NATIONAL GUARD ROAD

NATIONAL GUARD ROAD

TELEDYNE FREDERICK POST

FIELD BOOK

No. 9310-100

BEAR LAKE ROAD

# INDEX


| | |
|---|---|
| ALIGNMENT | 4-53 |
| SECTION CORNER TIES | 56-63 |
| CROSS SECTIONS | 66-75 |
| EXTENTION | 77-109 a |
| EXTENTION X-SECTIONS | 111-115 |
| L LINE | 117- |

| STA | SLP DIST | VERT ∠ | HOR. DIST | HOR ∠ | EL |
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| 27+31.55 | B | | | | |
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| AF | 132.36 | 82°37'10" | | 79°36'00" RT | |
| AE | 64.28 | 85°30'00" | | 79°36'00" RT | |
| AD | 284.54 | 91°24'00" | 284.46 | 2°57'05" RT | |
| AC | 269.68 | 92°01'50" | 269.51 | 4°48'35" LT | |
| AB | 731.59 | 89°25'30" | 731.55 | T | |
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| | | | | | |
| 20+00 | | HI 5.5' | | | |
| | (Clay with some sand and quartzite boulders.) | | | | |
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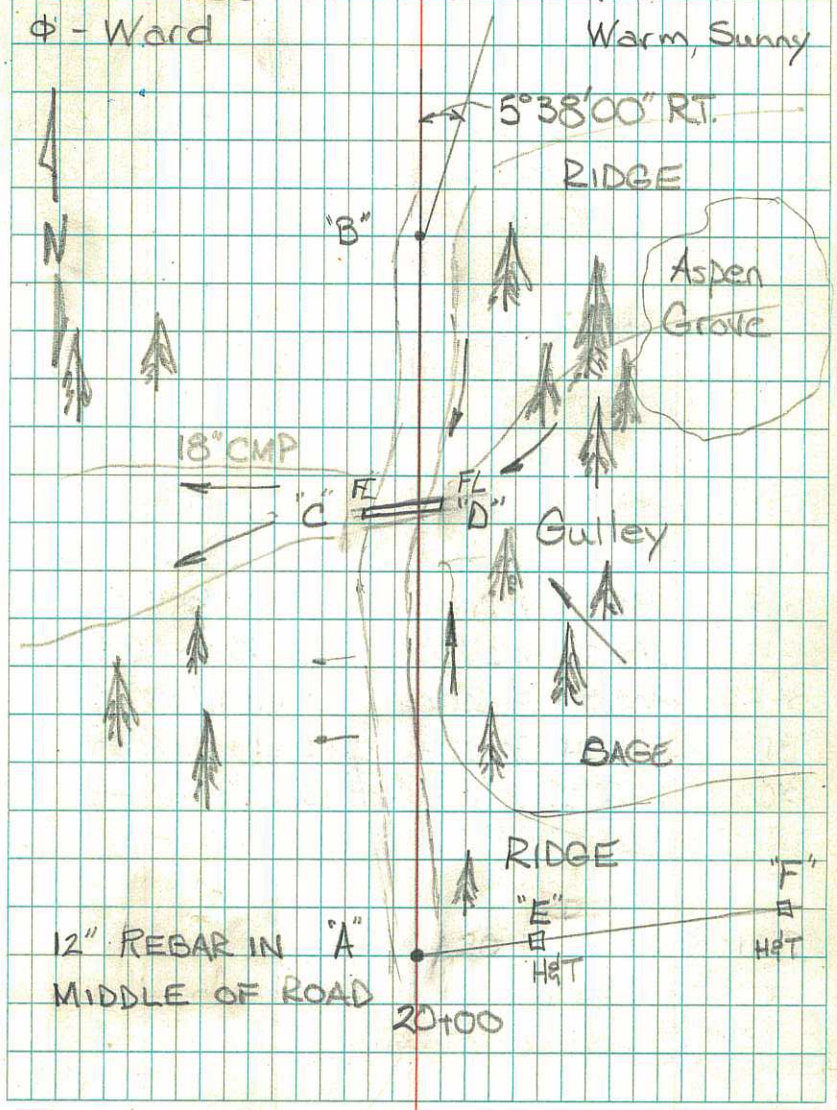
# NATIONAL GAURD ROAD

P-LINE

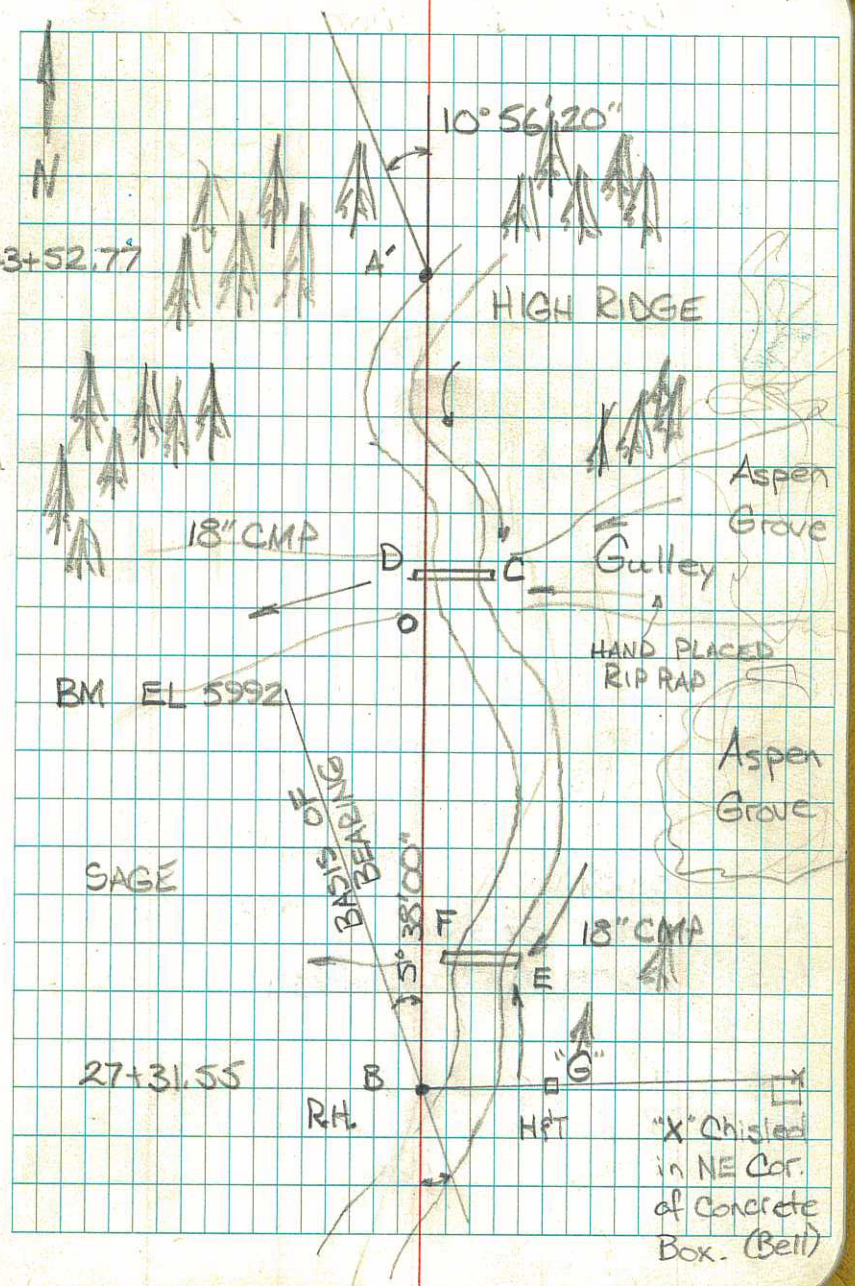
T & NOTES - WILLIAMS 7-20-76

Φ - Ward

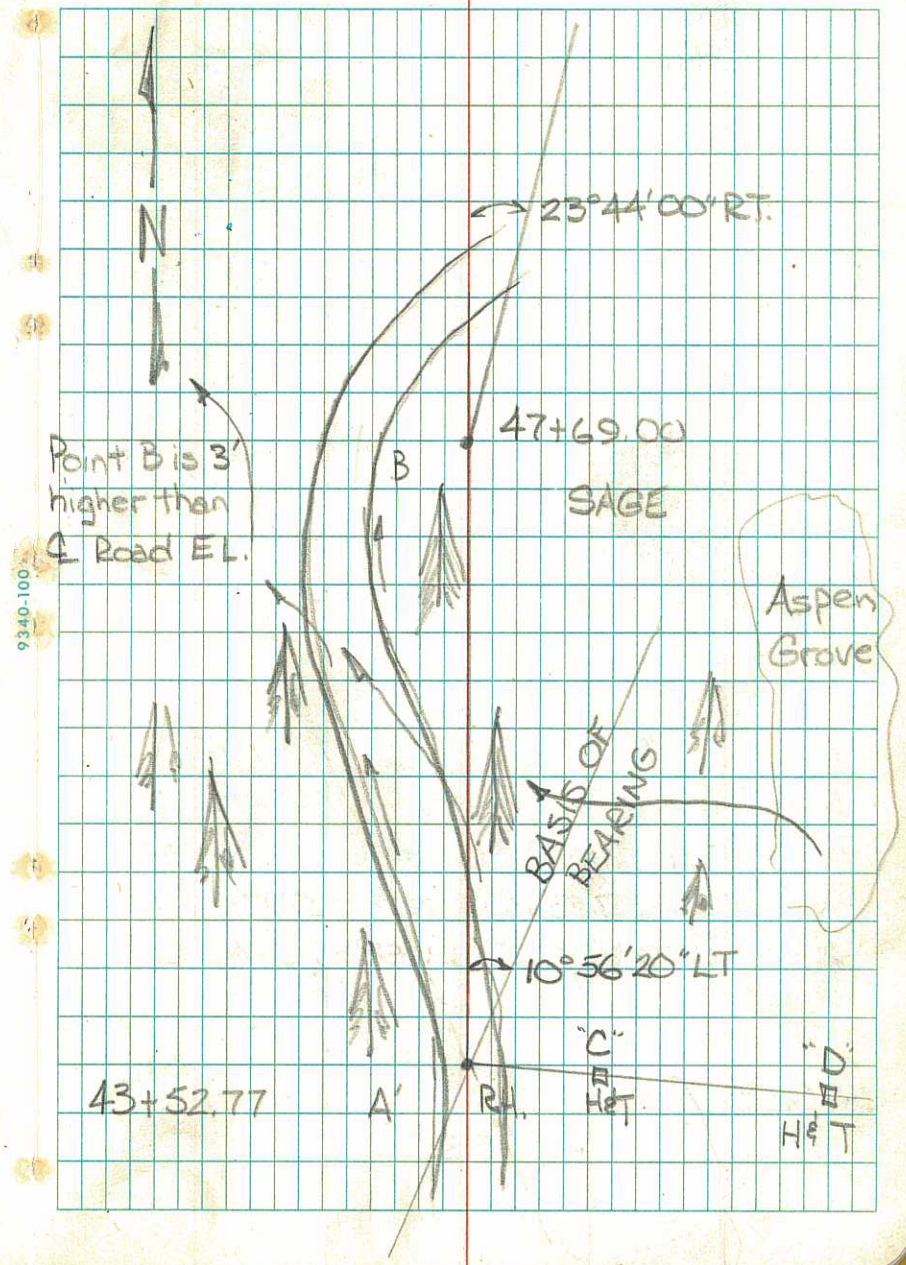
Warm, Sunny



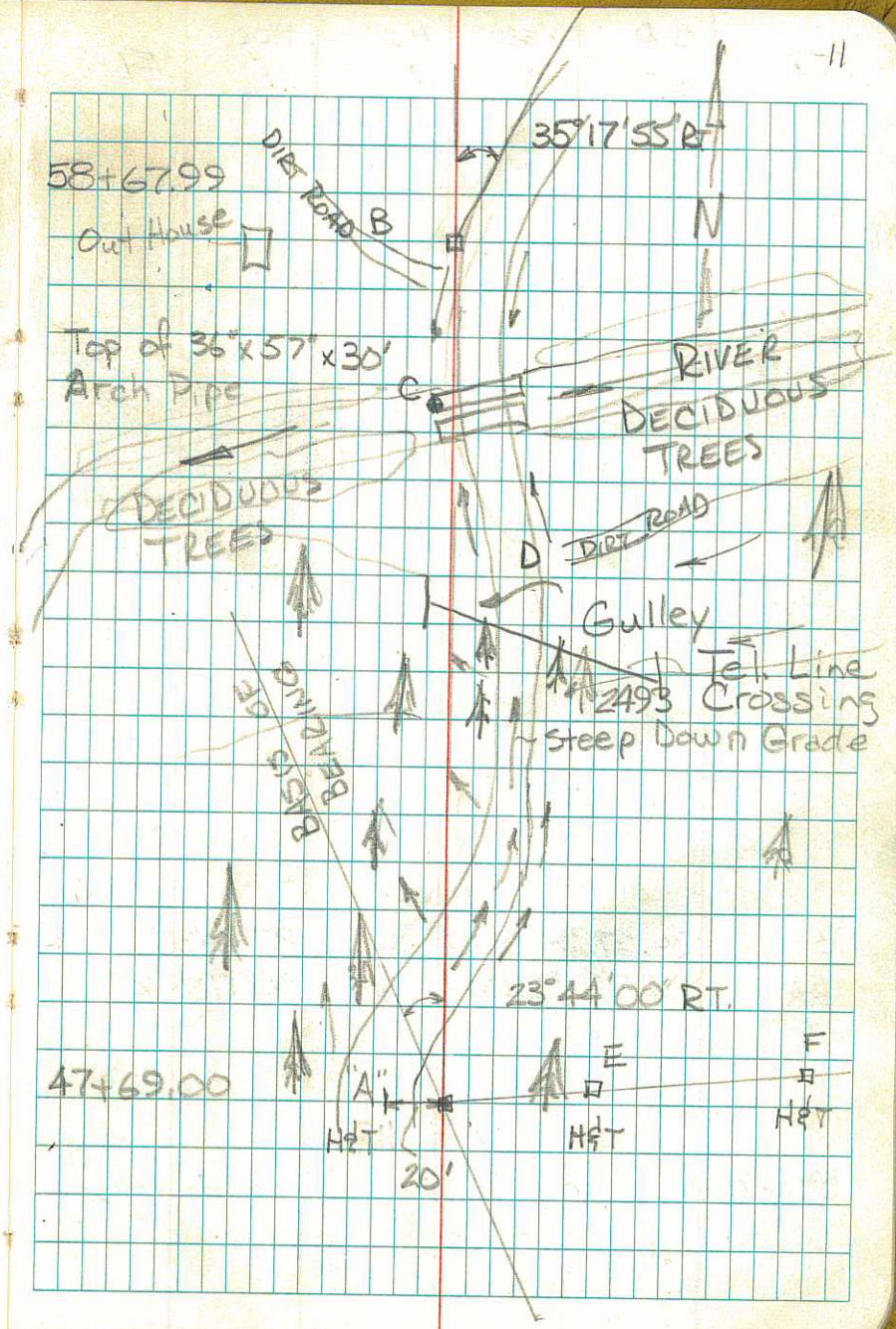
| | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 43+52.77 | A' | | | | |
| | NOTE: ARROWS SHOW THE DIRECTION OF THE EXISTING DRAINAGE. | | | | |
| B-E | 82.19 | 86°43'30" | | 101°51'40" RT | |
| B-C.Box | 140.35 | 84°53'00" | | 101°51'40" RT | |
| B-F | 181.31 | 91°40'50" | 181.23 | 7°39'55" RT | |
| B-E | 178.59 | 91°28'30" | 178.53 | 14°01'05" RT | |
| B-BM | 302.00 | 89°46'00" | | 10°12'10" RT | |
| BD | 323.41 | 90°27'50" | 323.40 | 11°25'05" RT | |
| BC | 327.35 | 90°11'50" | 327.35 | 14°56'05" RT | |
| BA' | 1622.78 | 87°29'10" | 1621.22 | 5°38'00" RT | |
| 27+31.55 | B | HI 5.3' | | | |
| | (Sandy Clay with some Cobble) | | | | |



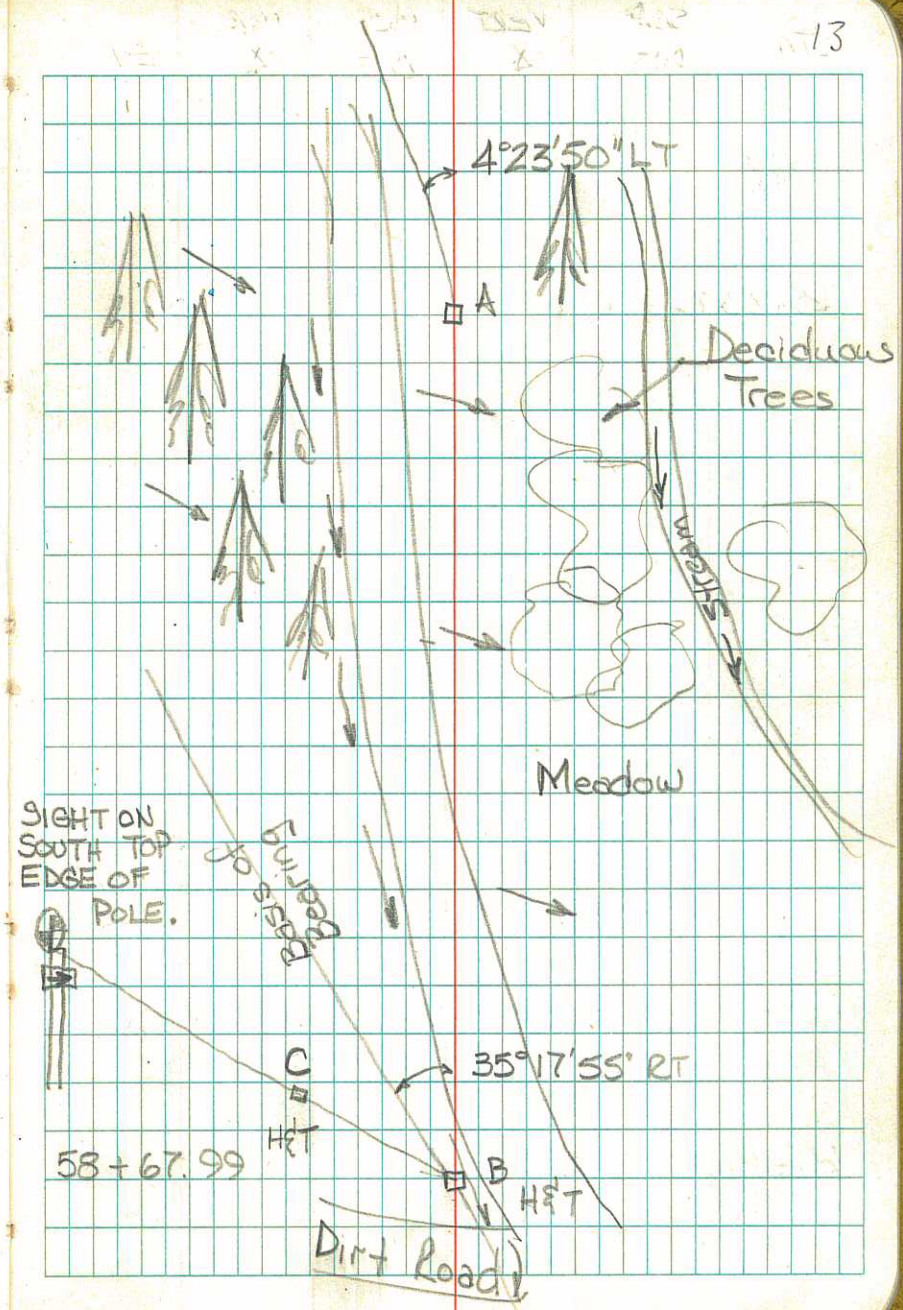
| STA | SLP DIST | VERT Δ | HOR DIST | HOR Δ | EL |
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| 47+69.00 B | | | | | |
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| A'-D | 84.51 | | | | |
| A'-C | 47.60 | 87°38'40" | | 88°41'20" RT | |
| A'B | 416.78 | 92°57'00" | 416.23 | 10°56'20" LT | |
| | (Sandy Clay) | | | | |
| 43+52.77 A' | | | | | |
| | | HI 5.4' | | | |



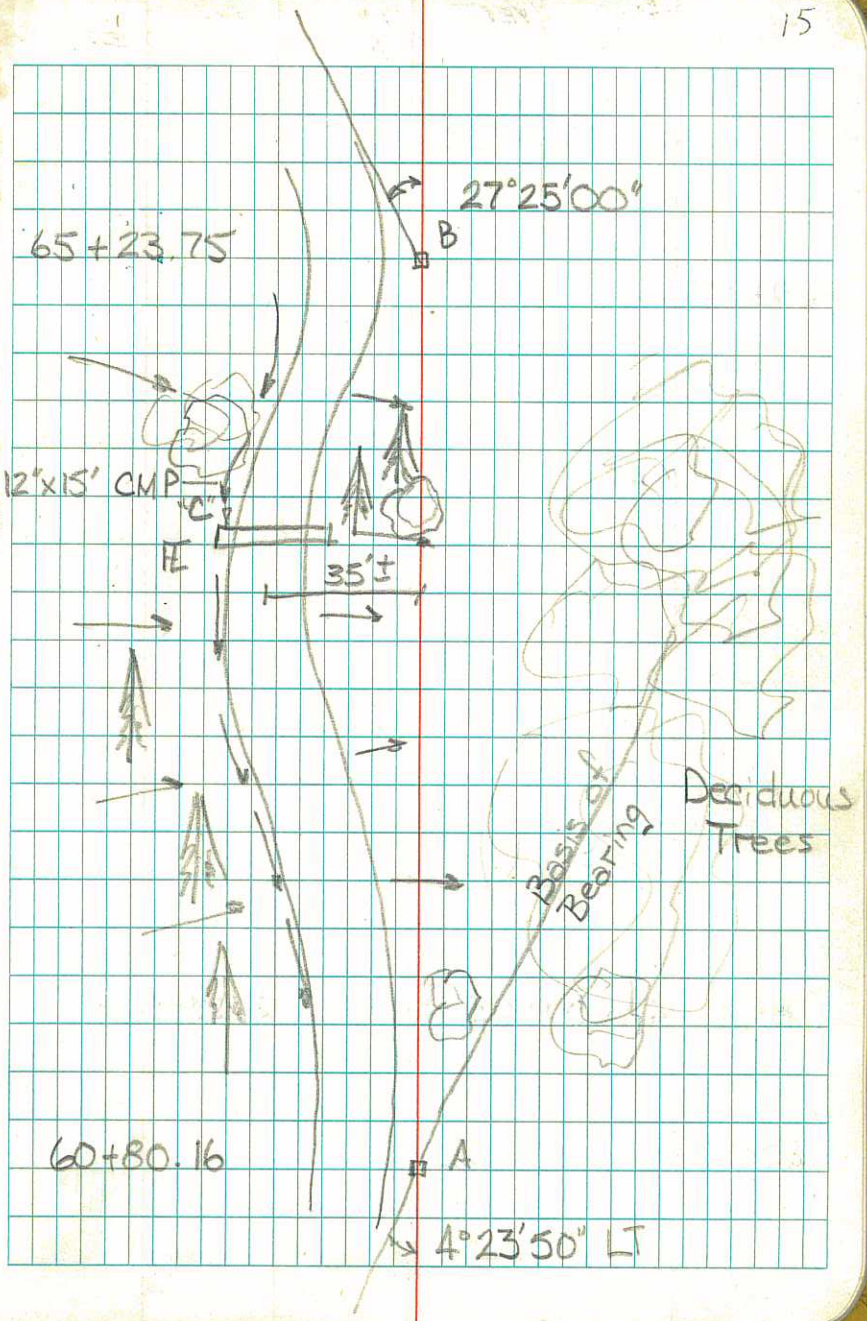
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 58+67.99 | B | | | | |
| A-F | 91.80 | 81°11'40" | | 94°47'50" RT | |
| A-E | 38.39 | 82°53'00" | | 94°47'50" RT | |
| A-D | 721.68 | 93°41'50" | 720.18 | 28°12'55" RT | |
| A-C | 798.07 | 93°43'10" | 796.39 | 25°37'55" RT | |
| A-B | 1100.00 | 92°27'30" | 1098.99 | 23°44'00" RT | |
| 47+69.00 | "A" | | | | |
| | | HI 5.3' | | | |



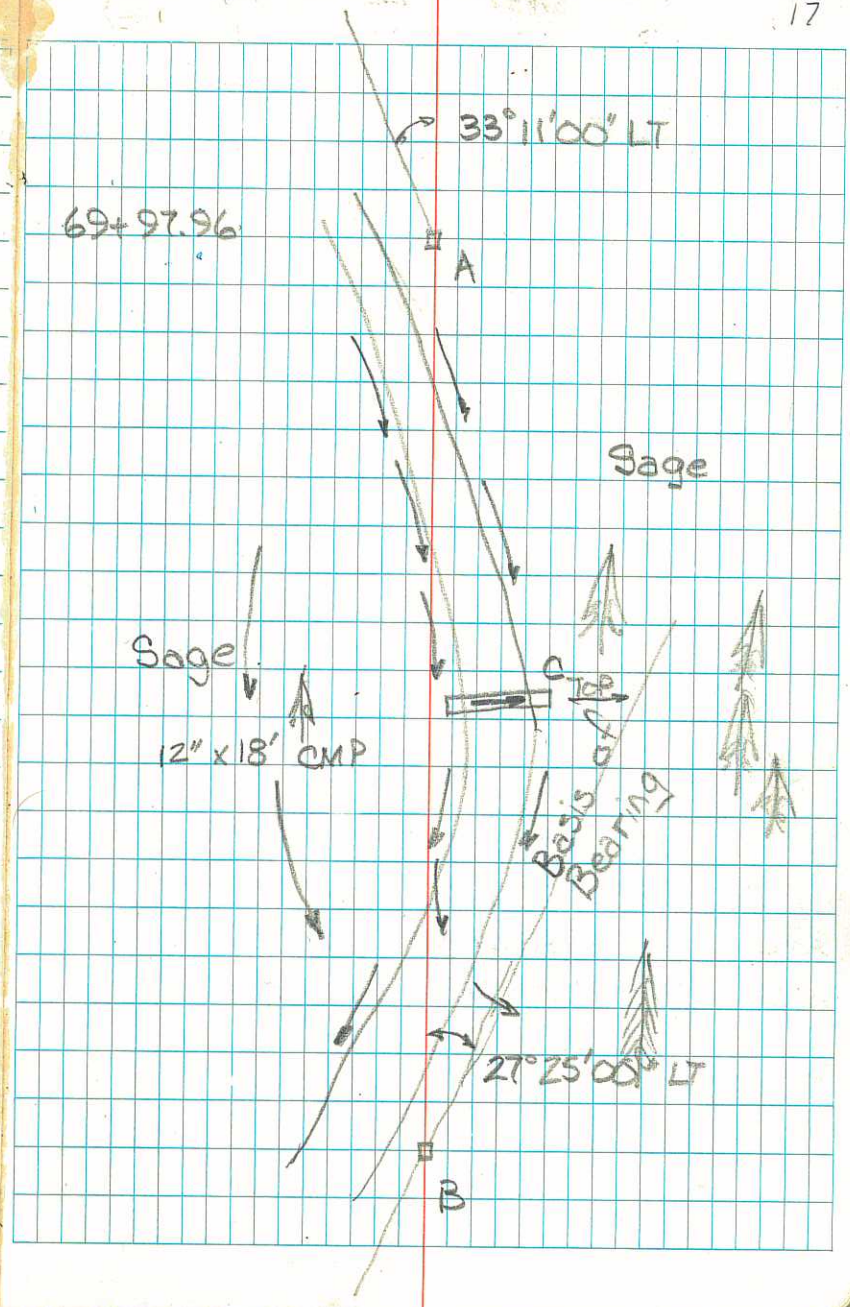
| STA | SLP DIST | VERT ∠ | HOR. DIST. | HOR ∠ | EL |
|---|---|---|---|---|---|
| 60+80.16 | A | | | | |
| B-C | 39.67 | 81°01'10" | | 87°09'30" LT | |
| BA | 212.95 | 85°06'30" | 212.17 | 35°17'55" RT | |
| 58+67.99 | (Soil is clay with gravel and | | | | |
| 5.3' | Quarzite Boulders) | | | | |



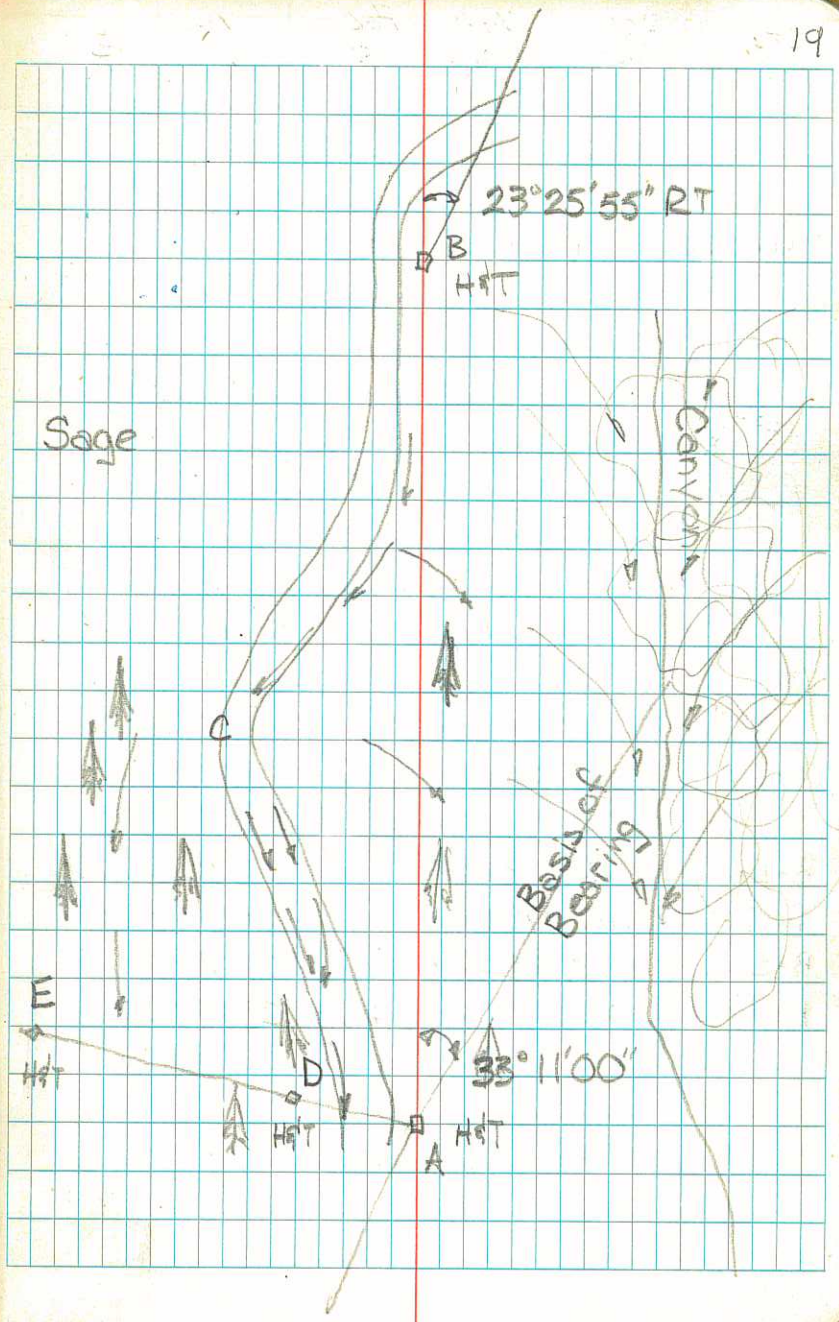
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 65+23.75 | B | | | | |
| A-"C" | 203.17 | 87°13'10" | 202.93 | 13°52'50" LT | |
| A-B | 444.77 | 85°49'40" | 443.59 | 4°23'50" LT | |
| 60+80.16 | | 5.3' | | | |



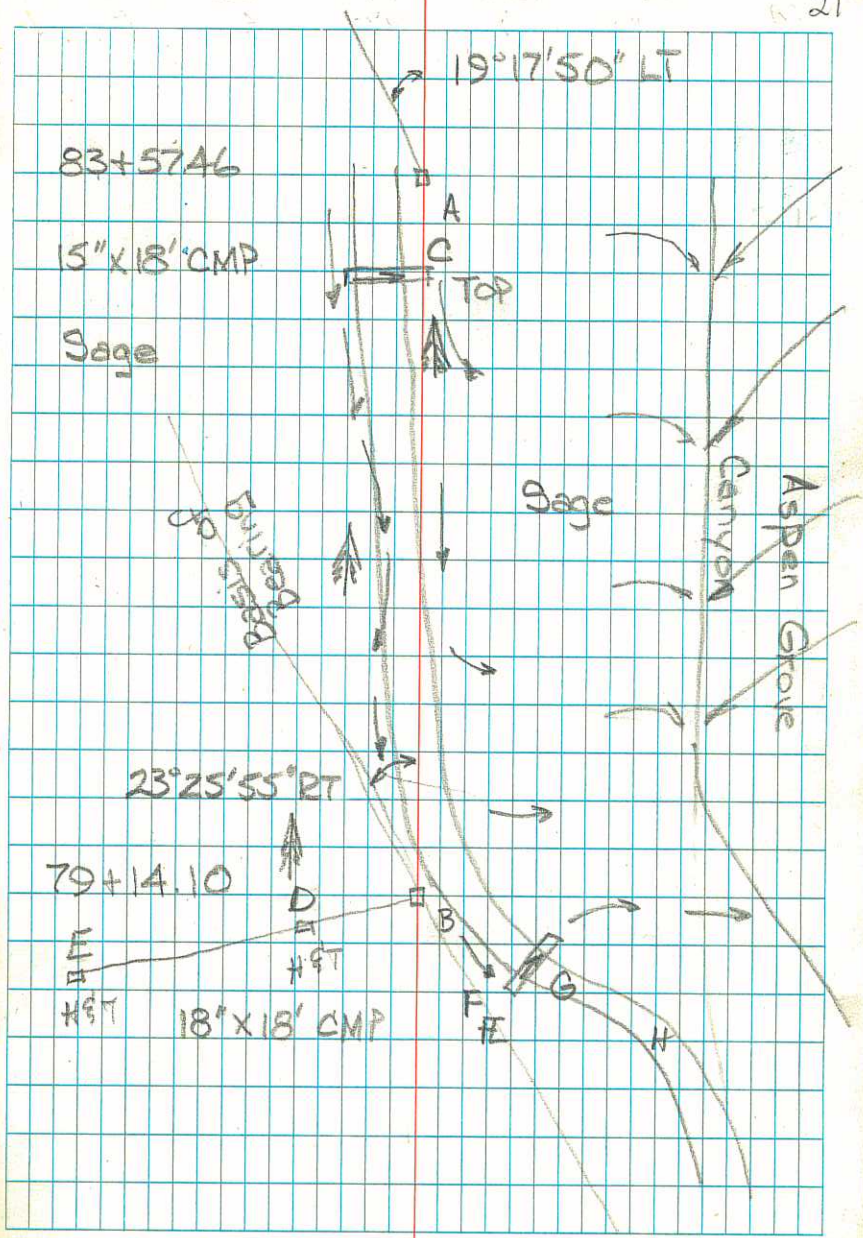
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 7-26-76 | | | | | |
| π & NOTES - | WILLIAMS | | | Warm, Clear | |
| ϕ - WARD | | | | | |
| 69+97.96 | | | | | |
| B-C | 264.07 | 87°05'00" | 263.73 | | |
| B-A | 475.09 | 86°30'40" | 474.21 | 27°25'00" LT | |
| 65+23.75 B | 5.2' | | | | |
| Silty Sand & Clay with gravel & Quartzite Boulders | | | | | |



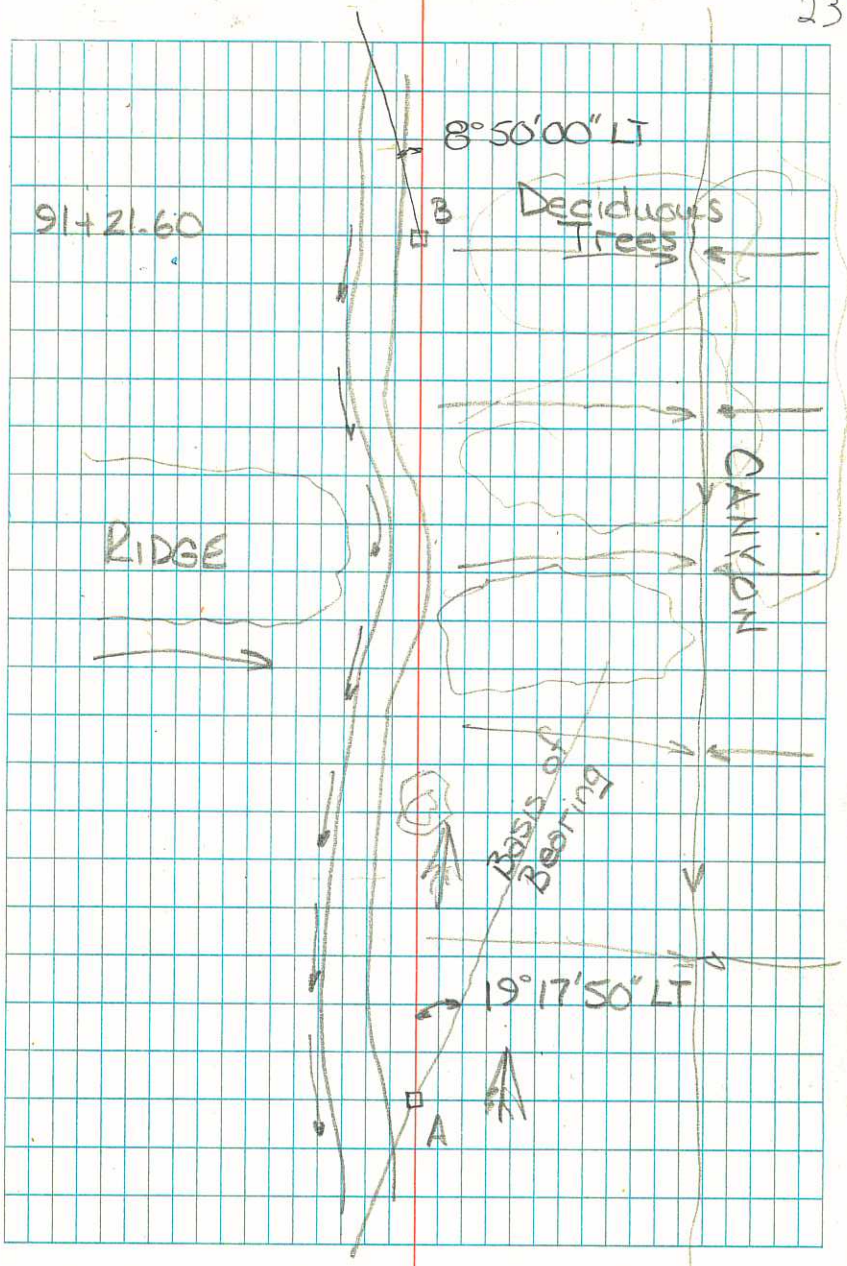
| STA | SLP DIST | VELT ∠ | HOR DIST | HOR ∠ | EL |
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| 79+14.10 | B | | | | |
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| A-E | 105.04 | Level | | 115°30'30" LT | |
| A-D | 45.83 | 91°12'10" | | 115°30'30" LT | |
| A-C | 351.39 | 85°47'30" | | 53°22'10" LT | |
| A-B | 919.42 | 85°09'30" | 916.14 | 33°11'00" LT | |
| | | | | | |
| 69+97.96 | A | 5.1' | | | |
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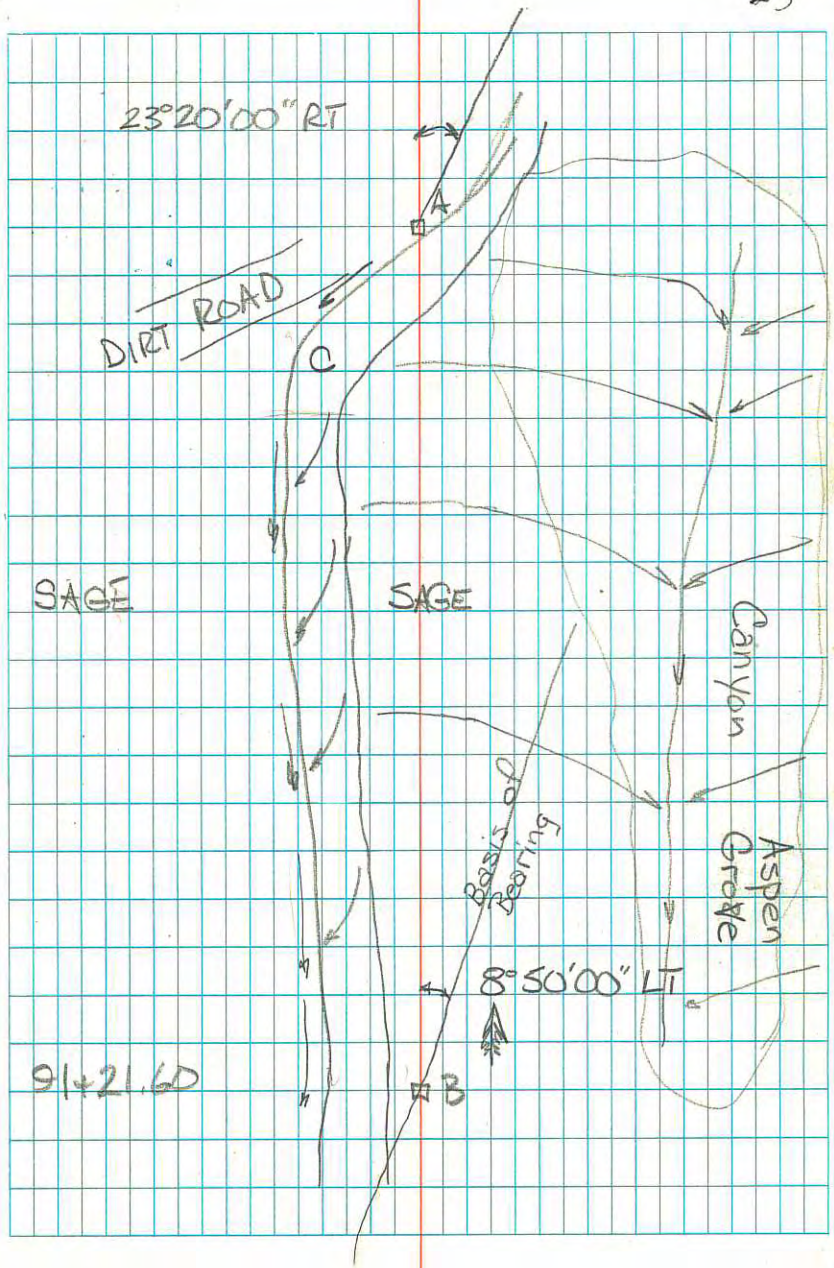
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 83+57.46 | A | | | | |
| B-H | 389.17 | 95°00'05" | | 178°56'30" LT | |
| B-G | 160.46 | 95°44'30" | | 168°15'55" LT | |
| B-F | 64.15 | 96°57'50" | | 158°15'00" LT | |
| B-E | 64.76 | 83°03'40" | | 60°25'50" LT | |
| B-D | 22.16 | 79°49'00" | | 60°25'50" LT | |
| B-C | 298.55 | 85°32'10" | 297.64 | 24°54'55" RT | |
| B-A | 445.05 | 85°00'00" | 443.36 | 23°25'55" RT | |
| 79+14.10 | 5'0" | | | | |



| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 91+21.60 | B | | | | |
| A-B | 767.05 | 85°00'40" | 764.14 | 19°17'50" LT | |
| 83+57.46 | A | | | | |



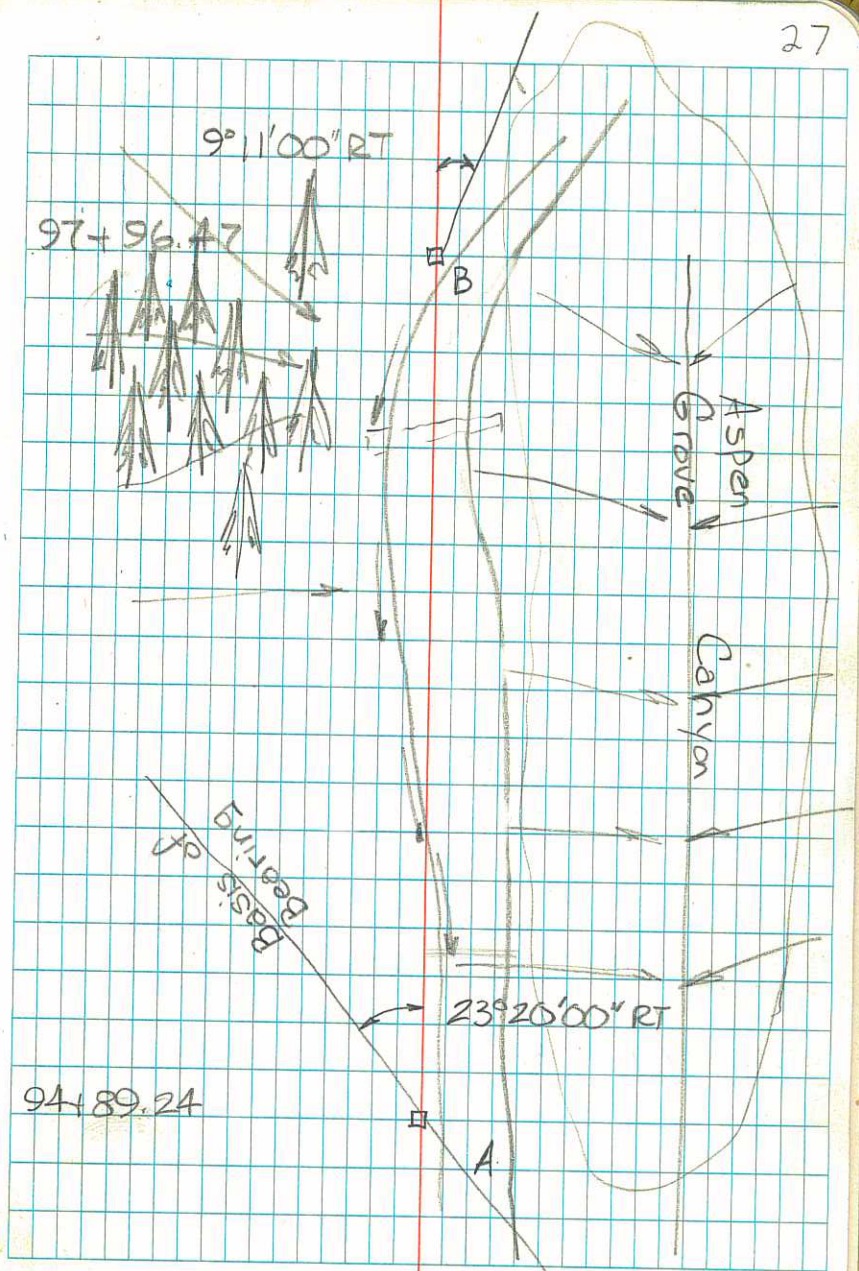
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
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| 94+89.24 A | | | | | |
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| B-C | 233.29 | 85°31'00" | | 16°34'40" | LT |
| B-A | 369.08 | 84°56'00" | 367.64 | 8°50'00" | LT |
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| 91+21.60 B | | | | | |
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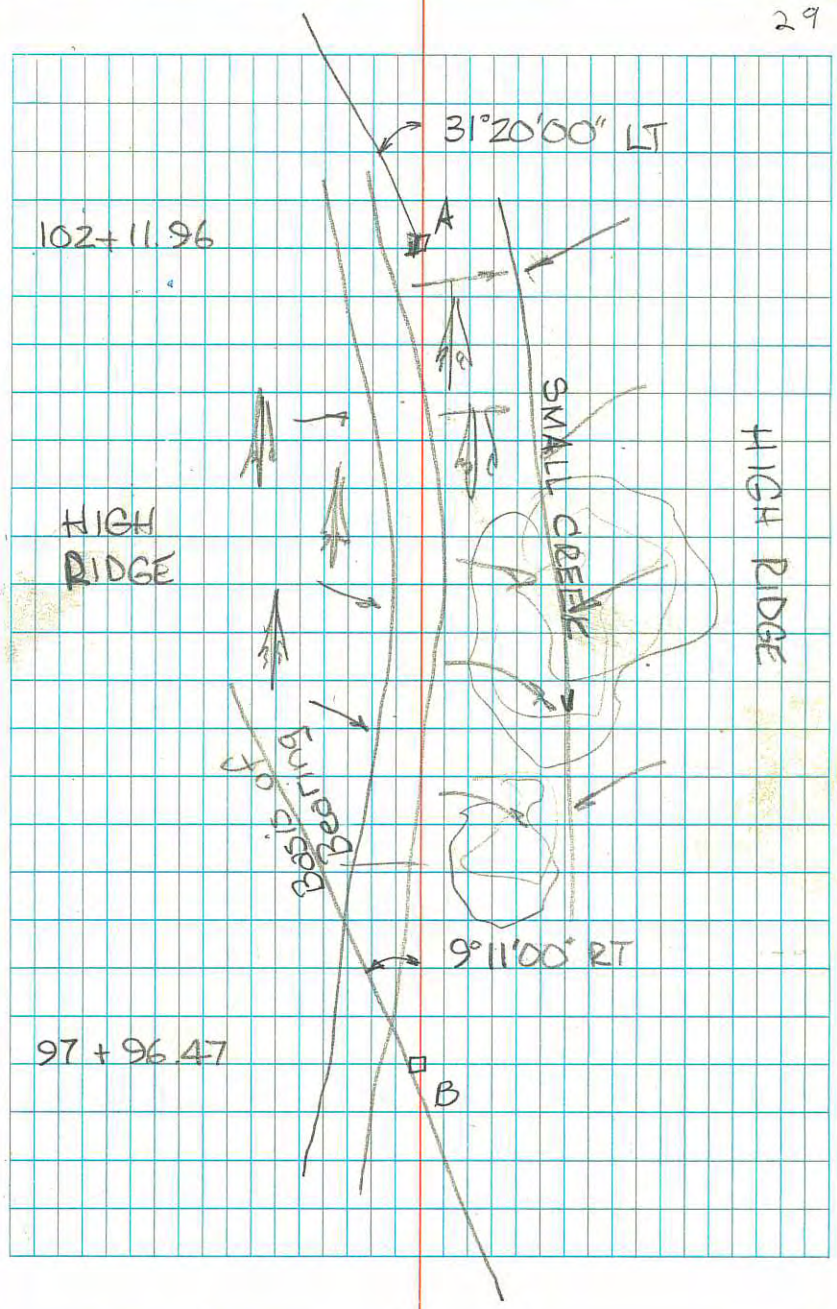
97+96.47 B

| | | | | | |
|---|---|---|---|---|---|
| A-B | 307.42 | 88°00'30" | 307.23 | 23°20'00" | RT |

94+89.24 A



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|---|---|---|---|---|---|
| 102+11.96 | A | | | | |
| B-A | 416.39 | 86°13'50" | 415.49 | 9°11'00" | RT |
| 97+96.47 | B | | | | |

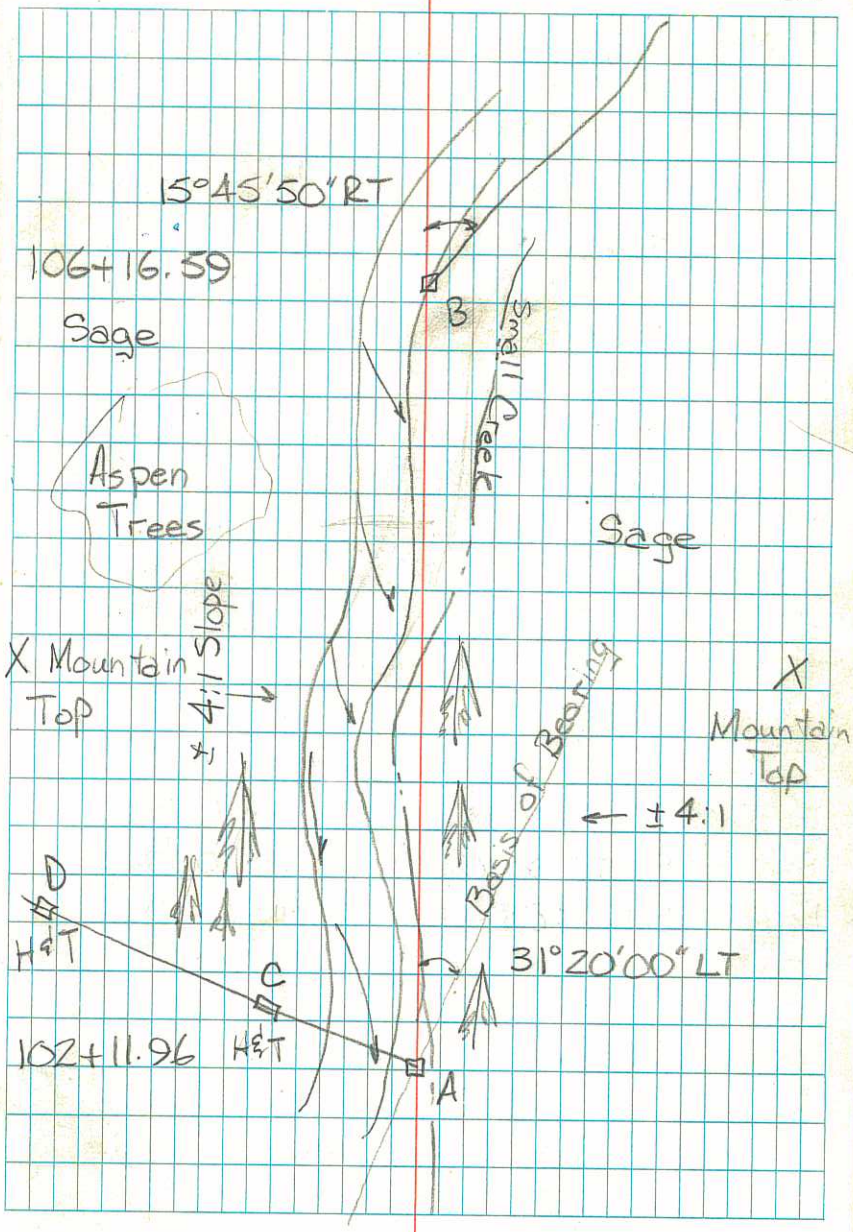



9340-100

+.7
106+16.59 B

| | | | | |
|---|---|---|---|---|
| A-D | 102.74 | 75°13'00" | | 109°05'40" LT |
| A-C | 68.17 | 76°49'10" | | 109°05'40" LT |
| A-B | 407.98 | 83°28'00" | 405.33 | 31°20'00" LT |

102+11.96 A (Quarzite Boulders with Some Clay & Gravel

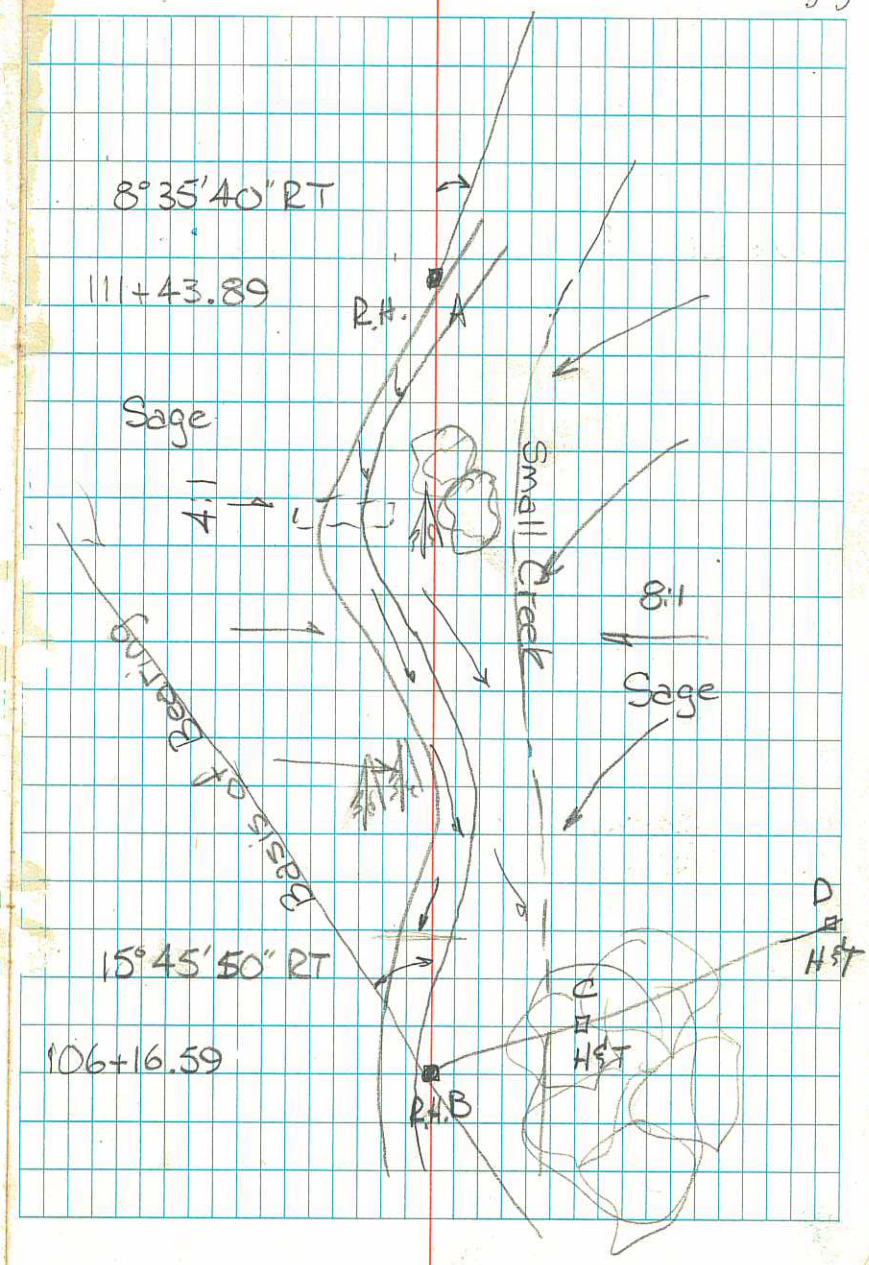


111+43.89 A

| | | | | |
|---|---|---|---|---|
| B-D | 145.56 | 85°08'40" | | 88°10'00" RT |
| B-C | 80.53 | 90°10'10" | | 88°10'00" RT |
| B-A | 528.74 | 85°46'00" | 527.30 | 15°45'50" RT |

106+16.59 B

Clay with Quarzite Boulders & Some Gravel



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|---|---|---|---|---|---|
| 115+13.81 B | | | | | |
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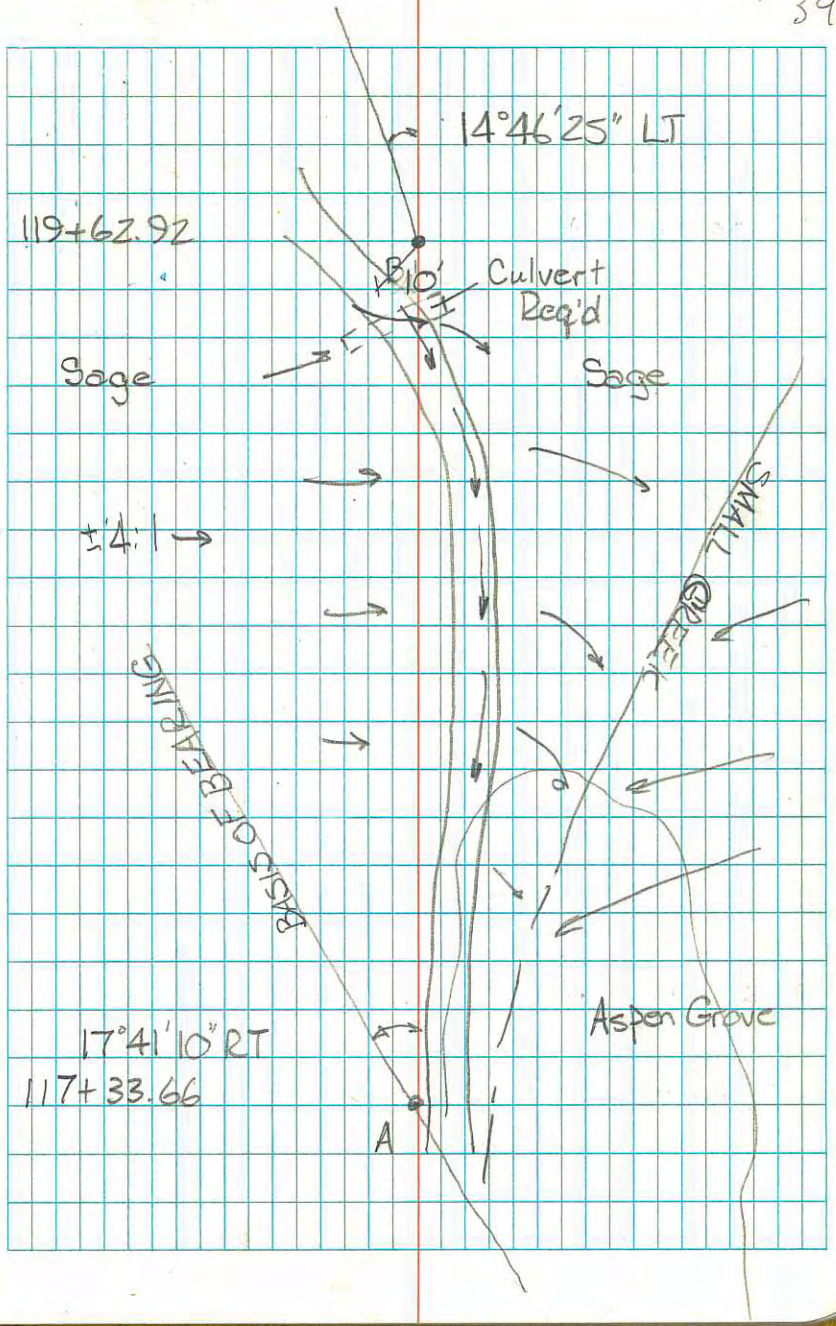
| | | | | |
|---|---|---|---|---|
| 117+33.66 | A | | | |
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7-27-76 Warm, Clear
π - Williams
ϕ - Ward

119+62.92 B

| | | | | | |
|---|---|---|---|---|---|
| A-B | 229.35 | 88°22'10" | 229.26 | 17°41'10" | RT |

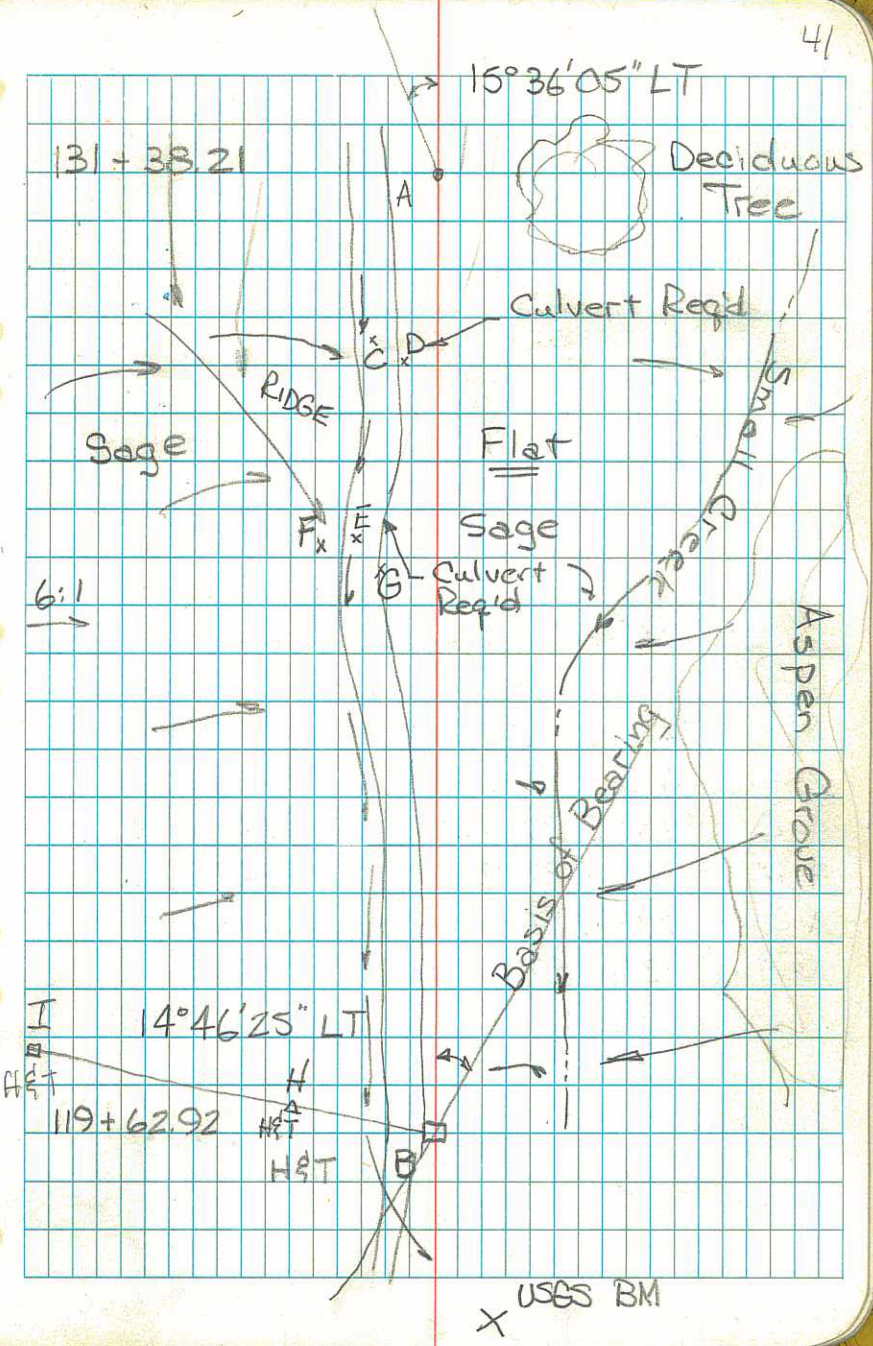
117+33.66 A



131+38.21 A

| | | | | |
|---|---|---|---|---|
| B-BM | 148.75 | 91°50'10" | | 148°21'40" RT |
| B-I | 91.59 | 84°35'55" | | 106°34'30" LT |
| B-H | 47.39 | 85°42'30" | | 106°34'30" LT |
| B-G | 482.51 | 87°44'30" | | 24°48'00" LT |
| B-F | 498.81 | 87°39'55" | | 27°06'20" LT |
| B-E | 518.33 | 87°41'20" | 517.91 | 26°02'50" LT |
| B-D | 723.90 | 87°24'40" | 723.16 | 19°40'20" LT |
| B-C | 739.61 | 87°19'30" | | 21°06'30" LT |
| B-A | 1176.24 | 87°28'00" | 1175.29 | 14°46'25" LT |

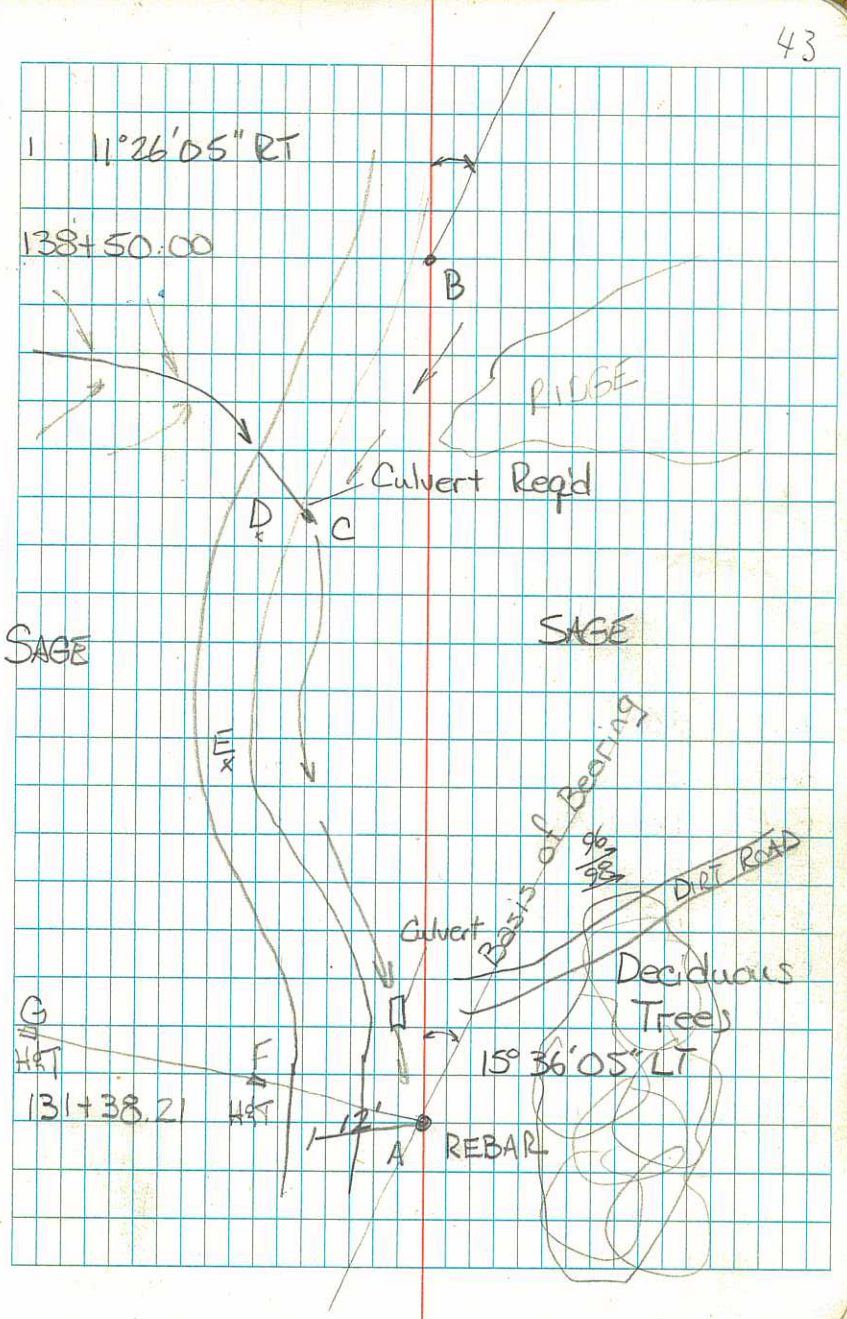
119+62.92 B (Clay with Some Gravel)
HI 5.2'



138+50.00 B

| | | | | |
|---|---|---|---|---|
| A-G | 126.33 | 85°54'00" | | 88°09'05" |
| A-F | 47.54 | 87°55'55" | | 88°09'05" |
| A-E | 195.84 | 87°21'20" | | 33°40'45" LT |
| A-D | 449.35 | 87°07'00" | | 23°42'00" LT |
| A-C | 481.50 | 87°20'10" | 480.98 | 21°20'50" LT |
| A-B | 712.70 | 87°06'40" | 711.79 | 15°36'05" LT |

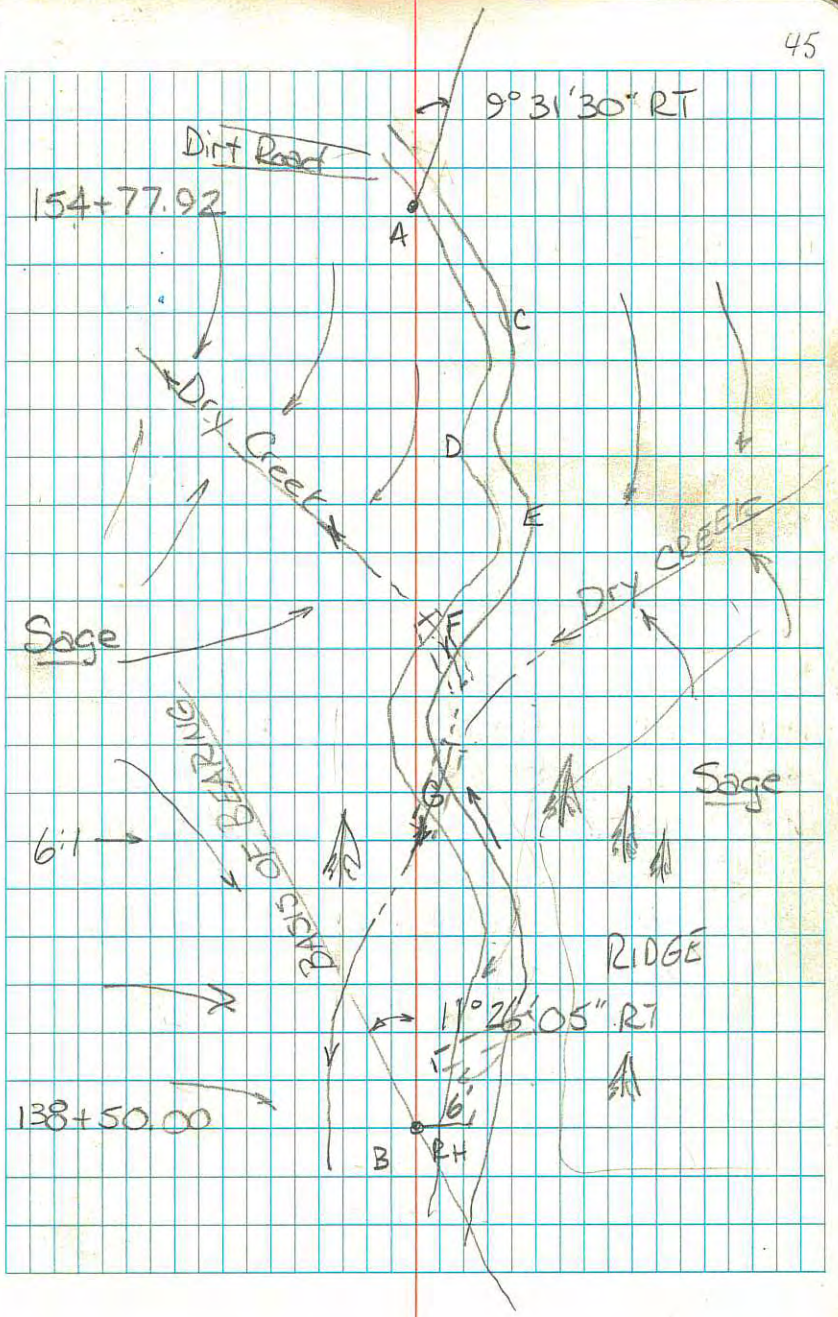
131+38.21 A



A 154+77.92

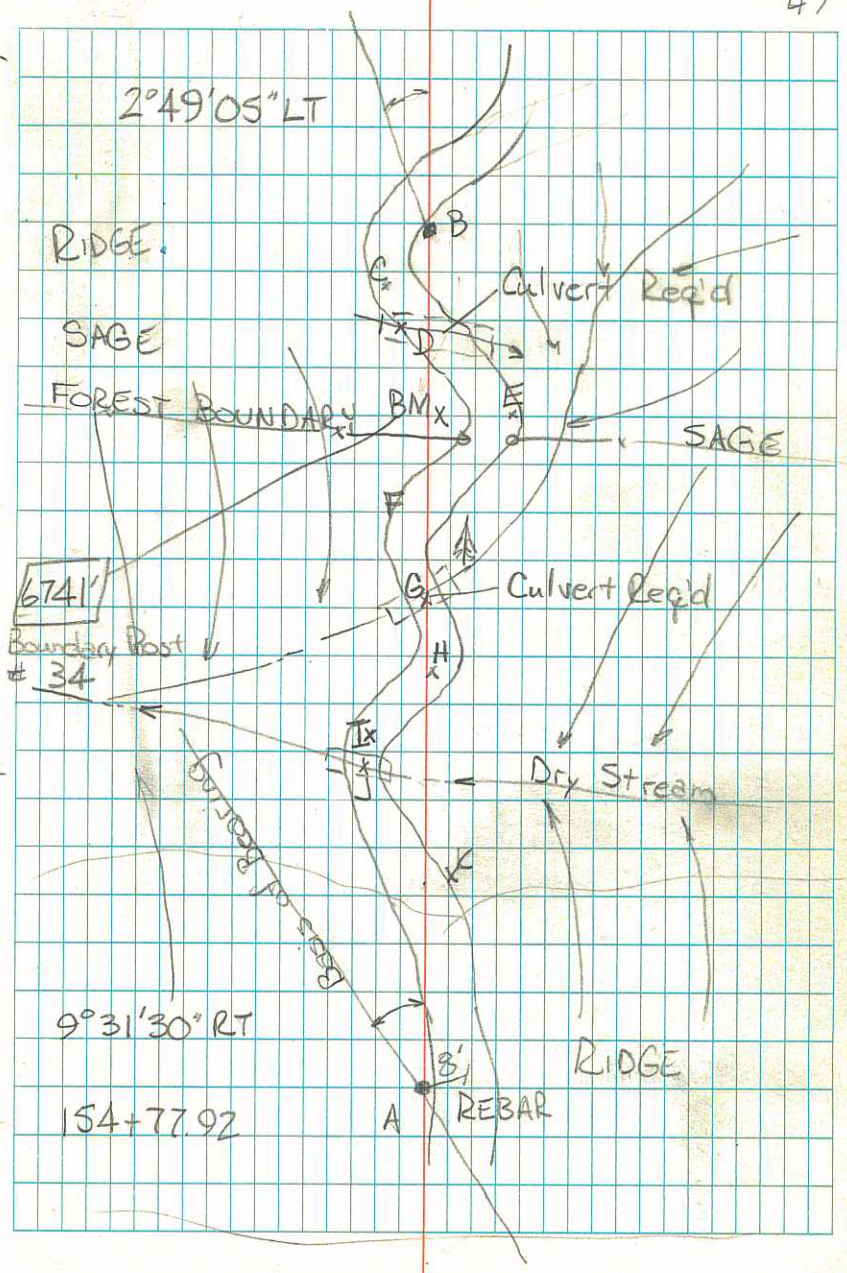
| | | | | |
|---|---|---|---|---|
| B-G | 248.75 | 88°30'50" | 248.67 | 23°03'00" RT |
| B-F | 450.07 | 88°13'05" | 449.85 | 21°18'50" RT |
| B-E | 680.72 | 86°44'00" | 679.61 | 25°09'05" RT |
| B-D | 888.59 | 85°58'50" | 886.40 | 20°27'00" RT |
| B-C | 1135.77 | 85°33'50" | | 21°15'20" RT |
| B-A | 1634.26 | 84°57'10" | 1627.92 | 11°26'05" RT |

138+50.00 B HI 5.3'
(Clay, Gravel, and large Quargite Boulders)

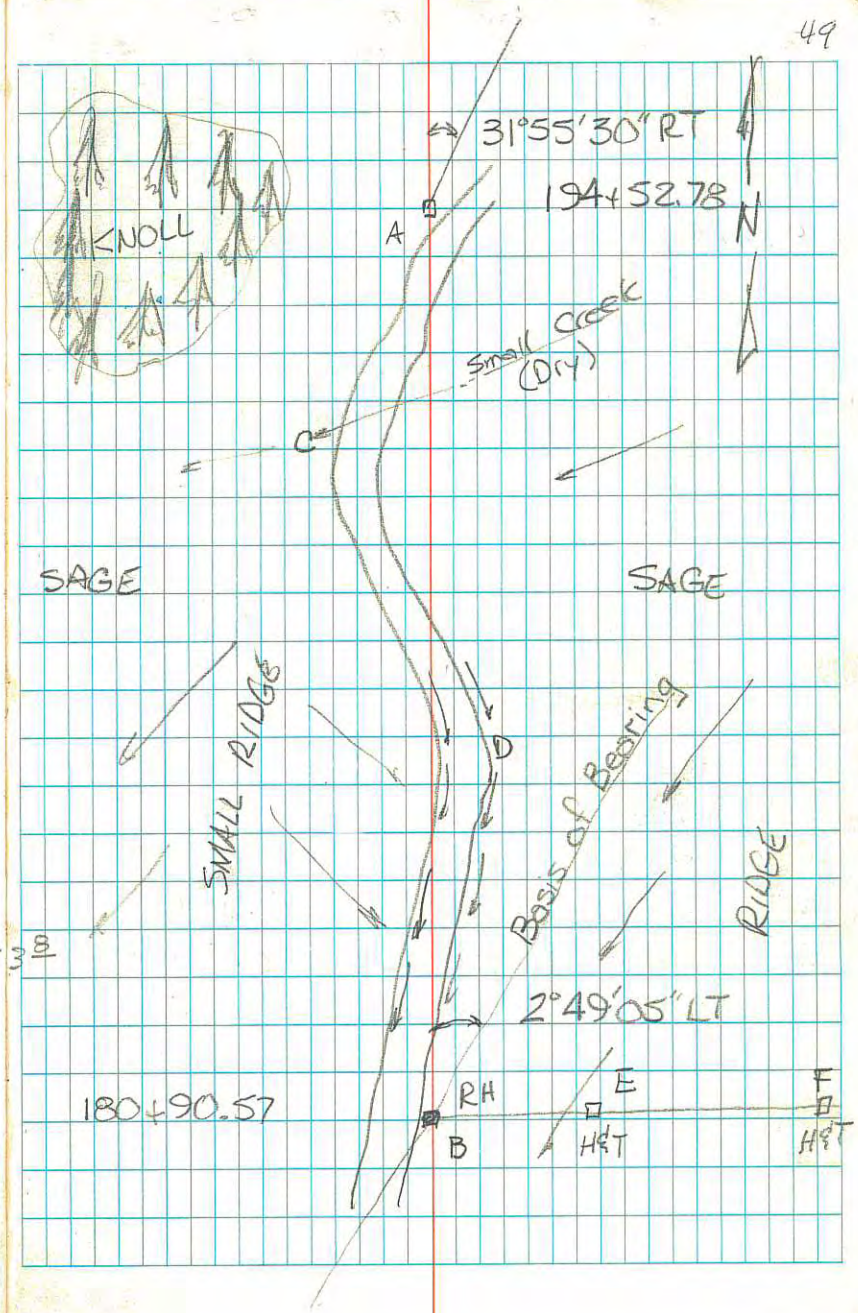


EL BM = 6741

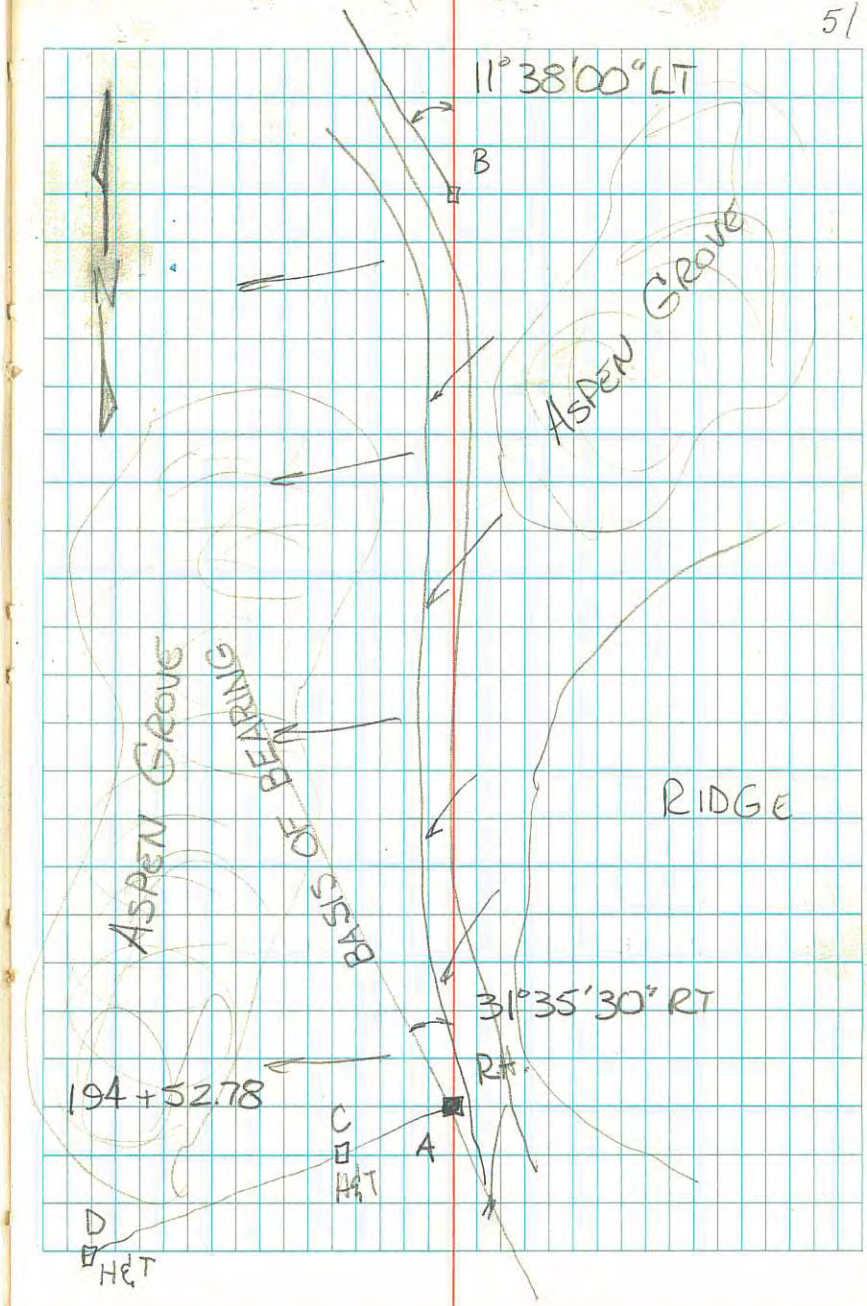
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR. ∠ | EL |
|---|---|---|---|---|---|
| 180+90.57 A | | | | | |
| A-K | 312.01 | 91°13'30" | | 9°22'40" RT | |
| A-J | 462.24 | 91°23'10" | | 1°13'30" RT | |
| A-I | 568.43 | 90°51'00" | 568.37 | 0°13'00" RT | 160+46.29 |
| A-H | 734.67 | 90°11'30" | | 4°14'50" RT | |
| A-G | 819.38 | 90°04'05" | 819.38 | 4°14'50" RT | 162+97.80 |
| A-F | 905.86 | 89°41'50" | | 3°36'05" RT | |
| A-BM | 1233.04 | 88°35'05" | | 5°39'40" RT | EL 6741.22 |
| A-E | 1415.43 | 88°25'50" | | 5°39'40" RT | |
| A-D | 1607.64 | 88°09'40" | 1606.81 | 3°30'10" RT | 170+84.73 |
| A-C | 2084.78 | 87°43'30" | | 1°34'10" RT | |
| A-B | 2615.55 | 87°18'00" | 2612.65 | 9°31'30" RT | $EL_B$ = 6833.71 |
| 154+77.92 A | | HI 5.3' | | | |
| | | EL A = 6710.5 | | | |



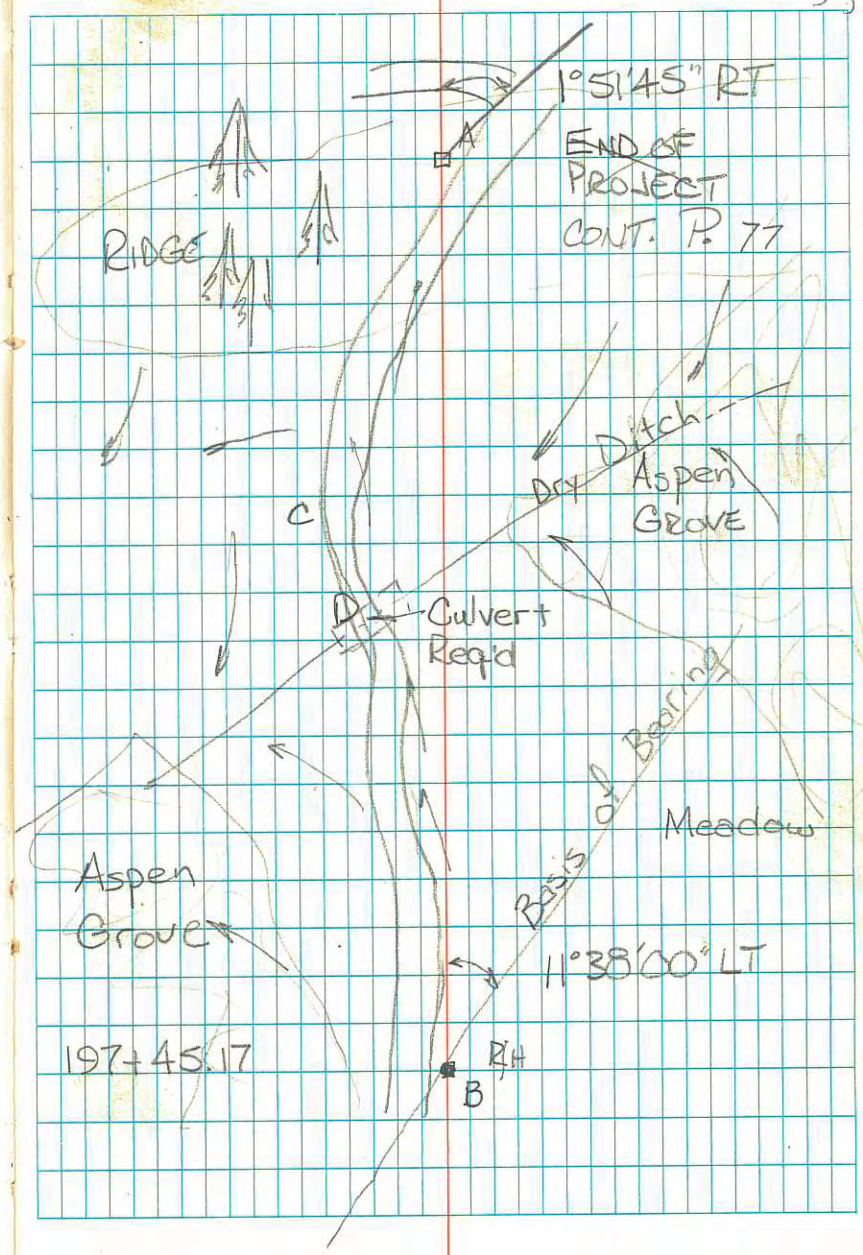
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
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| 194+52.78 A | | | | | |
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| | | | | | |
| B-F | 125.61 | 88°43'40" | | 109°01'50" RT | |
| B-E | 57.56 | 90°53'10" | | 109°01'50" RT | |
| B-D | 298.05 | 88°01'00" | | 5°20'25" RT | |
| B-C | 549.24 | ~~88°18'00"~~ | 549.00 | 2°55'30" LT | |
| B-A | 1362.80 | 88°19'00" | 1362.21 | 2°49'05" LT | EL=687.38 |
| | | | | | |
| | | | | | |
| 180+90.57 | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |



| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 197+45.17 B | | | | | |
| A-D | 111.66 | 104°11'00" | | 90°47'10" LT | |
| A-C | 48.14 | 109°06'30" | | 90°47'10" LT | |
| A-B | 292.42 | 89°07'30" | 292.39 | 31°35'30" RT | EL 6878.2 |
| 194+52.78 A | | | | | |



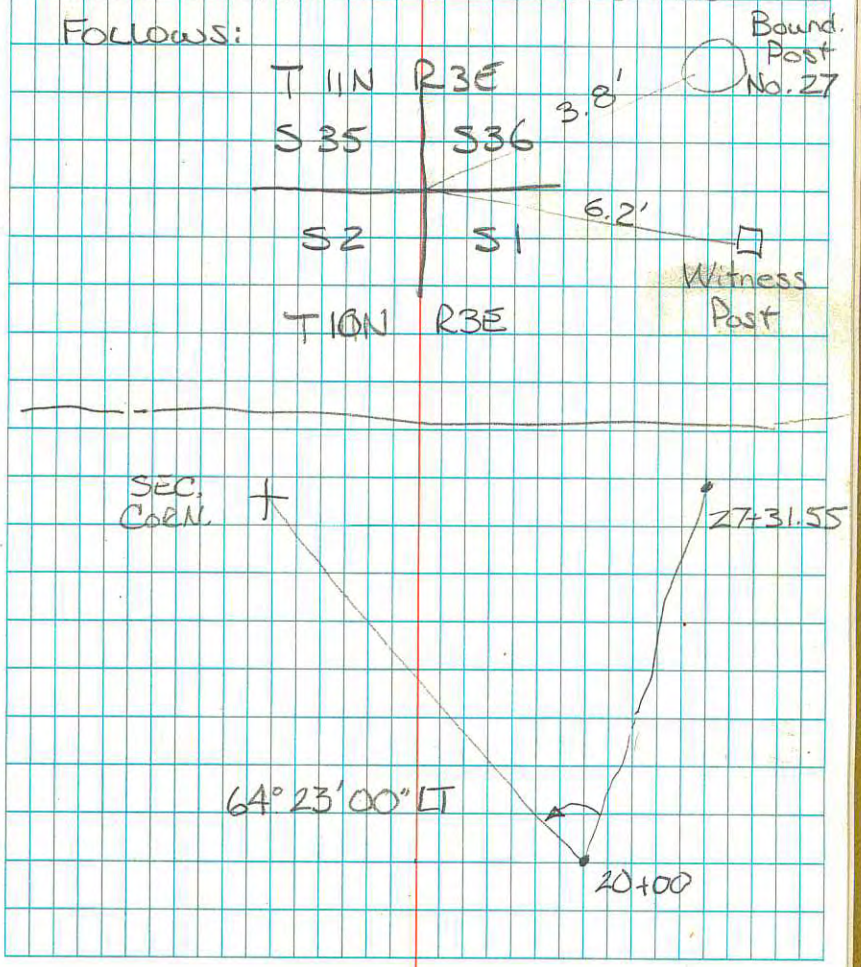
| STA | SLP DIST | VERT ∠ | HOL DIST | HOL ∠ | EL |
|---|---|---|---|---|---|
| 205+15.46 A | | END ~~OF PROJECT~~ | | | |
| | | CONT ON PAGE 77 | | | |
| B-D | 189.32 | 91°20'00" | 189.27 | 18°23'20" LT | 199+34.44 |
| B-C | 444.75 | 90°50'30" | | 16°52'55" LT | |
| B-A | 770.34 | 90°40'50" | 770.29 | 11°38'00" LT | 6869' |
| 197+45.17 | | | | | |



| | SLP DIST | VERT ∠ | HOR. DIST | HOR. ∠ |
|---|---|---|---|---|
| T & NOTES- ϕ - Word | | WILLIAMS | | Clear, Warm |
| 20+00 to SEC. COR. | 1009.54 | 90°43'40" | | 64°23'00" LT |

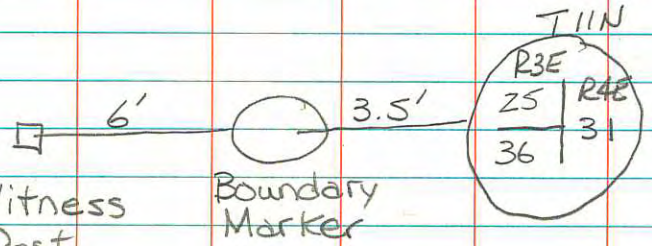
## SECTION CORNER TIES

FOUND A BRASS CAP SET ON A 2" DIAMETER PIPE 12" ABOVE GROUND LEVEL. ROCKS HAVE BEEN PILED AROUND THE PIPE. MARKED AS FOLLOWS:



| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ |
|---|---|---|---|---|
| | | | | |

FOUND BRASS CAP ON 2" DIAM PIPE WITH MOUND OF ROCKS AROUND IT, MARKED AS FOLLOWS:





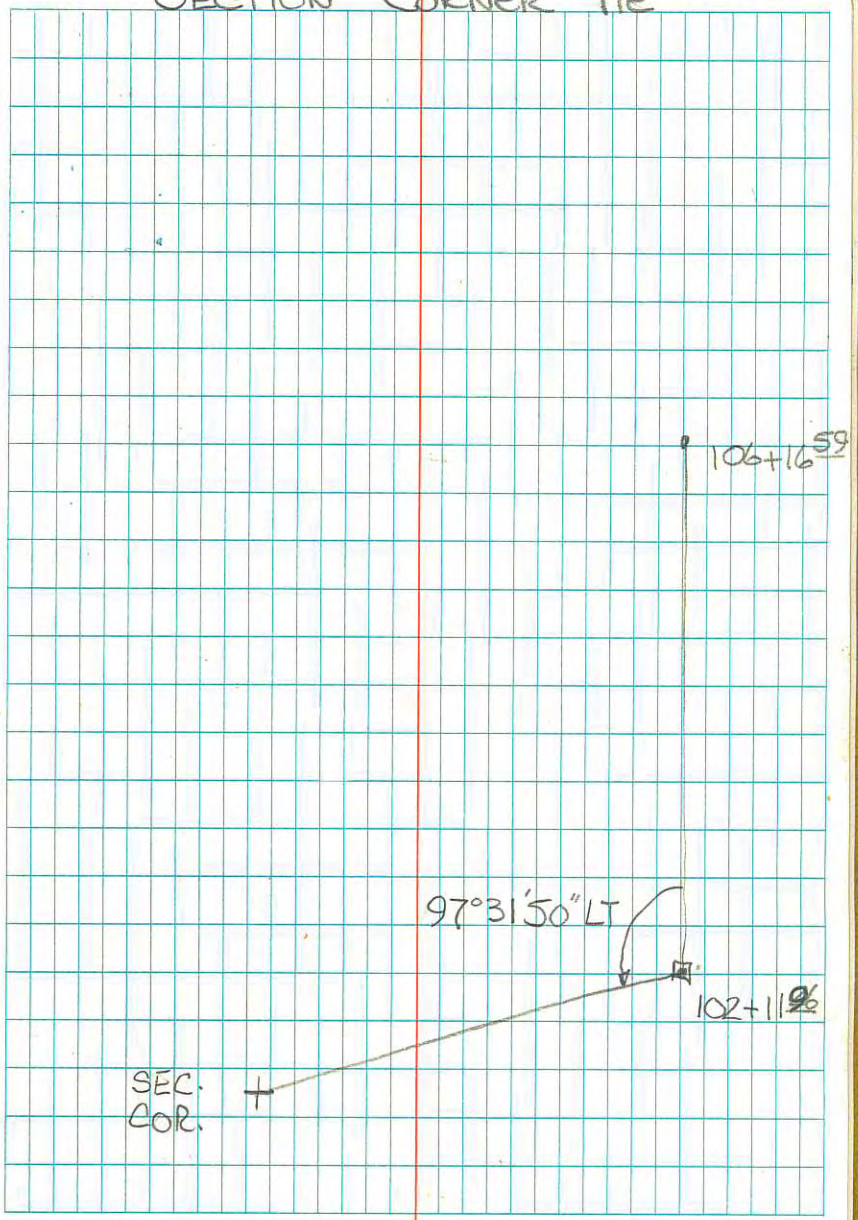


| | | | |
|---|---|---|---|
| 102+11 26 to SEC COR. | 232.98 | 76°04'05" | 97°31'50"LT |

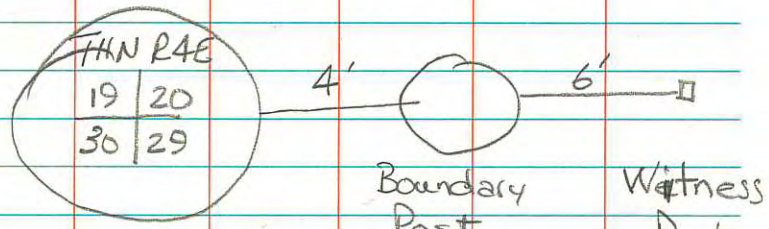
9340-100

59

## SECTION CORNER TIE



| | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ |
|---|---|---|---|---|
| | FOUND BRASS CAP SET ON A 2" DIAMETER PIPE WITH ROCKS PILED UP AROUND IT. THE CAP WAS MARKED AS FOLLOWS. | | | |

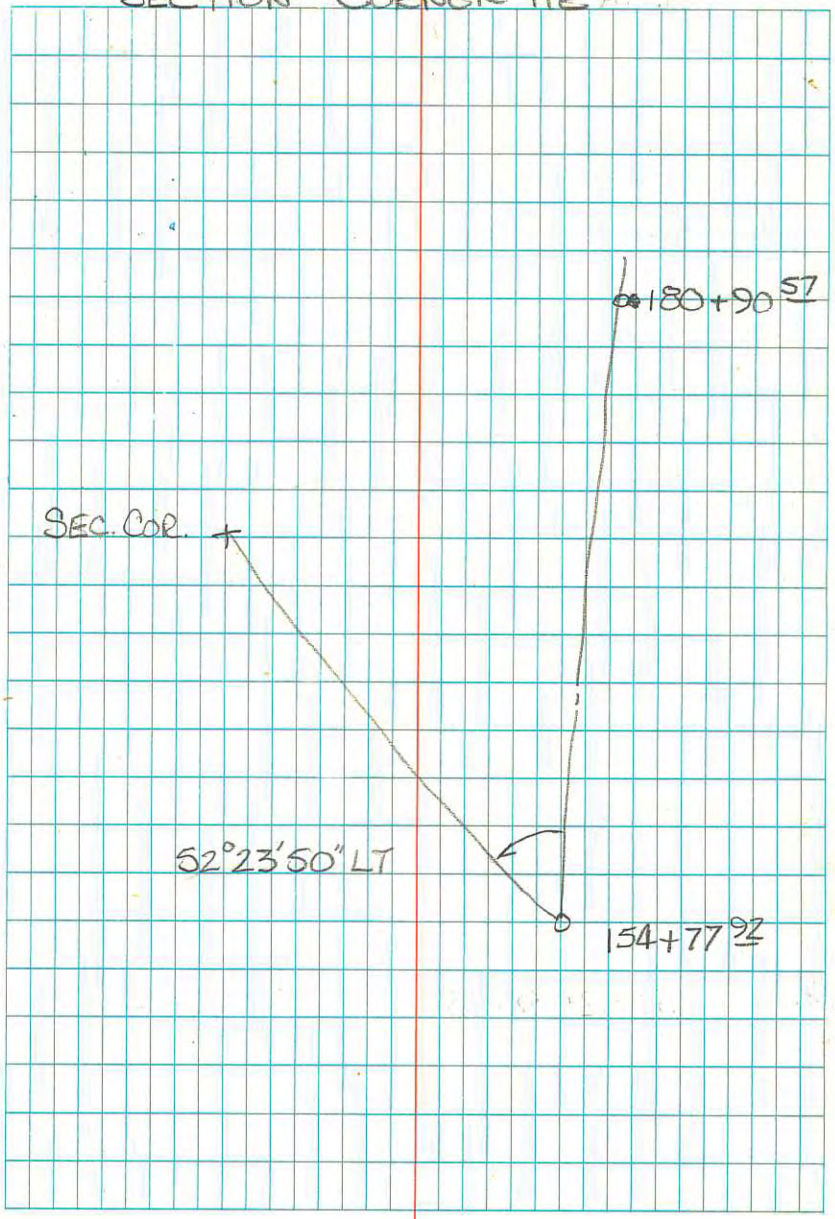



| | | | | |
|---|---|---|---|---|
| 154+77.92 to SEC COR | 1175.88 | 84°48'40" | | 52°23'50" LT |

9340-100

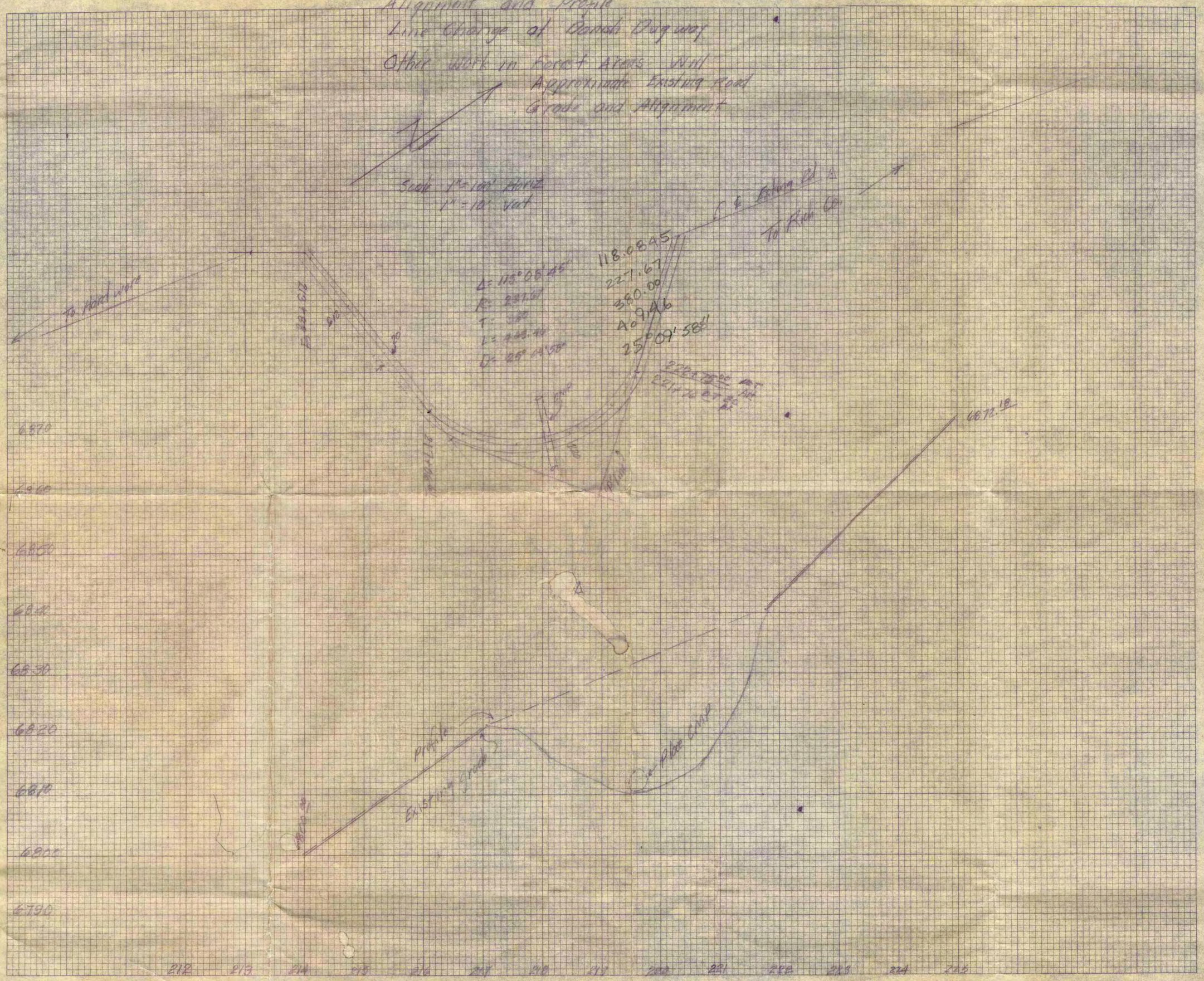
61

## SECTION CORNER TIE



Alignment and Profile
Line Change at Beach Highway
Other work in Forest Areas will
Approximate Existing Road
Grade and Alignment

Scale 1" = 100' Horiz
1" = 10' Vert

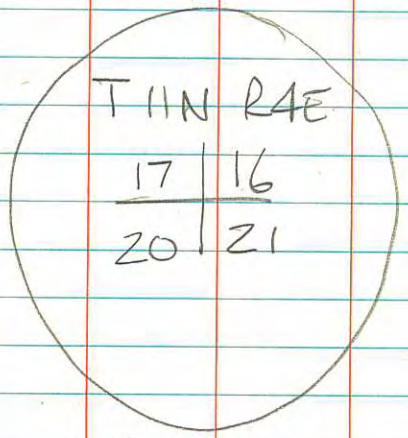



K&E 10 X 10 TO THE INCH
16 X 20 INCHES
KEUFFEL & ESSER CO.
46 5020
MADE IN U.S.A.

T-WILLIAMS 8-19-76

Φ-WARD WARM, SUNNY

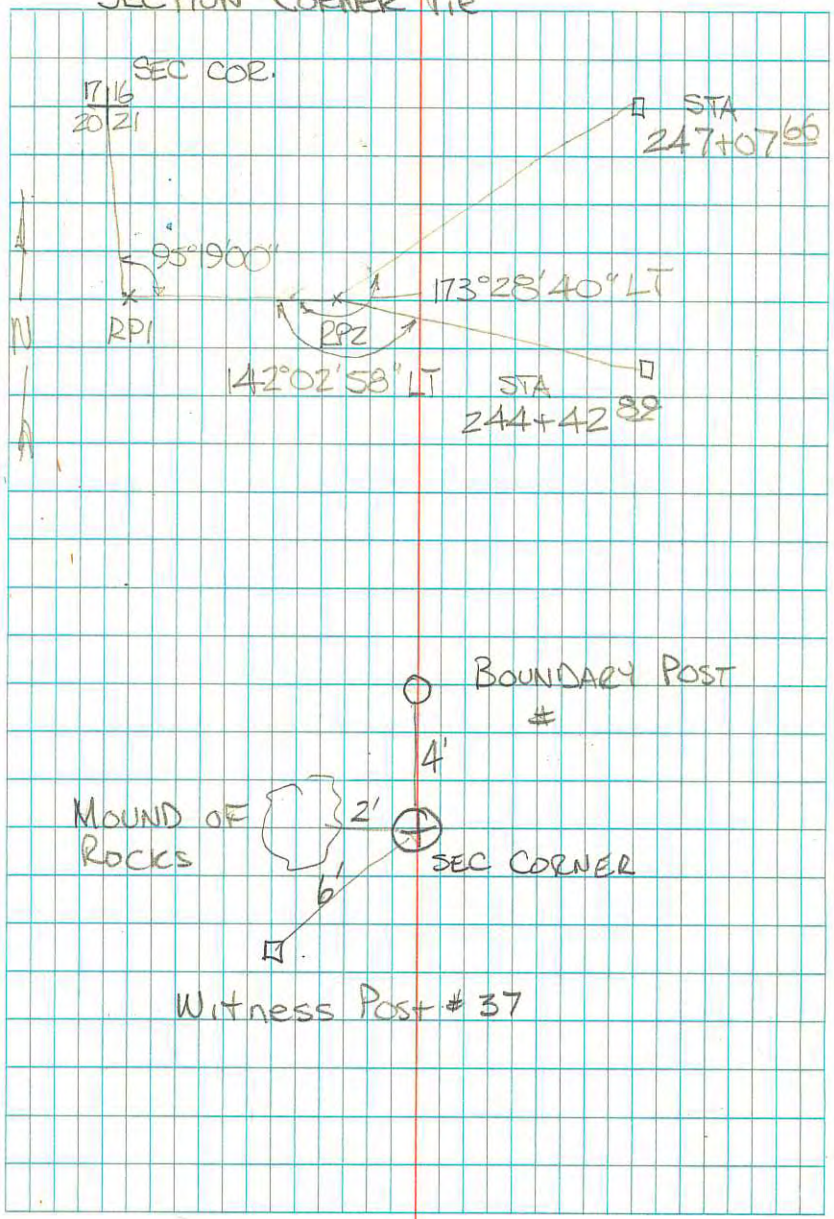
FOUND BRASS CAP SET ON 2" DIAMETER PIPE WITH A MOUND OF ROCKS 2' WEST OF CORNER. CORNER MARKED AS FOLLOWS




| | | | |
|---|---|---|---|
| RP2 to STA | 508.21 | 95°55'00" | 173°28'40" LT |
| RP2 to STA | 459.50 | 97°19'00" | 142°02'58" LT |
| RP1 to RP2 | 181.61 | 88°51'05" | |
| RP1 to SC | 203.52 | 101°42'30" | 95°19'00" RT |



SECTION CORNER TIE



47+69 00

43+52 77

27+31 55

20+00



# CROSS-SECTIONS

HL - Ward
bk Notes - Williams

8-2-76
Warm, Cloudy

| | | | | | |
|---|---|---|---|---|---|
| 4:1 Down | 8 5 / 35' / ER | 9 6 / 11 / ER | , 5 7 | 2 8 / 20' | SS @ 100' |
| | 7 2 / 35 | 5 5 / 18 | , 5 5 / ER | 5 0 / 11 / ER | 2 6 / 30 |
| SS / 50' | 8 1 / 30 | 7 2 / 22 | , 5 5 / ER | 5 6 / 23 / ER | 2 9 / 38 | SS @ 100' |
| 4:1 @ 35' | | 6 9 / 20 | - 5 6 | 5 6 / 12 | 5 5 / 24 | 3 4 / 36 | S.S. @ 100 |

$83+57^{\frac{16}{16}}$

$79+14^{\frac{10}{10}}$

$65+23^{\frac{75}{75}}$

$60+80^{\frac{16}{16}}$

$58+67^{\frac{99}{99}}$

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $55$ | $0^{0}$ | $18$ | $5^{5}$ | $,6^{2}$ | $6^{3}$ | $10^{5}$ | $55@$ |
| 50 | 30 | 27 | 18 ER | ER | 3 | 15 | 100 |

| | | | | | | |
|---|---|---|---|---|---|---|
| $55@$ | $1^{0}$ | $2^{0}$ | $,5^{3}$ | $5^{2}$ | $10^{0}$ | |
| 100 | 20 | 10 | ER | 15 ER | 30 | |

| | | | | | |
|---|---|---|---|---|---|
| $3^{3}$ | $5^{2}$ | $10^{3}$ | $,5^{3}$ | $10^{3}$ | |
| 30 | 18 ER | ~~24~~ | ER | 24 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $55@$ | $1^{7}$ | $5^{2}$ | $5^{5}$ | $,5^{3}$ | $6^{3}$ | $9^{4}$ | $55$ |
| 30 | 21 | 15 | 13 ER | ER | 3 | 9 | 30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $55@$ | $2^{0}$ | $4^{3}$ | $,5^{3}$ | $5^{7}$ | $7^{8}$ | $8^{4}$ | |
| 30 | 15 | 6 | ER | 15 ER | 21 | 30 | |

115+13 81

111+43 89

106+16 59

102+11 26

91+21 60

4:1 UP

| 0 | 2 | 5 | 5 | 7 | 8 |
|---|---|---|---|---|---|
| 0 | 6 | 1 | 6 | 3 | 3 |
| 27 | 23 | 18 | ER | 3 | 27 |
| | | ER | | | |

4:1 UP

| 0 | 1 | 4 | 5 | 9 | 9 |
|---|---|---|---|---|---|
| 1 | 6 | 4 | 4 | 1 | 0 |
| 9 | 6 | ER | 15 | 24 | 30 |
| | | | ER | | |

4:1 UP

| 0 | 1 | 4 | 5 | 4 | 7 | SS |
|---|---|---|---|---|---|---|
| 0 | 3 | 7 | 3 | 8 | 1 | ◎ |
| 25 | 21 | 9 | | 6 | 21 | 30 |
| | | ER | | ER | | |

| SS | 0 | 1 | 6 | 5 | 6 | 2 | 0 | SS |
|---|---|---|---|---|---|---|---|---|
| ◎ | 4 | 8 | 2 | 3 | 9 | 5 | 0 | ◎ |
| 50 | 36 | 30 | 21 | ER | 9 | 18 | 24 | 30 |
| | | | ER | | Ditch | | | |

| 1 | 2 | 5 | 5 | 9 | SS | |
|---|---|---|---|---|---|---|
| 8 | 8 | 3 | 2 | 4 | ◎ | Killed |
| 40 | 30 | 18 | ER | 21 | 50 | Rattlesnake |
| | | ER | | | | |

197+45 17

194+52 78

154+77 92

138+50 00

119+62 92

8 5 / 30 0 | 7 8 / 27 | 5 7 / 15 ER | , 5 4 / ER | 1 5 / 24 | 0 5 / 28

5 S / @ 30 | 10 1 / 12 | , 5 7 / ER | 6 0 / 15 ER | 1 2 / 27

Level @ 100' | , 0 0 / ER | 0 0 / 18 ER | 10:1 up

6 5 / 42 | 7 5 / 30 | 8 0 / 27 Ditch | 6 7 / 21 | , 5 2 / ER | 4 9 / 15 ER | 3 2 / 24 | 1 6 / 36

2 2 / 37 | 3 7 / 30 | 3 6 / 24 | 6 2 / 18 ER | , 5 4 / ER | 5 8 / 15 | 9 0 / 30 | 9 8 / 37 Ditch

$205 + 15\frac{46}{}$

$6^{9}\ 5^{16}\ 5^{4}\ ;3^{7}\ 1^{7}$ SS@

45 26 6 30 100

ER ER

| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| | | | | | |
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| 206+94.89 B | | | | | |
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| | | | | | |
| A-D | 74.10 | 94°12'50" | | 59°18'55" RT | |
| A-C | 188.00 | 91°45'40" | | 59°18'55" RT | 6874 |
| A-B | 179.72 | 93°13'55" | 179.43 | 1°51'45" RT | 6864 ± |
| | | | | | |
| | | | | | |
| 205+15.46 | | A | | | |
| | | | | EL = 6879.8 - 5.3 | = 6874 ± |

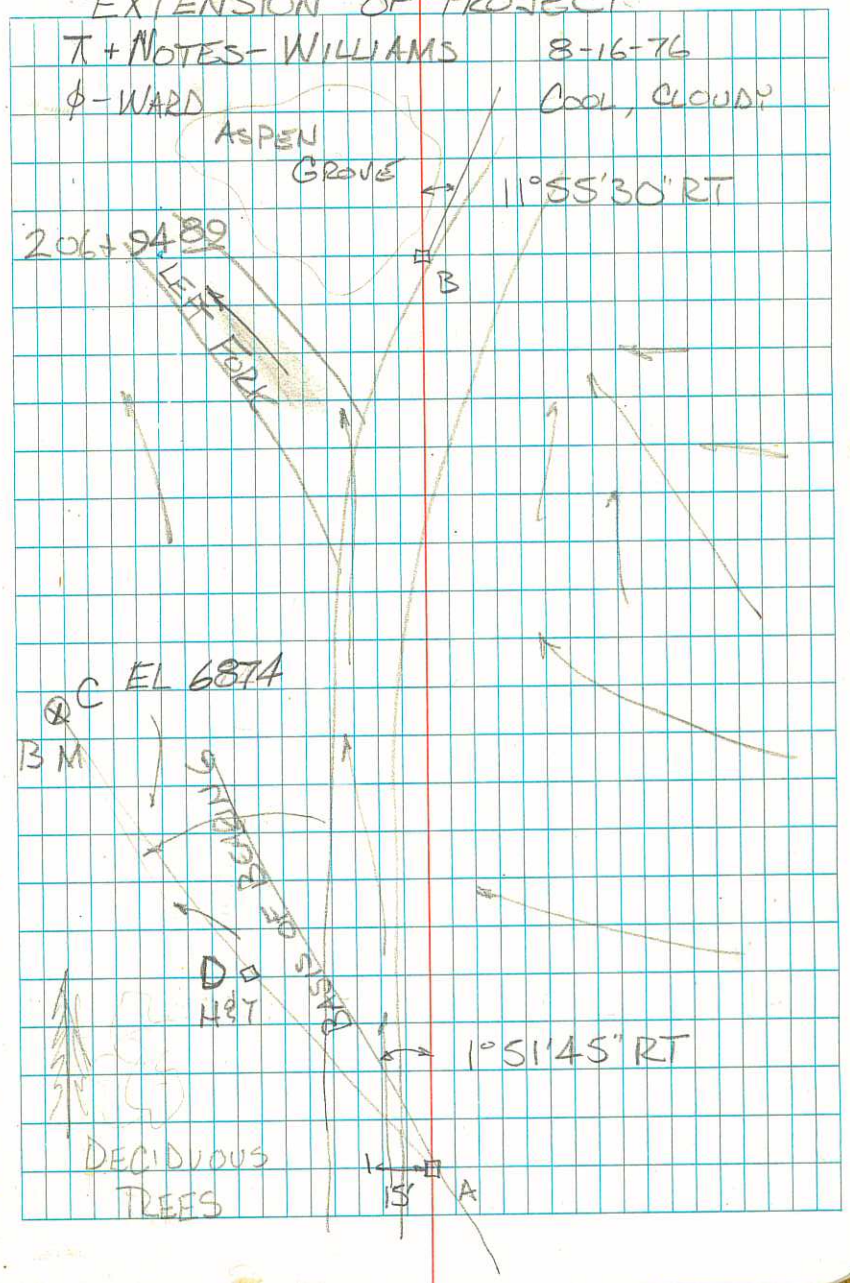
9340-100

# EXTENSION OF PROJECT

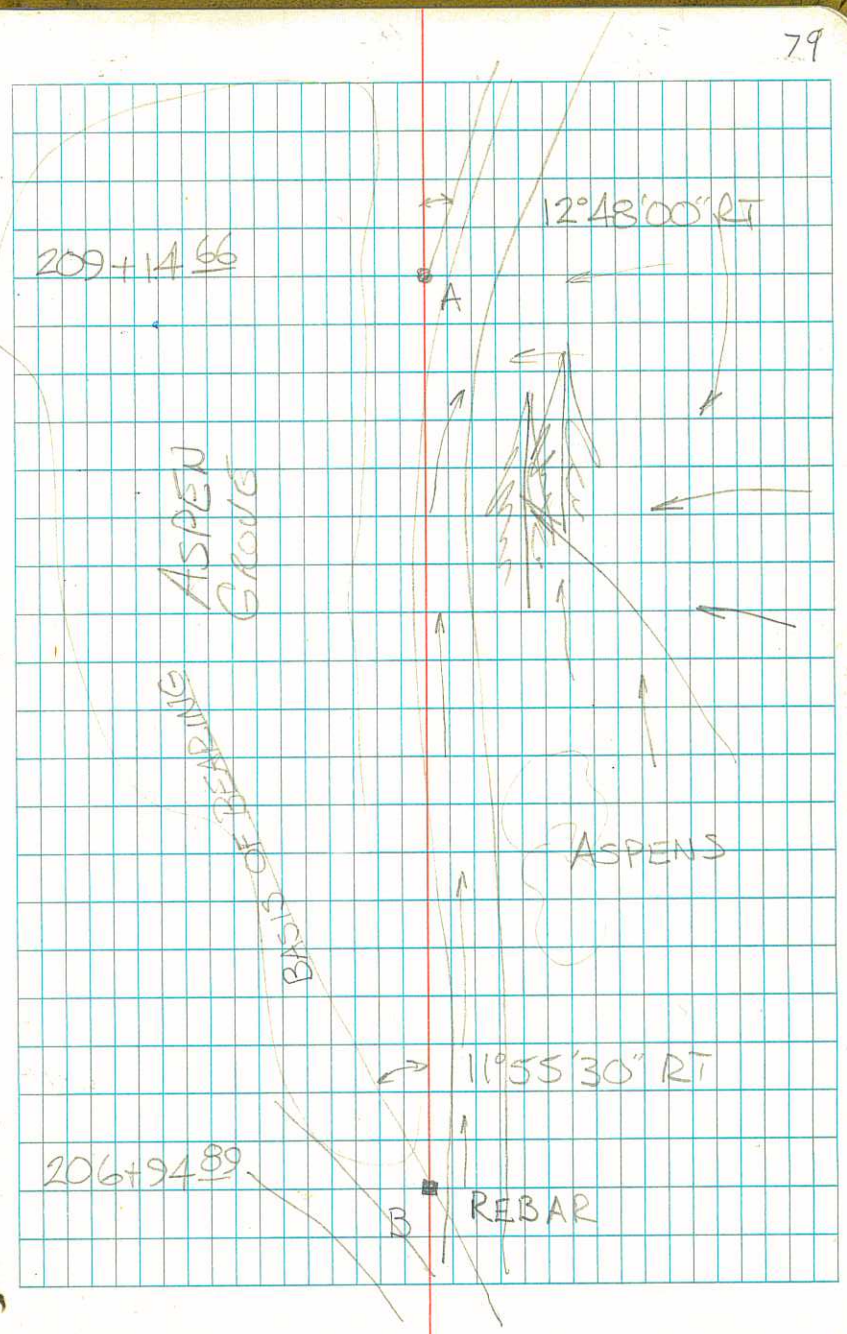
77

T + NOTES - WILLIAMS 8-16-76

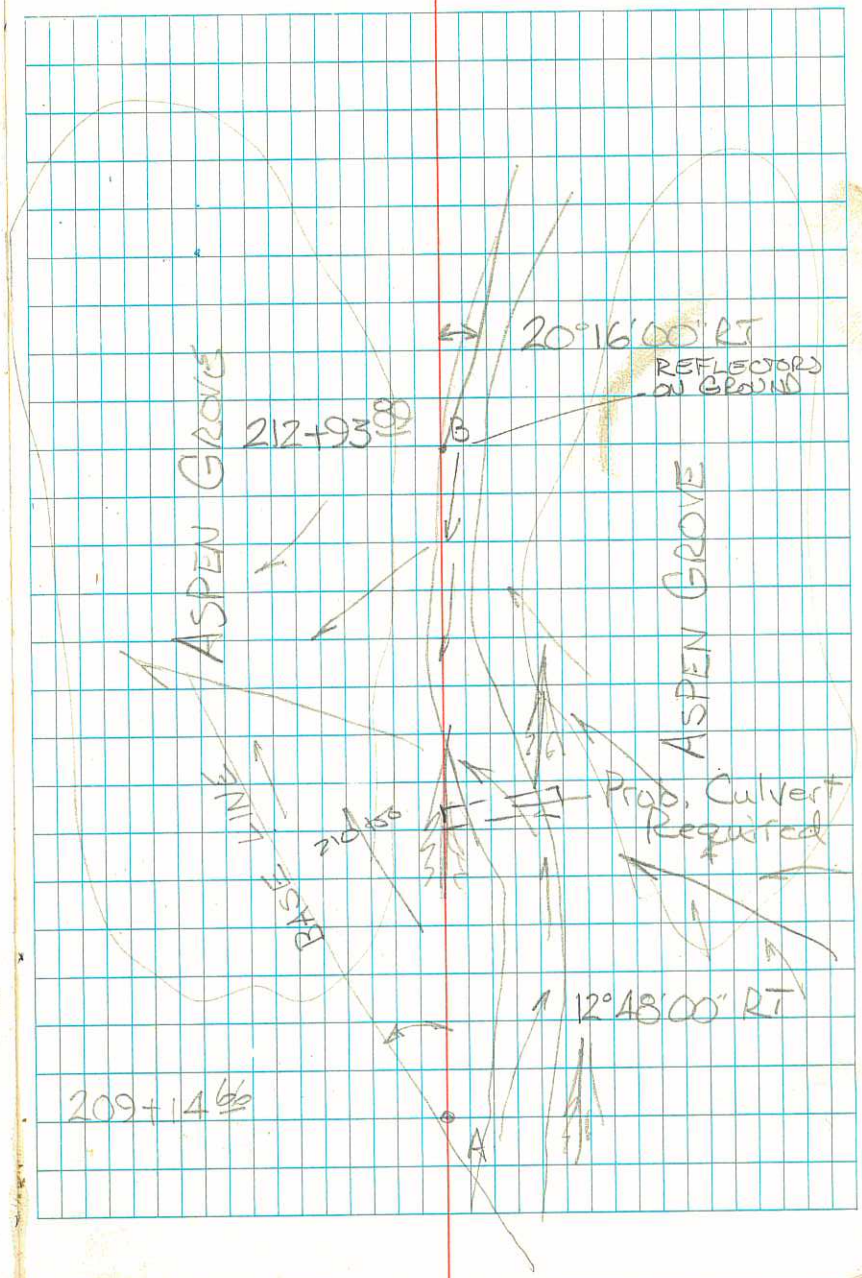
ϕ - WARD COOL, CLOUDY



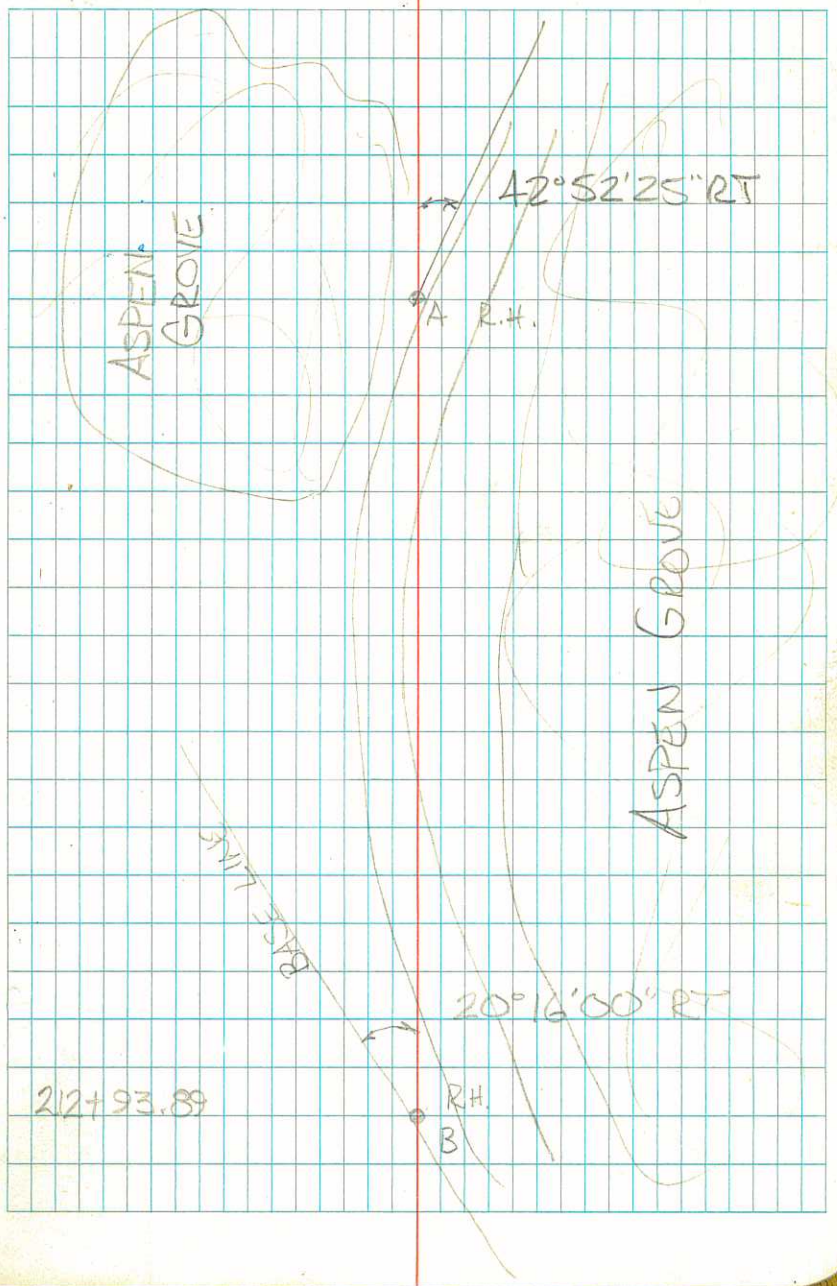
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 209+14.66 | | | | | |
| B-A | 220.29 | 93°55'55" | 219.77 | 11°55'30" RT | 6949.3 |
| 206+94.89 | | | | | |



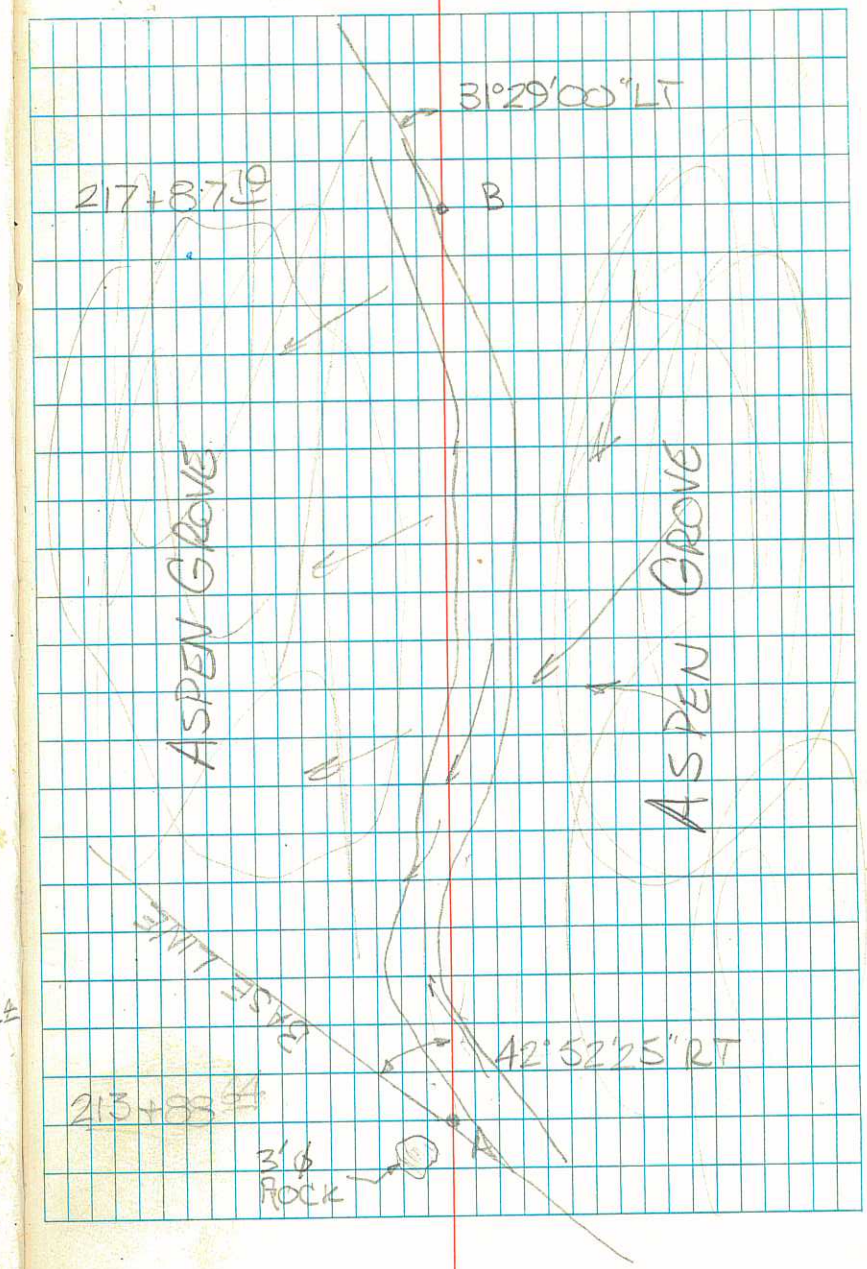
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
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| 212+93 89 | B | | | | |
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| | | | | | |
| A-B | 379.76 | 93°01'25" | 379.23 | 12°48'00" RT | ~~68~~ 23 |
| | | | | | |
| 209+14 66 | A | | | | |
| | | | | | |
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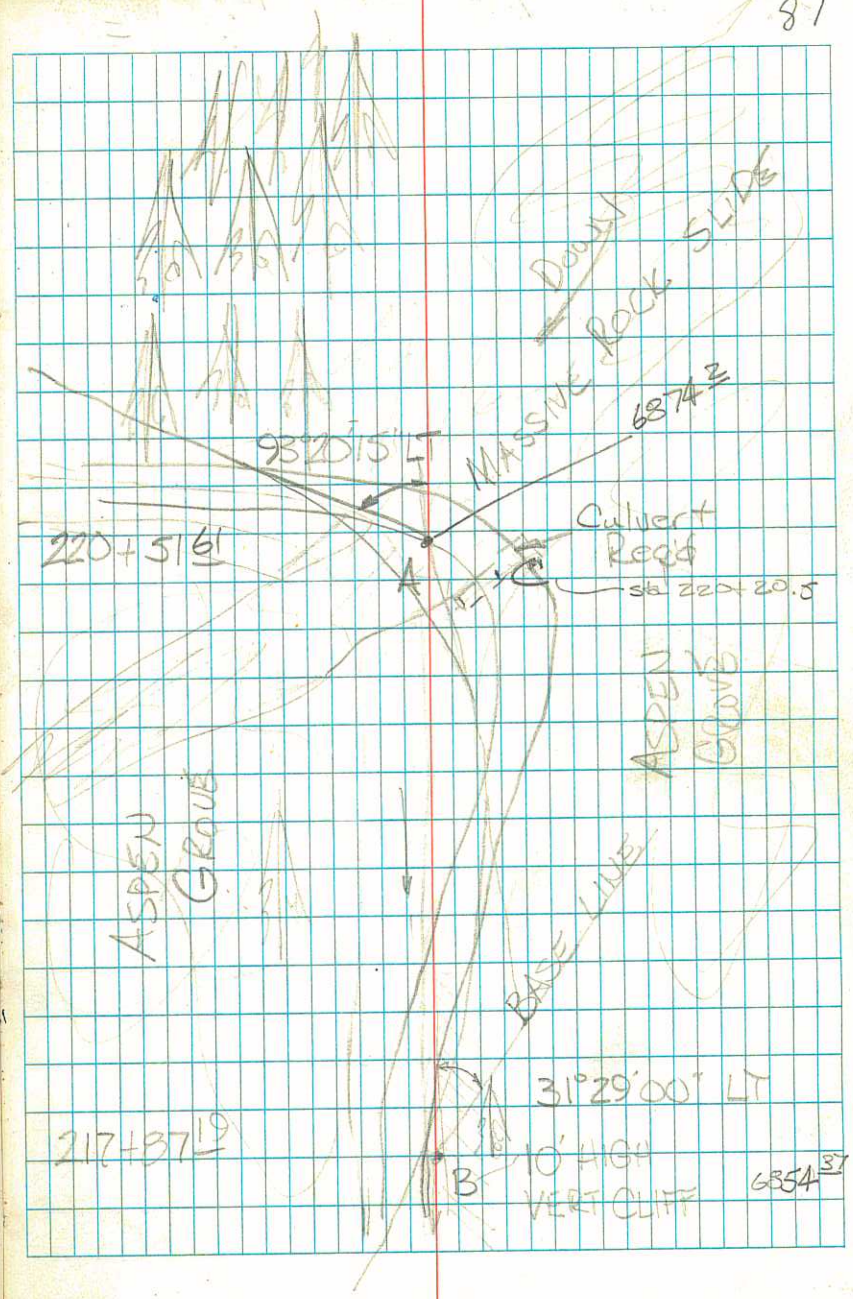
| STA | SLD DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 213+88.64 | | A | | | |
| B-A | 94.84 | 87°30'00" | 94.75 | 20°16'00" RT | 6838.4 |
| 212+93.89 | | B | | | |



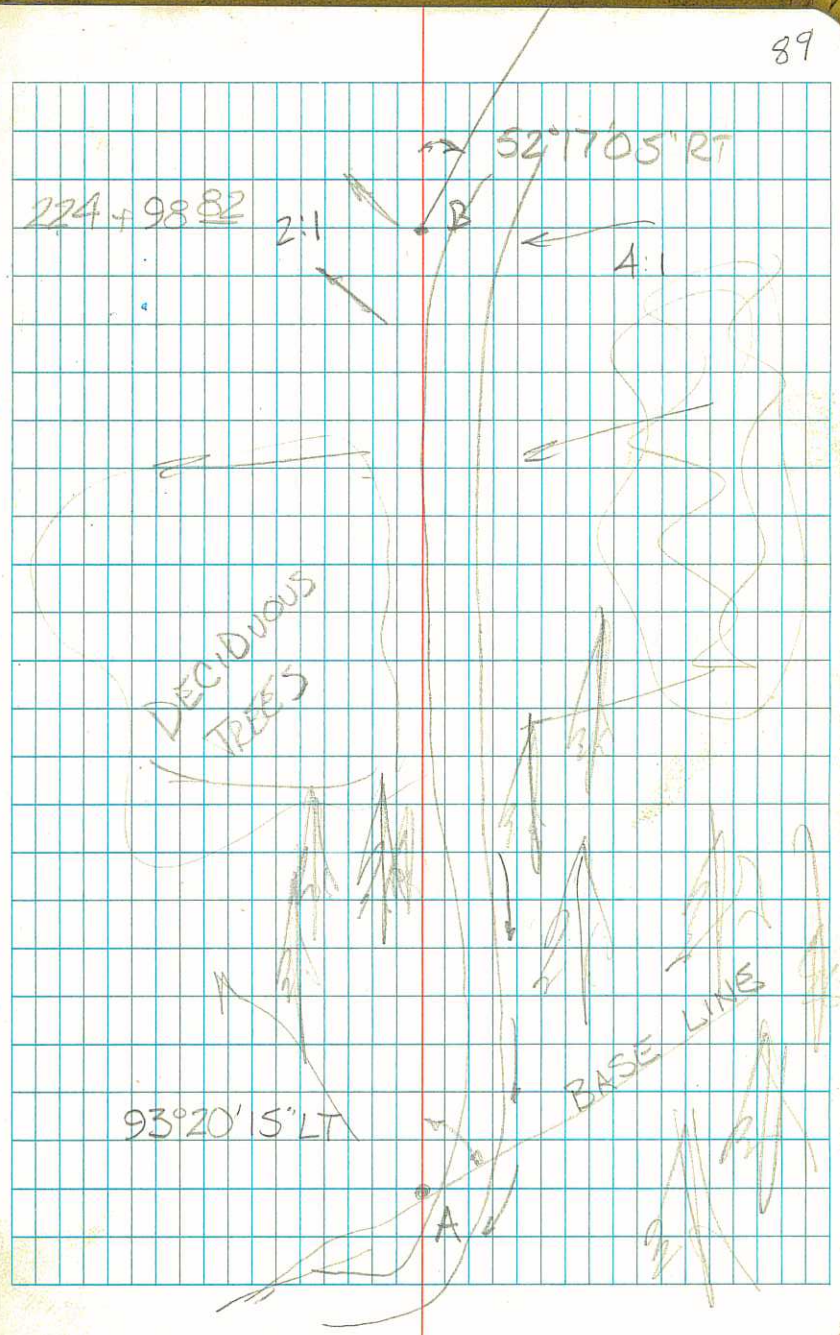
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 217+87.19 | | B | | | |
| A-B | 398.87 | 87°47'00" | 398.55 | 42°52'25" RT | 68.4 |
| 213+88.64 | | A | | | |



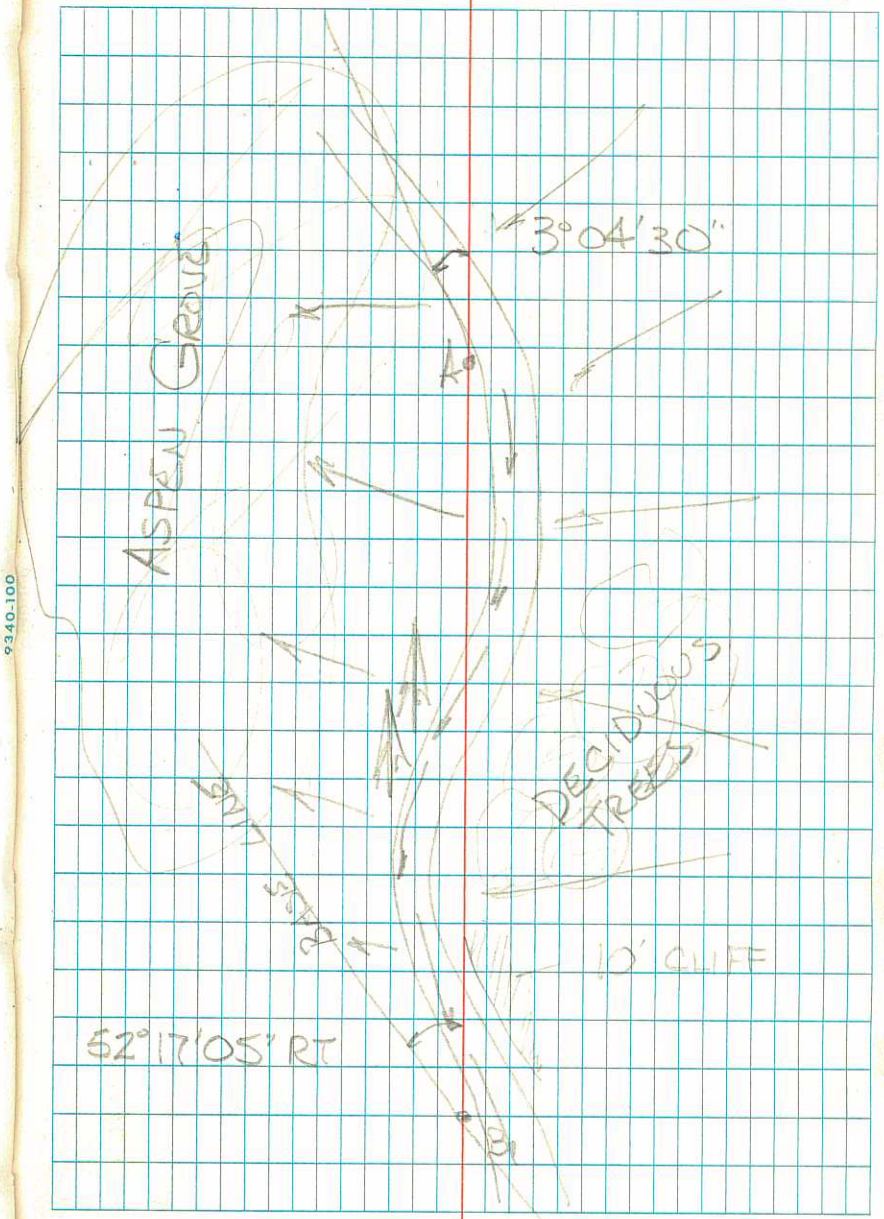
| STA | SLP DST | VERT ∠ | HOR DST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 220+51.61 | | A | | | |
| B-C | 233.63 | 86°30'00" | 233.27 | 11°46'55" LT | 6867.3 |
| B-A | 265.16 | 85°42'50" | 264.42 | 31°29'00" LT | 6874.2 |
| 217+87.19 | | B | | | |



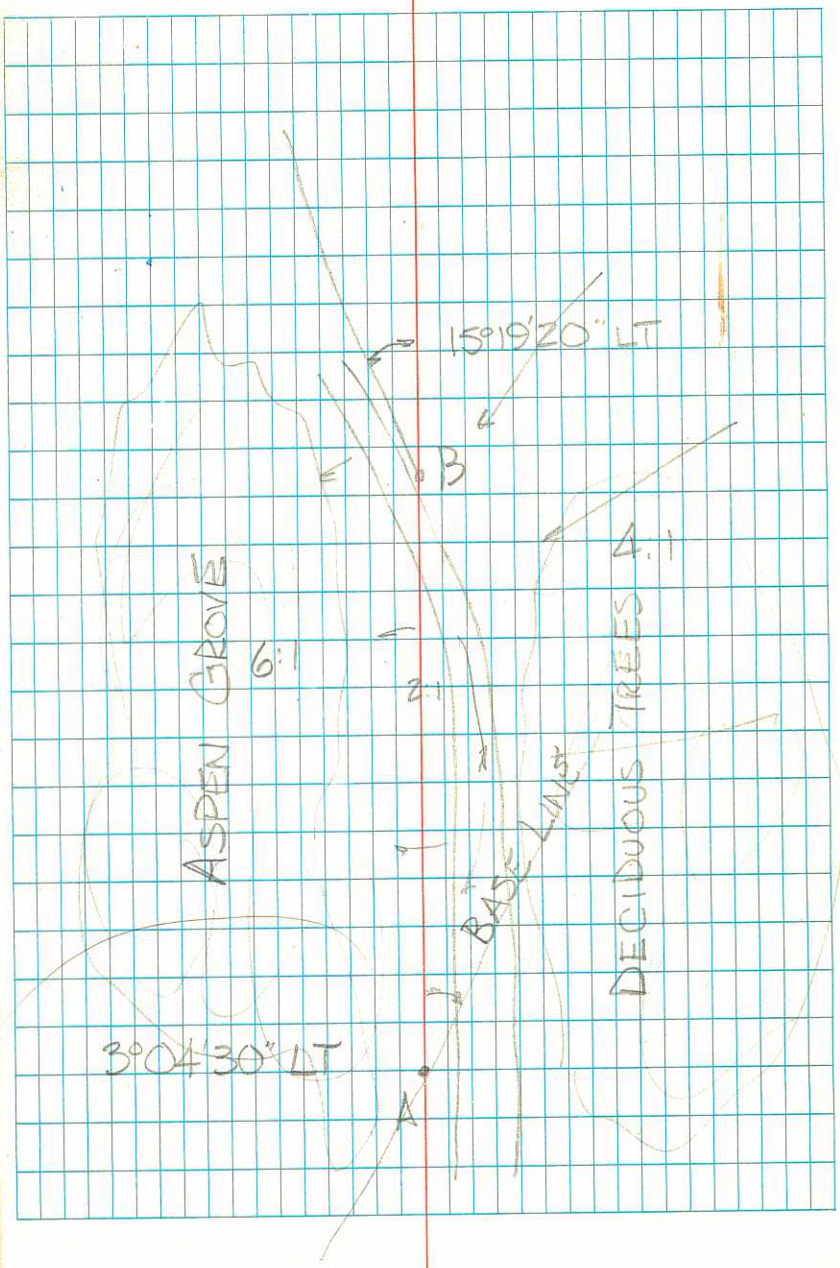
| STA | SLP DIST | VERT ∠ | HOR DIST | HOR ∠ | EL |
|---|---|---|---|---|---|
| 224+98 82 | | B | | | |
| A-B | 448.32 | 85°58'00" | 447.21 | 93°20'15" LT | 6898 |
| 220+51 61 | | A | | | |



| | | | | | |
|---|---|---|---|---|---|
| 227+75.14 | A | | | | |
| | | | 276.32 | | |
| B-A | 277.41 | 84°55'30" | | 52°17'05" RT | |
| 224+98.82 | B | | | | |

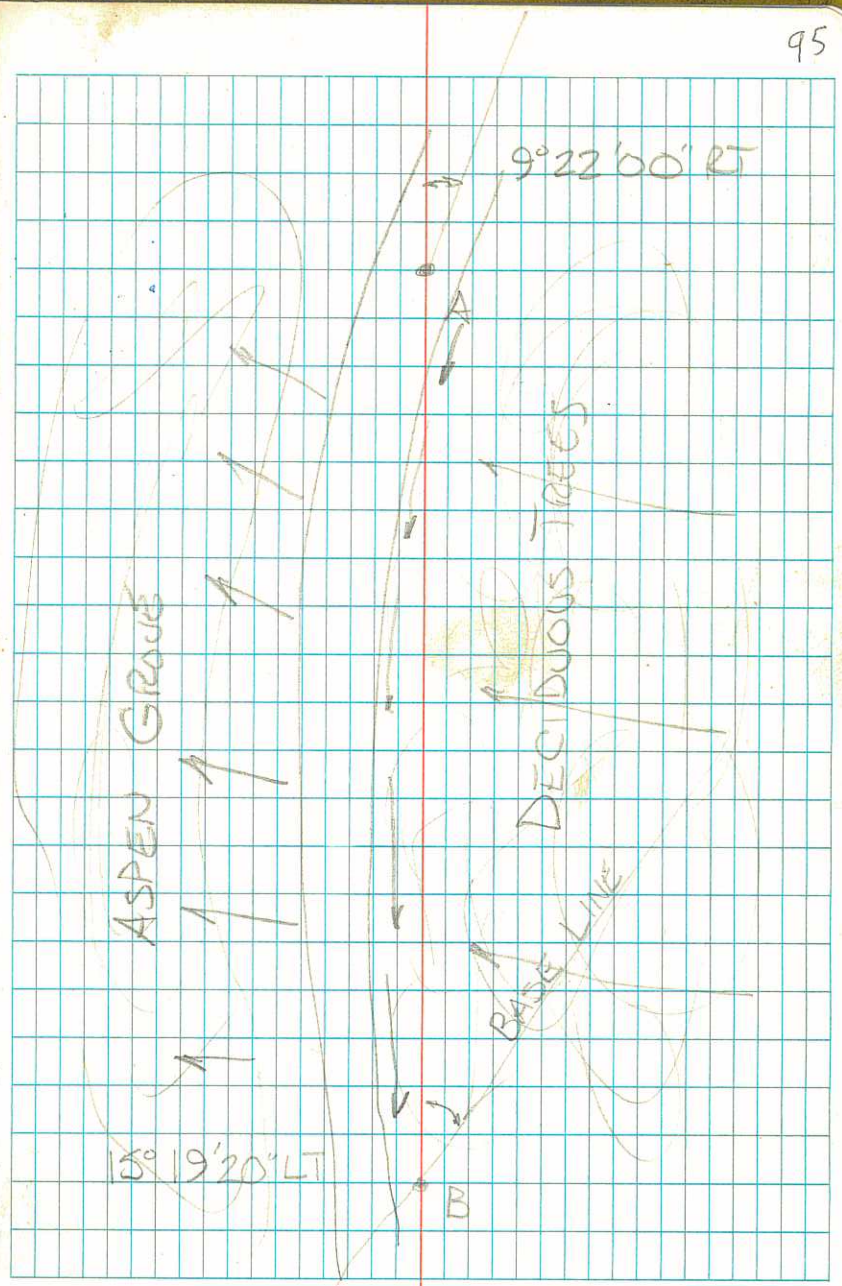


| | | | | | |
|---|---|---|---|---|---|
| 228+96 | 06 | B | | | |
| A-B | 121.57 | 84°03'10" | 120.92 | 3°04'30" LT | |
| 227+75 | 14 | A (ROCK) | | | |



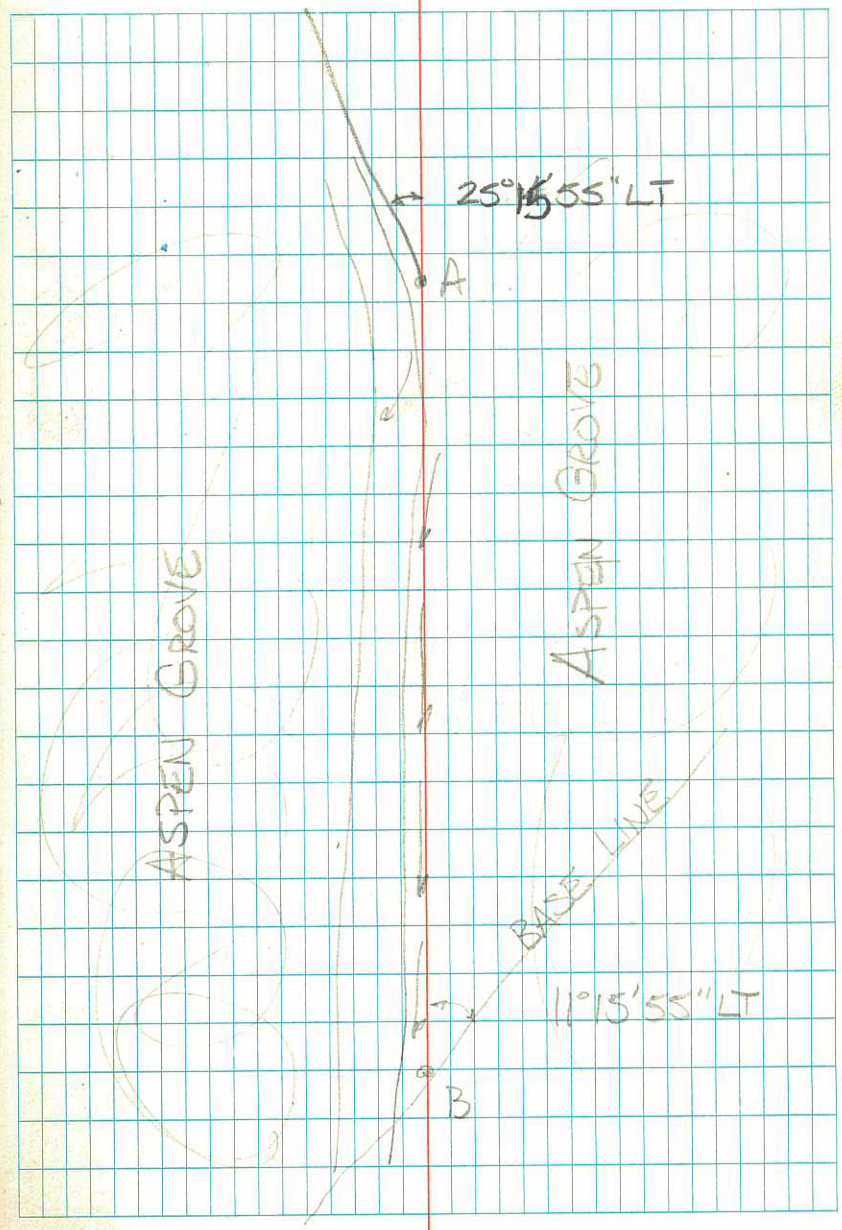

9340-100

| | | | | | |
|---|---|---|---|---|---|
| 230+16 | 01 | A | | | |
| B-A | 120.43 | 84°54'05" | 119.95 | 15°19'20"LT | |
| 228+96 | 06 | B | | | |

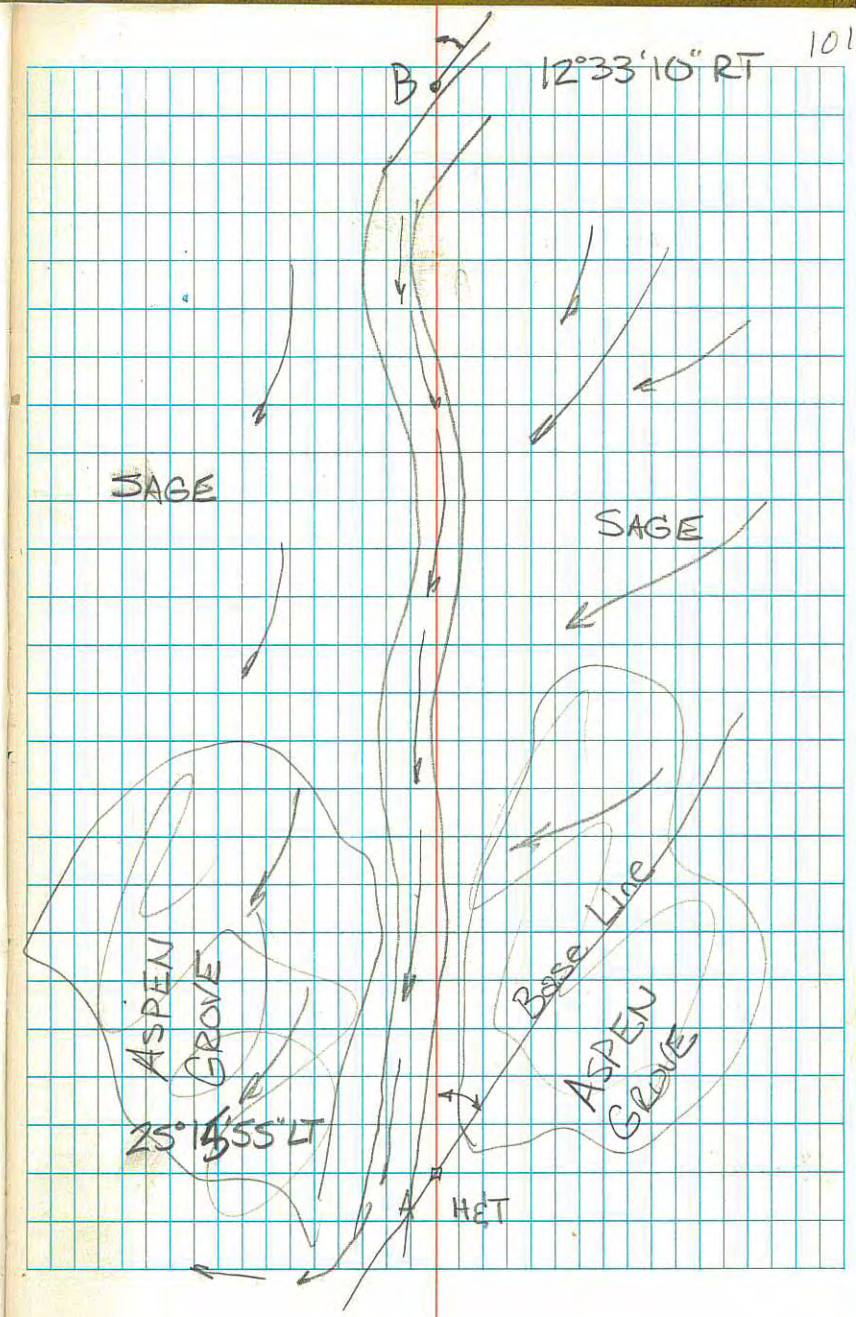


| | | | | | |
|---|---|---|---|---|---|
| 232+56 52 | | B | | | |
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|---|---|---|---|---|---|
| 234+95 | 58 | A | | | |
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| | | | | | |
| B-A | 240.25 | 34°18'20" | 239.06 | 11°15'55" LT | |
| 232+56 | 52 | B | | | |
| | | | | | |
| | | | | | |
| | | | | | |



| | | | | | |
|---|---|---|---|---|---|
| 244+42 89 | B | | | | |
| A-B | 951.18 | 84°49'50" | 947.31 | 25°15'55" LT | |
| 234+95 58 | A | | | | |

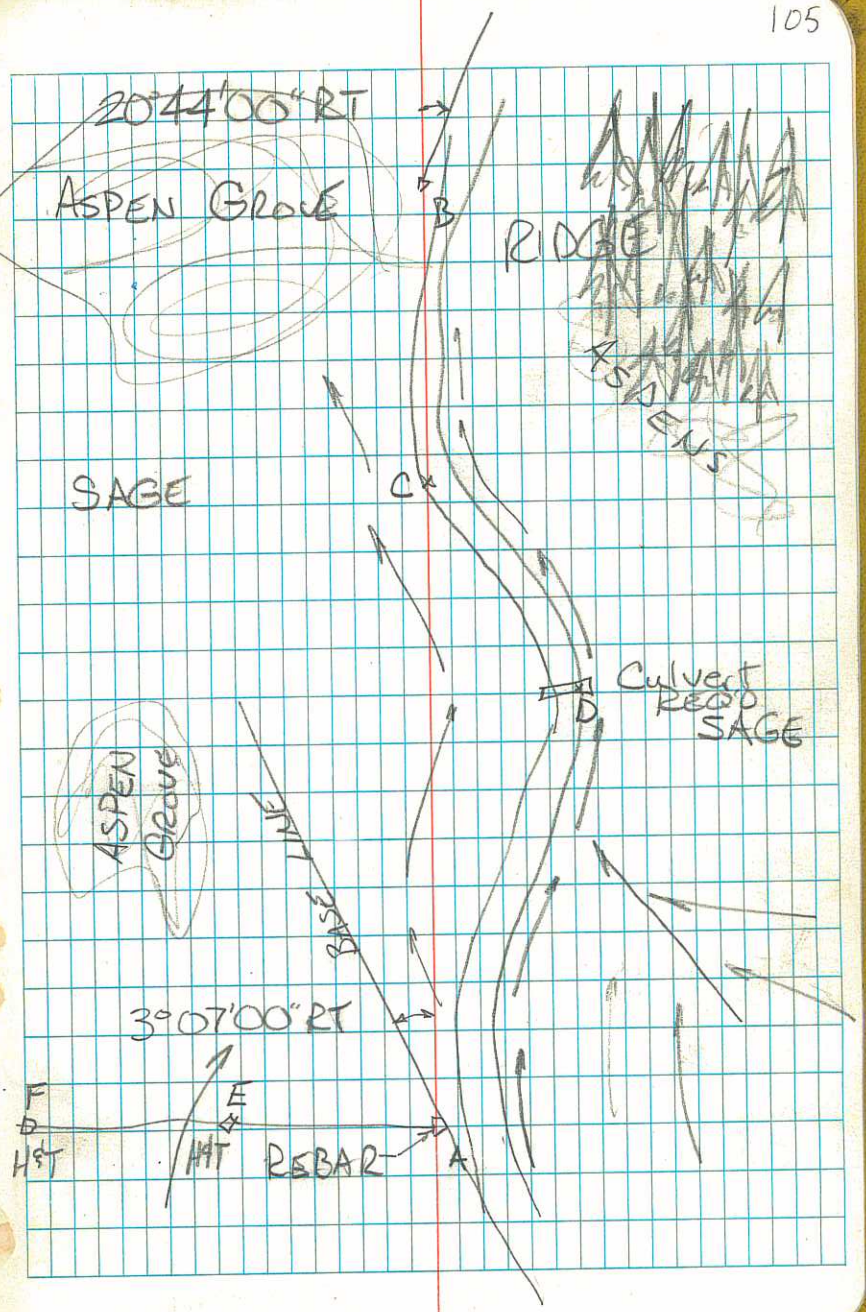


| | | | | |
|---|---|---|---|---|
| A | 247+07.66 | | | |
| | | | | |
| | | | | |
| |

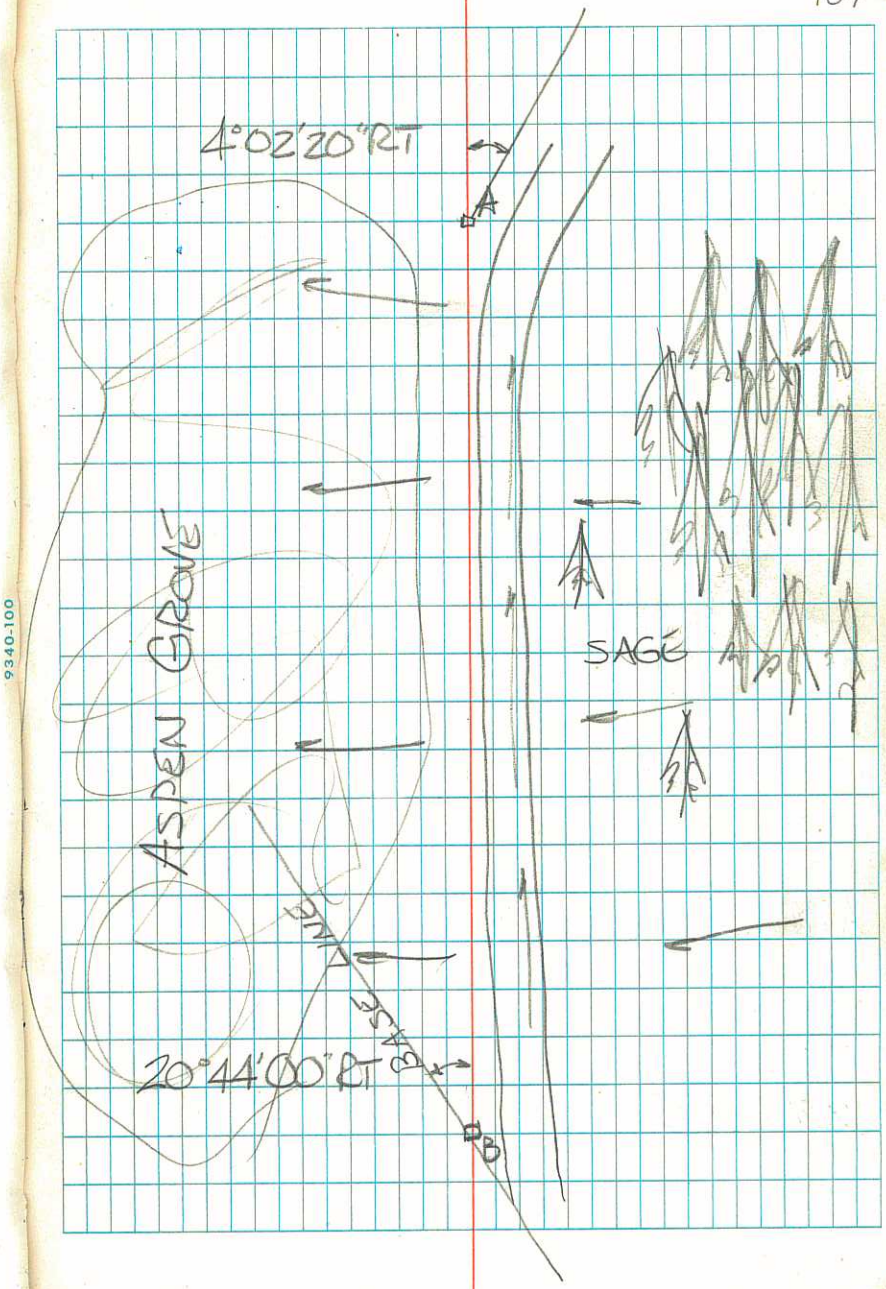
254+68.63 B

| | | | | |
|---|---|---|---|---|
| A-F | 100.94 | 91°36'30" | | 79°47'00" LT |
| A-E | 41.41 | 92°25'40" | | 79°47'00" LT |
| A-D | 245.81 | 96°44'05" | 244.11 | 14°44'05" RT 249+51.71 |
| A-C | 495.81 | 96°00'40" | | 1°24'50" RT |
| A-B | 764.38 | 95°25'00" | 760.97 | 3°07'00" RT |

247+07.66 A



| | | | | | |
|---|---|---|---|---|---|
| 257+56 17 | | A | | | |
| B-A | 287.84 | 92°36'00" | 287.54 | 20°44'00" RT | |
| 254+68 63 | | | | | |

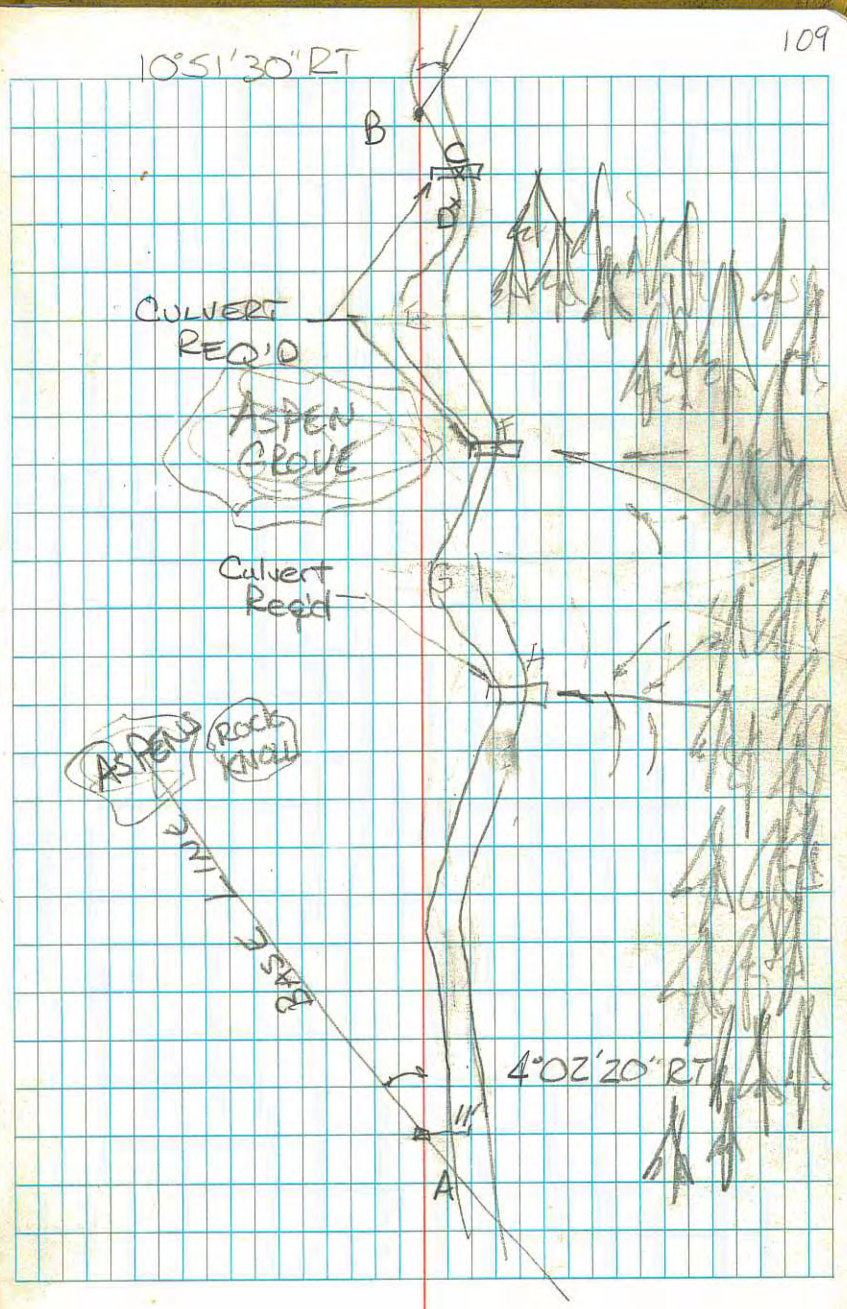


273+05 82 B

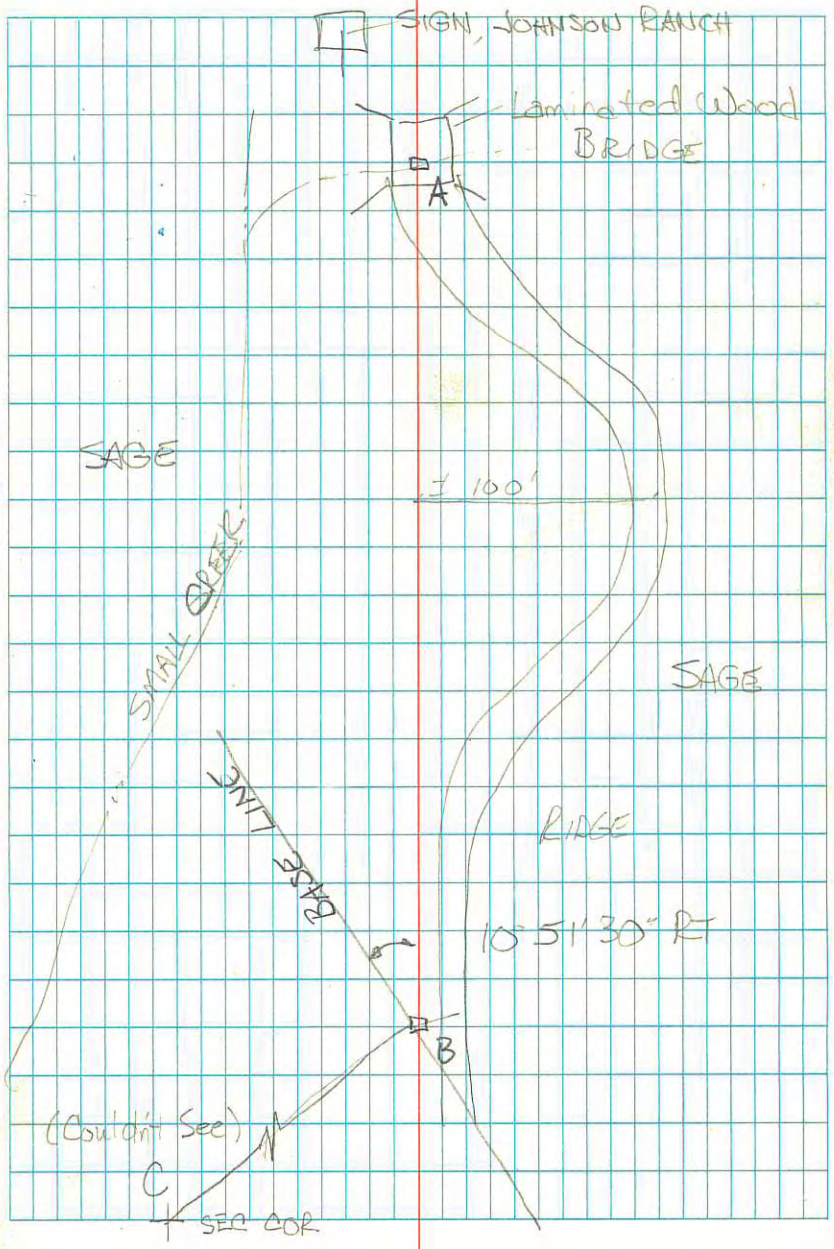
| | | | | |
|---|---|---|---|---|
| A-H | 342.56 | 94°53'55" 341.31 | 24°03'30" RT | 260+97 48 |
| A-G | 493.02 | 95°24'00" | 10°32'00" RT | |
| A-F | 619.83 | 95°33'00" 616.97 | 11°19'45" RT | 263+73 14 |
| A-E | 723.56 | 95°28'30" | 5°57'00" RT | |
| A-D | 1424.26 | 94°15'55" | 4°49'50" RT | |
| A-C | 1490.96 | 94°08'00" 1487.08 | 4°43'55" RT | 272+43 25 |
| A-B | 1553.32 | 93°56'30" 1549.65 | 4°02'20" RT | |

257+56 17

9340-100



| | | | | |
|---|---|---|---|---|
| 279+97.36 | | A | END OF PROJECT | |
| B-C | | | | |
| B-A | 691.55 | 90°20'20" | 691.54 | 10°51'30" RT |
| 273+05.82 | | B | | |



220+51 61 LARGE BOULDERS (QUARTZITE) UP TO 2' DIAM.

217+87 19

212+93 89

209+14 46

206+91 89

# CROSS-SECTIONS FOR EXTENSION

O's NOTES - WILLIAMS 8-19-76

H.L. - WARD Warm, Clear

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ALL | SS @ | 10 2 | 7 8 | , 6 3 | 6 3 | 4 5 | | |
| Rock | 30' | 12 | 6 | ER | 18 | 24 | 1:1 to 30' | |
| | | | | | E R | | | |
| | 8 7 | 5 3 | , 5 3 | 5 9 | -2 2 | | | |
| | 22 | 16 | | ER | 3 | 6 | 6:1 to 30' | |
| | | ER | | | | | | |
| | 8 9 | 6 2 | , 6 3 | 6 3 | 4 3 | 2 1 | SD @ | |
| | 30 | 4 | | 10 | 14 | 20 | 30 | |
| | | ER | | ER | | | | |
| SS @ | 11 7 | 9 3 | 9 1 | 9 2 | 4 4 | 1 1 | SS at | |
| 30 | 12 | 3 | ER | 12 | 18 | 30 | 100 | |
| | | | | ER | | | | |
| | 8 3 | 5 8 | , 5 8 | 5 5 | 3 1 | 1 2 | | |
| | 30 | 6 | | 14 | 17 | 30 | | |
| | | ER | | ER | | | | |

NOTE (SSE SAME SLOPE)

244+44 89 TOP OF RIDGE

234+95 58

232+56 52

230+16 01

228+96 06

224+98 82

3 30 | 4 3 | 5 8 ER | 5 7 18 ER | 5 2 30

8 5 30 | 6 1 17 Ditch | 6 9 12 ER | 5 3 ER | 1 8 10 | 4:1 to 30'

10 9 30 | 6 4 15 ER | 5 8 | 5 7 2 ER | 3 4 5 | 4 20 | 2 4 30

2:1 to 30' | 6 0 12 ER | 5 9 | 5 4 5 ER | 2 6 9 | 4:1 @ 30'

2:1 25' | 7 5 18 | 6 3 15 ER | 5 6 ER | 5 4 2 | 0 6 | 4:1 to 30'

5D at 30 | 9 3 7 | 5 9 1 | 6 0 ER | 5 9 17 ER | 1 4 24 | 4:1 to 30'

$273 + 05^{82}$

$257 + 56^{17}$

$254 + 68^{63}$

$8^{9}_{30}$ $,5^{5}_{ER}$ $5^{6}_{15\ ER}$ $3^{3}_{30}$

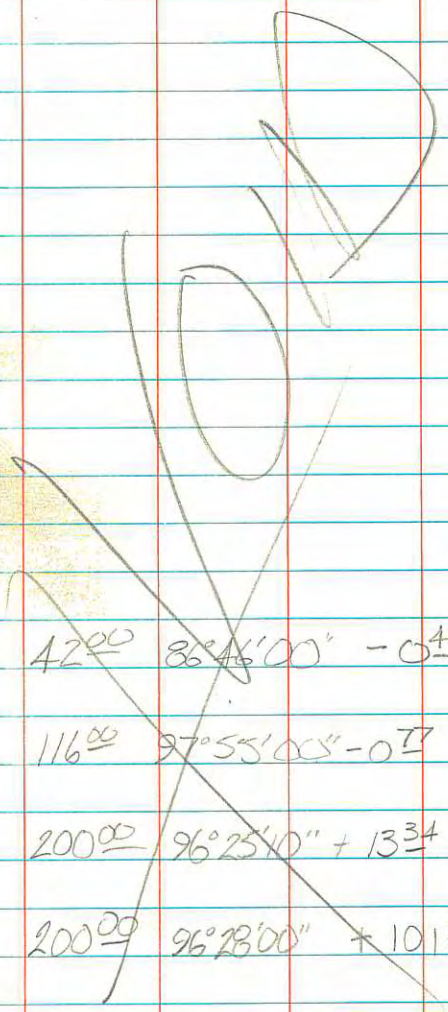
$9^{9}_{30}$ $,5^{9}_{1\ ER}$ $5^{7}_{18\ ER}$ $3^{0}_{22}$ $1^{2}_{35}$

$1^{5}_{30}$ $,6^{5}$ $5^{6}_{6\ ER}$ $5^{9}_{23\ ER}$ $3^{4}_{26}$ $1^{8}_{35}$

| STA | Δ/2 | LC | Θ | LC' |
|---|---|---|---|---|
| L 104+50 | 14°24'35" | 532.39 | 148°26'01" | 253.09 |
| L 104+00 | 13°04'14" | 483.82 | 147°25'45" | 203.25 |
| L 103+50 | 11°43'54" | 434.99 | 144°54'43" | 153.86 |
| L 103+00 | 10°23'33" | 385.92 | 138°49'22" | 105.74 |
| L 102+50 | 9°08'12" | 336.64 | 121°29'05" | 62.12 |
| L 102+00 | 7°42'51" | 287.17 | 68°11'13" | 41.52 |
| L 101+50 | 6°22'31" | 237.55 | 22°25'26" | 69.15 |
| L 101+00 | 5°02'10" | 187.80 | 8°18'20" | 114.12 |
| L 100+50 | 3°41'49" | 137.94 | 3°08'10" | 162.59 |
| L 100+00 | 2°21'28" | 88.02 | 0°58'42" | 212.09 |
| L 99+50 | 1°01'08" | 38.04 | 0°08'53" | 261.97 |
| L 99+11.96 | 0°00'00" | 0.00 | 0°00'00" | 300.00 |

# L-LINE IMPROVEMENTS

T & NOTES - WILLIAMS
Φ - WARD
10/19/76 CAD.



105 74

42 00 86°46'00" − 0 41 = 41 52

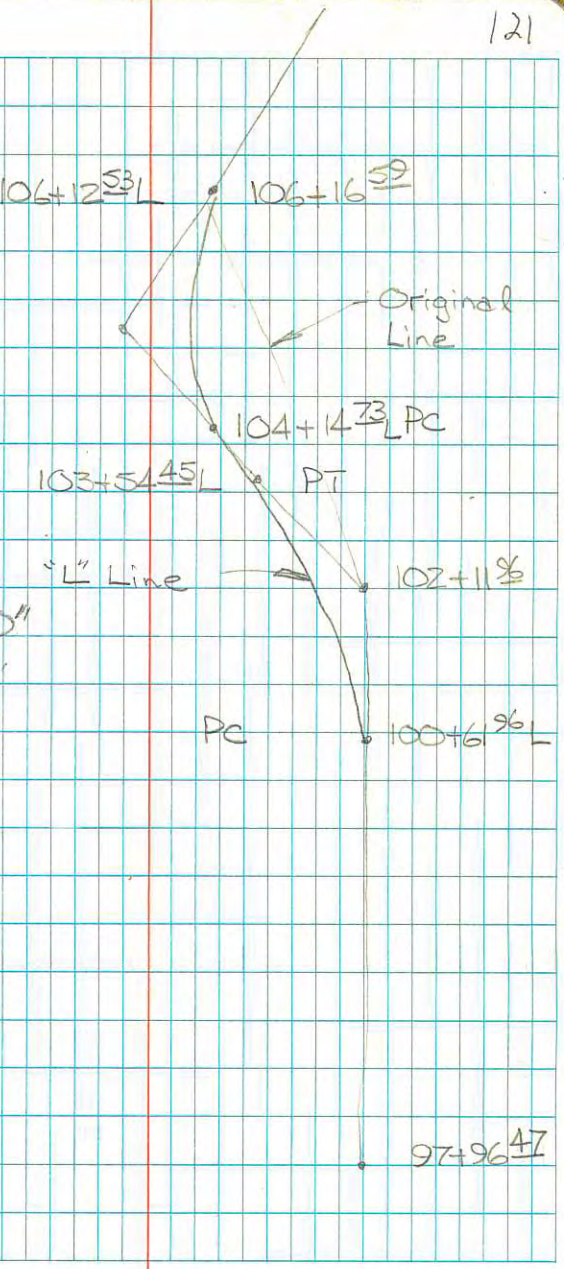
116 00 97°55'00" − 0 17 = 114 12

200 00 96°25'40" + 13 34 = 212.09

200 00 96°28'00" + 101 27 = 300 00

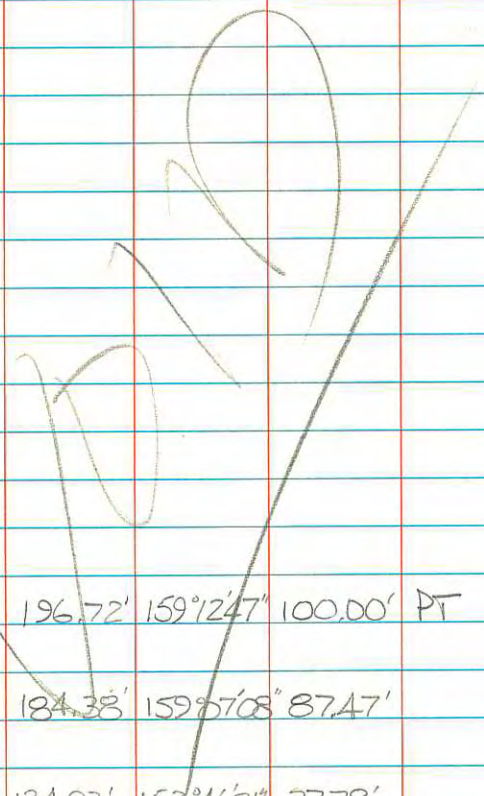
| STA | Δ/2 | LC | Θ | D | |
|---|---|---|---|---|---|
| 105+00L | 4°28'50" | 85.18 | 23°49'00" | 16.48 | |
| 104+50L | 1°51'12" | 35.26 | 1°00'32" | 4.76 | |
| 104+14 73 L | 0°00'00" | 0.00 | 0°00'00" | 100.00 | PC |
| 103+54 45 L | 15°40'00" | 288.84 | 148°40'00" | 150.00 | PT |
| 103+50L | 15°25'42" | 284.57 | 148°39'35" | 145.55 | |
| 103+00L | 12°45'01" | 236.08 | 147°00'31" | 95.69 | |
| 102+50L | 10°04'19" | 187.07 | 136°15'39" | 47.32 | |
| 102+00L | 7°23'38" | 137.66 | 52°42'49" | 22.27 | |
| 101+50L | 4°42'56" | 87.94 | 6°36'48" | 62.78 | |
| 101+00L | 2°02'15" | 38.03 | 0°41'30" | 112.00 | |
| 100+61 96 L | 0°00'00" | 0.00 | 0°00'00" | 150.00 | PC |

Δ = 20°47'13"
T = 100.00
R = 545.21 PT 106+12 53 L
L = 197.80




Δ = 43°00'00"
T = 150.00'
R = 390.80
L = 292.49

9340-100



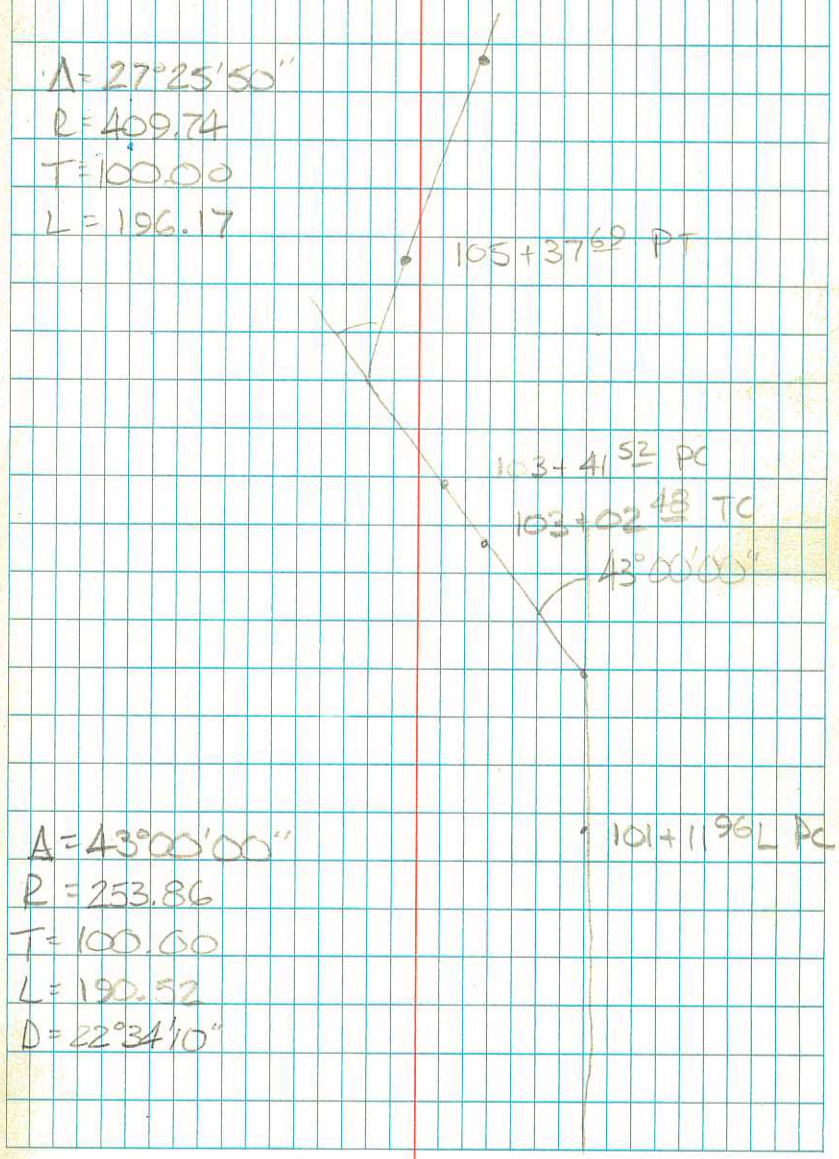
| | | | | | |
|---|---|---|---|---|---|
| 106+12.53 | L | 10°23'37" | 196.72' | 159°12'47" | 100.00' PT |
| 106+00 | L | 9°44'06" | 184.38' | 159°57'08" | 87.47' |
| 105+50 | L | 7°06'28" | 134.93' | 153°46'21" | 37.78' |

9340-100

T & NOTES - WILLIAMS 10/22/76

6 - WARD

| | | | | | |
|---|---|---|---|---|---|
| 105+37.69 | 13°42'55" | 194.30 | 152°34'10" | 100.00 | PT |
| 105+00 | 11°04'49" | 157.49 | 150°58'42" | 62.39 | |
| 104+50 | 7°35'04" | 108.16 | 116°48'34" | 16.00 | |
| 104+00 | 4°05'19" | 58.43 | 5°42'09" | 41.93 | |
| 103+41.52 | 0°00'00" | 0.00 | 0°00'00" | 100.00 | PC |
| 103+02.48 | 21°30'00" | 186.08 | 137°00' | 100.00 | PT |
| 102+50 | 15°34'40" | 136.35 | 130°33'32" | 48.19 | |
| 102+00 | 9°56'07" | 87.60 | 47°46'48" | 20.41 | |
| 101+50 | 4°17'34" | 38.00 | 2°37'22" | 62.17 | |
| 101+11.96 L | 0°00'00" | 0.00 | 0°00'00" | 100 | PC |




Δ = 27°25'50"
R = 409.74
T = 100.00
L = 196.17

Δ = 43°00'00"
R = 253.86
T = 100.00
L = 190.52
D = 22°34'10"

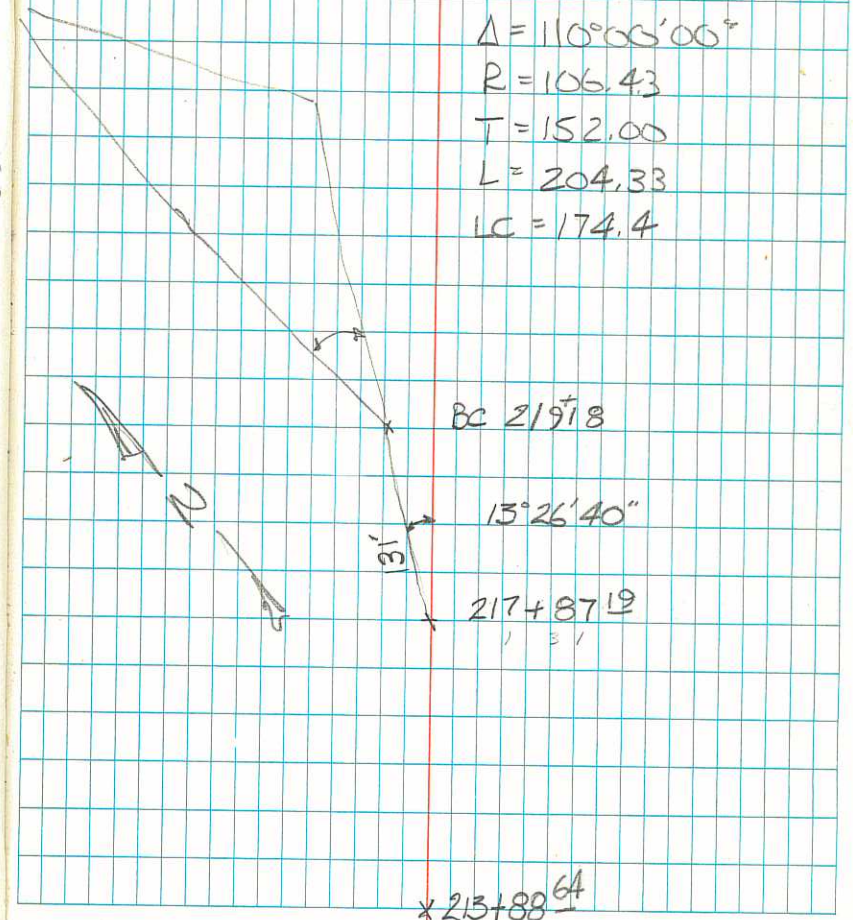
ALL DISTANCES MEASURED
BY STADIA

T = 151 @ 83°05'55"

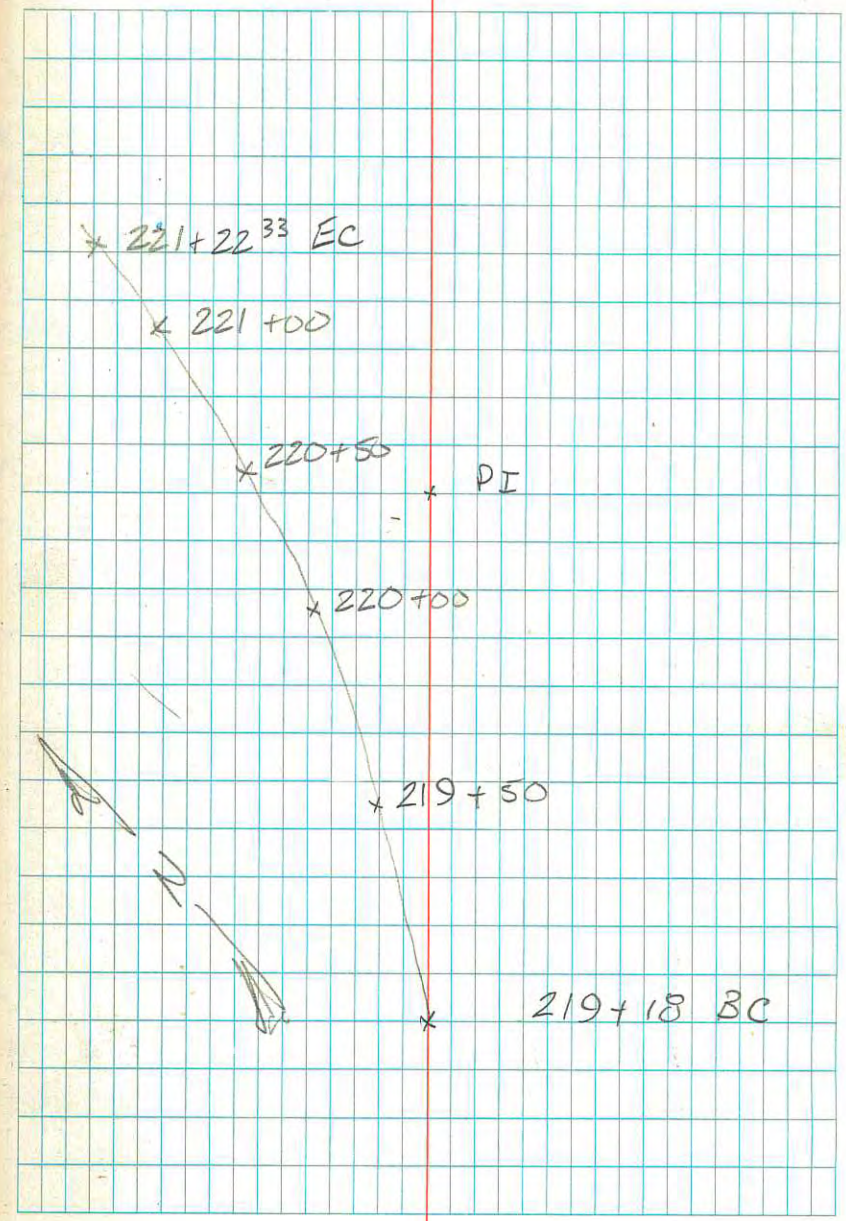


# ALIGNMENT CHANGE
## DANISH DUGWAY

T & NOTES - WILLIAMS
Φ - RICHARDSON
6/1/77 HOT



| STA | Δ/2 | LC | | | |
|---|---|---|---|---|---|
| GRADE | + | HI | − | EL | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 6878.34 | | | 4.2 | 6877.9 | 221+00 FC |
| 6874.74 | | | | 6865.5 | 220+50 PI |
| 6870.6 | 11.5 | | | 6860.9 | 220+00 FT |
| 6866.6 | 15.5 | | | 6866.0 | 219+50 FC |
| 6864.0 | 18.1 | 160' | 18.1 | 6864.0 | 219+18 |
| 96°29'50" | | | 1.6 | 6880.5 | 221+22.33 |
| | 6882.1 | 7.91 | | 6874.5 | STA 220+50 PI |
| | | | | HI = 5.3 | |
| | | | | | |
| | | | | | |
| 221+22.33 | 55°00'00" | 174.9 | | | |
| 221+00 | 48°59'20" | 160.62 | | | |
| 220+50 | 35°31'48" | 123.70' | | | |
| 220+00 | 22°04'18" | 79.99' | | | |
| 219+50 | 8°36'48" | 31.88' | | | |



| STA TO STA | SLP DIST | NET | Δ | HOR DIST |
|---|---|---|---|---|
| | | | | |
| STA Δ/2 | LC | D | ΔPI | |
| 145~ | 775.41 | 87°06'50" | | 774.43 |
| 144~ | 675.42 | 87°53'00" | | 674.96 |
| 143~ | 580.29 | 87°57'00" | | 579.92 |
| 142~ | 476.64 | 87°50'30" | | 476.30 |
| 141~ | 381.11 | 87°58'00" | | 380.87 |
| 140~ | 277.28 | 87°59'00" | | 277.11 |
| 139~ | 175.00 | 88°10'00" | | 174.91 |
| EC 138+57.95 | 131.70 | 88°11'56" | | 131.63 |
| 138~ | 75.58 | 87°60'00" | | 75.53 |
| PI 137~ | 33.70 | 90°19'05" | | 33.70 |
| | | | | |
| EC 138+57.95 15°42'01" | 253.85 | 131.84 | 148°36'00" | |
| 138+00 12°12'56" | 198.49 | 75.01 | 145°57'09" | |
| 137+00 6°06'28" | 99.81 | 34.28 | 18°02'45" | |
| BC 136+00 0°00'00" | 0.00 | 131.84 | 0°00'00" | |
| | | | | |
| BC 136~ | 132.35 | 91°56'30" | | 132.27 |
| 135~ | 237.45 | 92°25'10" | | 237.24 |
| 134~ | 334.41 | 92°55'30" | | 333.97 |
| 133~ | 431.65 | 93°06'00" | | 431.02 |
| 132~ | 535.58 | 92°54'15" | | 534.89 |
| PI 131+38.21 | 594.41 | 92°56'10" | | 593.63 |

CORRECTIONS

-0.17
-5.13
-1.51
-6.08
-2.32
-0.12
+0.21
-0.52
+0.58
-0.43
-5.40
-2.03
+0.82
-3.05

# ALIGNMENT CHANGE DRAINAGE PROBLEM

T & NOTES - WILLIAMS

ϕ - WARD

6/2/77

HOT

MEET EX. ROAD

132 00.00
131 38.21
593.63
571.79
531.84

→ 149+28.31

×148~

147~

N

PI

136+00

Δ = 31°24'00"
R = 469.04
T = 131.84
L = 257.05
D = 12°12'56"

139 00.00
138+57.95
42.05
131
171.79

EX. RD.

131+38.21 PP

| STA | TO STA | SLP DIST | VERT Δ | HOR DIST | |
|---|---|---|---|---|---|
| | END 5+28.31 | 1203.10 | 85°54'30" | 1200.03 | |
| 14 | 148~ | 1079.46 | 86°12'15" | 1077.09 | -2.30 |
| | 147~ | 976.19 | 86°21'55" | 974.23 | +0.56 |
| PI | 146~ | 876.12 | 86°35'30" | 874.57 | +0.22 |

| STA | Δ/2 | LC | D | $\theta_{PI}$ |
|---|---|---|---|---|
| ℄ 49+12.84 | 14°10'00" | 210.40 | 108.50 | 151°40'00" |
| 49+00 | 13°19'47" | 198.20 | 95.94 | 151°33'26" |
| 48+00 | 6°39'53" | 99.77 | 14.91 | 50°55'59" |
| 47+00 | | | | |
| 45+81.41 | 9°14'30" | 180.62 | 91.50 | 161°31'00" |
| 45+00 | 5°05'40" | 99.87 | 11.93 | 131°57'40" |
| 44+00 | 0°00'00" | 0.00 | 91.5 | 0.0000 0°00" |

## ALIGNMENT CHANGE

BYPASS GRADE

A & NOTES - WILLIAMS

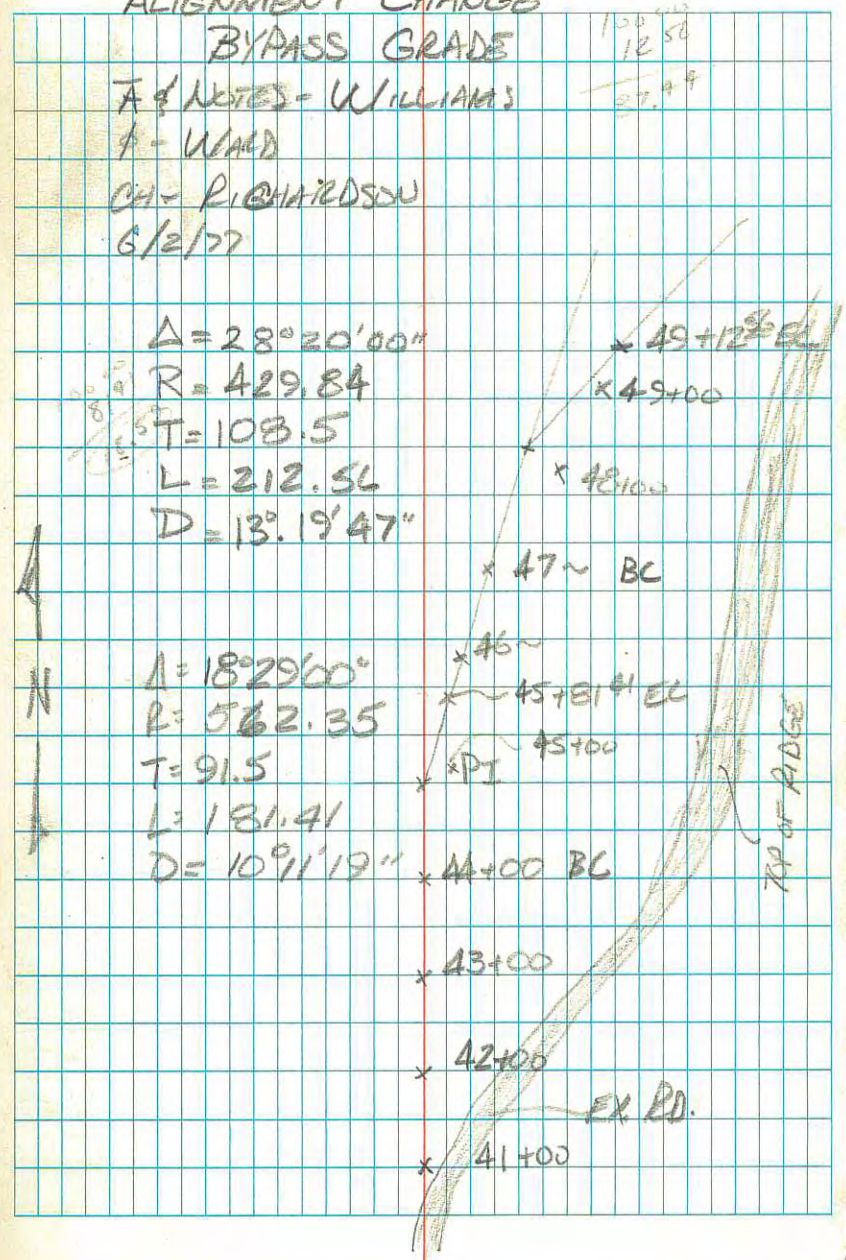
A - WARD

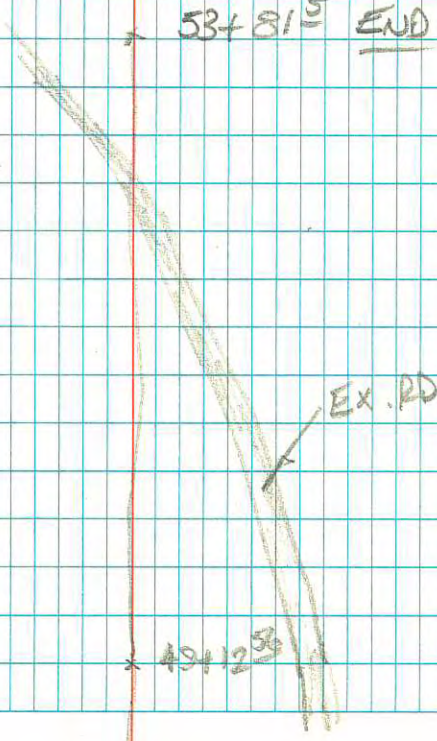
CH - RICHARDSON

6/2/77

Δ = 28°20'00"
R = 429.84
T = 108.5
L = 212.56
D = 13°19'47"

Δ = 18°29'00"
R = 562.35
T = 91.5
L = 181.41
D = 10°11'19"




534+81.5 END
Ex. P.O.
494+58

# LEVELS ON BYPASS GRADE

T & NOTES - WILLIAMS

\# - RICHARDSON

6/3/77 HOT

| + | HI | - | EL | |
|---|---|---|---|---|
| | | 11 8 | 4943 9 | 52~ |
| | | 4 6 | 4951 1 | 51~ |
| 0 55 | 4955 73 | 12 45 | 4955 18 | TP |
| | | 9 2 | 4957 1 | 50~ |
| | | 4 5 | 4963 1 | 49~ |
| 2 35 | 4967 63 | 11 04 | 4965 08 | TP |
| | | 11 6 | 4964 3 | 48~ |
| | | 13 4 | 4962 1 | 47~ |
| | | 10 1 | 4965 4 | 46~ |
| 0 86 | 4976 12 | 6 60 | 4975 26 | TP |
| | | 8 4 | 4973 5 | 45~ |
| | | 9 0 | 4972 2 | 44~ |
| | | 12 6 | 4969 3 | 43~ |
| | | 13 0 | 4968 3 | 42~ |
| | | 15 2 | 4966 0 | 41~ |
| 3 35 | 4981 86 | 13 17 | 4978 51 | TP |
| 2 01 | 4991 68 | 11 25 | 4989 67 | TP |
| 0 92 | 5000 92 | | 5000 00 | BM STA 43+52.77 (ASSUMED |

| EL | |
|---|---|
| 6 | |
| C3 4 | |
| C5 9 | |
| C6 8 | |
| C4 0 | |
| C1 4 | |
| C33 | |
| C10 4 | |
| C9 3 | |
| C4 9 | |
| C3 1 | |
| 0 | |

9340-100

# LEVEL'S ON DRAINAGE PROBLEM

NOTES - WILLIAMS
- RICHARDSON
6/3/77

| + | HI | - | EL | |
|---|---|---|---|---|
| | | 07 | 5077 2 | 148~ |
| | | 10 0 | 5068 6 | 147~ |
| 12 69 | 5078 55 | 18 5 | 5065 56 | TP |
| | | 9 1 | 5058 6 | 146~ |
| 12 13 | 5067 71 | 0 99 | 5055 58 | TP |
| | | 11 1 | 5045 5 | 145~ |
| 13 19 | 5056 57 | 0 83 | 5043 38 | TP |
| 11 62 | 5044 21 | 1 06 | 5032 59 | TP |
| | | 2 3 | 5031 4 | 144~ |
| | | 7 0 | 5026 17 | 143~ |
| | | 9 9 | 5023 8 | 142~ |
| 12 89 | 5033 65 | 6 63 | 5010 76 | TP |
| | | 2 3 | 5009 1 | 141~ |
| | | 5 2 | 5005 7 | 140~ |
| | | 9 9 | 5001 5 | 139~ |
| | | 13 1 | 4998 3 | 138~ |
| 11 39 | 5011 39 | | 5000 00 | STA 138+50 (ASSUMED BM) |

OLD ALIGNMENT

| | | |
|---|---|---|
| FILL | | |
| C 3 0 | | |
| C 2 7 | | |
| C 1 7 | | |
| F 2 4 | | |
| F 7 5 | | |
| F 3 8 | 29 9 | |
| F 0 2 | 24 0 | |
| | 5 3 | |
| F 9 0 | 18 1 | |
| F 6 5 | 12 3 | |
| F 4 8 | 6 3 | |
| F 2 0 | | |

FILL @

| | | | |
|---|---|---|---|
| 221+50 | 213 | 46° | Left |

SLP STAKES

DANISH DUBWAY

5' NOTES — WILLIAMS

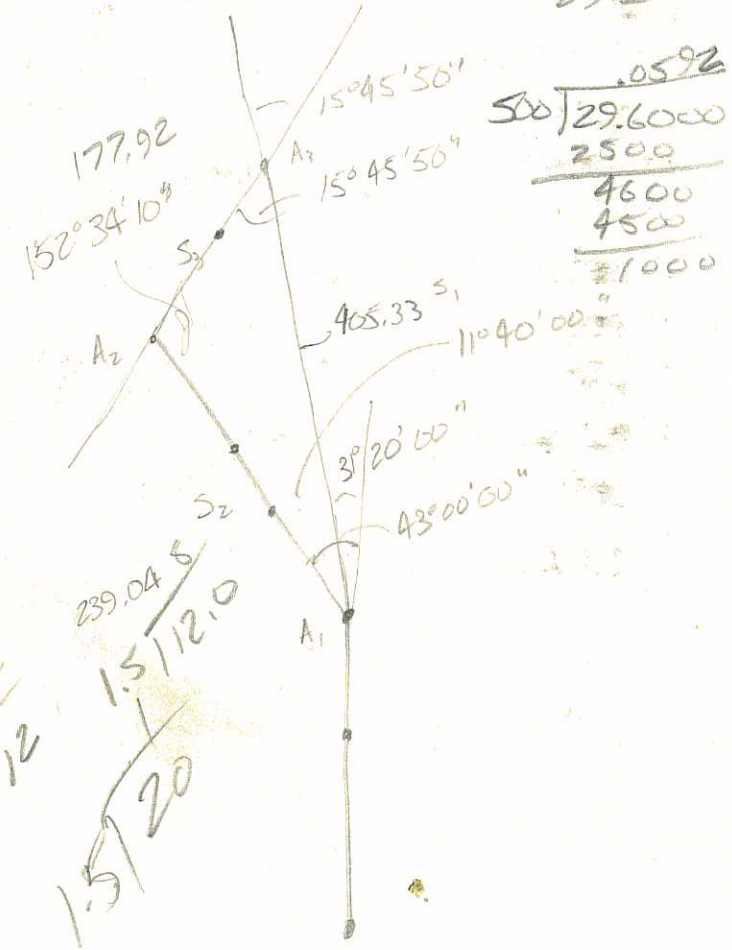
ϕ - RICHARDSON

6/3/77 HOT

.05.92
5.92

242.03

129.9
100.3
296




.0592
500 | 29.6000
2500
4600
4500
1000

26
14
12

1.5 | 12.0

1.5 | 20

R=200
T=152
Δ 74° 28' 11"
L= 259.95
M= 40.77
LC = 24203

103° 25' 11"
R = 120
T = 152
L = 216.60
LC = 188
Δ/2 - 51°42'35"

R = 125
T = 152
Δ = 101°08'04"
L = 220.64
LC = 193.09
Δ/2 = 50°34'16"

110°00'00"
R = 106.43
T = 152
L = 204.33
LC = 174.37
Δ/2 = 55°06'00"

176