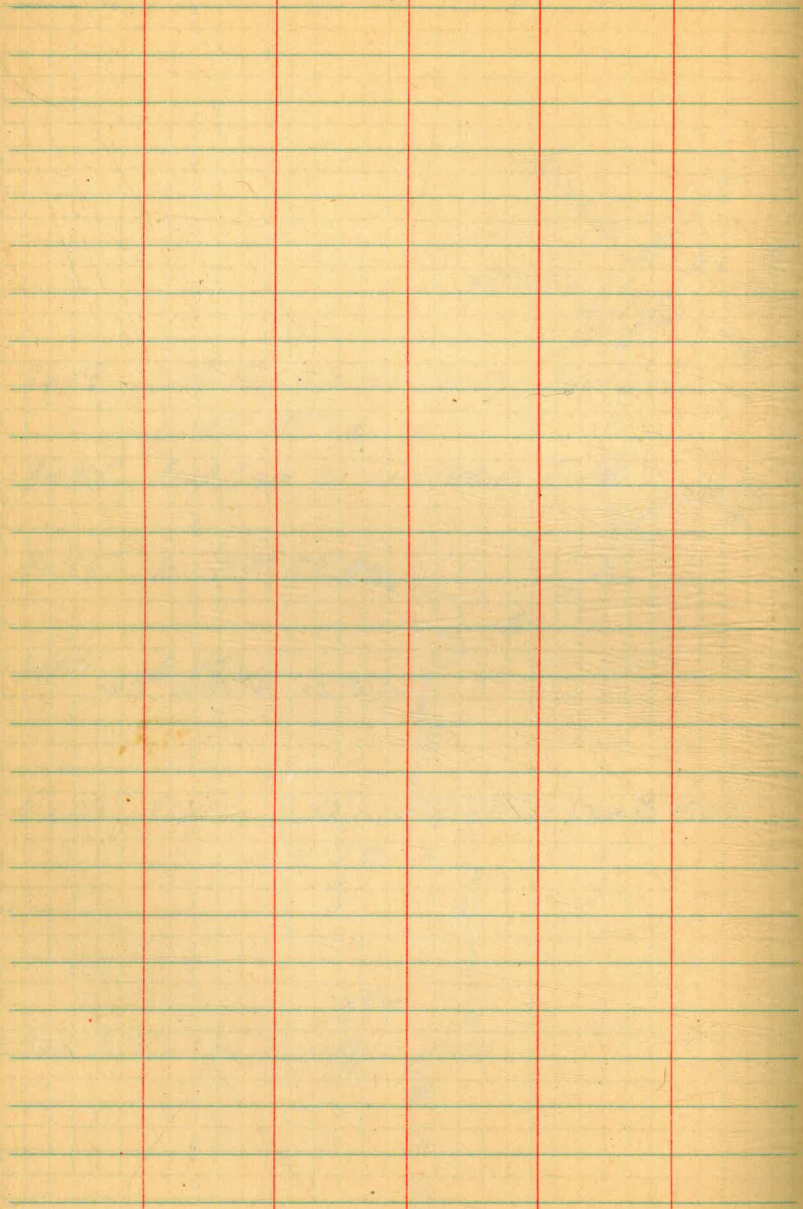
APRIL 26, 1949

LEONARD
PAYNE
CARTER.

56.

MURRAY BLVD.





JAN 24, 1950 OVERCAST-COOL

PROFILE OVER 1 1/2" WATER LINE TOP OF GROUND

| | F.S. | HI | B.S. | ELEV. |
|----------|-------|--------|-------|--------|
| B.M. | 11.75 | 548.33 | | 546.58 |
| 0+00 | | | -9.65 | 538.68 |
| 0+50 | | | -7.42 | 540.91 |
| 1+00 | | | -5.70 | 542.63 |
| 1+50 | | | -4.20 | 544.13 |
| 2+00 | | | -2.58 | 545.75 |
| 2+48.50 | | | -4.10 | 544.23 |
| CK. B.M. | | | -1.75 | 546.58 |

NOTE: PIPE IS APPROX 1ft. below ground.

JAN 24, 1950 BAKER T & NOTES
TAYNE H.C.
CARVER, R.C.

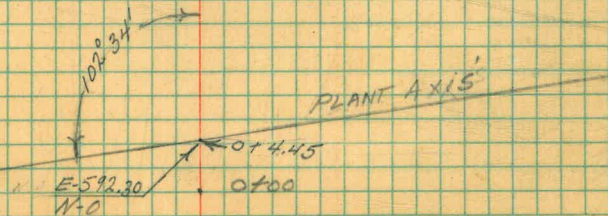
58

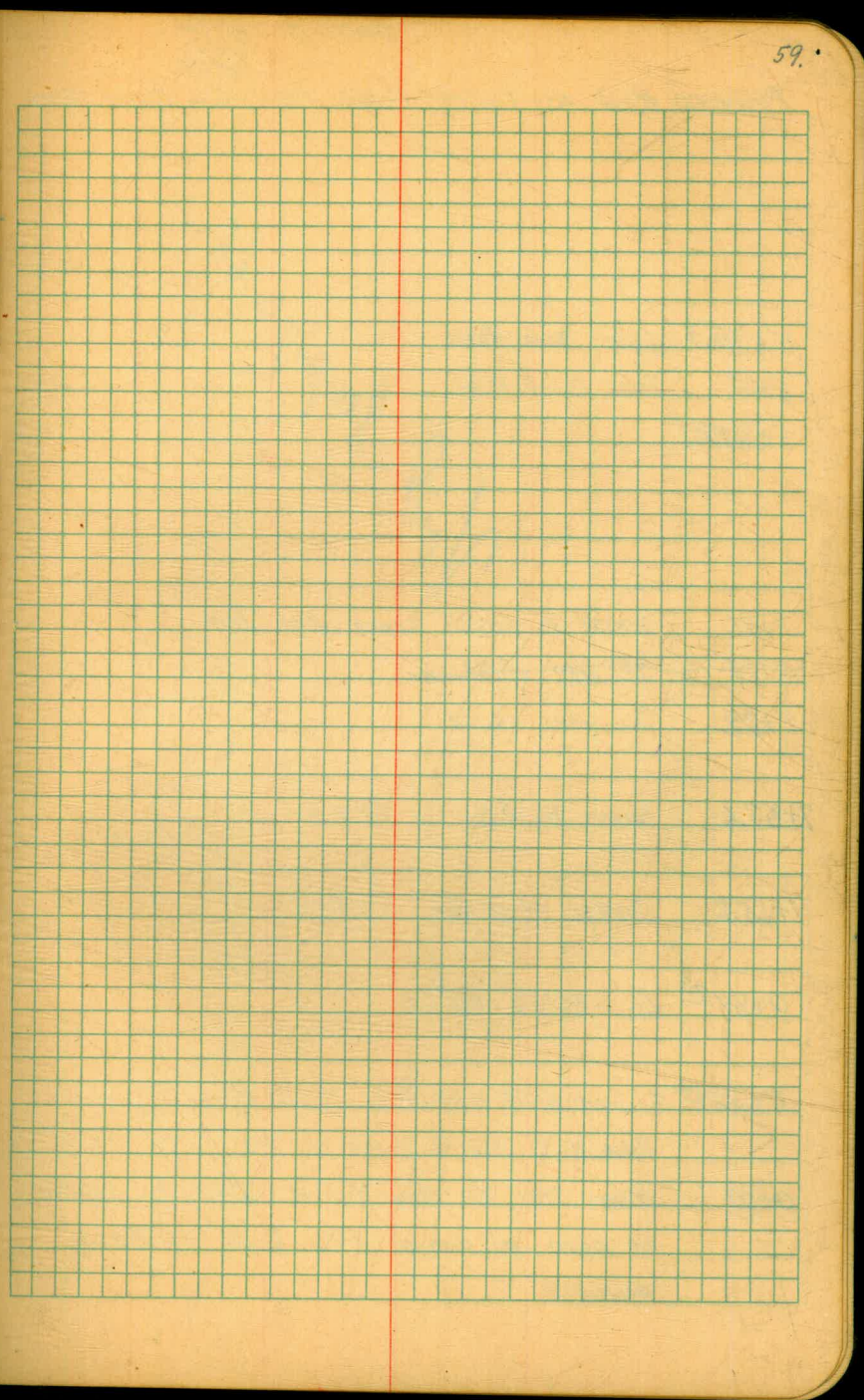
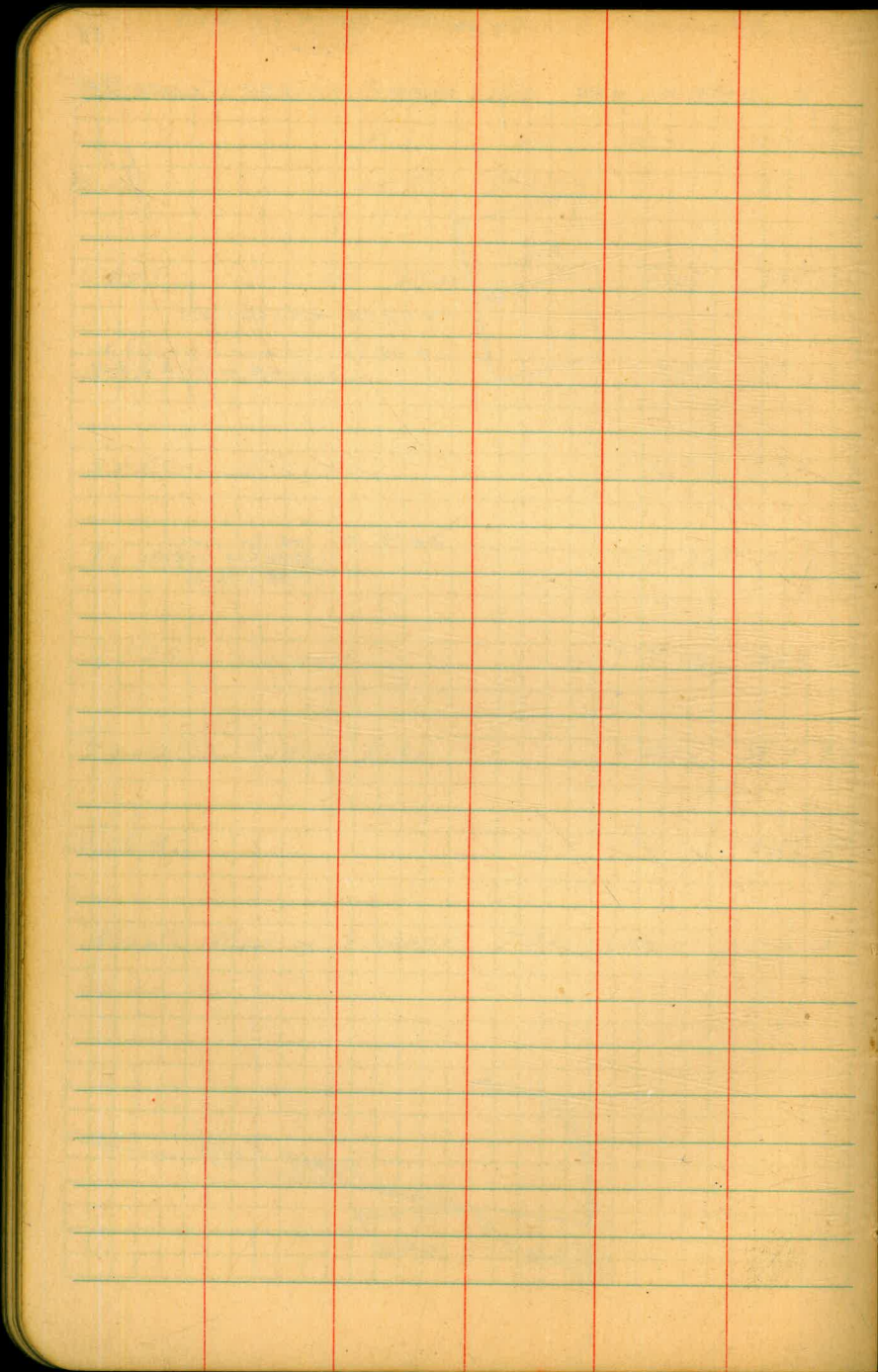
1 1/2" WATER LINE TO HOUSE (5530 KIOWA DR.)



2+48.50 END OF LINE
2+44.20 SEWER LINE CROSS OVER WATER LINE

2+15.38 WATER LINE CROSSES OVER GAS LINE





APRIL 4, 49.

LEONARD
PAYNE
CARTER.

60.

PROPOSED ROAD INTO FILTER PLANT FROM NEW MIOWA DRIVE.

5+19.5 EDGE OILED ROAD.

5+00 EDGE OILED ROAD

5+00 P.O.T.

VOID. see page 67.

2+41 CENTER OF SINGLE TRACK DIRT ROAD.

~~2+22 1/2" OR 1" WATER LINE~~

2+22 OLD WIRE FENCE

1+63.6 CORNER VALVE BOX 23.0 LT.

1+55.2 CORNER VALVE BOX 20.8 LT.

0+84⁷⁰ L. 84°58'.00" LT.

0+52³⁰ = STA. 650 + 17¹⁰ EL MONTE PL.

PARALLEL TO AND 25' NORTH OF PL.

0+00 NORTH END OF NEW MIOWA DRIVE, IN CENTER
OF ROAD ON FORMER PROP. LINE OF GROVE
PROPERTY.

Nail.
 for page 62.

7+28⁷⁵ EAST END OF TRUCK SCALE, IN CENTER.

7+03¹⁵ L: 91° 24' 50" LT.

6+33 POWER POLE 10' RT.

6+22 EDGE OILED ROAD.

6+04 EDGE OILED ROAD.

7+19²⁰ END. CENTER OF FUTURE 30' GATE. N126.5' E561.0'
 6+79²⁰ P.I. 33° 57' LT. = N126.5' E 601.0'
 6+25 W. EDGE OILED ROAD.
 6+07 E. EDGE OILED ROAD TO FIELD OFFICE.
 5+20 W. EDGE OILED ROAD.
 5+12¹⁷ P.O.T.
 4+93 E. EDGE OILED ROAD TO ENG'S. HOUSE.
 2+37 CENTER OF 8' DIRT ROAD.
 2+19 WIRE FENCE.
 2+04 CENTER OF 12' DIRT ROAD
 2+02 2" WATER LINE CROSSING.

1+63.4 VALVE BOX ON P.L. COR. 26.4' LT.
 1+55 " " " " " 27.0' LT.

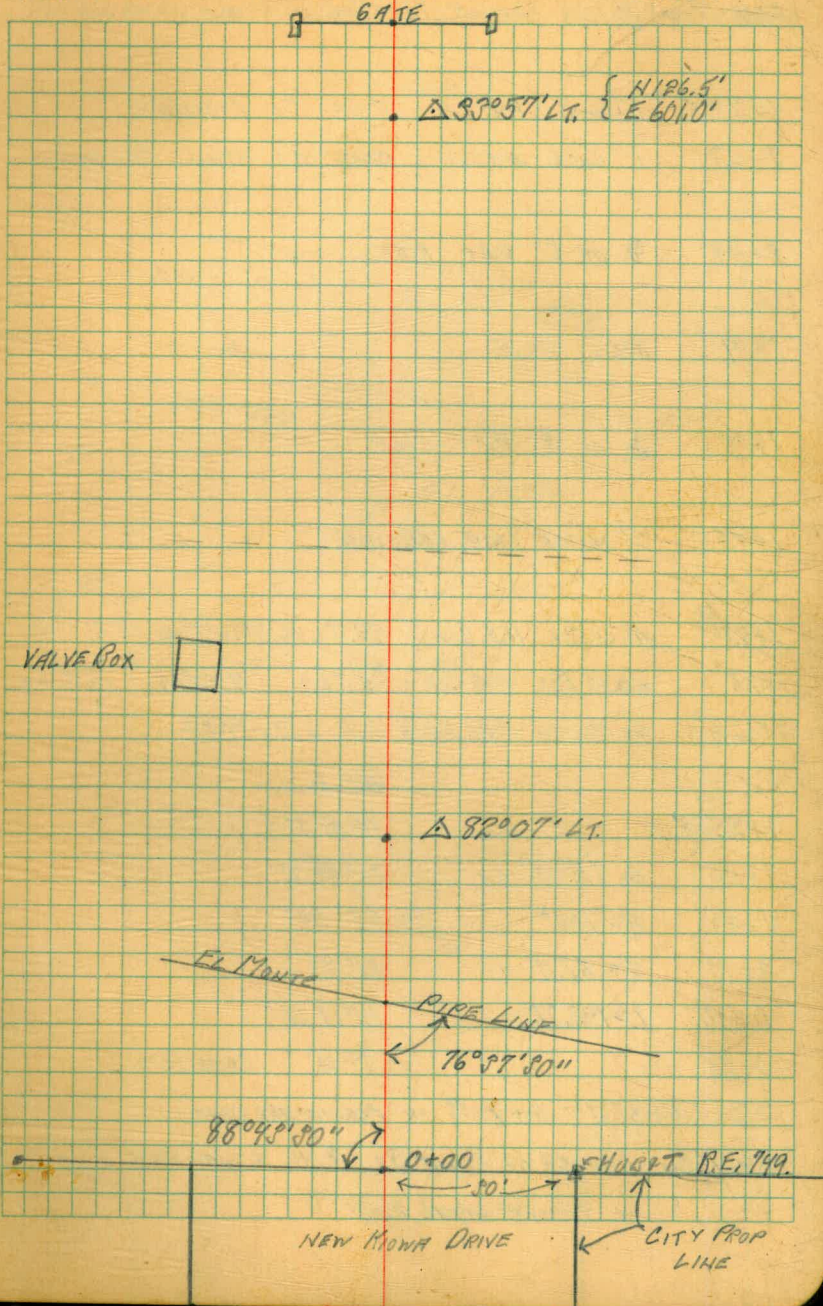
0+84⁷⁰ P.I. 82° 07' LT.

0+52³⁰ CROSS EL MONTE PIPE LINE AT STA. 653+17¹⁰

WIRE FENCE CROSSES LINE AT 0+00

0+00 NORTH END NEW KIOWA DRIVE ON CENTER LINE.
 FORMER PROP. LINE OF GROVE'S PROPERTY.

PRELIMINARY ROAD SURVEY APRIL 5 '49. LEONARD PRINE CARVER. 62.



ROAD FROM KIOWA DRIVE TO TRUCK SCALE.

- 4+33.5 1" GALV. WATER PIPE TO RESIDENCE
 5+03 1" GALV. WATER PIPE TO BROWN'S RESIDENCE.
 2+09 1/2 OF 8' DIRT ROAD
 1+91 WIRE FENCE
 1+75.5 1/2 OF 12' DIRT ROAD
 1+73.5 2" WATER LINE CROSSING.
 1+43³² VALVE BOX N.E. COR. SP. S LT. N.W. COR. = 28.1 LT.
 1+25 VALVE BOX N.E. COR. = 25.5 LT. N.W. COR. = 26.2 LT.
 0+63.6¹ EL MONTE PIPE LINE STA. 653 + 37.2 ±

DEF. L

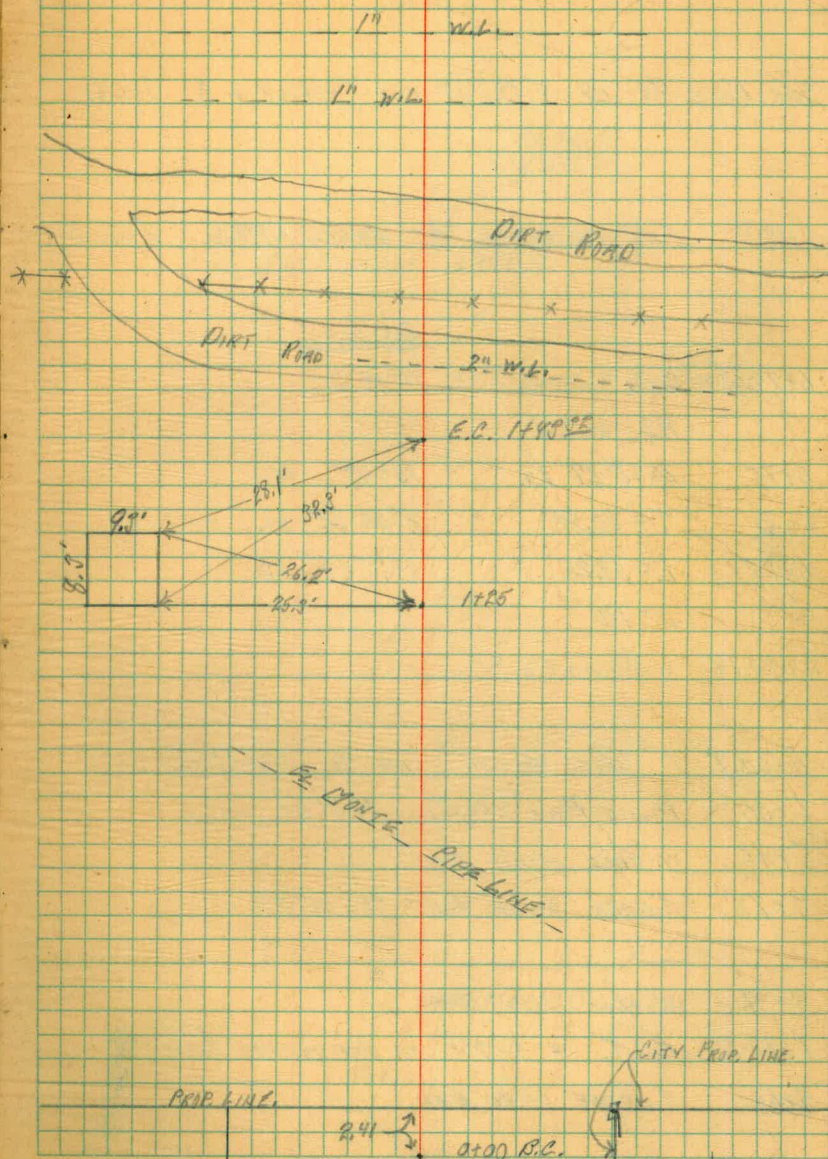
- 1+43³² E.C. 41° 05' 50"
 1+25 Δ 82° 07' Lt. 35° 48' 30"
 1+00 R = 100' 28° 39'
 0+75 T = 87.11' 21° 29'
 0+50 L = 148.32' 14° 19' 30"
 0+25 7° 10' CURV = 24.92

P.I. 0+87.11 = 0+84³² ON PRELIMINARY LINE.

0+00 B.C. CENTER OF KIOWA DR. 2.41' S. OF PROP. LINE
 OF FORMER GROVE PROP.

APRIL 6, 1949 LEONARD PAYNE CARYER. 68.

ALIGNMENT, WITH CURVES BASED ON 100 FT. RADIUS.



SEE PAGE 75 OF F.B. 723 FOR PROFILE & X-SECT.

6+88.92 END. CENTER OF 30' GATE N126.5 E561.0

6+79.44 E.C. DEF. L³
16° 58' 30"

P.I. = 6+50.71

6+75 Δ 33° 57' LT. 15° 42' LT.

6+50 T = 30.52' 8° 32' 00" LT.

6+25 L = 59.25 1° 22' 30" LT.

R = 100'

6+20.19 B.C.

6+00.8 1" GALV. WATER LINE TO FIELD OFFICE & PAS.

6+06 POWER POLE #270532 14.0' LT.

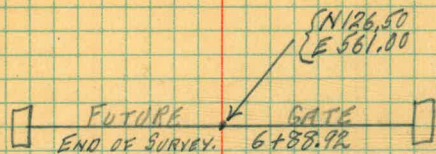
5+96 W. EDGE OILED ROAD

5+78 E. EDGE OILED ROAD TO OFFICE

4+91 W. EDGE OILED ROAD

4+89.68 P.O.T. = 5+12.12 ON PRELIMINARY SURVEY.

4+65 E. EDGE OILED ROAD



E.C. 6+79.44 { N126.50
E570.48

B.C. 6+20.19

1" WATER LINE

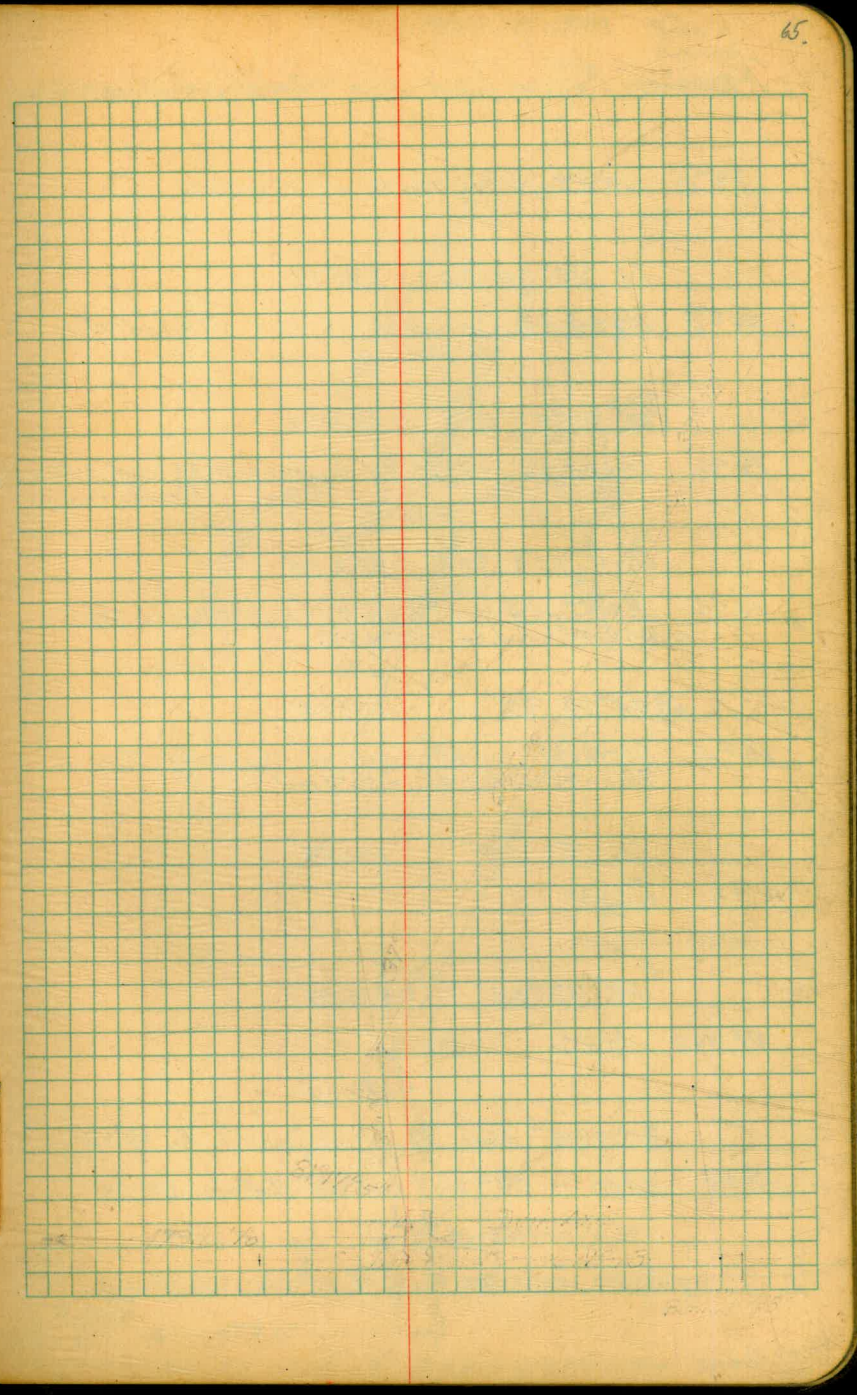
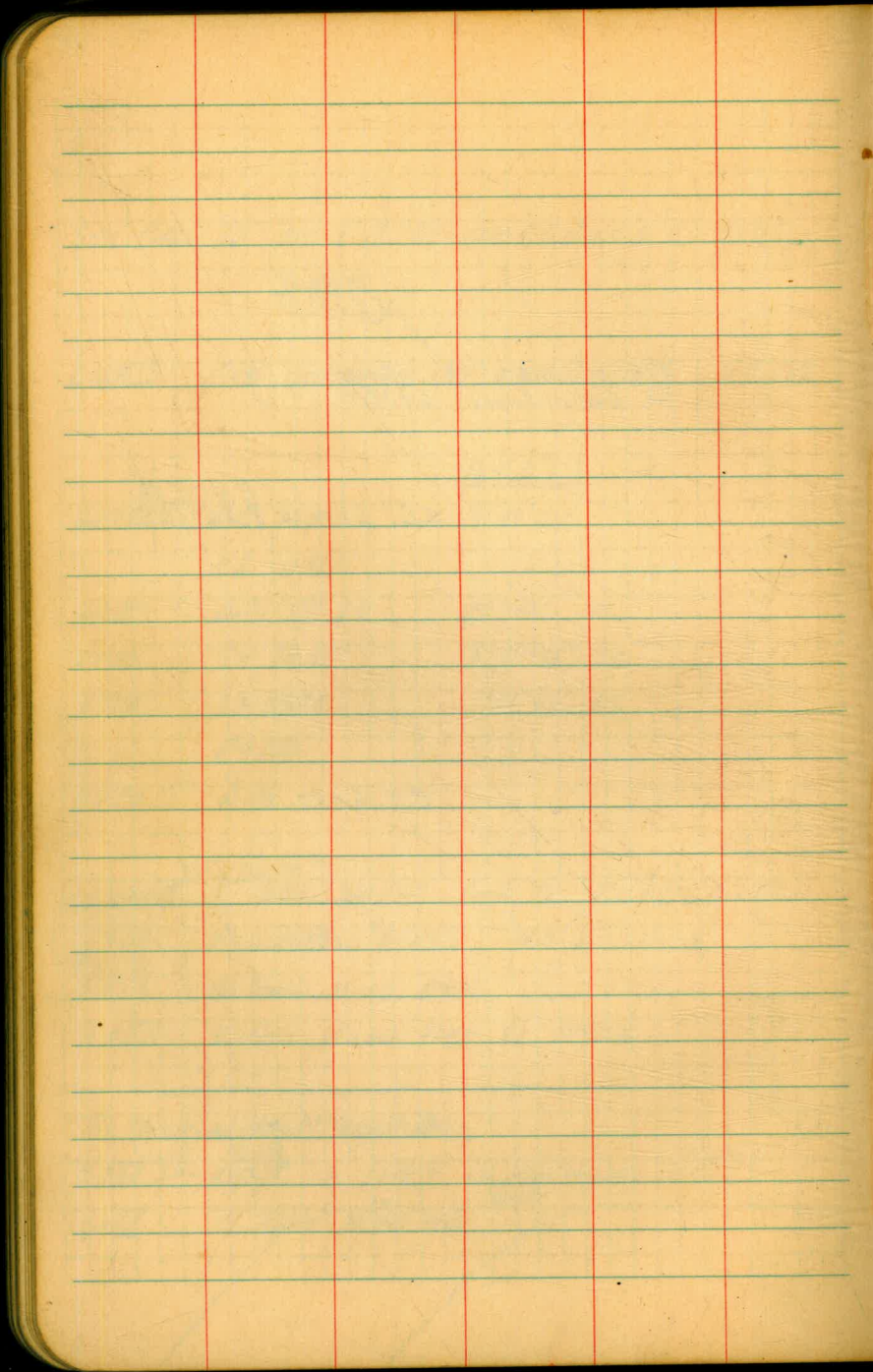
OILED

ROAD

OILED

P.O.T. 4+89.68 NAIL IN POINT ROAD

4+76 L 17' →



PROPOSED FENCE LINE FOR AREA OF ALVARADO

PI#8 13+29.16 - 11' North of Prop. Cor.

Lt. $90^{\circ}08'50''$ - 135.12'

PI#7 11+94.04 - 22' West of ext. line of face of Alvarado Res.
- 11' North of property line.

Rt. $95^{\circ}57'45''$ - 189.00'

PI#6 10+05.04 - 1st North of Prop. line ext - 22' West of Face of Alvarado Reservoir

Lt. $87^{\circ}58'30''$ - 124.50'

PI#5 8+80.54 - 1st North & 1st East of Prop. Cor.
R.P.s - 90th to 1st East, turn - 30' & 80'

Lt. $44^{\circ}27'30''$ - 124.00'

PI#4 7+56.54 - 1st East of Property Corner.
R.P.s - 74th to 1st East, turn - 50' & 100'

Lt. $39^{\circ}02'$ - 101.54'

PI#3 6+55

Rt. $37^{\circ}00'$ - 475.00'

PI#2 1+80

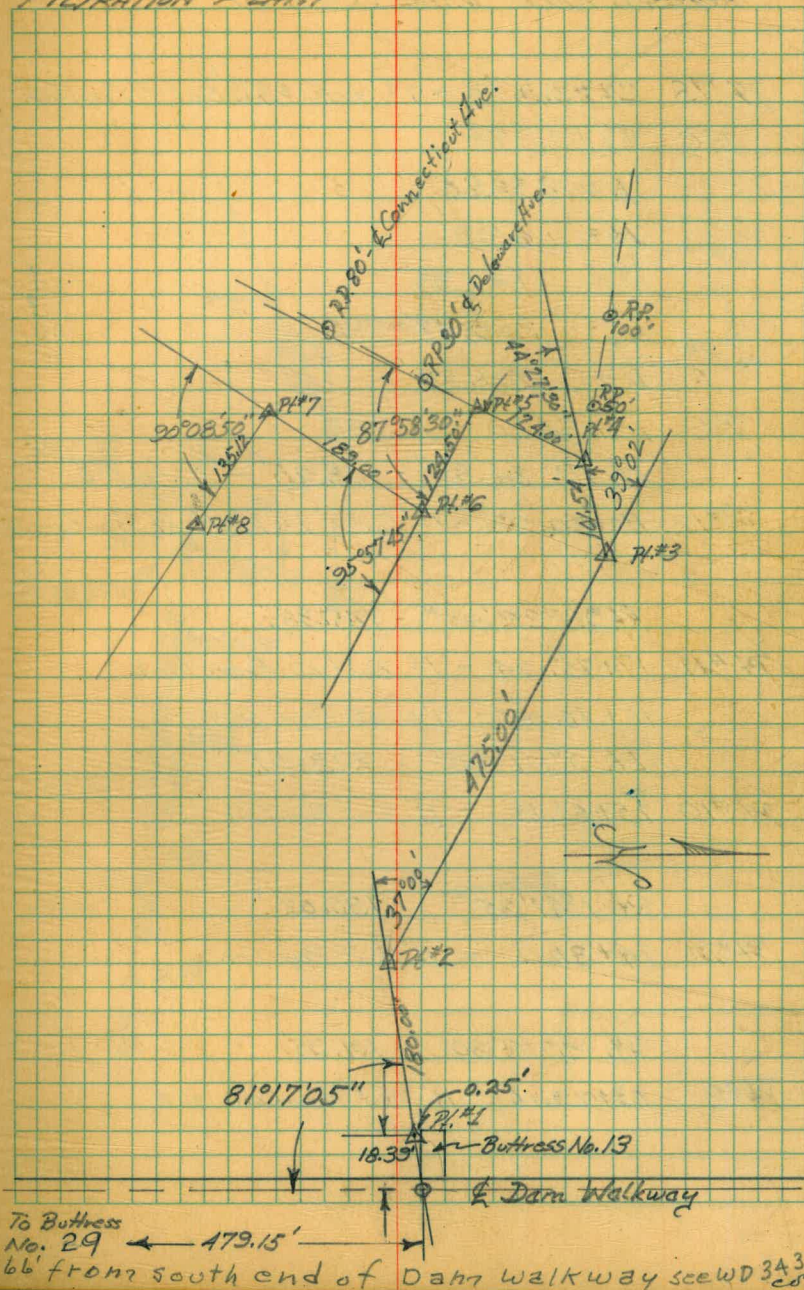
- 180.00'

$81^{\circ}17'05''$ from Dam Axis (south) to PI#2.

PI#1 0+00 - On uphill side of Buttriss No. 13,
set 3" from edge of Buttriss, being
18.39' from E of Dam Walkway.

MAY 10, 1949. DARY
DAWNE
CARVER 66.

FILTRATION PLANT



To Buttriss
No. 29 ← 179.15'
66' from south end of Dam walkway see WD 3439
com

PROPOSED FENCE LINE (CONT'D)

PT#13 22+29.78 - 12' North & 37¹/₂' East of Prop. Cor.

EC 22+25.78

$\Delta = 23^{\circ}54'$

R = 699'

T = 147.93'

C = 289.47'

L = 291.58'

Curve to
left

BC 19+34.20

Lt. $112^{\circ}24'35''$ - 13.25' - L to P.I.

PT#12 19+20.92 - 10' East & 10' North of Prop. Line ext.

Rt. $98^{\circ}28'55''$ - 145.88'

PT#11 17+75.04 - 10' East of Prop. Line.

16+40.95 - 11' N. of Prop. Cor.

Lt. $0^{\circ}01'50''$ - 213.91'

PT#10 15+61.13 - 11' N. of Prop. Cor.

Rt. $1^{\circ}47'35''$ - 130.02'

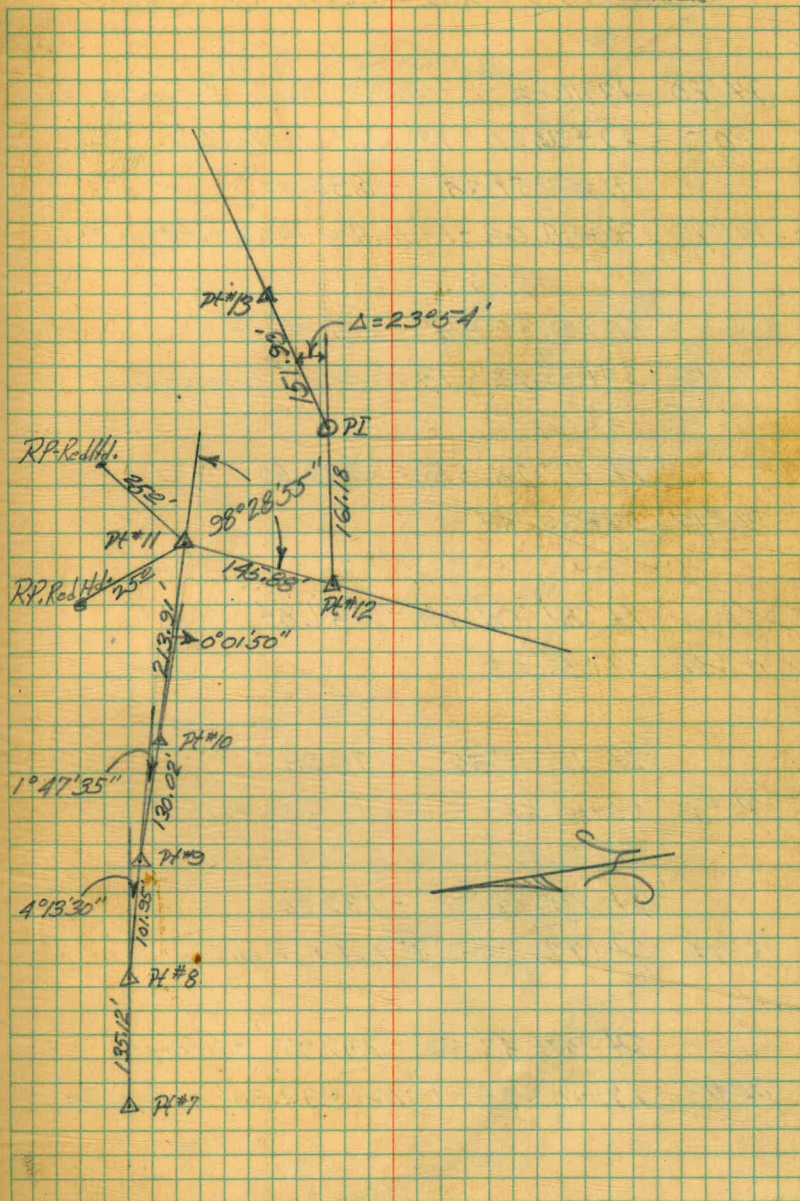
PT#9 14+31.11 - 11' N. of Prop. Cor.

Rt. $4^{\circ}13'30''$ - 101.95'

PT#8 13+29.16 - 11' N. of Prop. Cor.

MAY 11, 1949.
MAY 12, 1949.

DARBY
PAYNE
CARVER 67.



PROPOSED FENCE LINE (CONT'D)

PI#20 43+10.08 - 19' West of Prop. Line.
- 34.07' South of Existing Fence

POT 40+20.60 12' West of Prop. Line.

Lt. 82°51'35" - 630.00'

PI#19 36+80.08 - 12' North & 12' West of Prop. Cor.

Lt. 13°30'50" - 240.96'

PI#18 34+39.12 - 12' North of Prop. Line.

Lt. 13°28'50" - 208.65'

PI#17 32+30.47

Lt. 27°01'10" - 441.84'

PI#16 27+88.63

Lt. 12°11'35" - 177.98'

PI#15 26+10.65 - Southerly Gate Post.

25+83.30 - Northerly Gate Post.

Lt. 19°40'30" - 132.90'

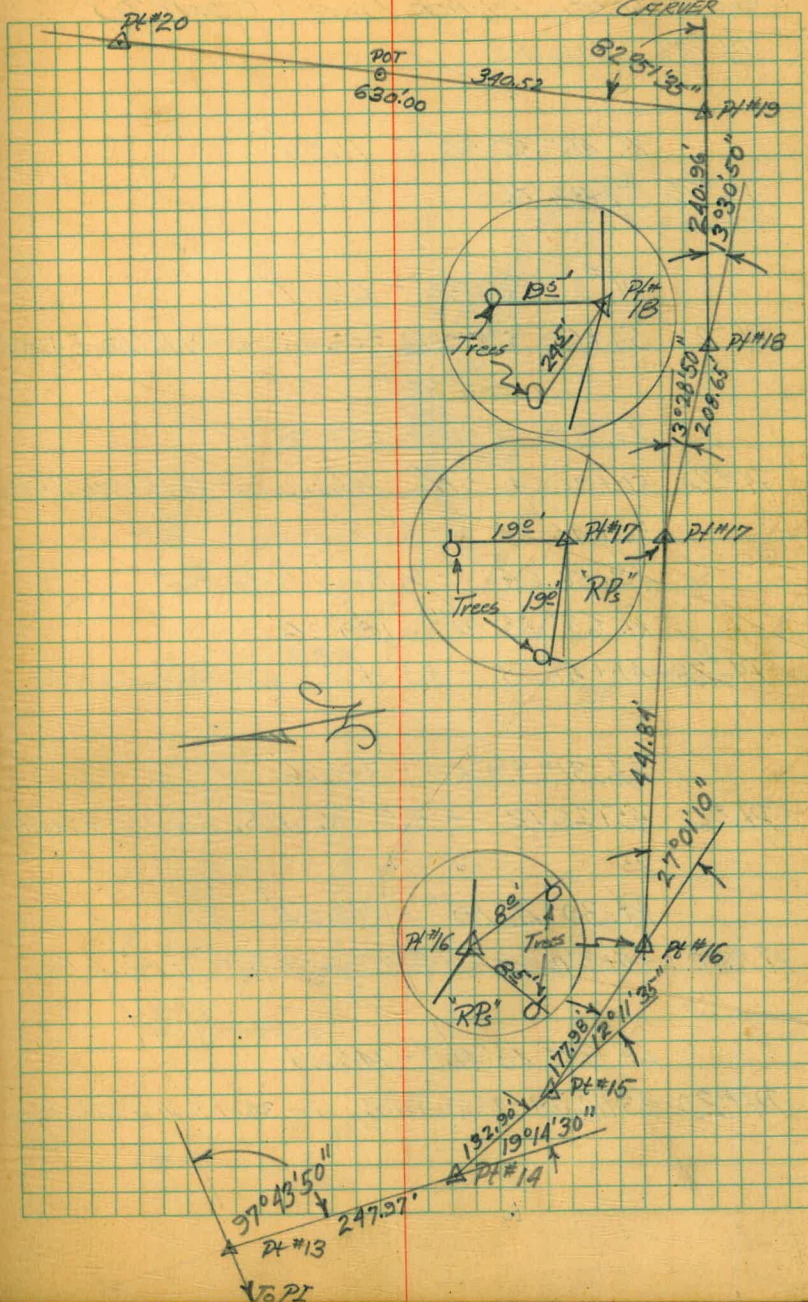
PI#14 24+77.75 - 37 1/2' East of Prop. Line.

Lt. 97°43'50" - 247.97' - L from PI

PI#13 22+29.78 - 12' North & 37 1/2' East of Prop. Cor.

May 13, 1949. DARBY 68.

DARBY
CARNER



PROPOSED FENCE LINE (CONT'D)

PT #27 53+10.62

Rt. $48^{\circ}30'50'' - 71.86'$

PT #26 52+38.76

Rt. $26^{\circ}36'30'' - 69.17'$

PT #25 51+69.59 - Plant Coordinates - N16150 - E428.05

Lt. $89^{\circ}54'50'' - 132.25'$

PT #24 50+36.64 - Plant Coordinates - N16150 - E561.14

50+16.64 - Northernly Gate Post

49+86.64 - Southernly Gate Post

Rt. $63^{\circ}48'10'' - 169.26'$

PT #23 48+47.38 - 5.5' N. of S. side Delaware Ave.

Lt. $31^{\circ}39'50'' - 321.26'$

PT #22 45+26.12 - 5.5' No. of S. side DELAWARE Ave.

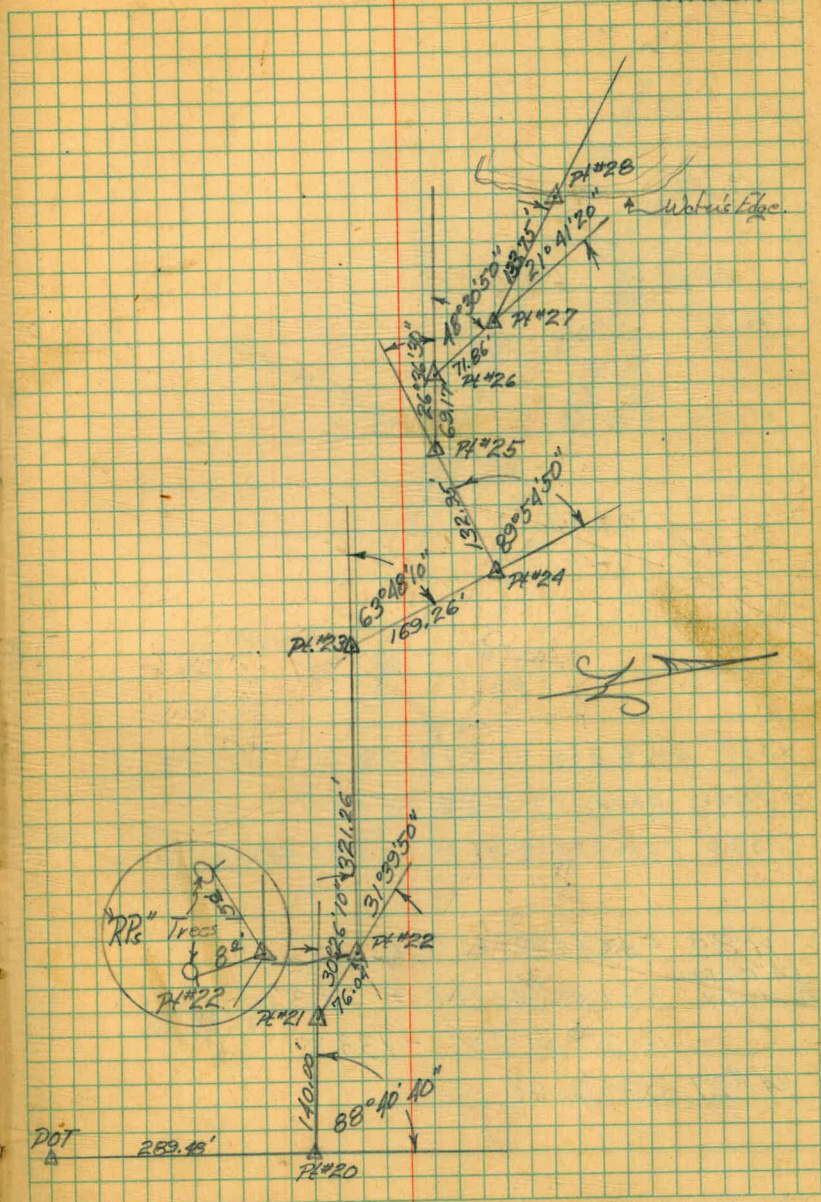
Rt. $30^{\circ}26'10'' - 76.04'$

PT #21 44+50.08 - 34.07' S of 2" I.P. at Fence Cor.

Lt. $88^{\circ}40'40'' - 140.00'$

PT #20 43+10.03 - 1" West of Prop Line - 34.07' South of Existing Fence.

MAY 16, 1949. DABBY 69.
PAYNE
CARRIER



PROPOSED FENCE LINE (CONT'D)

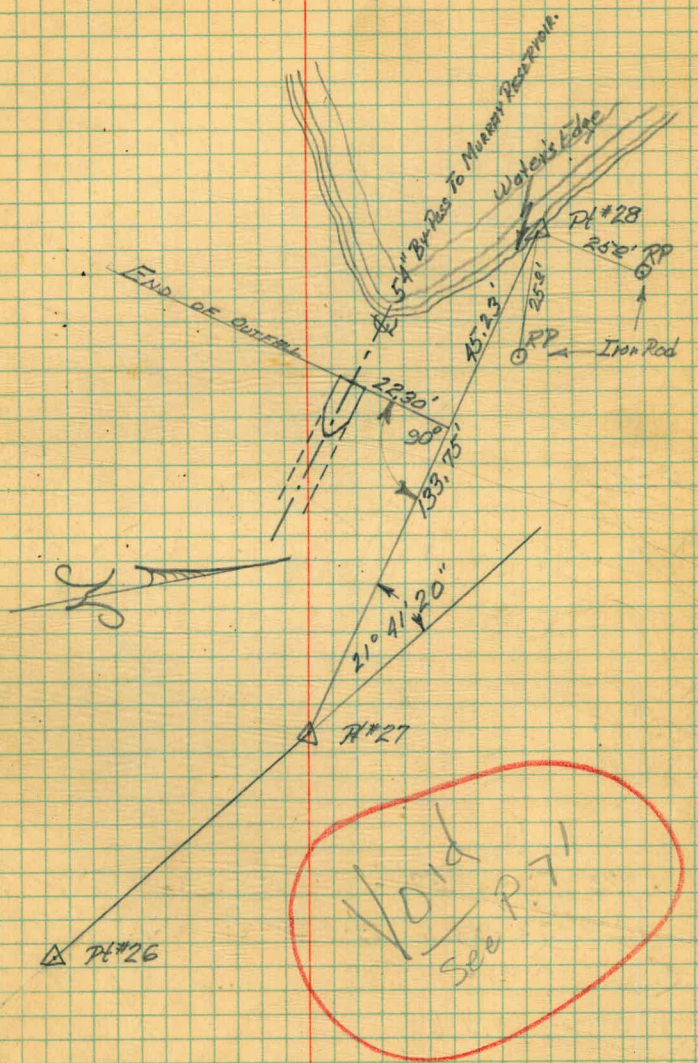
100^{ft} on Gage = 534.88 city datum
 APPROX Elev. Pt # 28 522.7 ± city datum
 Gage reading 546-49 (87.80) (con) 5-23-49

Q.

Pt # 28 54+44.37 - Water's edge.
 54" OUTFALL
 TO MURPHY 53+99.14 - 90° L - 22.3' off.
 L 21° 41' 20" - 133.75'
 Pt # 27 53+10.62

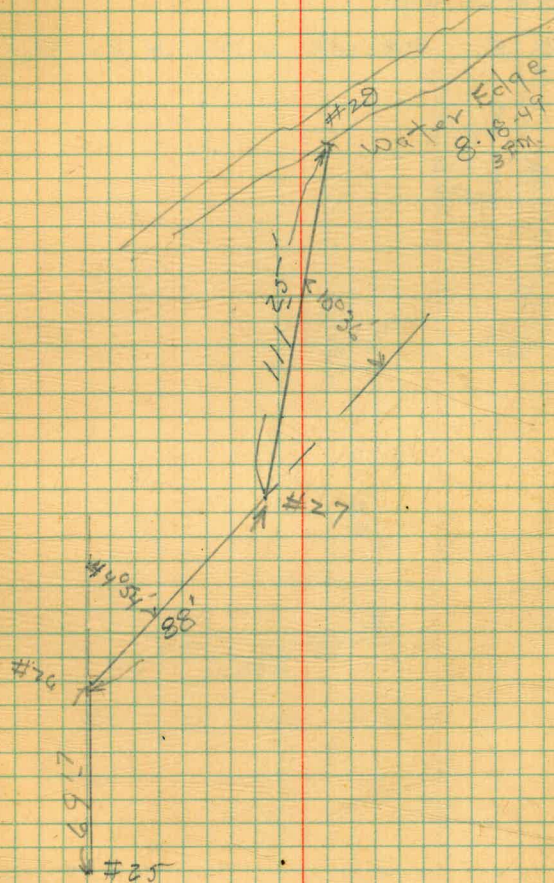
MAY 16, 1949

DHARBY 70.
 PAYNE
 CURVER



8-18-49 King
West
Shipman

11.
Realign ment of Fence
From Pt. #26 to Murray Lake



82+33.90 TRACK ENDS AT END OF PAVED AREA = W 74.00

82+06.90 LOADING PLATFORM ENDS, 8.00' LEFT OF $\frac{1}{2}$.

NOTE: CANOPY OVER LOADING PLATFORM AT 15.8' ABOVE TRACK ELEV. REQUIRES 8'4" CLEARANCE FROM $\frac{1}{2}$ OF TRACK.

80+86.82 LOADING PLATFORM STARTS, 8.00' LEFT OF $\frac{1}{2}$.

2x2" REDWOOD HUB & NAIL

79+23.98 B.C. PLANT COORDINATES = N123.33 E235.92

2x2" REDWOOD HUB & NAIL

78+82.24 B.C. TO RIGHT. CURVE DATA SAME AS BELOW.

2x2" REDWOOD HUB & NAIL

78+41.74 B.C. DEFLECTION FOR 5' CHORD LENGTH = 0°18' LONG CHORD = 41.73'

$\Delta = 5^{\circ}0'0''$ T = 20.90' R = 478.34' L = 41.74' D = 12°

2x2" REDWOOD HUB & NAIL

78+00 B.C. TO LEFT. PLANT COORDINATES = N130.5' E359.65

77+64.65 EDGE OF W. ACTIVATED CARBON TANK 7.5' LEFT

PROVIDE MINIMUM CLEARANCE OF 7.5' FROM TANKS.

NOTE: TRACK LAYOUT WAS MOVED 3" NORTH FROM PLAN LAYOUT TO

77+32.65 EDGE OF E. ACTIVATED CARBON TANK 7.5' LEFT

76+53.99 POINT OF FROG

MAIN LINE CONTINUES WEST PARALLEL TO AXIS OF PLANT.

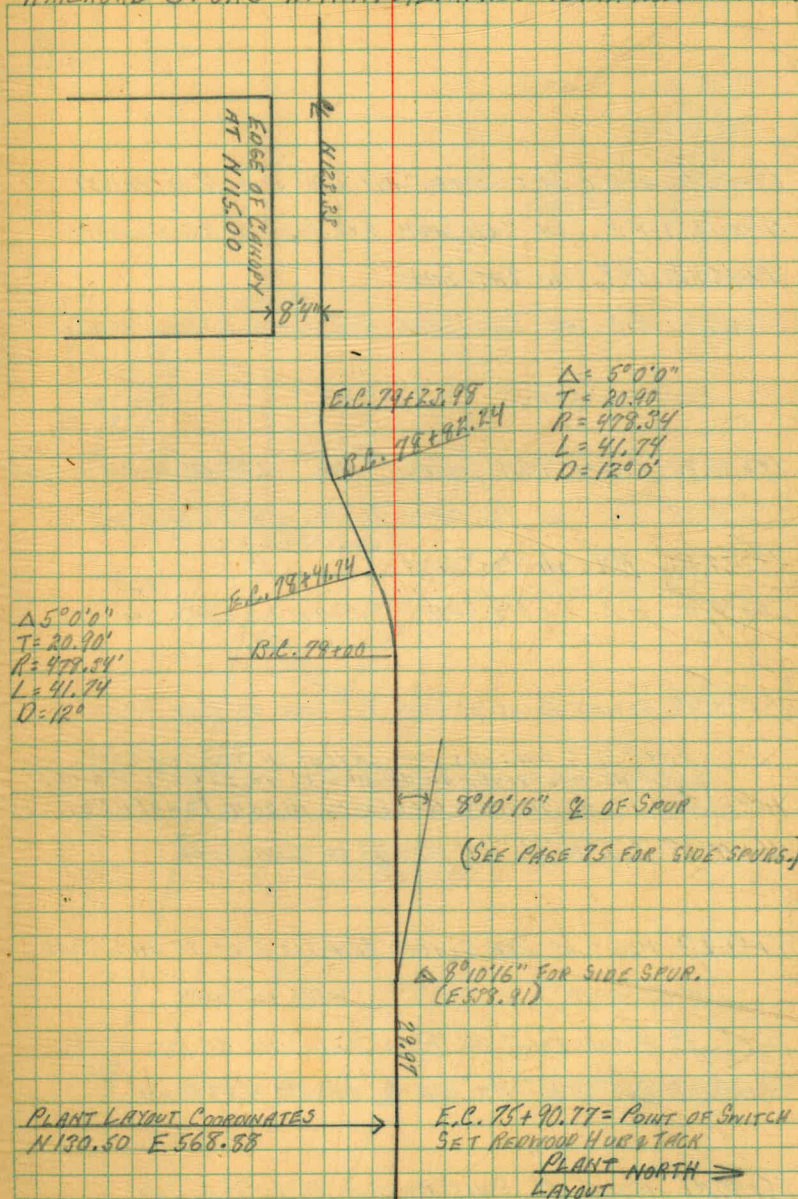
76+20.74 $\Delta 8^{\circ}10'16''$ RT. FOR $\frac{1}{2}$ OF 1ST. SAUR LINE.

START LAYOUT AT N130.50, E568.88 = STA. 73+90.77

E.C. AND POINT OF SWITCH. TANGENT AHEAD PARALLELS PLANT E-W AXIS

MARCH 23, 1950 LEONARD, CARVER. 74.

RAILROAD SPURS WITHIN ALVARADO FILTRATION PLANT.



79+87.03 ENTER SALT STORAGE TANK. (.05' S. OF $\frac{1}{4}$ OF MILE)

79+18.29 E.C. ON 2ND. SPUR. 2"x2" REDWOOD HUB + GALV. NAIL SET.

78+50.60 P.I. ON 2ND. SPUR.

77+86.86 B.C. ON 2ND. SPUR, 2"x2" ^{REDWOOD} ~~Redwood~~ HUB + GALV. NAIL SET.

79+85.23 ENTER SALT STORAGE TANK. (.05' OFF CENTER OF MAINS)

78+86.24 E.C. ON 1ST. SPUR. 2"x2" REDWOOD HUB + GALV. NAIL SET.

78+52.86 P.I. ON 1ST. SPUR

76+18.02 B.C. ON 1ST. SPUR. 2"x2" PINE HUB + GALV. NAIL SET.

77+38.42 ACTUAL POINT OF FROG, 1st SPUR TO 2ND. SPUR.

FILE # 3555 DOES NOT FIT LAYOUT IN THE FIELD.
STATIONS FOR CURVES, SHOWN ON CITY WATER DEPT. DRAWING

NOTE: STATIONS AT SWITCHS MEASURED ALONG TANGENTS.

77+05.17 $\Delta 8^{\circ}10'16''$ RT. TO $\frac{1}{4}$ OF 2ND. SPUR.

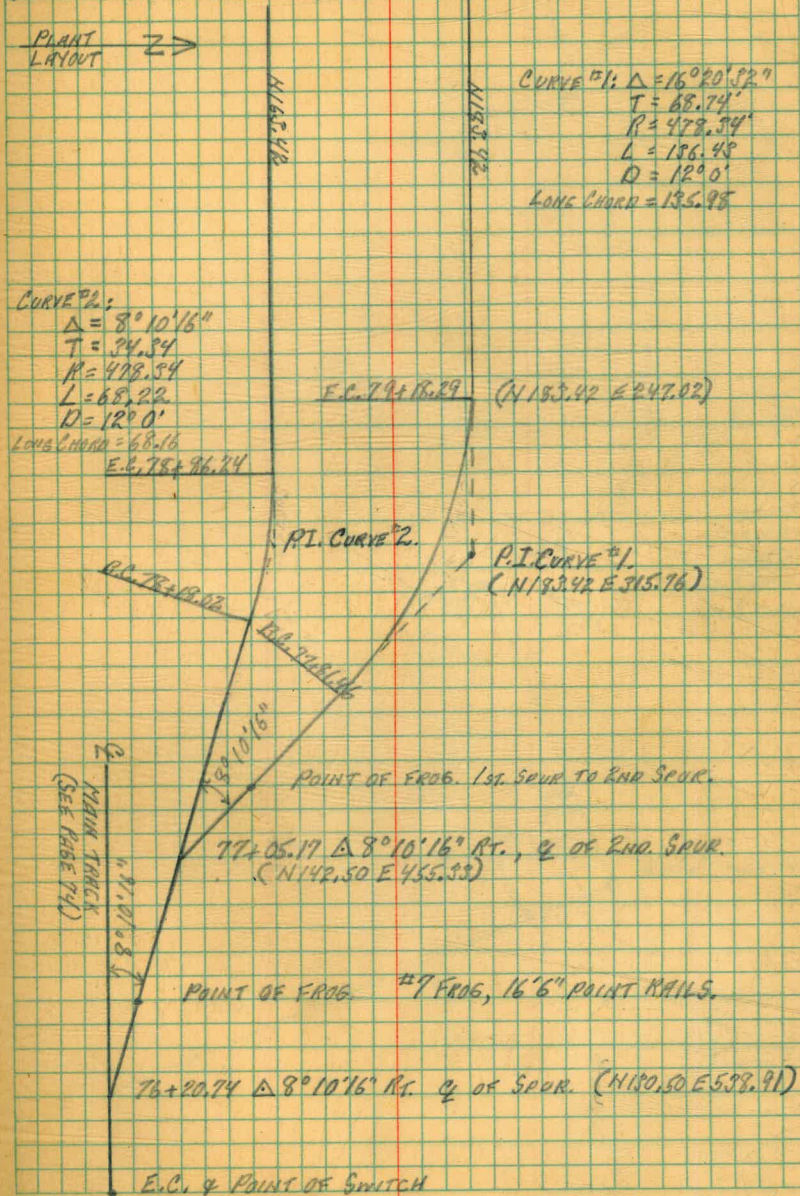
76+75.20 POINT OF 2ND SWITCH FROM 1st SPUR TO 2ND SPUR

76+53.99 ACTUAL POINT OF FROG, MAIN LINE TO 1st SPUR

76+20.74 $\Delta 8^{\circ}10'16''$ RT. FOR $\frac{1}{4}$ OF 1ST. SPUR.

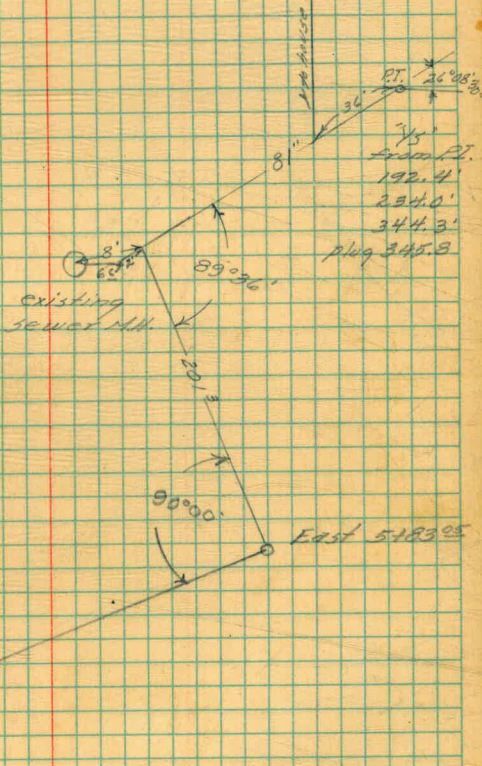
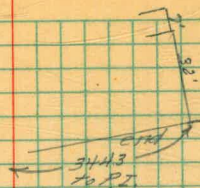
75+90.77 POINT OF SWITCH.

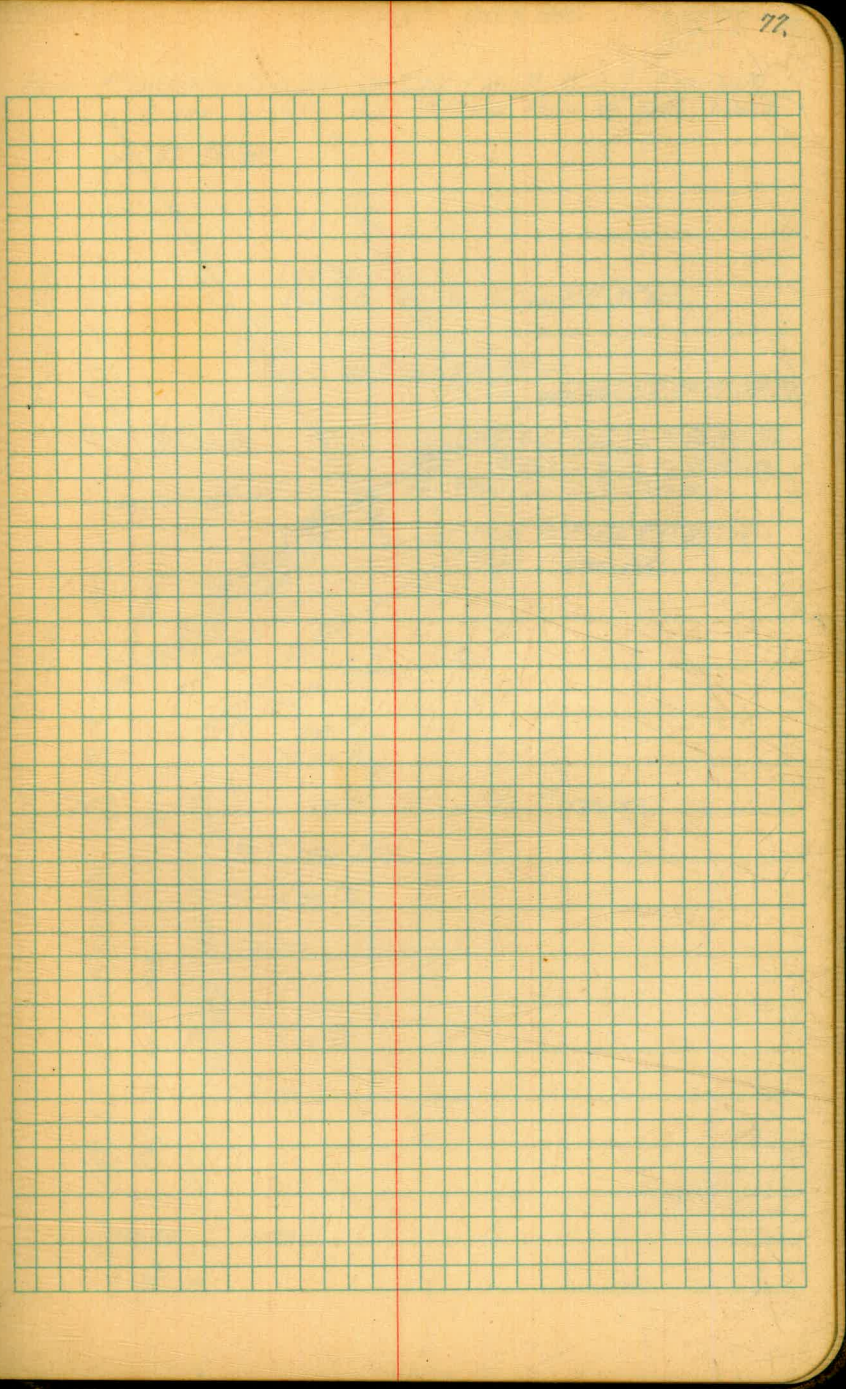
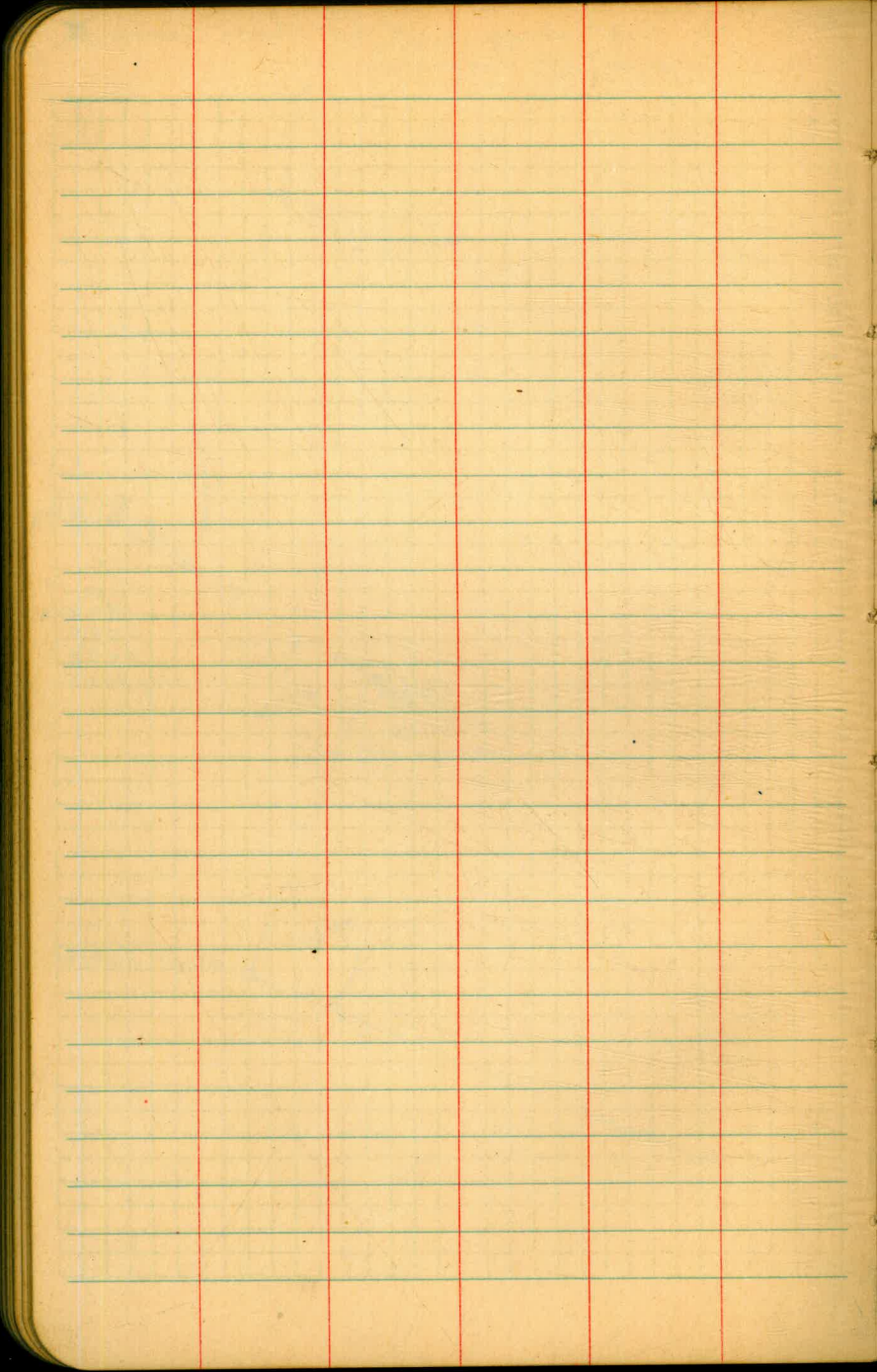
R.R. SPURS AT ALVARADO FILE PLT. - CONT'D.



July 31, 1950 Rainey
King
Leonard
Baker

Tie to 4" sewer to Filter Plant Operators⁷⁶
House at Alvarado

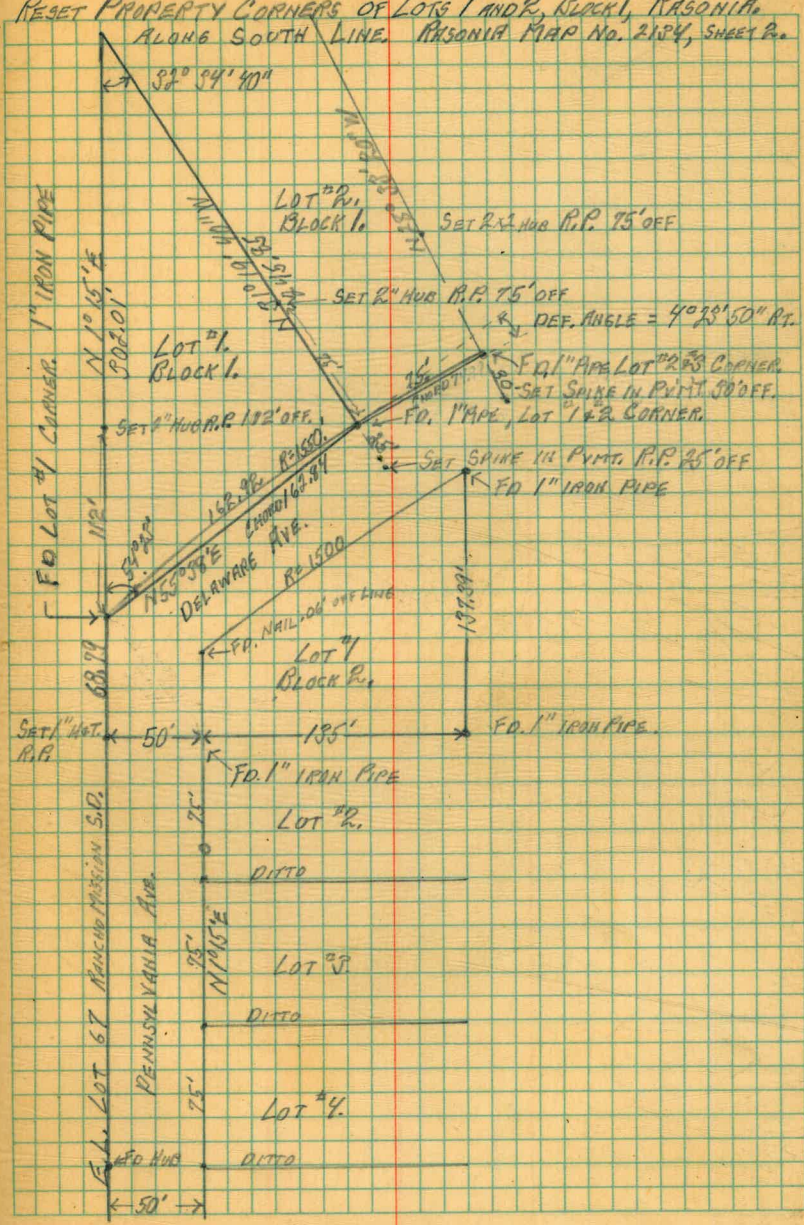


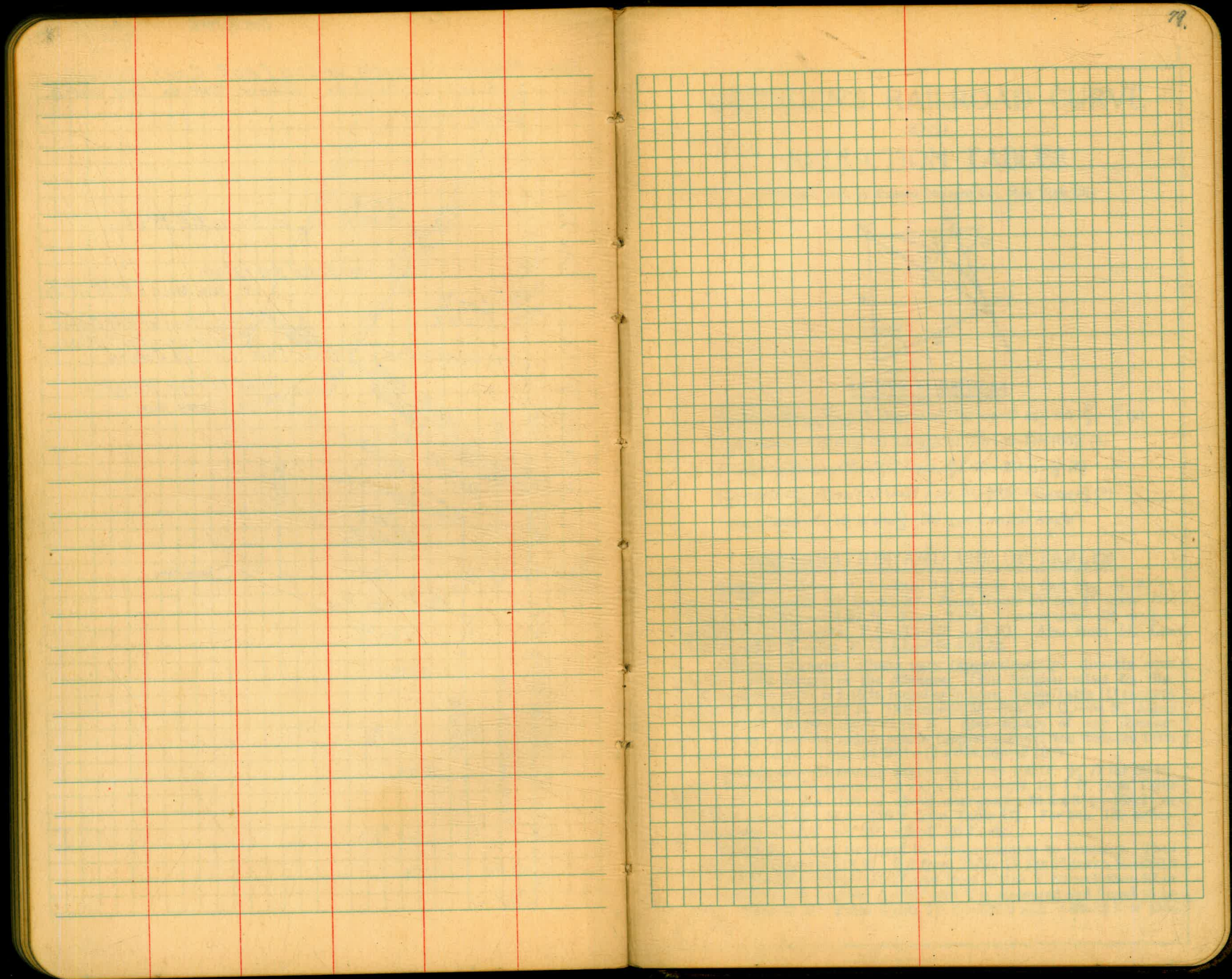


OCT. 8, 1948.

LEONARD SHIPMAN WEST. 78.

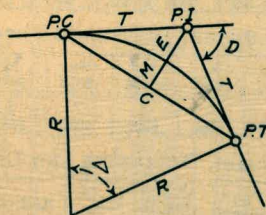
RESET PROPERTY CORNERS OF LOTS 1 AND 2, BLOCK 1, PASONIA, ALONG SOUTH LINE, PASONIA MAP NO. 2124, SHEET 2.





DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

Copyright, 1914, by Eugene Dietzgen Co., New York City



CURVE FORMULAS

Radius $= R = \frac{50}{\sin. \frac{D}{2}}$ (1) Degree of Curve $= D$ and $\sin. \frac{D}{2} = \frac{50}{R}$ (2)

Tangent $= T = R \tan \frac{\Delta}{2}$ (3) Length of Curve $= L = 100 \frac{\Delta}{D}$ (4)

Middle ordinate $= M = R(1 - \cos. \frac{\Delta}{2})$ (5) $= R \text{vers } \frac{\Delta}{2}$ (6)

External $= E = T \tan \frac{\Delta}{4}$ (7) $= R \div \cos. \frac{\Delta}{2} - R$ (8) $= R \text{exsec } \frac{\Delta}{2}$ (9)

Long Chord $= C = 2 R \sin. \frac{\Delta}{2}$ (10) $\Delta =$ Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I. = Sta. 161 + 60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8\frac{1}{2} = 414.49$ ft. From Table V correction = .36 or $T = 414.85$ ft. P. C. = Sta. P. I. $- T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T. = Sta. P. C. $+ L = 164 + 91.50$.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance = 158 - Sta. P. C. = 54.50, hence offset = $7.27 (54.50 \div 100)^2 = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle = $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft. = (in minutes) $.3 \times C \times D^2$ or = defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve = $.3 \times 54.5 \times 8\frac{1}{2} = 136.2'$ or $2^\circ 16.2'$, or = $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle = $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 115.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{2} = 115.27$ and from Table V correction = .10 or $E = 115.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

TABLE I.—MINUTES IN DECIMALS OF A DEGREE.

| | | | | | | | | | | | |
|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--------|
| 1' | .0167 | 11' | .1833 | 21' | .3500 | 31' | .5167 | 41' | .6833 | 51' | .8500 |
| 2 | .0333 | 12 | .2000 | 22 | .3667 | 32 | .5333 | 42 | .7000 | 52 | .8667 |
| 3 | .0500 | 13 | .2167 | 23 | .3833 | 33 | .5500 | 43 | .7167 | 53 | .8833 |
| 4 | .0667 | 14 | .2333 | 24 | .4000 | 34 | .5667 | 44 | .7333 | 54 | .9000 |
| 5 | .0833 | 15 | .2500 | 25 | .4167 | 35 | .5833 | 45 | .7500 | 55 | .9167 |
| 6 | .1000 | 16 | .2667 | 26 | .4333 | 36 | .6000 | 46 | .7667 | 56 | .9333 |
| 7 | .1167 | 17 | .2833 | 27 | .4500 | 37 | .6167 | 47 | .7833 | 57 | .9500 |
| 8 | .1333 | 18 | .3000 | 28 | .4667 | 38 | .6333 | 48 | .8000 | 58 | .9667 |
| 9 | .1500 | 19 | .3167 | 29 | .4833 | 39 | .6500 | 49 | .8167 | 59 | .9833 |
| 10 | .1667 | 20 | .3333 | 30 | .5000 | 40 | .6667 | 50 | .8333 | 60 | 1.0000 |

TABLE II.—INCHES IN DECIMALS OF A FOOT.

| | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1/16 | 3/32 | 1/4 | 5/16 | 3/8 | 7/16 | 1/2 | 9/16 | 5/8 | 3/4 | 7/8 |
| .0052 | .0078 | .0104 | .0156 | .0208 | .0260 | .0313 | .0417 | .0521 | .0625 | .0729 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| .0833 | .1667 | .2500 | .3333 | .4167 | .5000 | .5833 | .6667 | .7500 | .8333 | .9167 |

TABLE III.—RADIUS, ORDINATES AND DEFLECTIONS.

| Deg. | Radius | Mid. Ord. | Tan Offset | Def. for 1 Foot | Deg. | Radius | Mid. Ord. | Tan Offset | Def. for 1 Foot |
|--------|---------|-----------|------------|-----------------|------|--------|-----------|------------|-----------------|
| 0° 10' | 34377.5 | .036 | .145 | 0.05' | 7° | 819.02 | 1.528 | 6.105 | 2.10' |
| 20 | 17188.8 | .073 | .291 | 0.10 | 20 | 781.84 | 1.600 | 6.395 | 2.20 |
| 30 | 11459.2 | .109 | .436 | 0.15 | 30 | 764.49 | 1.637 | 6.540 | 2.25 |
| 40 | 8594.42 | .145 | .582 | 0.20 | 40 | 747.89 | 1.673 | 6.685 | 2.30 |
| 50 | 6875.55 | .182 | .727 | 0.25 | 8 | 716.78 | 1.746 | 6.976 | 2.40 |
| 1 | 5729.65 | .218 | .873 | 0.30 | 20 | 688.16 | 1.819 | 7.266 | 2.50 |
| 10 | 4911.15 | .255 | 1.018 | 0.35 | 30 | 674.69 | 1.855 | 7.411 | 2.55 |
| 20 | 4297.28 | .291 | 1.164 | 0.40 | 40 | 661.74 | 1.892 | 7.556 | 2.60 |
| 30 | 3819.83 | .327 | 1.309 | 0.45 | 9 | 637.28 | 1.965 | 7.846 | 2.70 |
| 40 | 3437.87 | .364 | 1.454 | 0.50 | 20 | 614.56 | 2.037 | 8.136 | 2.80 |
| 50 | 3125.36 | .400 | 1.600 | 0.55 | 30 | 603.80 | 2.074 | 8.281 | 2.85 |
| 2 | 2864.93 | .436 | 1.745 | 0.60 | 40 | 593.42 | 2.110 | 8.426 | 2.90 |
| 10 | 2644.58 | .473 | 1.891 | 0.65 | 10 | 573.69 | 2.183 | 8.716 | 3.00 |
| 20 | 2455.70 | .509 | 2.036 | 0.70 | 30 | 546.44 | 2.292 | 9.150 | 3.15 |
| 30 | 2292.01 | .545 | 2.181 | 0.75 | 20 | 521.67 | 2.402 | 9.585 | 3.30 |
| 40 | 2148.79 | .582 | 2.327 | 0.80 | 11 | 499.06 | 2.511 | 10.02 | 3.45 |
| 50 | 2022.41 | .618 | 2.472 | 0.85 | 30 | 478.34 | 2.620 | 10.45 | 3.60 |
| 3 | 1910.08 | .655 | 2.618 | 0.90 | 13 | 459.28 | 2.730 | 10.89 | 3.75 |
| 10 | 1809.57 | .691 | 2.763 | 0.95 | 30 | 441.68 | 2.839 | 11.32 | 3.90 |
| 20 | 1719.12 | .727 | 2.908 | 1.00 | 14 | 425.40 | 2.949 | 11.75 | 4.05 |
| 30 | 1637.28 | .764 | 3.054 | 1.05 | 30 | 410.28 | 3.058 | 12.18 | 4.20 |
| 40 | 1562.88 | .800 | 3.199 | 1.10 | 15 | 396.20 | 3.168 | 12.62 | 4.35 |
| 50 | 1494.95 | .836 | 3.345 | 1.15 | 30 | 383.07 | 3.277 | 13.05 | 4.50 |
| 4 | 1432.69 | .873 | 3.490 | 1.20 | 16 | 370.78 | 3.387 | 13.49 | 4.65 |
| 10 | 1375.40 | .909 | 3.635 | 1.25 | 30 | 359.27 | 3.496 | 13.92 | 4.80 |
| 20 | 1322.53 | .945 | 3.718 | 1.30 | 17 | 348.45 | 3.606 | 14.35 | 4.95 |
| 30 | 1273.57 | .982 | 3.926 | 1.35 | 30 | 338.27 | 3.716 | 14.78 | 5.10 |
| 40 | 1228.11 | 1.018 | 4.071 | 1.40 | 18 | 319.62 | 3.935 | 15.64 | 5.40 |
| 50 | 1185.78 | 1.055 | 4.217 | 1.45 | 19 | 302.94 | 4.155 | 16.51 | 5.70 |
| 5 | 1146.28 | 1.091 | 4.362 | 1.50 | 20 | 287.94 | 4.374 | 17.37 | 6.00 |
| 10 | 1109.33 | 1.127 | 4.507 | 1.55 | 21 | 274.37 | 4.594 | 18.22 | 6.30 |
| 20 | 1074.68 | 1.164 | 4.653 | 1.60 | 22 | 262.04 | 4.814 | 19.08 | 6.60 |
| 30 | 1042.14 | 1.200 | 4.798 | 1.65 | 23 | 250.79 | 5.035 | 19.94 | 6.90 |
| 40 | 1011.51 | 1.237 | 4.943 | 1.70 | 24 | 240.49 | 5.255 | 20.79 | 7.20 |
| 50 | 982.64 | 1.273 | 5.088 | 1.75 | 25 | 231.01 | 5.476 | 21.64 | 7.50 |
| 6 | 955.37 | 1.309 | 5.234 | 1.80 | 26 | 222.27 | 5.697 | 22.50 | 7.80 |
| 10 | 929.57 | 1.346 | 5.379 | 1.85 | 27 | 214.18 | 5.918 | 23.35 | 8.10 |
| 20 | 905.13 | 1.382 | 5.524 | 1.90 | 28 | 206.68 | 6.139 | 24.19 | 8.40 |
| 30 | 881.95 | 1.418 | 5.669 | 1.95 | 29 | 199.70 | 6.360 | 25.04 | 8.70 |
| 40 | 859.92 | 1.455 | 5.814 | 2.00 | 30 | 193.18 | 6.583 | 25.88 | 9.00 |

NOTE. Chord Deflection=2 times tangent deflection.

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

| Central Angle | Tangent | External | Central Angle | Tangent | External | Central Angle | Tangent | External |
|---------------|---------|----------|---------------|---------|----------|---------------|---------|----------|
| 1° | 50.00 | .22 | 11° | 551.70 | 26.50 | 21° | 1061.9 | 97.57 |
| 10' | 58.34 | .30 | 10' | 560.11 | 27.31 | 10' | 1070.6 | 99.16 |
| 20 | 66.67 | .39 | 20 | 568.53 | 28.14 | 20 | 1079.2 | 100.75 |
| 30 | 75.01 | .49 | 30 | 576.95 | 28.97 | 30 | 1087.8 | 102.35 |
| 40 | 83.34 | .61 | 40 | 585.36 | 29.82 | 40 | 1096.4 | 103.97 |
| 50 | 91.68 | .73 | 50 | 593.79 | 30.68 | 50 | 1105.1 | 105.60 |
| 2 | 100.01 | .87 | 12 | 602.21 | 31.56 | 22 | 1113.7 | 107.24 |
| 10 | 108.35 | 1.02 | 10 | 610.64 | 32.45 | 10 | 1122.4 | 108.90 |
| 20 | 116.68 | 1.19 | 20 | 619.07 | 33.35 | 20 | 1131.0 | 110.57 |
| 30 | 125.02 | 1.36 | 30 | 627.50 | 34.26 | 30 | 1139.7 | 112.25 |
| 40 | 133.36 | 1.55 | 40 | 635.93 | 35.18 | 40 | 1148.4 | 113.95 |
| 50 | 141.70 | 1.75 | 50 | 644.37 | 36.12 | 50 | 1157.0 | 115.66 |
| 3 | 150.04 | 1.96 | 13 | 652.81 | 37.07 | 23 | 1165.7 | 117.38 |
| 10 | 158.38 | 2.19 | 10 | 661.25 | 38.03 | 10 | 1174.4 | 119.12 |
| 20 | 166.72 | 2.43 | 20 | 669.70 | 39.01 | 20 | 1183.1 | 120.87 |
| 30 | 175.06 | 2.67 | 30 | 678.15 | 39.99 | 30 | 1191.8 | 122.63 |
| 40 | 183.40 | 2.93 | 40 | 686.60 | 40.99 | 40 | 1200.5 | 124.41 |
| 50 | 191.74 | 3.21 | 50 | 695.06 | 42.00 | 50 | 1209.2 | 126.20 |
| 4 | 200.08 | 3.49 | 14 | 703.51 | 43.03 | 24 | 1217.9 | 128.00 |
| 10 | 208.43 | 3.79 | 10 | 711.97 | 44.07 | 10 | 1226.6 | 129.82 |
| 20 | 216.77 | 4.10 | 20 | 720.44 | 45.12 | 20 | 1235.3 | 131.65 |
| 30 | 225.12 | 4.42 | 30 | 728.90 | 46.18 | 30 | 1244.0 | 133.50 |
| 40 | 233.47 | 4.76 | 40 | 737.37 | 47.25 | 40 | 1252.8 | 135.35 |
| 50 | 241.81 | 5.10 | 50 | 745.85 | 48.34 | 50 | 1261.5 | 137.23 |
| 5 | 250.16 | 5.46 | 15 | 754.32 | 49.44 | 25 | 1270.2 | 139.11 |
| 10 | 258.51 | 5.83 | 10 | 762.80 | 50.55 | 10 | 1279.0 | 141.01 |
| 20 | 266.86 | 6.21 | 20 | 771.29 | 51.68 | 20 | 1287.7 | 142.93 |
| 30 | 275.21 | 6.61 | 30 | 779.77 | 52.89 | 30 | 1296.5 | 144.85 |
| 40 | 283.57 | 7.01 | 40 | 788.26 | 53.97 | 40 | 1305.3 | 146.79 |
| 50 | 291.92 | 7.43 | 50 | 796.75 | 55.13 | 50 | 1314.0 | 148.75 |
| 6 | 300.28 | 7.86 | 16 | 805.25 | 56.31 | 26 | 1322.8 | 150.71 |
| 10 | 308.64 | 8.31 | 10 | 813.75 | 57.50 | 10 | 1331.6 | 152.69 |
| 20 | 316.99 | 8.76 | 20 | 822.25 | 58.70 | 20 | 1340.4 | 154.69 |
| 30 | 325.35 | 9.23 | 30 | 830.76 | 59.91 | 30 | 1349.2 | 156.70 |
| 40 | 333.71 | 9.71 | 40 | 839.27 | 61.14 | 40 | 1358.0 | 158.72 |
| 50 | 342.08 | 10.20 | 50 | 847.78 | 62.38 | 50 | 1366.8 | 160.76 |
| 7 | 350.44 | 10.71 | 17 | 856.30 | 63.63 | 27 | 1375.6 | 162.81 |
| 10 | 358.81 | 11.22 | 10 | 864.82 | 64.90 | 10 | 1384.4 | 164.86 |
| 20 | 367.17 | 11.75 | 20 | 873.35 | 66.18 | 20 | 1393.2 | 166.95 |
| 30 | 375.54 | 12.29 | 30 | 881.88 | 67.47 | 30 | 1402.0 | 169.04 |
| 40 | 383.91 | 12.85 | 40 | 890.41 | 68.77 | 40 | 1410.9 | 171.15 |
| 50 | 392.28 | 13.41 | 50 | 898.95 | 70.09 | 50 | 1419.7 | 173.27 |
| 8 | 400.66 | 13.99 | 18 | 907.49 | 71.42 | 28 | 1428.6 | 175.41 |
| 10 | 409.03 | 14.58 | 10 | 916.03 | 72.76 | 10 | 1437.4 | 177.55 |
| 20 | 417.41 | 15.18 | 20 | 924.58 | 74.12 | 20 | 1446.3 | 179.72 |
| 30 | 425.79 | 15.80 | 30 | 933.13 | 75.49 | 30 | 1455.1 | 181.89 |
| 40 | 434.17 | 16.43 | 40 | 941.69 | 76.86 | 40 | 1464.0 | 184.08 |
| 50 | 442.55 | 17.07 | 50 | 950.25 | 78.26 | 50 | 1472.9 | 186.29 |
| 9 | 450.93 | 17.72 | 19 | 958.81 | 79.67 | 29 | 1481.8 | 188.51 |
| 10 | 459.32 | 18.38 | 10 | 967.38 | 81.09 | 10 | 1490.7 | 190.74 |
| 20 | 467.71 | 19.06 | 20 | 975.96 | 82.53 | 20 | 1499.6 | 192.99 |
| 30 | 476.10 | 19.75 | 30 | 984.53 | 83.97 | 30 | 1508.5 | 195.25 |
| 40 | 484.49 | 20.45 | 40 | 993.12 | 85.43 | 40 | 1517.4 | 197.53 |
| 50 | 492.88 | 21.16 | 50 | 1001.7 | 86.90 | 50 | 1526.3 | 199.82 |
| 10 | 501.28 | 21.89 | 20 | 1010.3 | 88.39 | 30 | 1535.3 | 202.12 |
| 10 | 509.68 | 22.62 | 10 | 1018.9 | 89.89 | 10 | 1544.2 | 204.44 |
| 20 | 518.08 | 23.38 | 20 | 1027.5 | 91.40 | 20 | 1553.1 | 206.77 |
| 30 | 526.48 | 24.14 | 30 | 1036.1 | 92.92 | 30 | 1562.1 | 209.12 |
| 40 | 534.89 | 24.91 | 40 | 1044.7 | 94.46 | 40 | 1571.0 | 211.48 |
| 50 | 543.29 | 25.70 | 50 | 1053.3 | 96.01 | 50 | 1580.0 | 213.86 |

End of paving N 120, E 561

CITY OF SAN DIEGO

REC'D

RESIDENT ENGINEER

82° 05' 35"
00

we
90° 21'

40 15'

1252'

8.34
8.34
17008'
90
107008'

582.90
9.40
592.30

27 15 38
GAS X'S

27 44.20
SEWER X'S

27 44.50
End
Line

DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½
For Single Track Embankment.

| H | 0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | H |
|----|------|------|------|------|------|------|------|------|------|------|----|
| 0 | 8.0 | 8.2 | 8.3 | 8.5 | 8.6 | 8.8 | 8.9 | 9.1 | 9.2 | 9.4 | 0 |
| 1 | 9.5 | 9.7 | 9.8 | 10.0 | 10.1 | 10.3 | 10.4 | 10.6 | 10.7 | 10.9 | 1 |
| 2 | 11.0 | 11.2 | 11.3 | 11.5 | 11.6 | 11.8 | 11.9 | 12.1 | 12.2 | 12.4 | 2 |
| 3 | 12.5 | 12.7 | 12.8 | 13.0 | 13.1 | 13.3 | 13.4 | 13.6 | 13.7 | 13.9 | 3 |
| 4 | 14.0 | 14.2 | 14.3 | 14.5 | 14.6 | 14.8 | 14.9 | 15.1 | 15.2 | 15.4 | 4 |
| 5 | 15.5 | 15.7 | 15.8 | 16.0 | 16.1 | 16.3 | 16.4 | 16.6 | 16.7 | 16.9 | 5 |
| 6 | 17.0 | 17.2 | 17.3 | 17.5 | 17.6 | 17.8 | 17.9 | 18.1 | 18.2 | 18.4 | 6 |
| 7 | 18.5 | 18.7 | 18.8 | 19.0 | 19.1 | 19.3 | 19.4 | 19.6 | 19.7 | 19.9 | 7 |
| 8 | 20.0 | 20.2 | 20.3 | 20.5 | 20.6 | 20.8 | 20.9 | 21.1 | 21.2 | 21.4 | 8 |
| 9 | 21.5 | 21.7 | 21.8 | 22.0 | 22.1 | 22.3 | 22.4 | 22.6 | 22.7 | 22.9 | 9 |
| 10 | 23.0 | 23.2 | 23.3 | 23.5 | 23.6 | 23.8 | 23.9 | 24.1 | 24.2 | 24.4 | 10 |
| 11 | 24.5 | 24.7 | 24.8 | 25.0 | 25.1 | 25.3 | 25.4 | 25.6 | 25.7 | 25.9 | 11 |
| 12 | 26.0 | 26.2 | 26.3 | 26.5 | 26.6 | 26.8 | 26.9 | 27.1 | 27.2 | 27.4 | 12 |
| 13 | 27.5 | 27.7 | 27.8 | 28.0 | 28.1 | 28.3 | 28.4 | 28.6 | 28.7 | 28.9 | 13 |
| 14 | 29.0 | 29.2 | 29.3 | 29.5 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 14 |
| 15 | 30.5 | 30.7 | 30.8 | 31.0 | 31.1 | 31.3 | 31.4 | 31.6 | 31.7 | 31.9 | 15 |
| 16 | 32.0 | 32.2 | 32.3 | 32.5 | 32.6 | 32.8 | 32.9 | 33.1 | 33.2 | 33.4 | 16 |
| 17 | 33.5 | 33.7 | 33.8 | 34.0 | 34.1 | 34.3 | 34.4 | 34.6 | 34.7 | 34.9 | 17 |
| 18 | 35.0 | 35.2 | 35.3 | 35.5 | 35.6 | 35.8 | 35.9 | 36.1 | 36.2 | 36.4 | 18 |
| 19 | 36.5 | 36.7 | 36.8 | 37.0 | 37.1 | 37.3 | 37.4 | 37.6 | 37.7 | 37.9 | 19 |
| 20 | 38.0 | 38.2 | 38.3 | 38.5 | 38.6 | 38.8 | 38.9 | 39.1 | 39.2 | 39.4 | 20 |
| 21 | 39.5 | 39.7 | 39.8 | 40.0 | 40.1 | 40.3 | 40.4 | 40.6 | 40.7 | 40.9 | 21 |
| 22 | 41.0 | 41.2 | 41.3 | 41.5 | 41.6 | 41.8 | 41.9 | 42.1 | 42.2 | 42.4 | 22 |
| 23 | 42.5 | 42.7 | 42.8 | 43.0 | 43.1 | 43.3 | 43.4 | 43.6 | 43.7 | 43.9 | 23 |
| 24 | 44.0 | 44.2 | 44.3 | 44.5 | 44.6 | 44.8 | 44.9 | 45.1 | 45.2 | 45.4 | 24 |
| 25 | 45.5 | 45.7 | 45.8 | 46.0 | 46.1 | 46.3 | 46.4 | 46.6 | 46.7 | 46.9 | 25 |
| 26 | 47.0 | 47.2 | 47.3 | 47.5 | 47.6 | 47.8 | 47.9 | 48.1 | 48.2 | 48.4 | 26 |
| 27 | 48.5 | 48.7 | 48.8 | 49.0 | 49.1 | 49.3 | 49.4 | 49.6 | 49.7 | 49.9 | 27 |
| 28 | 50.0 | 50.2 | 50.3 | 50.5 | 50.6 | 50.8 | 50.9 | 51.1 | 51.2 | 51.4 | 28 |
| 29 | 51.5 | 51.7 | 51.8 | 52.0 | 52.1 | 52.3 | 52.4 | 52.6 | 52.7 | 52.9 | 29 |
| 30 | 53.0 | 53.2 | 53.3 | 53.5 | 53.6 | 53.8 | 53.9 | 54.1 | 54.2 | 54.4 | 30 |
| 31 | 54.5 | 54.7 | 54.8 | 55.0 | 55.1 | 55.3 | 55.4 | 55.6 | 55.7 | 55.9 | 31 |
| 32 | 56.0 | 56.2 | 56.3 | 56.5 | 56.6 | 56.8 | 56.9 | 57.1 | 57.2 | 57.4 | 32 |
| 33 | 57.5 | 57.7 | 57.8 | 58.0 | 58.1 | 58.3 | 58.4 | 58.6 | 58.7 | 58.9 | 33 |
| 34 | 59.0 | 59.2 | 59.3 | 59.5 | 59.6 | 59.8 | 59.9 | 60.1 | 60.2 | 60.4 | 34 |
| 35 | 60.5 | 60.7 | 60.8 | 61.0 | 61.1 | 61.3 | 61.4 | 61.6 | 61.7 | 61.9 | 35 |
| 36 | 62.0 | 62.2 | 62.3 | 62.5 | 62.6 | 62.8 | 62.9 | 63.1 | 63.2 | 63.4 | 36 |
| 37 | 63.5 | 63.7 | 63.8 | 64.0 | 64.1 | 64.3 | 64.4 | 64.6 | 64.7 | 64.9 | 37 |
| 38 | 65.0 | 65.2 | 65.3 | 65.5 | 65.6 | 65.8 | 65.9 | 66.1 | 66.2 | 66.4 | 38 |
| 39 | 66.5 | 66.7 | 66.8 | 67.0 | 67.1 | 67.3 | 67.4 | 67.6 | 67.7 | 67.9 | 39 |
| 40 | 68.0 | 68.2 | 68.3 | 68.5 | 68.6 | 68.8 | 68.9 | 69.1 | 69.2 | 69.4 | 40 |

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20 - 16) ÷ 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.

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