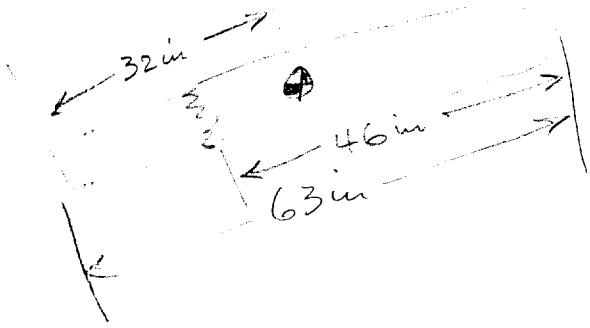
SECTION III ATTACHMENTS

Propeller Trajectory Calculations

JR.
8/30/95

Propeller Trajectories

butt end area = 0.12 ft² weight = 20 lbs
flat plate area = 3 ft²



FDR = 161 KCAS
90% RPM
252° T heading

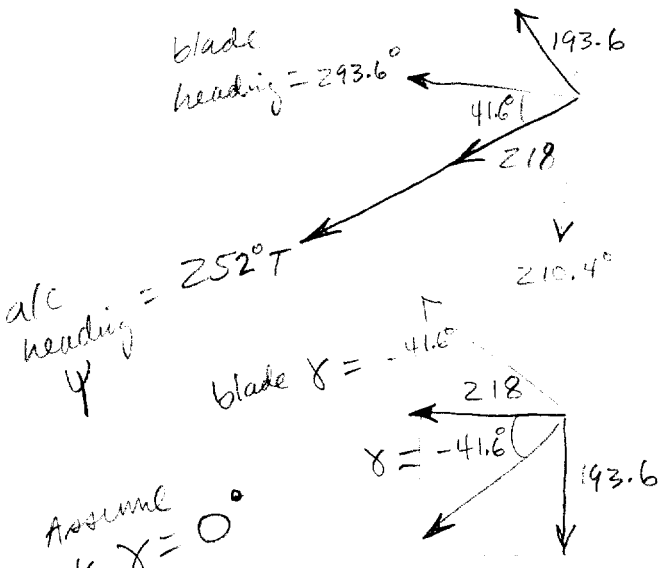
100% rpm = 1300 rev/min
90% = 1170

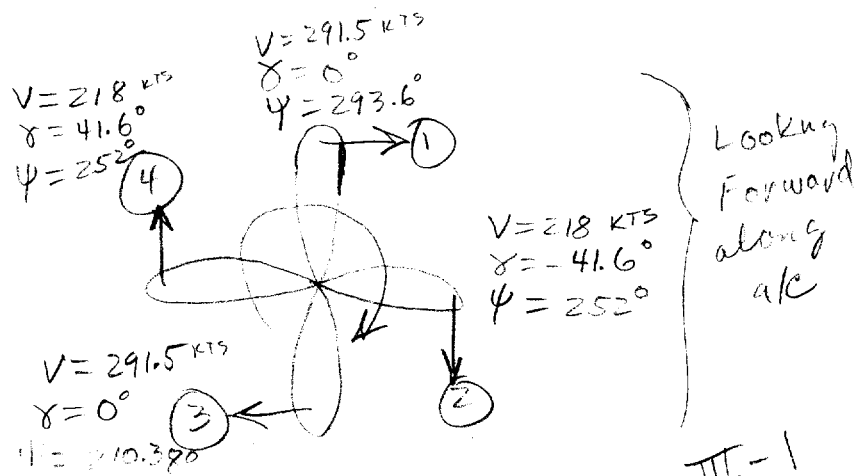
2πr = 201 inches = 16.755 feet
16.755 ft · 1170 rev/min = 19,603.5 ft/min

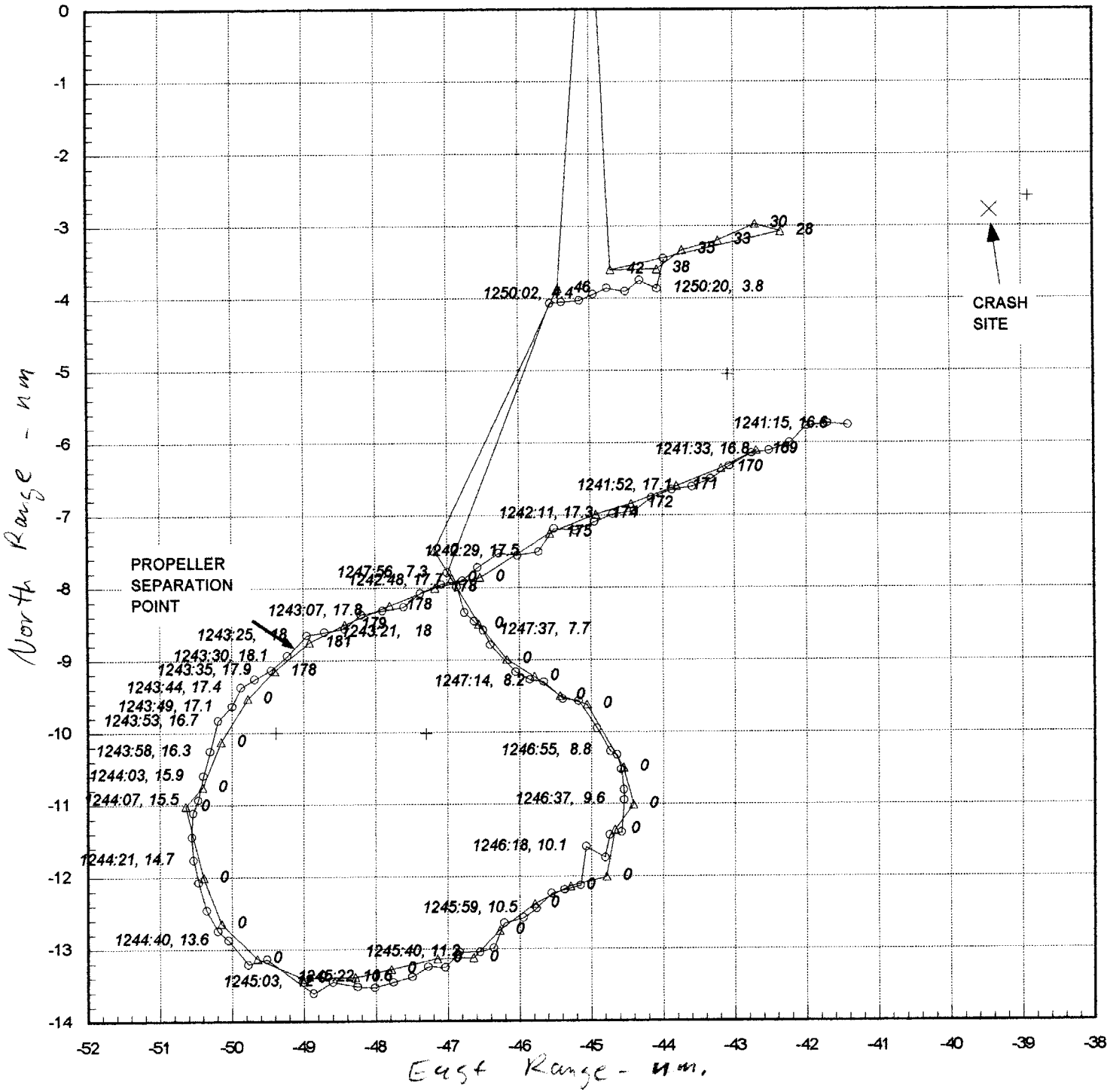
KCAS = 161
87°F @ Anniston => KTAS = 218

V = 326.7 ft/sec = 193.6 KTS

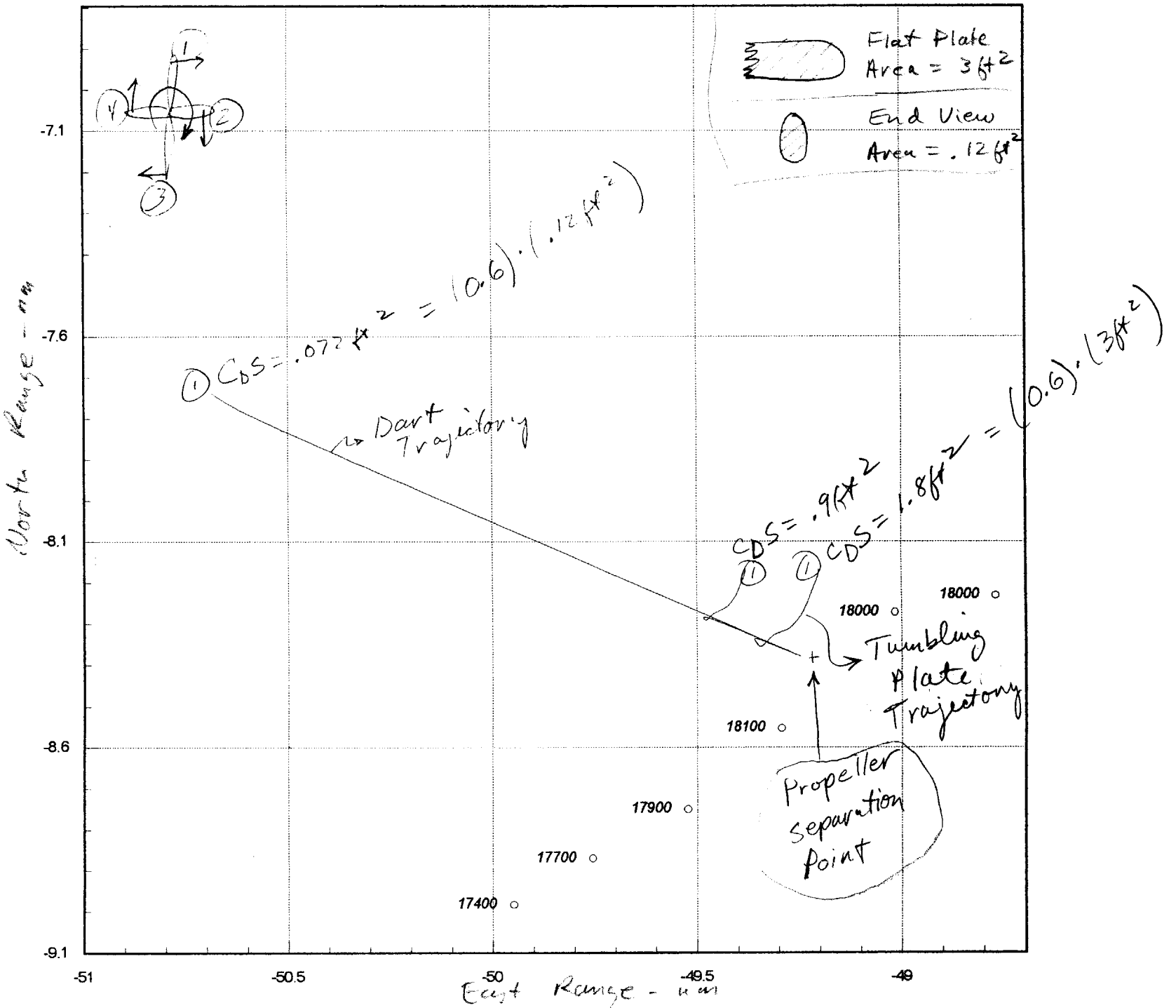
Assume C_D = 0.6 for tumbling plate
∴ $C_D S$ = (0.6)(3 ft²) = 1.8 ft²



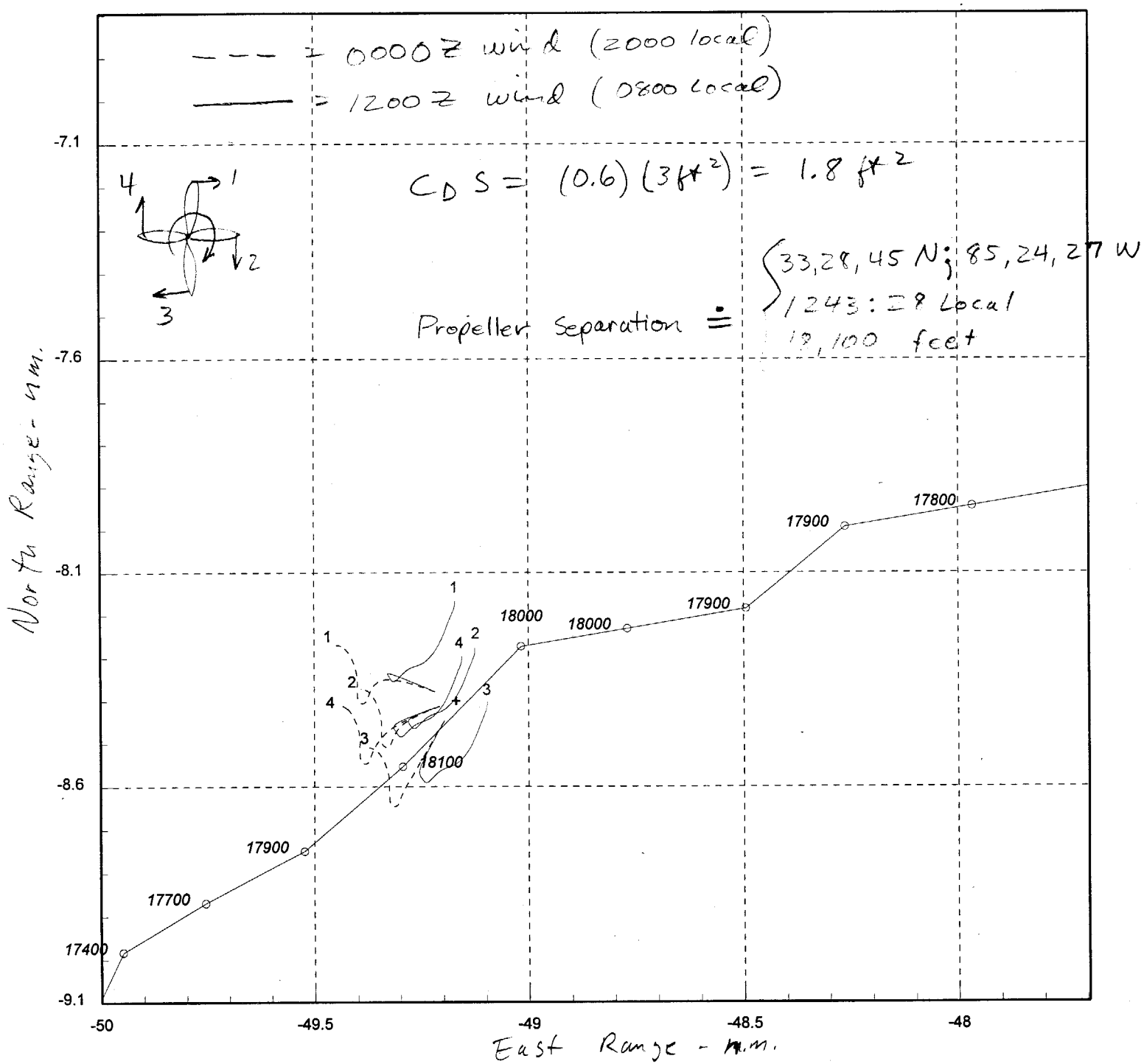



North Range - nm
East Range - nm
CRASH SITE
PROPELLER SEPARATION POINT
1250:02, 4.4
1250:20, 3.8
1241:15, 16.6
1241:33, 16.8
1241:52, 17.1
1242:11, 17.3
1242:29, 17.5
1242:48, 17.7
1243:07, 17.8
1243:21, 18
1243:25, 18
1243:30, 18.1
1243:35, 17.9
1243:44, 17.4
1243:49, 17.1
1243:53, 16.7
1243:58, 16.3
1244:03, 15.9
1244:07, 15.5
1244:21, 14.7
1244:40, 13.6
1245:03,
1245:22, 10.6
1245:40, 11.2
1245:59, 10.5
1246:18, 10.1
1246:37, 9.6
1246:55, 8.8
1247:14, 8.2
1247:37, 7.7
1247:56, 7.3

2-H


Flat Plate
Area = 3ft²
End View
Area = .12ft²
1
2
3
$C_DS = .072ft^2 = (0.6)\cdot(.12ft^2)$
Dart Trajectory
$C_DS = .9ft^2$
$C_DS = 1.8ft^2 = (0.6)\cdot(3ft^2)$
Tumbling Plate Trajectory
Propeller separation Point
18000
18000
18100
17900
17700
17400
-7.1
-7.6
-8.1
-8.6
-9.1
-51
-50.5
-50
-49.5
-49
North Range - nm
East Range - nm

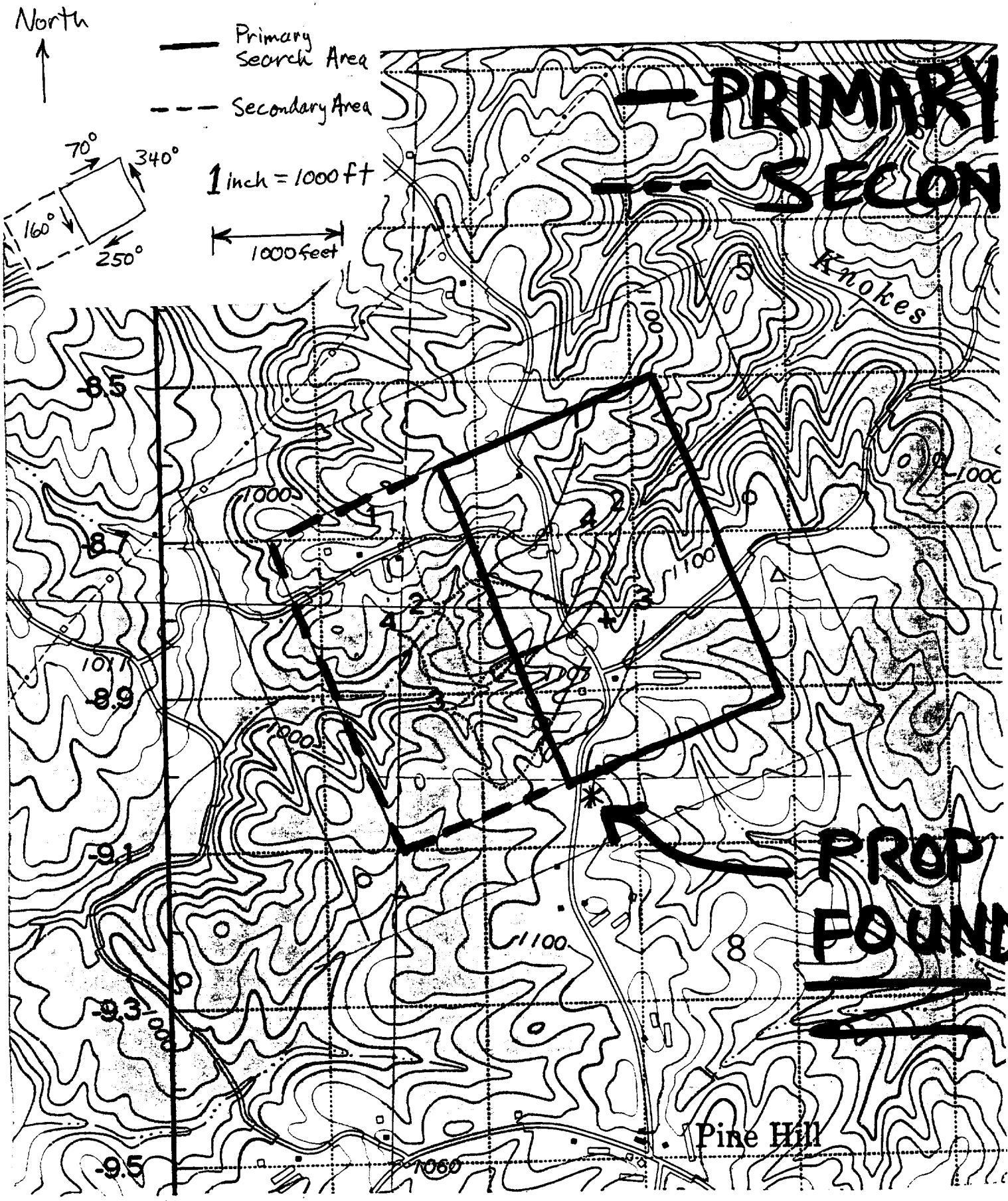
II-3

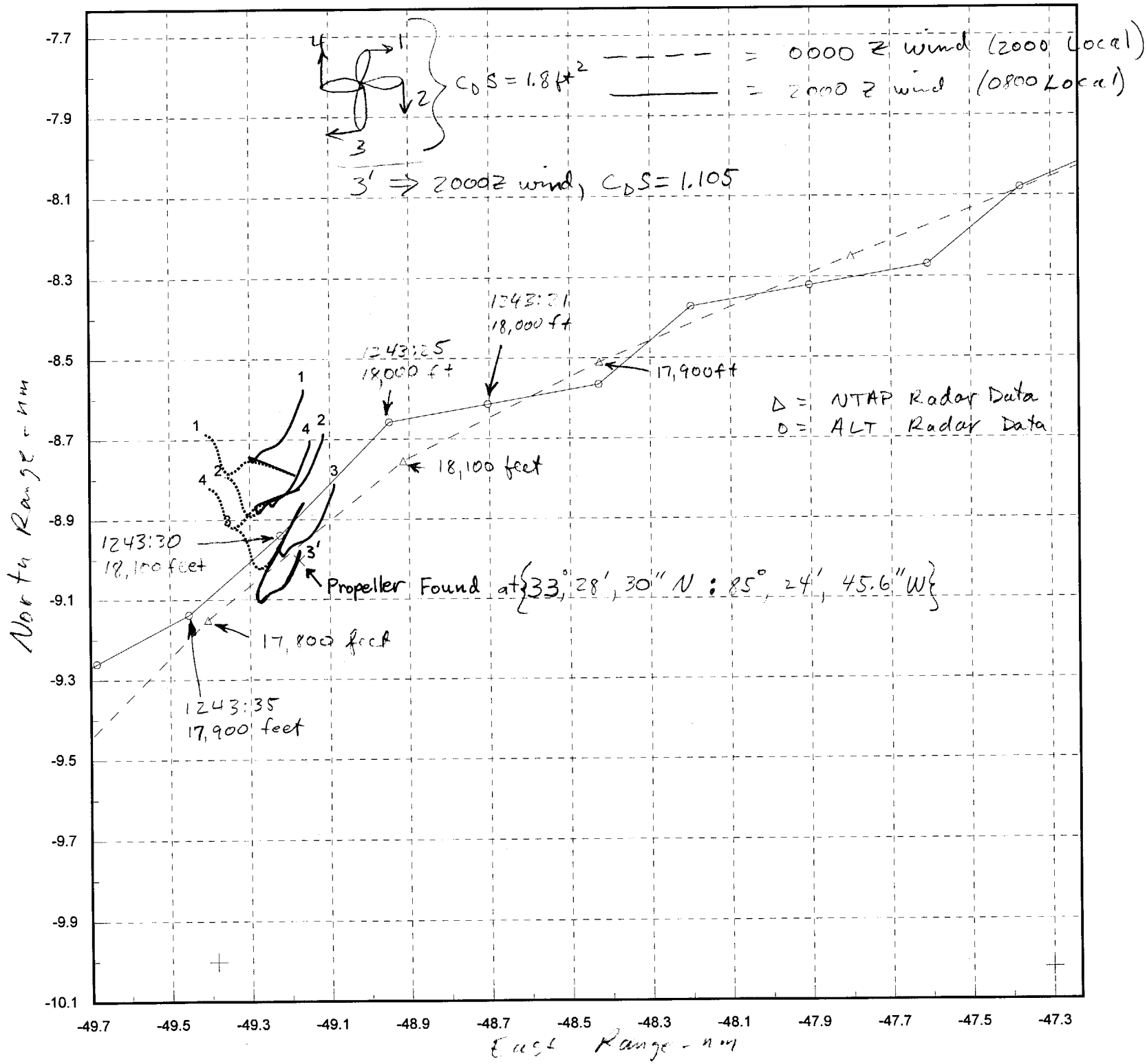

---- = 0000Z wind (2000 local)
——— = 1200Z wind (0800 local)
$C_D S = (0.6)(3 ft^2) = 1.8 ft^2$
Propeller Separation ≐
33,28,45 N; 85,24,27 W
1243:28 Local
19,100 feet
4
1
2
3
-7.1
-7.6
-8.1
-8.6
-9.1
North Range - n.m.
-50
-49.5
-49
-48.5
-48
East Range - n.m.
17400
17700
17900
18000
18100
17900
18000
17900
17800

III-4

Newell Quadrangle, ALABAMA

7,5 MINUTE SERIES TOPOGRAPHIC MAP


North
Primary Search Area
Secondary Area
1 inch = 1000 ft
1000 feet
70°
340°
160°
250°
PRIMARY
SECON
Knokes
PROP
FOUND
Pine Hill
-8.5
-8.7
-8.9
-9.1
-9.3
-9.5
1000
1100
1060


C_D S = 1.8 ft²
= 0000 Z wind (2000 Local)
= 2000 Z wind (0800 Local)
3' ⇒ 2000Z wind, C_D S = 1.105
1243:21
18,000 ft
1243:25
18,000 ft
17,900ft
18,100 feet
Δ = NTAP Radar Data
o = ALT Radar Data
1243:30
18,100 feet
Propeller Found at {33°, 28', 30" N : 85°, 24', 45.6" W}
17,800 feet
1243:35
17,900 feet
North Range - nm
East Range - nm
-7.7
-7.9
-8.1
-8.3
-8.5
-8.7
-8.9
-9.1
-9.3
-9.5
-9.7
-9.9
-10.1
-49.7
-49.5
-49.3
-49.1
-48.9
-48.7
-48.5
-48.3
-48.1
-47.9
-47.7
-47.5
-47.3

L-III