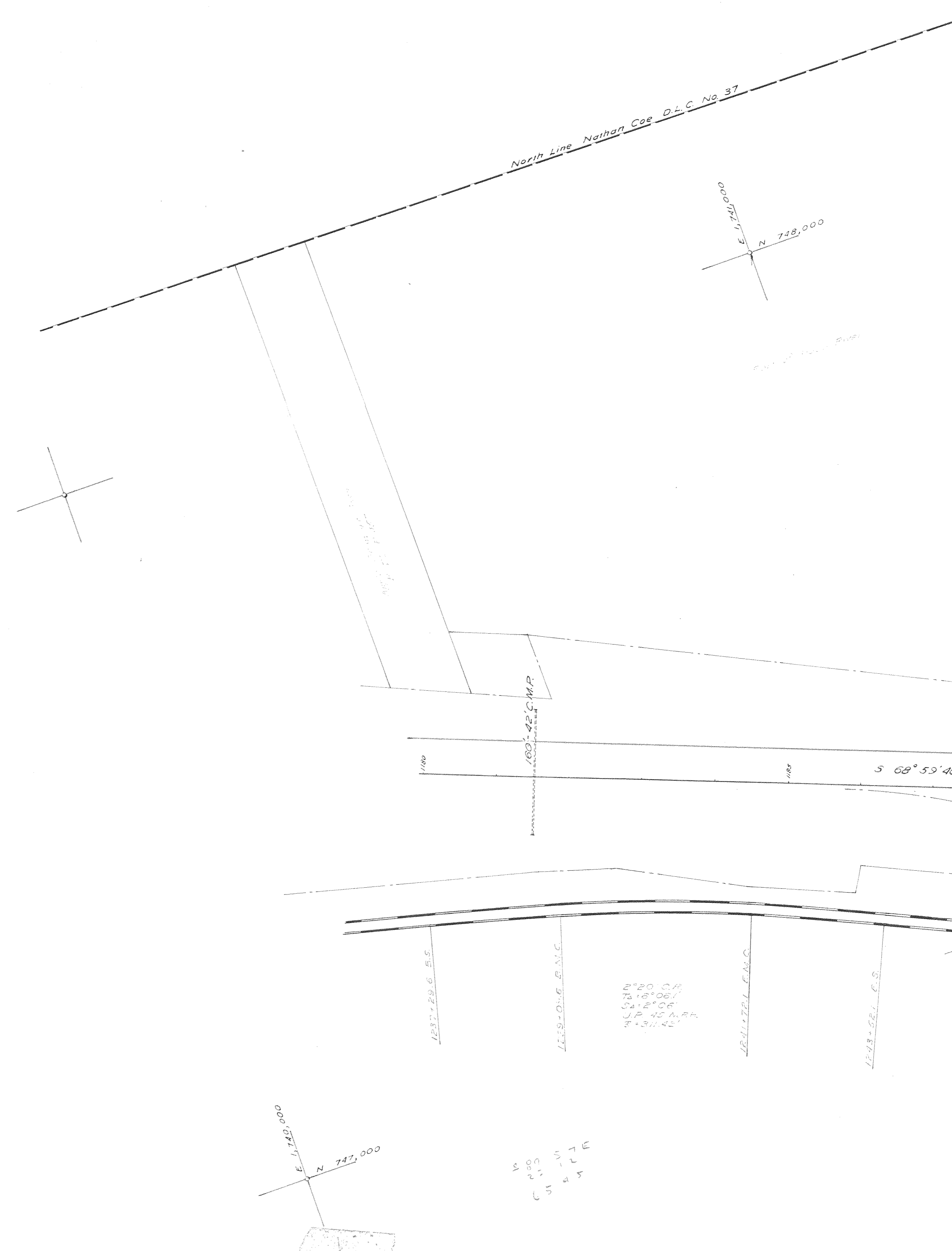


OREGON STATE HIGHWAY DEPARTMENT
 LOCATED LINE
EAST UNIT
VIENTO-SHOGREN OVERCROSSING SECTION
 COLUMBIA RIVER HWY.
 HOOD RIVER & WASCO COUNTIES
 Sta. 1180 to Sta. 1592

Scale: 1"=100'
 Grid Bearings

H.S. Coulter, Res. Engr.
 November, 1957

9F 23-14
 SH 1



9F 23.14
SH2



S 68° 53' 40\" E

Offset Spiral
Ls = 385.81'
S = 4° 00'

266 ± 7.5' Radius C.L.
TA = 58° 58' 00"
L = 781.67'

L.E.B.
2° C.L. = 52'
TA = 23° 52'
S = 805.91'
L = 793.33'

L.E.B.
2° C.L. = 52'
TA = 23° 52'
S = 805.91'
L = 793.33'

400' Spiral
S = 4° 00'
a = 0.5

400' Spiral
S = 4° 00'
a = 0.5

USAE Mon. (West SW Cor.)
D.L.C. No. 20

N 87° 22' 20\" E
N 87° 08' 20\" E
N 87° 08' 20\" E
1055.40'

East Line Nathan Benson D.L.C. No. 40

T3N.R.10E
T3S.N.R.1E



East Line Nathan Benson D.L.C. No. 37

T3N, R10E
T3N, R11E

West Line Nathan Benson D.L.C. No. 37

WEST END OF PROJECT - Sta. 1225+00

East Line Nathan Benson D.L.C. No. 37

East Line Nathan Benson D.L.C. No. 37

Pump House

400' Spiral
S₁ = 2° 00'
R = 0.25

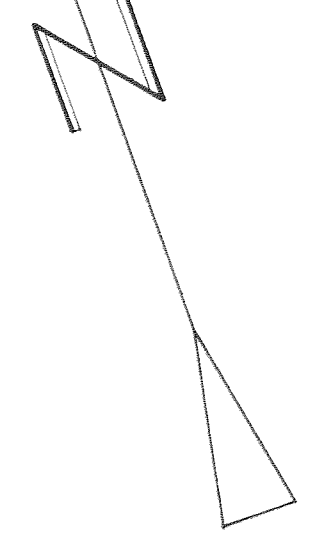
1000' Spiral
S₁ = 2° 00'
R = 0.1

2° W.B. 1225+73.33 PI E.B.
TA = 31° 14' 50"
S₁ = 2011.40'
S₂ = 1823.43'
Lmc = 2486.20'

1° C.R.
TA = 31° 14' 50"
S₁ = 2095.70'
S₂ = 1823.43'
Lmc = 2424.72'

1° C.R.
TA = 31° 28' 50"
S₁ = 1815.13'
S₂ = 1823.43'
Lmc = 2748.06'

Sec. Cur. (Found Mon)
N = 725,000
E = 1,745,582.77



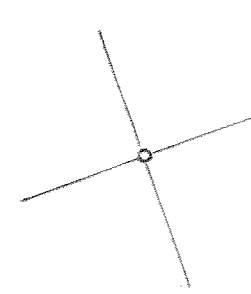
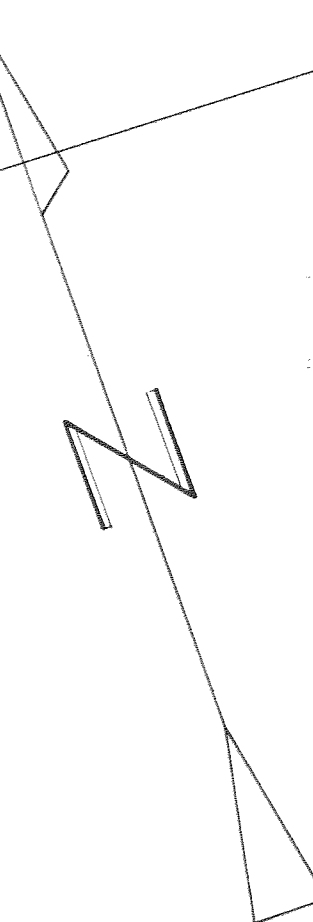
25
30
36

30
3



All S.C. & D.L.C. points East of this line taken from P.R. Encro. Tracing

9F 23-14
 2H3



~

WB
 576.98 Radius CR
 Ta = 6° 28' 30"
 F = 529.26'
 Lmc = 249.46'

Offset Spiral
 Ls = 401.13'
 S = 2° 00'

Offset Spiral
 Ls = 401.13'
 S = 2° 00'

400' Spiral
 S = 2° 00'
 a = 0.25

400' Spiral
 S = 2° 00'
 a = 0.25

400' Spiral
 S = 2° 00'
 a = 0.25

C.R.
 Ta = 10° 28' 50"
 F = 524.43'
 Lmc = 248.08'

EQUATION
 L = 1272.7187
 S = 1272.7187

EQUATION
 L = 1272.7187
 S = 1272.7187

EQUATION
 L = 1272.7187
 S = 1272.7187

1/2 Cor. (Found Man)
 N = 125.97737
 E = 1746.5287

1/2 Cor. (Found Man)
 N = 125.97737
 E = 1746.5287

1/2 Cor. (Found Man)
 N = 125.97737
 E = 1746.5287

1/2 Cor. (Found Man)
 N = 125.97737
 E = 1746.5287



9F 23.14
SHY

Possible Change in Alignment of P&L
Transmission Lines - Est. Cost \$17,514

Existing Line

3428.32'

S 54° 54' E

Tie to Existing Line

Construct Tower

31 32

S 20° 04' 36" E
154.10
S 45° 14' 54" E
150.00

S 56° 37' 5" E
560.33'

S 807° 00' 91" P.S. E.B.

S 1307° 00' 91" P.S. W.B.

1901.36 C.M.P.
1901.36

S 45° 04' 10" E
154.10
S 45° 14' 54" E
150.00

S 256° 20' 0" A.N.C.

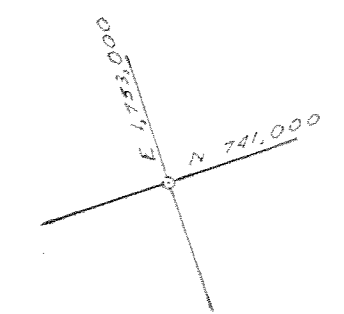
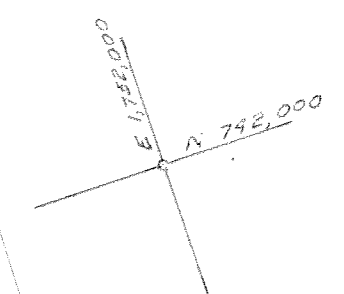
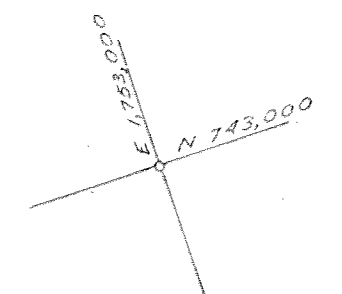
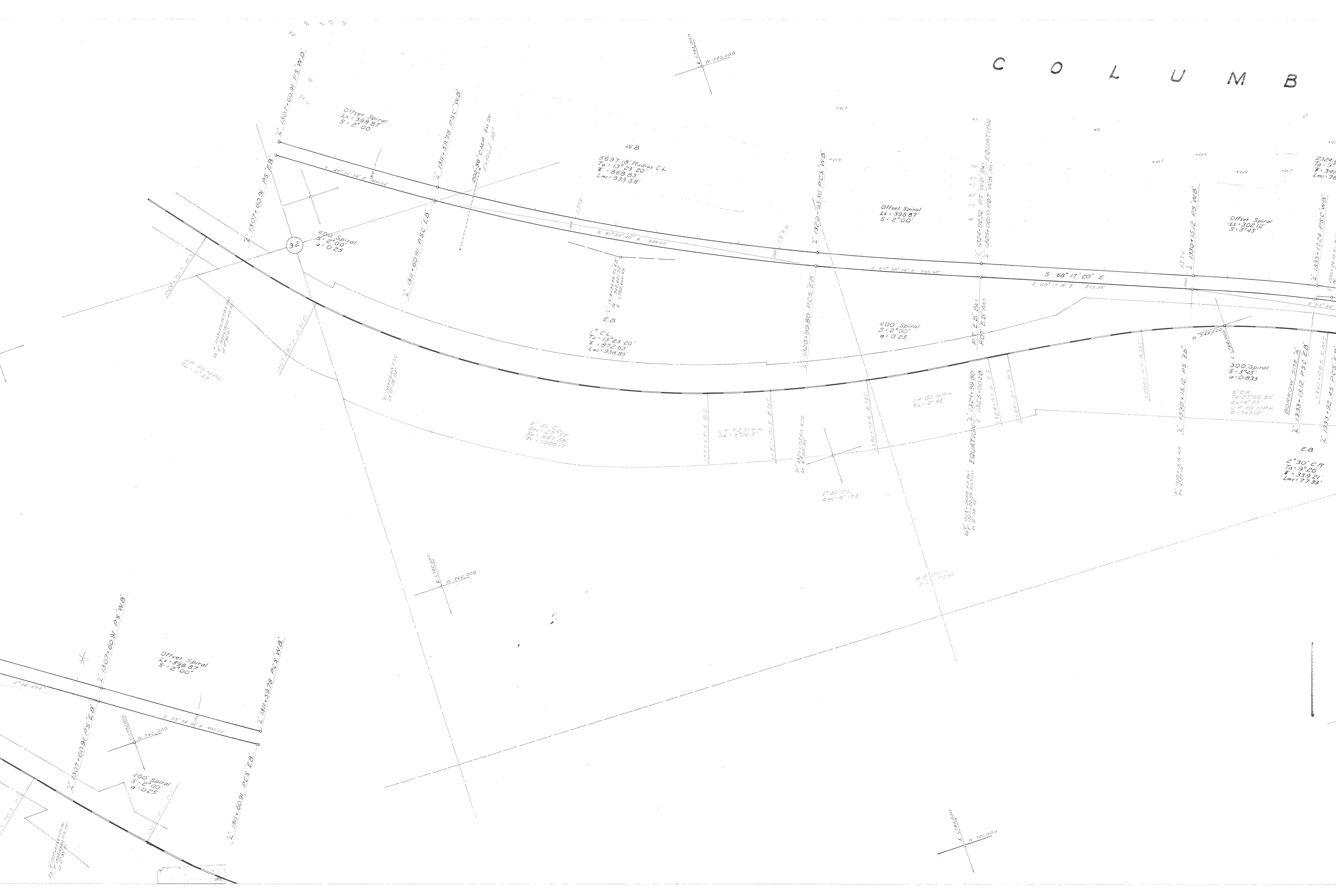
S 1500° 00' 0" E

S 1212° 30' 3" P.S.

S 1224° 30' 3" P.S.

S 1200° 00' 0" P.S. E.B.

C O L U M B



WB
5697.18' Radius C.L.
Ta = 13° 23' 20"
R = 868.83'
Lmc = 933.38'

EB
1° C.L.
Ta = 13° 23' 20"
R = 872.63'
Lmc = 938.89'

2° 51' C.L.
Δmc = 27' 37"
Ta = 937.39'
R = 1026.17'

Offset Spiral
Ls = 398.87'
S = 2° 00'

Offset Spiral
Ls = 399.87'
S = 2° 00'

Offset Spiral
Ls = 302.12'
S = 3° 45'

400' Spiral
S = 2° 00'
a = 0.25

400' Spiral
S = 2° 00'
a = 0.25

300' Spiral
S = 3° 45'
a = 0.833

EB
2° 30' C.R.
Ta = 9° 20"
R = 330.31'
Lmc = 77.33'

EQUATION
Z 1324+99.80
Z 1325+00.20
Z 1324+99.80
Z 1325+00.20

EQUATION
Z 1324+99.80
Z 1325+00.20
Z 1324+99.80
Z 1325+00.20

UP 50 MPH
Sa = 3° 27'

UP 60 MPH
Sa = 2° 45'

UP 55 MPH
Sa = 3° 22.5'

Offset Spiral
Ls = 398.87'
S = 2° 00'

400' Spiral
S = 2° 00'
a = 0.25

2924'
Ta = 3° 30'
R = 341'
Lmc = 76'

BOTTOM SITE 'A'
Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

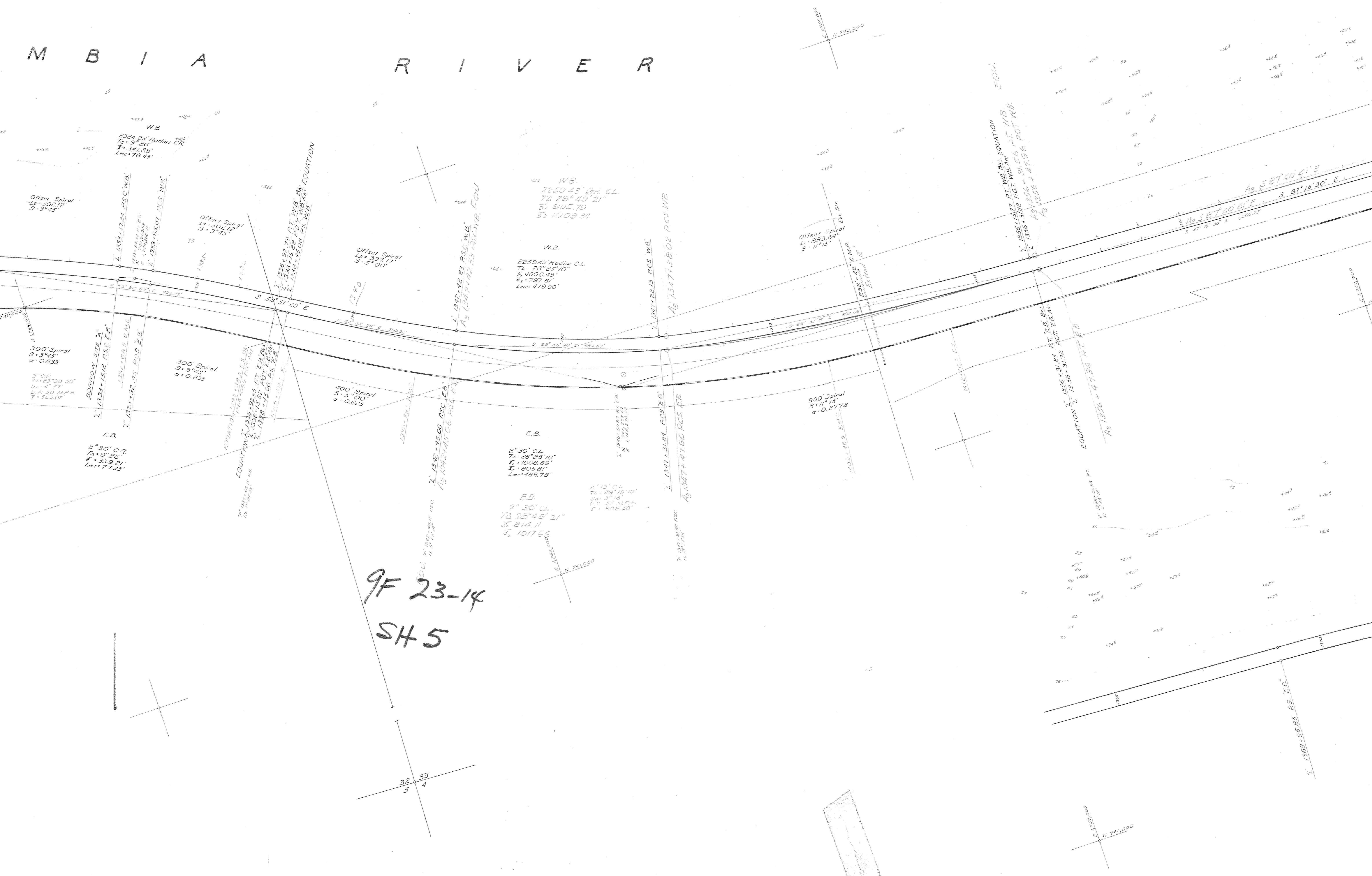
Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

Z 1333+15.12 P.S. 'EB'

M B I A R I V E R



9F 23-14
SH 5

WB.
2259.43' Radius C.L.
Ta: 28° 49' 21"
F: 805.75
Lmc: 1009.34

WB.
2259.43' Radius C.L.
Ta: 28° 49' 21"
F: 400.49
Lmc: 479.90'

E.B.
2° 30' C.L.
Ta: 28° 25' 10"
F: 1000.69
Lmc: 1003.81'

E.B.
2° 30' C.L.
Ta: 28° 49' 21"
F: 814.11
Lmc: 1017.66

900' Spiral
S: 11° 15'
a: 0.2778

Offset Spiral
Ls: 302.12
S: 3° 45'

300' Spiral
S: 3° 45'
a: 0.633

400' Spiral
S: 3° 00'
a: 0.623

Offset Spiral
Ls: 302.12
S: 3° 45'

300' Spiral
S: 3° 45'
a: 0.633

32 33
5 4

N 741,000

N 741,000

N 741,000

1368+96.85 P.S. EB.

EQUATION 1: 1356+31.84 P.T. EB. AN.
2: 1356+47.96 P.T. EB.

EQUATION 1: 1356+31.84 P.T. WB. AN.
2: 1356+47.96 P.T. WB.

A0 S 87° 40' 41" E
S 87° 18' 30" E

EQUATION 1: 1336+92.45 P.T. EB. AN.
2: 1336+108.10 P.T. EB.

1: 1342+92.23 P.C.S. WB.
A3 1342+92.23 P.C.S. WB.

1: 1347+31.84 P.C.S. EB.
A3 1347+31.84 P.C.S. EB.

1: 1347+31.84 P.C.S. WB.
A3 1347+31.84 P.C.S. WB.

BORROW SITE A
1: 1333+15.12 P.C.S. EB.
2: 1333+92.45 P.C.S. EB.

1: 1333+15.12 P.C.S. WB.
2: 1333+92.45 P.C.S. WB.

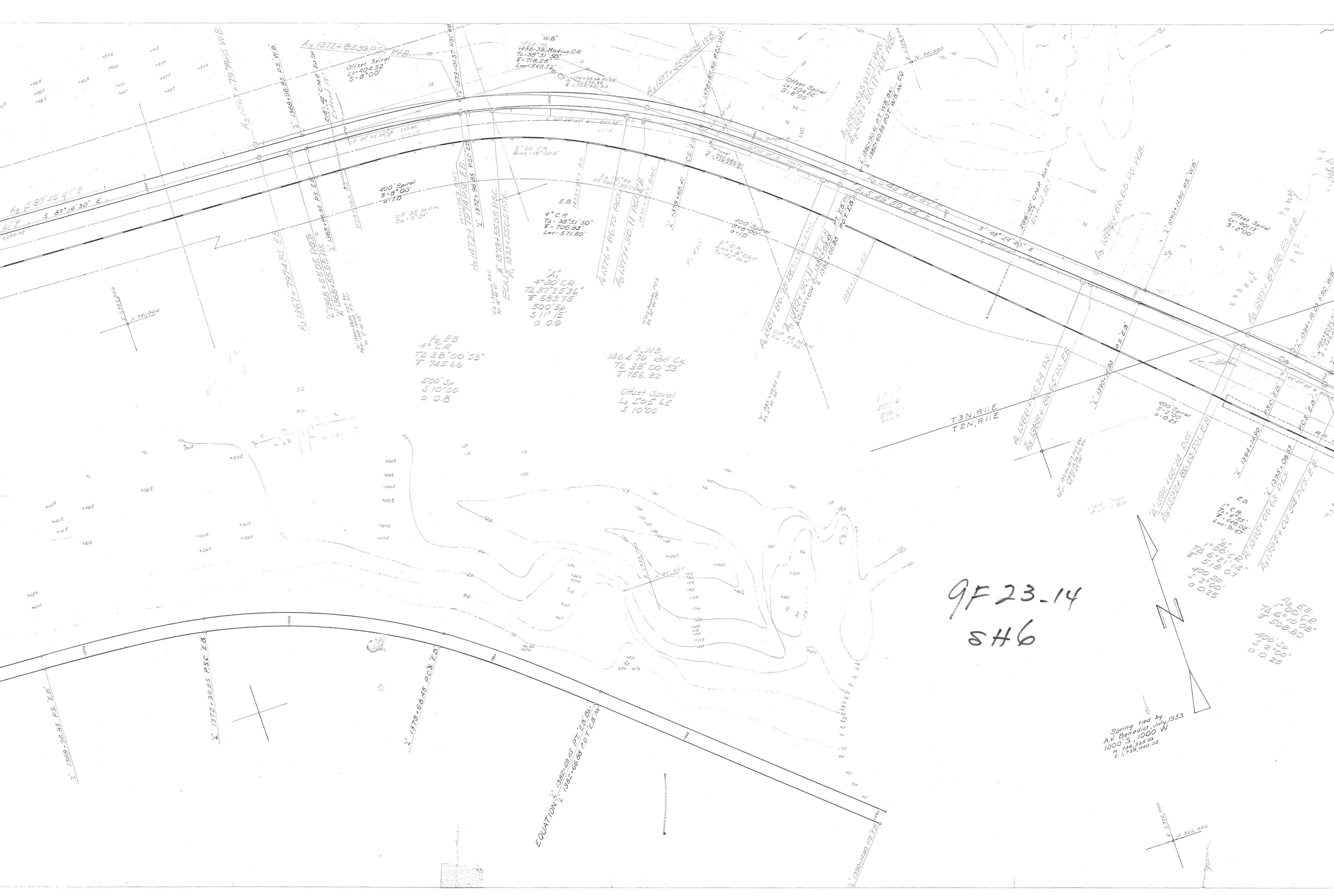
WB.
2324.23' Radius CR
Ta: 9° 26'
F: 341.68'
Lmc: 78.43'

Offset Spiral
Ls: 302.12
S: 3° 45'

300' Spiral
S: 3° 45'
a: 0.633

2° 30' C.L.
Ta: 28° 25' 10"
F: 339.21'
Lmc: 77.39'

32 33
5 4



9F 23-14
SH6

Spring tied by
Av. Benedict, July, 1953
1000 S., 1000 W.
N 138,323.39
E 1,738,040.02

EQUATION
1382+08.85 P.T. E.B. DK.
1382+50.88 P.O.T. E.B. DK.

A3 E.B.
TA 6°10'08"
508.80
400' Sp
5 2'00"
a 0.25

A1 CR
TA 4°00'14"
510.07
400' Sp
5 2'00"
a 0.25

A.W.B.
1464.79 Rad. Cx
TA 38°00'53"
745.66
Offset Spiral
Ls 505.65
5 10'00"

A3 E.B.
4° CR
TA 38°00'53"
745.66
500' Sp
5 10'00"
a 0.8

A1
4°30' CR
TA 37°25'36"
683.75
500' Sp
5 11'15"
a 0.9

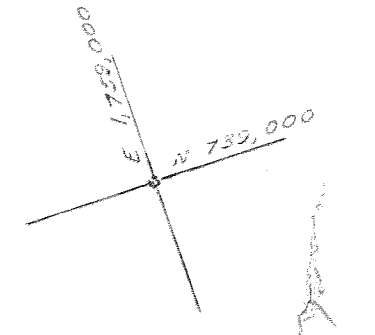
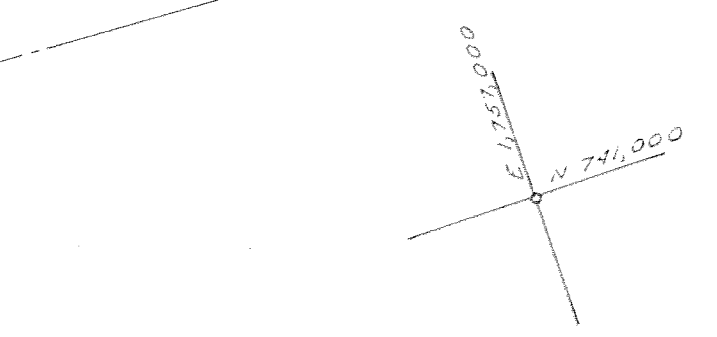
400' Spiral
5°10'
a 1.0

400' Spiral
5°10'
a 1.0

Offset Spiral
Ls 401.13
5 2'00"

400' Spiral
5°10'25"
a 1.025

T3N, R1E
T2N, R1E



C O L U M B I A



A5 WB Rad. CR
TA 6°10'08"
Lm: 510.55

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

Offset Spiral
Ls: 40.13
S: 2°00'

HOOD RIVER COUNTY
WASCO COUNTY

Sec 3
GOVMT MON. COR
Tied by A.V. Benedict
July, 1953
N 731,400.88
E 1,723,739.36

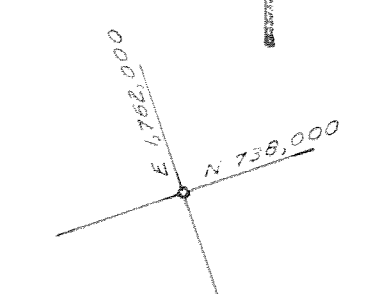
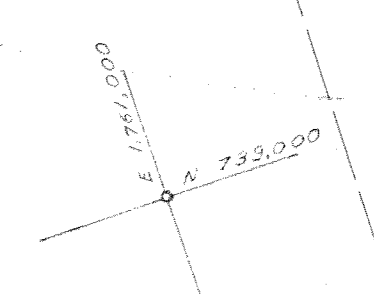
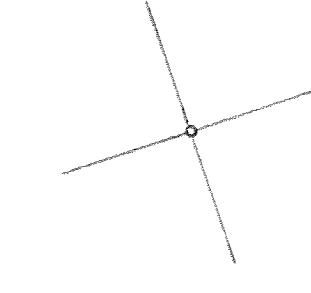
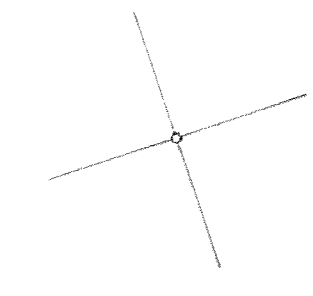
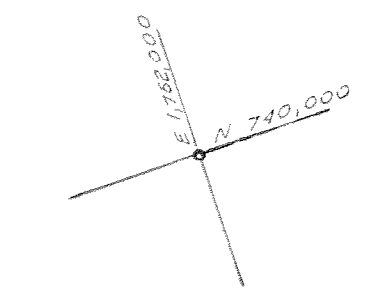
BOARD SITE
1" 1409+1809 P.S. E.B.

WB
225140
229136 Radius CL
TA: 30°59'
L: 877.90'
Lm: 728.88'

EB
2°30' CL
TA: 30°59'
L: 886.58'
Lm: 739.33'

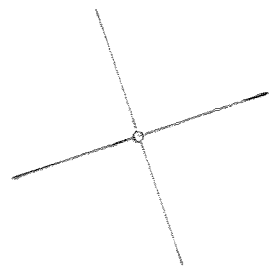
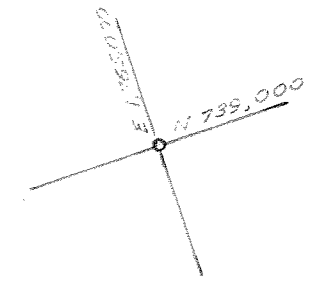
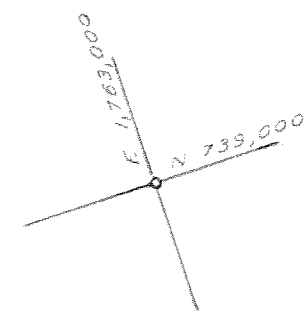
500' Spiral
S: 6°15'
a: 0.5

EQUATION 1" 1421+5742 PT. E.B. 54
EQUATION 1" 1421+5530 ROT. E.B. 54

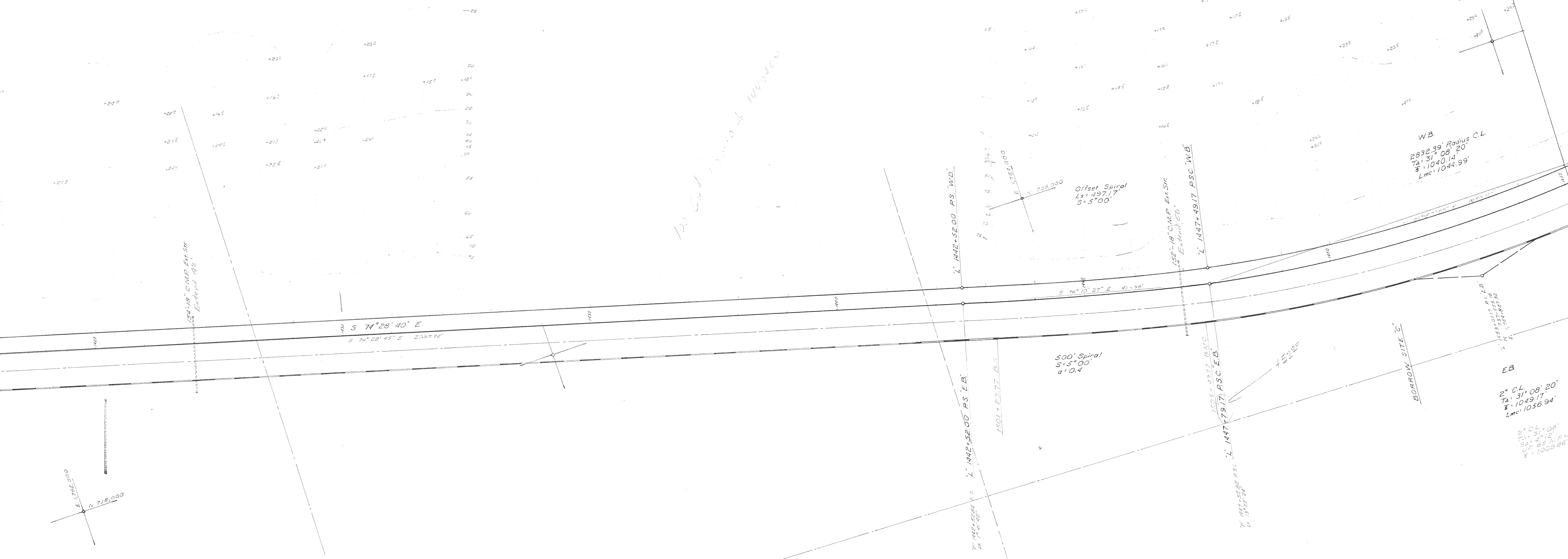


I A R I V E R

9F23-14
SH 7



100' E-W 1440' x 1440' 1440' 1440'



100' E-W 1440' x 1440' 1440' 1440'

S 74° 28' 40" E
S 74° 28' 46" E 209774'

1" 1442+52.00 P.S. WB

1" 1442+52.00 P.S. EB

1" 1447+49.17 P.S. WB

1" 1447+79.17 P.S. EB

500' Spiral
S: 5° 00'
a: 0.4

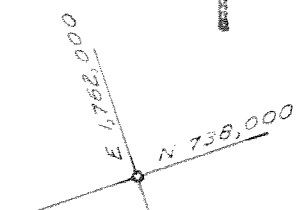
Offset Spiral
Ls: 497.17'
S: 5° 00'

W.B.
2832.39' Radius C.L.
TA: 31° 08' 20"
E: 1040.14'
Lmc: 1044.99'

E.B.
2° CL = 08'
TA: 31° 08' 20"
E: 1049.17'
Lmc: 1056.94'

2° CL = 08'
TA: 31° 08' 20"
E: 1049.17'
Lmc: 1056.94'

BORDER SITE 'C'

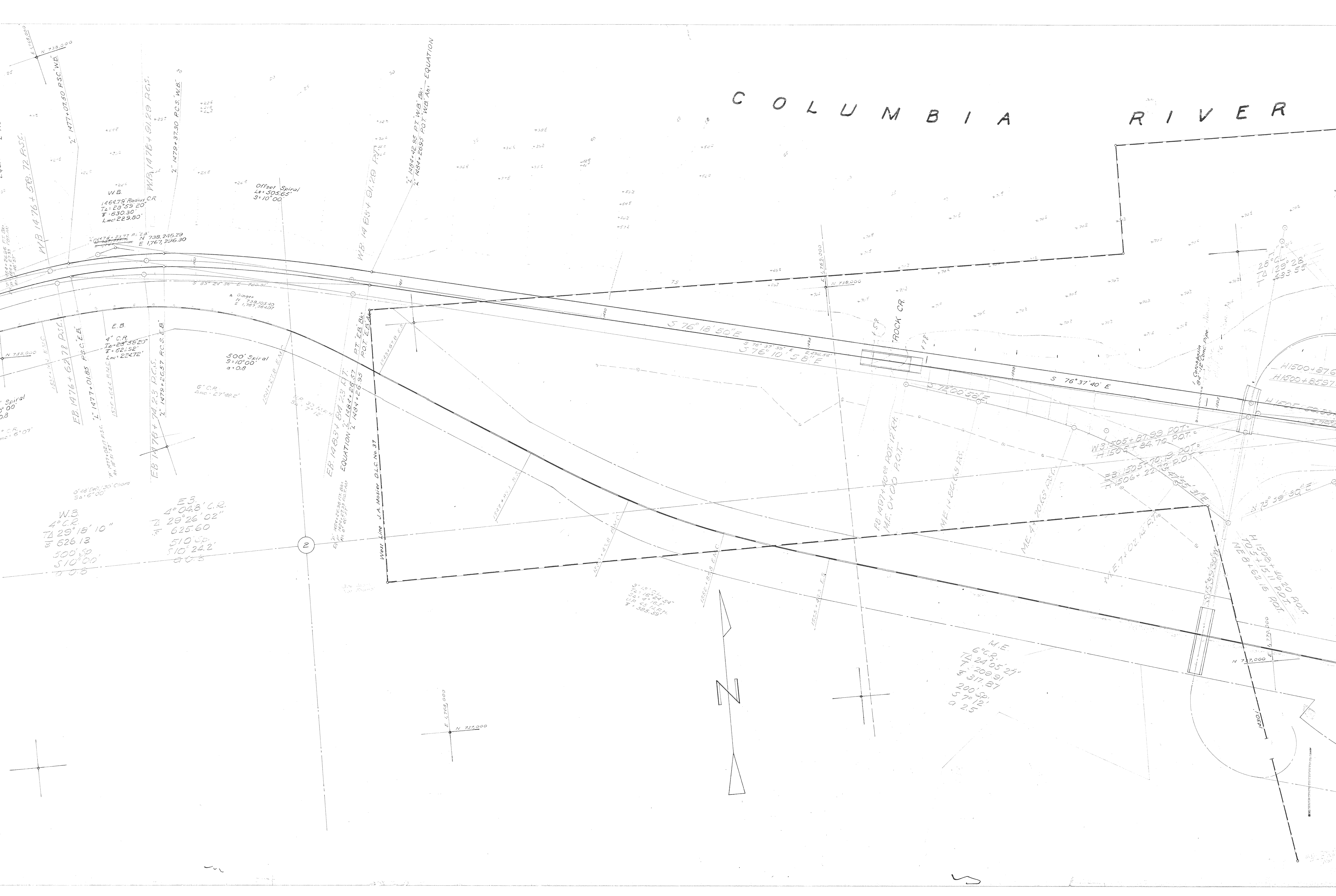


1" 1447+49.17 P.S. WB

1" 1447+79.17 P.S. EB



COLUMBIA RIVER



V E R



9F 23-14
 SH 9

2/11/12

3592' Sub Division Line Mosier D.L.C. No 37

H1500+87.62 P.C.
 H1500+85.97 R.T.
 H1500+85.55 P.C.
 H1500+85.55 R.T.
 H1500+85.55 P.C.
 H1500+85.55 R.T.

WB 1528+66.53 P.C.S.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.

WB 1528+66.53 P.C.S.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.

WB 1528+66.53 P.C.S.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.

WB 1528+66.53 P.C.S.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.

WB 1528+66.53 P.C.S.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.
 TD 134.50+00.00 P.O.T.
 EB 1528+90.40 P.C.S. I.W.B.

EQUATION: $\frac{1}{2} \frac{299 \text{ EQU}}{374.92 \text{ PT.}} = \text{EQU.}$
 $\frac{1}{2} \frac{1534.5704 \text{ PT. MB. BK. EQUATION}}{1534.5704 \text{ ROT. WB. AN. EQUATION}} = \text{EQU.}$
 $\frac{1}{2} \frac{1534.5704 \text{ PT. MB. BK. EQUATION}}{1534.5704 \text{ ROT. WB. AN. EQUATION}} = \text{EQU.}$

Offset Spiral
 $13^{\circ} 59' 49.1''$
 $9^{\circ} 5' 00''$

600' Spiral
 $13^{\circ} 59' 49.1''$
 $9^{\circ} 5' 00''$

$1^{\circ} 1534.5704 \text{ PT. MB. BK. EQUATION}$
 $1^{\circ} 1534.5704 \text{ ROT. WB. AN. EQUATION}$

P.T. E.B. BK.
 P.O.T. E.B. AN.

EQUATION: $\frac{1}{2} \frac{1534.5704}{1534.5704}$
 EQUATION: $\frac{1}{2} \frac{1534.5704}{1534.5704}$

P.T. E.B. BK.
 P.O.T. E.B. AN.

$100 \text{ FT. N. E. 722.000}$

East Line J.A. Mosier D.L.C. No. 37

200' E.M.R. ENSW
 Estimated 10 ft.

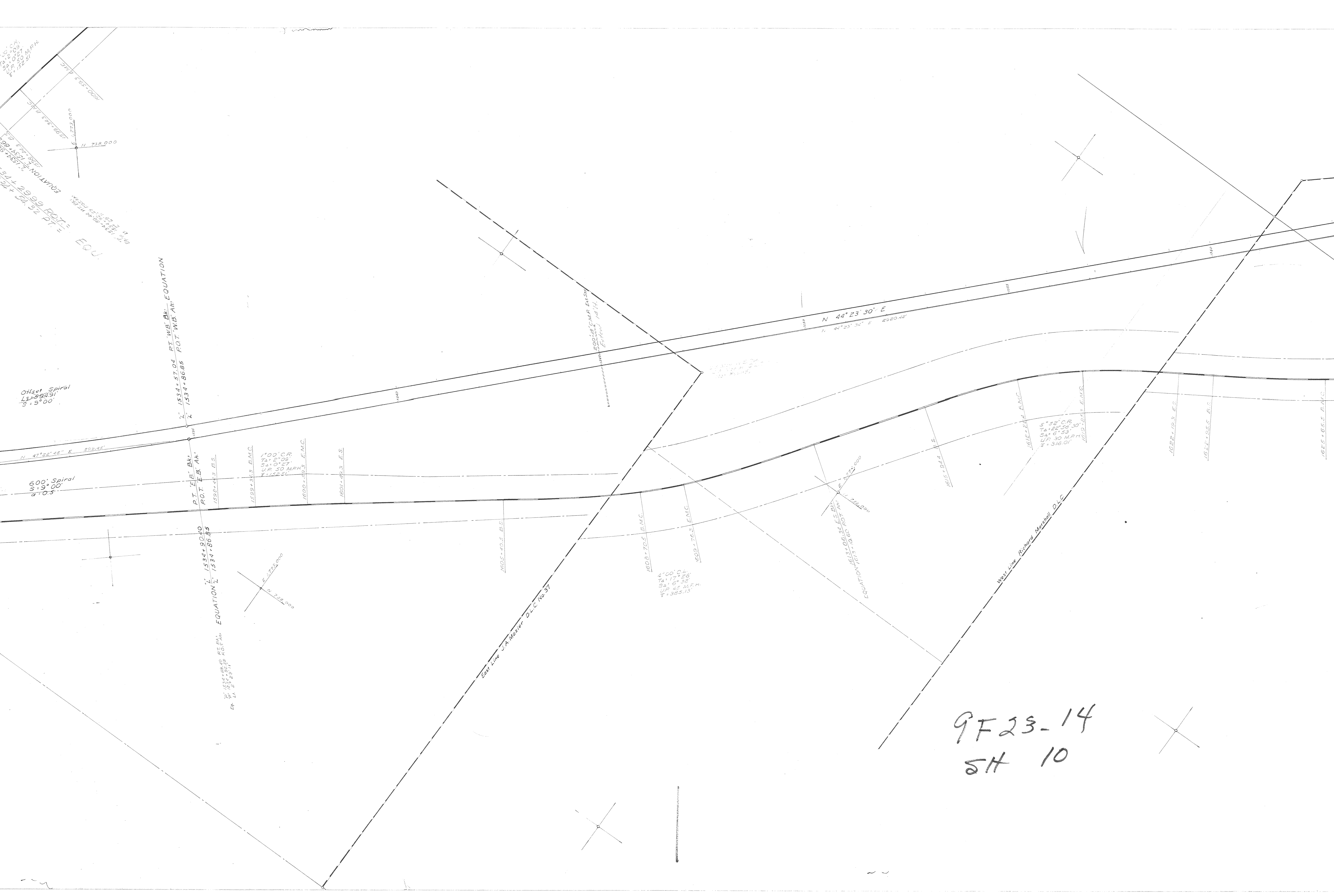
$N 44^{\circ} 23' 30'' \text{ E}$
 $1^{\circ} 44^{\circ} 23' 32'' \text{ E } 2920.42'$

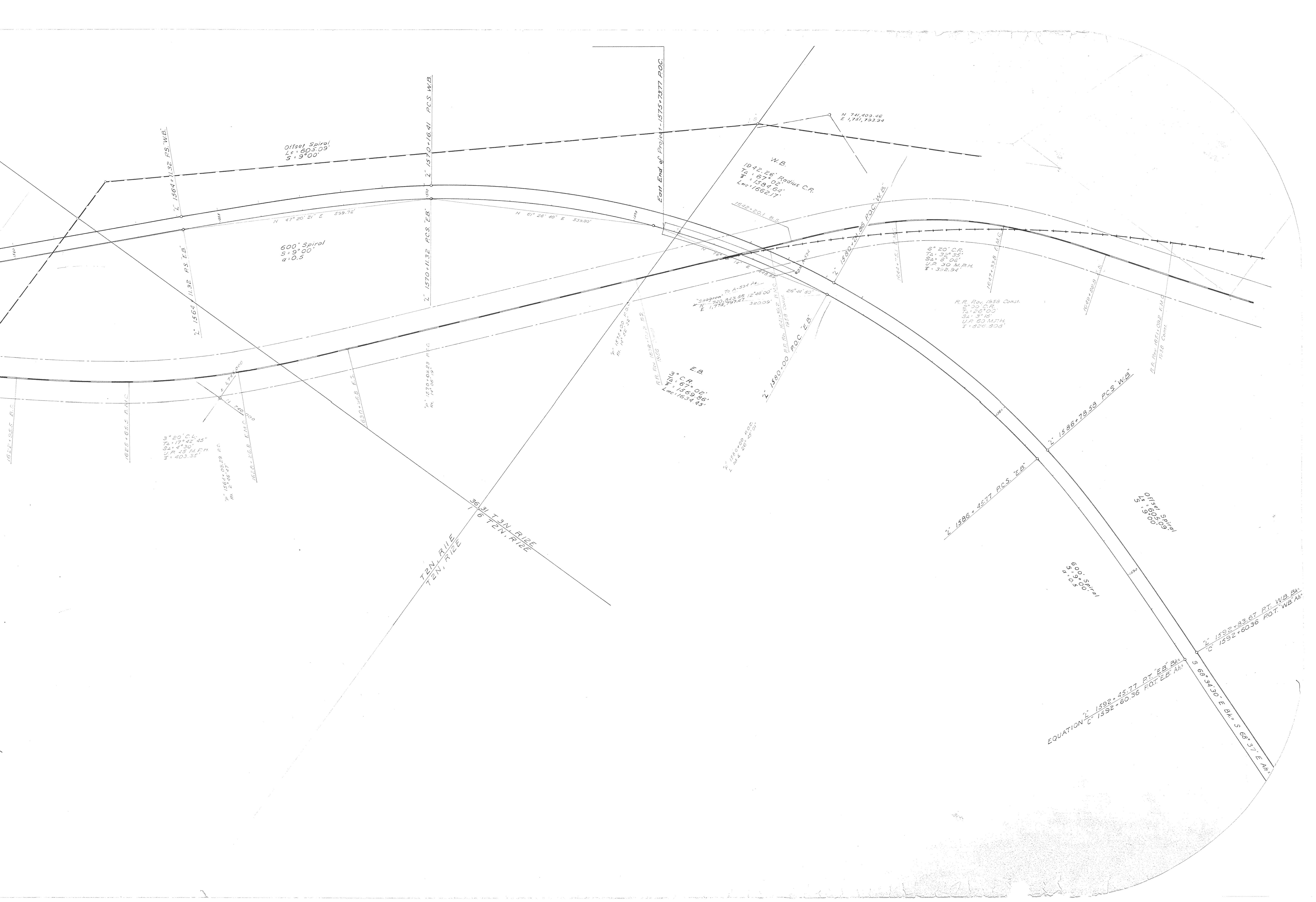
$4^{\circ} 00' 04''$
 $74^{\circ} 17' 26''$
 $54^{\circ} 0' 36''$
 UP 30 M.P.H.
 $1^{\circ} 285.13'$

$5^{\circ} 52' \text{ CR}$
 $74^{\circ} 22' 30''$
 $54^{\circ} 0' 33''$
 UP 30 M.P.H.
 $1^{\circ} 316.01'$

9F23-14
 5H 10

West Line Richard Metzmill D.L.C.





Offset Spiral
Ls = 605.09'
S = 9°00'

600' Spiral
S = 9°00'
q = 0.5

W.B.
1942.26' Radius C.R.
TΔ = 67°02'
SΔ = 1594.64'
Lm = 1662.17'

6°20' C.R.
TΔ = 32°32'
SΔ = 8°06'
UP = 30 M.P.H.
T = 328.94'

R.R. Proj. 1558 Const.
TΔ = 30° C.R.
TΔ = 126°00'
SΔ = 3°18'
UP = 60 M.P.H.
T = 220.503'

E.B.
3° C.R.
TΔ = 67°02'
SΔ = 1569.86'
Lm = 1634.85'

3°20' C.L.
TΔ = 17°42'45"
SΔ = 4°30'
UP = 45 M.P.H.
T = 403.32'

7°15'54" C.L.
TΔ = 17°42'45"
SΔ = 4°30'
UP = 45 M.P.H.
T = 403.32'

36.31 T3N R1E
6 T2N R1E

510 Offset Spiral
Ls = 500.00'
S = 9°00'

600' Spiral
S = 9°00'
q = 0.5

EQUATION
C 1592+83.67 PT. W.B. Bk.
C 1592+60.36 ROT. W.B. Bk.
S 68°34'30" E Bk. S 68°37' E Aft.

East End of Project - 1575+2377 P.O.C.

N 741,409.46
E 1,751,733.34

N 61°26'40" E 534.00'

N 47°20'21" E 559.72'

38099m To A-534 AL
N 171°15'00" E 320.05'
E 1,719,797.41'

7°15'54" C.L.
TΔ = 17°42'45"
SΔ = 4°30'
UP = 45 M.P.H.
T = 403.32'

1580+00 P.O.C. E.B.

1580+21.88 P.O.C. W.B.

1587+33.8 E.M.C.

1589+28.8 E.M.C.

1589+28.8 E.M.C.