

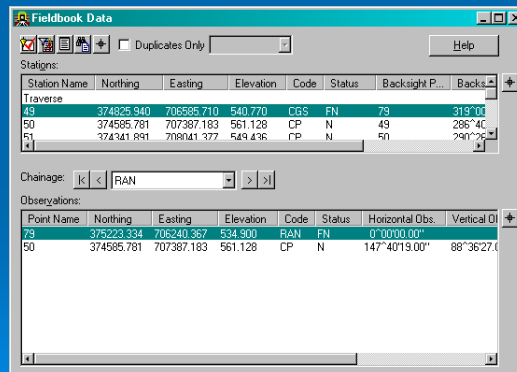


The Fieldbook - Objectives

- Review the on-line Survey Fieldbook
 - Stations
 - Observations
 - Searching in the Fieldbook
 - Editing the Fieldbook
 - Adding Entries
 - Selecting Data in the Fieldbook from graphics

Access the Fieldbook

- Select **Survey > Fieldbook Data...** to get to the online field book



Stations

Station Name	Northing	Easting	Elevation	Code	Status	Backsight P...	Backs.
Traverse							
49	374825.940	706585.710	540.770	CGS	FN	79	319°00'
50	374585.781	707387.183	561.128	CP	N	49	286°40'
51	374341.891	708041.377	549.436	CP	N	50	290°26'

- **Stations**, at the top of the fieldbook, are the occupied points
 - At least one Station must exist before any observations can be entered
 - Stations are listed in the same order as they are entered in the collector

Observations

Point Name	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	Vertical Obs.
79	375223.334	706240.367	534.900	RAN	FN	0°00'00.00"	
50	374585.781	707387.183	561.128	CP	N	147°40'19.00"	88°36'27.00"

- **Observations** are the points that were 'observed' from the highlight Station
 - An Observation can be selected and edited just as a Station can be
 - Observations are also listed in the order that they were collected in

Station / Observation Data View

- The **Custom View** option allows you alter the presentation of the data in the fieldbook
- Right-click on any of the headers to activate the View option dialog

Fieldbook Data

Stations:

Station Name	Northing	Easting	Elevation	Code	Status	Backsight P...	Backs...
43	374825.340	706585.710	540.770	CGS	FN	79	313°00'
50	374585.781	707387.183	561.128	CP	N	49	286°40'
51	374341.891	708041.377	549.435	CP	N	50	291°26'

Chainage: [k] < RAN > [i]

Observations:

Point Name	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	Vertical Obs.
79	375223.334	706240.367	534.900	RAN	FN	0°00'00.00"	
50	374585.781	707387.183	561.128	CP	N	47°40'19.00"	88°36'27.00"

Station / Observation Data

- **Custom View** changes & tweaks the field book headings, positions, & columns for Station & Observations to better suite your needs

Fieldbook Custom View

Available: [Empty List]

Selected: Point Name, Northing, Easting, Elevation, Code, Status, Horizontal Obs., Vertical Obs., Slope Distance, Target Height

Mode: ☐ Station ☒ Observation

Alternate Label: Point Name

Fieldbook Custom View

Available: [Empty List]

Selected: Station Name, Northing, Easting, Elevation, Code, Status, Backsight Point, Backsight Direction, Instrument Height

Mode: ☒ Station ☐ Observation

Alternate Label: Station Name

Reporting on the Fieldbook

- The **Report** button is a quick way to capture information in the fieldbook

The screenshot shows the 'Fieldbook Data' window. It has a 'Station' tab selected, displaying a table of station data. Below it, the 'Observations' tab is visible, showing a table of observation data. The 'Station' table has columns: Station, Northing, Easting, Elevation, Code, Status, Backsight P., Backsight Direct., and Inst. The 'Observations' table has columns: Point, Northing, Easting, Elevation, Code, Status, Horizontal Obs., Vertical Obs., and Slope.

Station	Northing	Easting	Elevation	Code	Status	Backsight P.	Backsight Direct.	Inst.
Day1								
79	375223.334	706240.367	534.900	RAN	FN	49	139°00'31.44"	5.22
79	375223.334	706240.367	534.900	RAN	FN	49	139°00'31.44"	5.30
Day2								
79	375223.334	706240.367	534.900	RAN	FN	49	139°00'31.44"	5.11

Point	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	Vertical Obs.	Slope
49	374825.940	706585.710	540.770	CGS	FN	0°00'00.00"		
100	375057.611	706346.080	534.339	104 SI		8°27'46.00"	90°13'40.00...	196.5
101	375073.052	706336.037	534.152	104		8°29'38.00"	90°19'40.00...	178.1
102	375093.444	706320.356	533.757	104 PC		9°21'57.00"	90°30'43.00...	152.5
103	375095.659	706316.321	533.793	104		10°14'34.00"	90°30'43.00...	148.5
104	375094.718	706312.239	533.897	104 PT		11°47'40.00"	90°28'32.00...	147.3
105	375086.943	706302.104	534.308	104 PC		16°38'15.00"	90°18'39.00...	149.7
106	375080.300	706297.721	534.655	104		18°08'23.00"	90°10'23.00...	154.1
107	375073.071	706296.541	534.889	104		20°29'37.00"	90°04'57.00...	160.4
108	375066.429	706298.821	535.030	104 PT		20°33'32.00"	90°01'51.00...	167.4
109	375053.972	706307.086	535.254	104		19°29'23.00"	89°57'28.00...	182.0
110	375046.159	706313.498	535.310	104 PC		18°33'44.00"	89°56'36.00...	191.6
111	375041.507	706319.736	535.349	104		17°24'45.00"	89°55'17.00...	198.3

Reporting on the Fieldbook

- For reporting on specific *Stations & Observations* use the **SHIFT** and **/** or **CTRL** keys to select multiple field book entries
- These Reports are created in a simple ASCII format

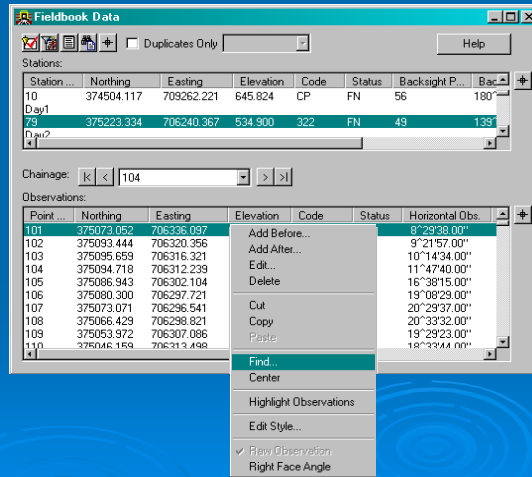
The screenshot shows a Notepad window titled 'Station3.rpt - Notepad'. It displays the ASCII output of a fieldbook report, showing station and observation data in a structured text format.

```

STN      2
HT       5.2000
BKB      1
FCRD     N: 0°24'26.54" E: 0°00'00.00"
CODE     CP      6625.7372 Z: 10574.4587
          516.2365
OBS F1   1000 H: 141°15'23.90" U: 89°30'00.00" D: 312.4854
TH       5.2000
CODE     TC ST
OBS F1   1001 H: 138°41'46.76" U: 89°30'00.00" D: 296.1491
TH       5.2000
CODE     TC PC
OBS F1   1002 H: 138°47'33.40" U: 89°30'00.00" D: 289.0952
TH       5.2000
CODE     TC PT
OBS F1   1003 H: 139°32'57.99" U: 89°30'00.00" D: 285.8423
TH       5.2000
CODE     TC PC
OBS F1   1004 H: 140°57'31.17" U: 89°30'00.00" D: 286.5197
TH       5.2000
CODE     TC PT
    
```

Finding Fieldbook Entries

- Using the **Find** right-click option allows the user to Search for specific entries in order to make individual, or global changes

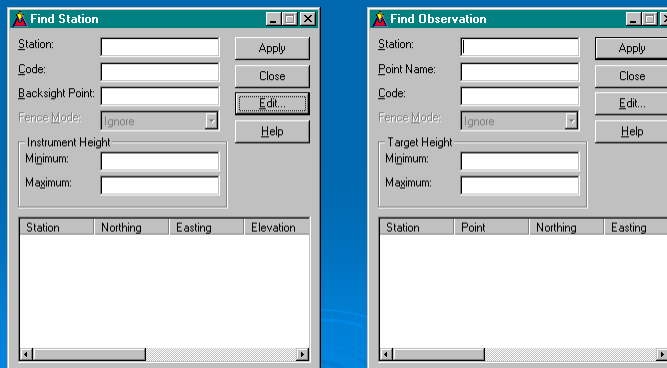


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Page 1-9
27 Oct 11

Finding Fieldbook Entries

- Key-in search criteria in the appropriate **Station** or **Observation** 'Find' dialog box and then **Apply** it.



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Page 1-10
27 Oct 11

Finding Fieldbook Entries

- Results are shown in the bottom preview window

Sta...	Point	North...	East...	Elevation	Code
1	3	6751.51...	10684...	543.1418	FENCE ST
1	9	6751.05...	10763...	550.1593	FENCE
1	10	6764.97...	10783...	550.2397	FENCE
1	14	6805.93...	10782...	550.2706	FENCE
1	15	6808.12...	10783...	550.2450	FENCE
1	17	6848.42...	10783...	550.2080	FENCE

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Page 1-11
27 Oct 11

Editing 'Find' Fieldbook Entries

- CTRL and / or SHIFT to select the entries to be edited
- Edit the 'common' items

Name	Value

Station	Point	Northing	Easting	Elevation
1	3	6751.5152	10684.8598	543.1418
1	9	6751.0593	10763.7337	550.1593
1	10	6764.9768	10783.5244	550.2397
1	14	6805.9323	10782.6115	550.2706
1	15	6808.1255	10783.1281	550.2450
1	17	6848.4265	10783.2559	550.2080

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Page 1-12
27 Oct 11

Editing Search Results

- Remember, the Edit dialog box will find & allow editing on only the common components of the search items

Sta.	Point	North	East	Elevation	Code
2	1095	6404.08	10565	518.1724	LP
2	1097	6523.14	10621	517.2223	LP
2	1098	6593.68	10563	516.5316	LP
2	1099	6647.86	10747	517.7623	LP
2	1100	6635.60	10845	518.6067	LP
2	1101	6700.47	10935	519.4528	LP
2	1102	6622.35	10975	519.7337	LP
2	1103	6558.89	10903	519.1637	LP

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Page 1-13
27 Oct 11

Editing the Fieldbook

- Edits to Stations & Observations can be made and the survey is corrected
 - Remember, when editing the on-line field book you are editing the *.fwd* file and not the raw data file

Station	North	East	Elevation	Code	Status	Backsight P...	Back
10	374504.117	703262.221	645.824	CP	FN	56	180
79	375223.334	706240.367	634.900	322	FN	49	139

Point	North	East	Elevation	Code	Status	Horizontal Obs.
101	375073.052	706338.097				8°29'38.00"
102	375093.444	706320.356				9°21'57.00"
103	375095.659	706316.321				10°14'34.00"
104	375094.719	706312.233				11°47'40.00"
105	375086.943	706302.104				16°38'15.00"
106	375080.300	706297.721				19°08'23.00"
107	375073.071	706296.541				20°29'37.00"
108	375068.429	706298.821				20°33'32.00"
109	375063.972	706307.086				18°29'23.00"
110	375046.153	706311.498				18°22'44.00"

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Page 1-14
27 Oct 11

Edit Station

- Coordinates of the starting points can be set.
- Backsight Point** can be changed
- Backsight Direction** can be changed if applicable
- Code** can be changed
- Instrument Height, ... etc.**

Edit Station

Point Name: < >

Type:

Northing:

Easting:

Elevation:

Code:

Backsight Point:

Backsight Direction:

Instrument Height:

Target Height:

Notes:

Apply Close Help

Code	Name	Value

Edit Observation

- In Edit Observation you can change the horiz. or vert angle, dist, point number, code, rod height or add Notes & Attributes
- The coordinates will either be **Fixed** or **Computed** (raw vs. #, N, E, Elev)
- If the coordinates are calculated you can not edit the N, E, Elev. directly since they are computed from angles & distances

Edit Observation

Point Name: < >

Type:

Horizontal Observation:

Vertical Observation:

Slope Distance:

Code:

Target Height:

Northing:

Easting:

Elevation:

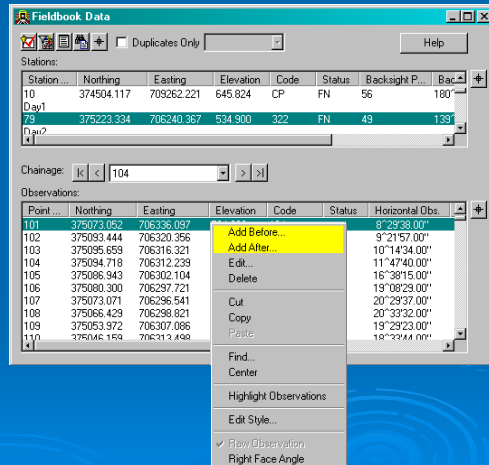
Notes:

Apply Close Help

Code	Name	Value

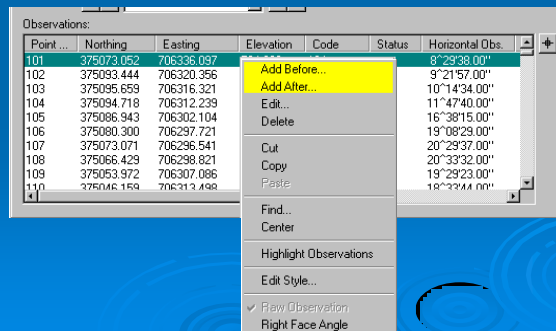
Adding Entries in the Fieldbook

- Missing entries can also be added
- Add a Station and its Observations, or add
- Additional Observations from an existing Station



Adding Entries in the Fieldbook

- Find the location in the fieldbook to add the observation and right-click either **Add Before...** or **Add After...** to locate the added data



Add Observation

- **Computed** is calculated from measurements
- **Fixed** is add by Northing, Easting, Elevation
- **From Geometry** indicates that it already exists in the geometry file (key-in the point # & Survey will find it)

Add Observation

Point Name: 1

Type: Fixed

Horizontal Observation: Computed

Vertical Observation: From Geometry

Slope Distance:

Code:

Target Height:

Nothing:

Easting:

Elevation:

Notes:

Apply

Close

Help

Attributes:

Code	Name	Value

Add Observation

- Fill in the desired fields and *Apply* to add the new entry

Add Observation

Point Name: 5000

Type: Fixed

Horizontal Observation:

Vertical Observation:

Slope Distance:

Code: 308

Target Height:

Nothing: 374015.867

Easting: 708718.780

Elevation: 534.500

Notes: Missing Fire Hydrant Added Manually

Apply

Close

Help

Attributes:

Code	Name	Value

Observations:

Point ...	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	Vertical Obs.	Slope
49	374825.940	706595.710	540.770	C6S	FN	0°00'00.00"		
100	375057.611	706346.060	534.339	104 ST		8°27'46.00"	90°13'40.00...	196.5
101	375073.052	706336.097	534.152	104		8°29'38.00"	90°18'40.00...	178.1
5000	374015.867	708718.780	534.500	308	FIN			
102	375093.444	706320.356	533.757	104 PC		9°21'57.00"	90°30'43.00...	152.5
103	375095.659	706316.321	533.793	104		10°14'34.00"	90°30'43.00...	148.5
104	375094.718	706312.239	533.897	104 PT		11°47'40.00"	90°28'32.00...	147.3
105	375086.943	706302.104	534.308	104 PC		16°38'15.00"	90°18'39.00...	149.7
106	375080.300	706297.721	534.655	104		19°08'29.00"	90°10'23.00...	154.1
107	375073.071	706296.541	534.689	104		20°29'37.00"	90°10'45.00...	150.4

Selecting Data in the CAD View

- Picking the **Select...** buttons collapse the fieldbook and lets you select a point in the CAD view
- The fieldbook then 'jumps' to the closest point where the CAD file selection was picked

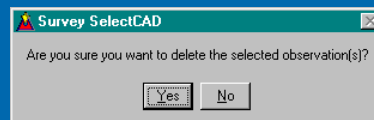
Chainage: [K] [<] CP [>] [I]

Observations: Select Observation

Point Name	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	
9	374452.9340	708520.0830	573.2340	CP	FN		+
10	374504.1170	709262.2210	645.8240	CP	FN		
49	374825.9400	706585.7100	540.7700	CGS	FN		
79	375223.3340	706240.3670	534.9000	RAN	FN		

Deleting Fieldbook Entries

- Delete...**, of course, removes entries from the field book



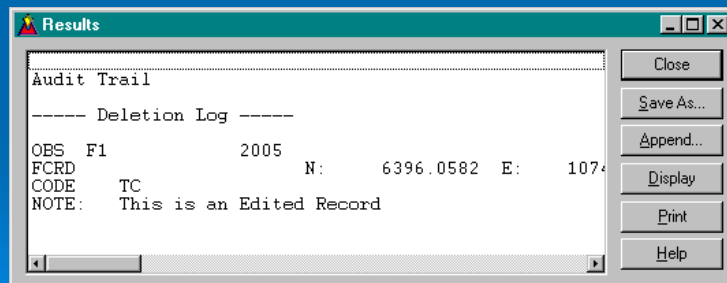
Observations:

Point ...	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	
101	375073.052	706336.097				8°29'38.00"	+
102	375093.444	706320.356				9°21'57.00"	
103	375095.659	706315.321				10°14'34.00"	
104	375094.718	706312.239				11°47'40.00"	
105	375086.943	706302.104				16°38'15.00"	
106	375080.300	706297.721				19°08'29.00"	
107	375073.071	706296.541				20°29'37.00"	
108	375066.429	706298.821				20°33'32.00"	
109	375053.972	706307.086				19°29'23.00"	
110	375046.159	706213.498				18°22'44.00"	

Context menu options: Add Before..., Add After..., Edit..., **Delete**, Cut, Copy, Paste, Find..., Center, Highlight Observations, Edit Style..., Raw Observation, Right Face Angle

Results

- Certain Survey operations generate an automated **Results** dialog box
- **Save** the information, **Print** or **Display** it



Status Column Heading

Point	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	Vertical Obs.	Slope
207	375058.766	706331.537	535.249	503		12°00'18.00"	89°59'06.00...	188.1
5001	373971.316	708871.527	534.500	308	FI			
208	375062.579	706330.471	535.205	503		11°43'13.00"	89°59'54.00...	184.2
209	375065.448	706328.102	535.344	503		11°59'51.00"	89°57'15.00...	180.6
210	375059.761	706325.659	535.647	502	V	13°27'09.00"	89°51'40.00...	184.4
211	375066.367	706317.851	535.761	501	V	14°43'08.00"	89°48'59.00...	175.0
212	375071.189	706329.457	534.845	499 ST	N	10°38'23.00"	90°06'55.00...	176.3
213	375088.807	706316.920	534.515	499	EN	11°20'57.00"	90°15'13.00...	154.7
214	375080.053	706305.172	535.019	499	EN	16°39'16.00"	90°03'57.00...	157.2
215	375073.720	706302.597	535.141	499	EN	18°24'25.00"	90°01'15.00...	162.0

- **Status** indicates various things about a Station or Observation entry
 - N – the point has notes on that specific entry
 - E – the point has been edited from the On-line Fieldbook
 - F – the point is a fixed (keyed-in) coordinate
 - A – the point has attributes on it (typically from the field)
 - V – at least one of the attributes has a value
 - I – Inserted shot added

The Fieldbook - Summary

- When editing the fieldbook file (.fwd) you are editing the Survey file and not your raw data
- Before adding or editing a fieldbook, there must be at least one station or set up point
- Observations and Stations are listed as the are entered
- **Edits** can be made to the Observations and / or Stations
- **Reporting** can be done from the Observations and / or Stations

Lab 2.3 - Overview

- Load in Survey file created in the previous lab
- Correct / Edit ...
- Correct / Edit ...
- Correct / Edit ...
- Save the .fwd file

- Go to Chapter 2.3 on page 167