

# 13.0 Plot Assessments

## Contents

<b>13.0 Plot Assessments</b> .....	2
13.1 Plot types .....	3
13.2 Generating circular plots .....	5
13.3 Circular plots crossing Square and Section boundaries.....	6
13.3.1 Section boundaries .....	6
13.3.2 Square boundaries.....	7
13.4 Generating Whole Section plots.....	8
13.5 Points crossing Square and Section boundaries .....	9
13.5.1 Section boundaries .....	9
13.5.1.1 Plot Target .....	9
13.5.1.2 Square boundaries .....	10
13.6 Data Collection Procedure.....	10
13.6.1 Circular and Section Plot level data .....	11
13.6.2 Point 1 Data.....	12
13.7 Inaccessible Plots/Points .....	15
13.7.1 Definition .....	15
13.8 Photo .....	19

## Tables

Table 13 - 1: Point 1 Data Fields .....	13
Table 13 - 2: Plot Inaccessible Data Fields .....	16
Table 13 - 3: Plot Visual Assessment Data Fields .....	19

## Flowcharts

Flowchart 13 - 1: Circular Plots or Whole Section Plot Decision chart .....	4
Flowchart 13 - 2: Inaccessible Plots .....	17
Flowchart 13 - 3: Inaccessible Points .....	18

## 13.0 Plot Assessments

For each NFI-treed Section that was deemed Accessible the surveyor will need to carry out full or abbreviated plot assessments. Full plot assessments are carried out when the plots/points are accessible and comprise:

- Tree assessments
  - Species
  - Diameter at Breast Height (DBH) – see **Chapter 15.0**
  - Tree heights and crown diameters – see **Chapter 16.0**
  - Live/Dead (Reason and Decay Class if dead) – see **Chapter 20.0**
  - Storey – see Chapter 8.8
  - Conifer Straightness (if Conifer  $\geq 14$ cm DBH) – see the Additional Documents folder
    - Lowest Dead branch height
    - Component Group
    - Excessive lean
    - Windsnap
- Stump assessments
  - Number of stumps – see **Chapter 14.7**
  - Size of stumps
  - Decay class
  - Species category
- Transect assessments
  - Young Tree assessments – see **Chapter 18.1**
    - Seedling or sapling identification
    - Species
    - Number
    - Mammal Damage
- Lying Deadwood assessments – see **Chapter 18.2**
  - Diameter
  - Decay class
  - Decay features

## 13.1 Plot types

The NFI uses two types of sample plot (also see flowchart 13-1 overleaf):

1. Circular plots – where there are  $\geq 40$  standing measurable<sup>1</sup> stems (live and dead) within a Section (and any associated RAS where applicable), circular plots are used to gain a representative sample of the Section. All circular plots within the NFI are 5.64m *horizontal* radius (0.01ha planimetric area) and for Sections  $< 0.6$ ha two plots are generated by the software. For Sections  $\geq 0.6$ ha the software generates three plots.
2. Whole Section Plots – where there are  $< 40$  standing measurable stem within a Section (and any associated RAS up to 21m from the square boundary) then all measurable stems are assessed.

Where a *circular* plot is inaccessible, but can be seen, a visual abbreviated mensuration assessment is carried out comprising:

- Mean height
- Number of stems in the plot (where applicable)
- Estimated mean DBH

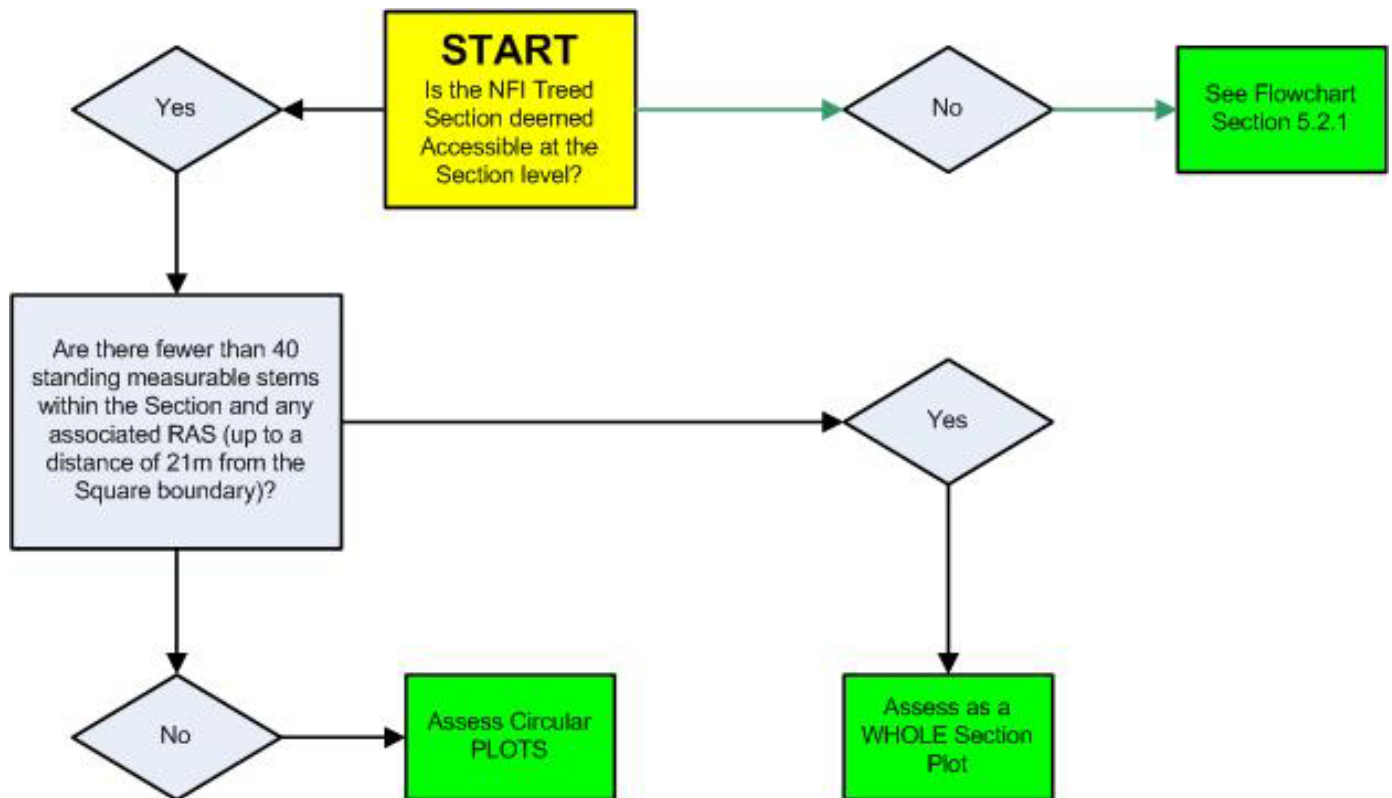
Where a circular plot is inaccessible and cannot be seen no mensuration assessment is carried out.

Where all the Points within a Whole Section plot are deemed Inaccessible the entire section is recorded as inaccessible. See **Chapter 13.7** for more details.

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<sup>1</sup> Where measurable stems are standing stems (live or dead)  $\geq 4$ cm DBH.

# NFI Survey Manual Section 13: Plot Assessments



Flowchart 13 - 1: Circular Plots or Whole Section Plot Decision chart



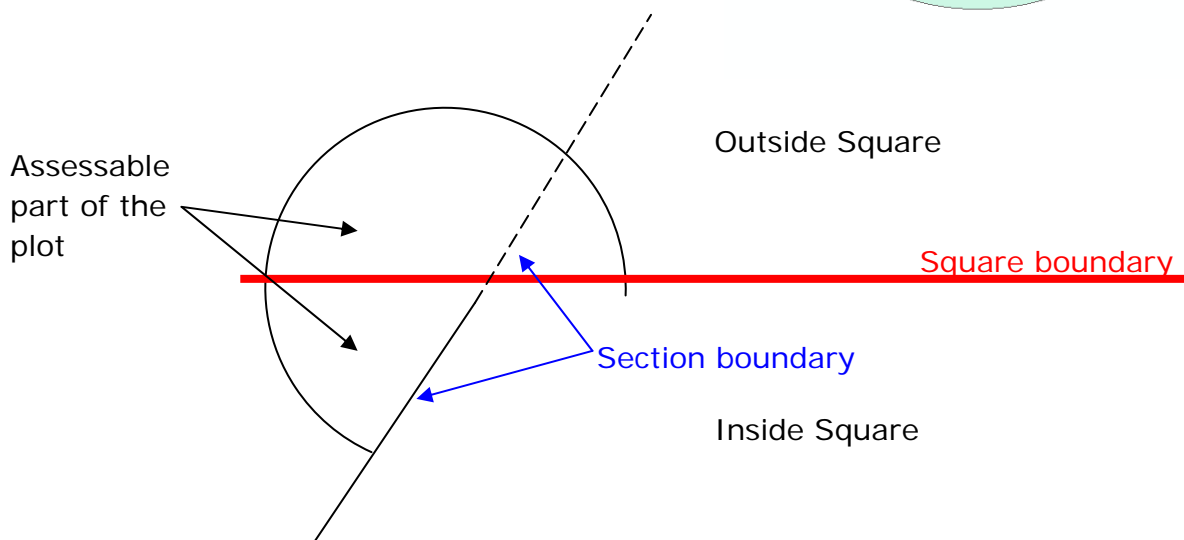
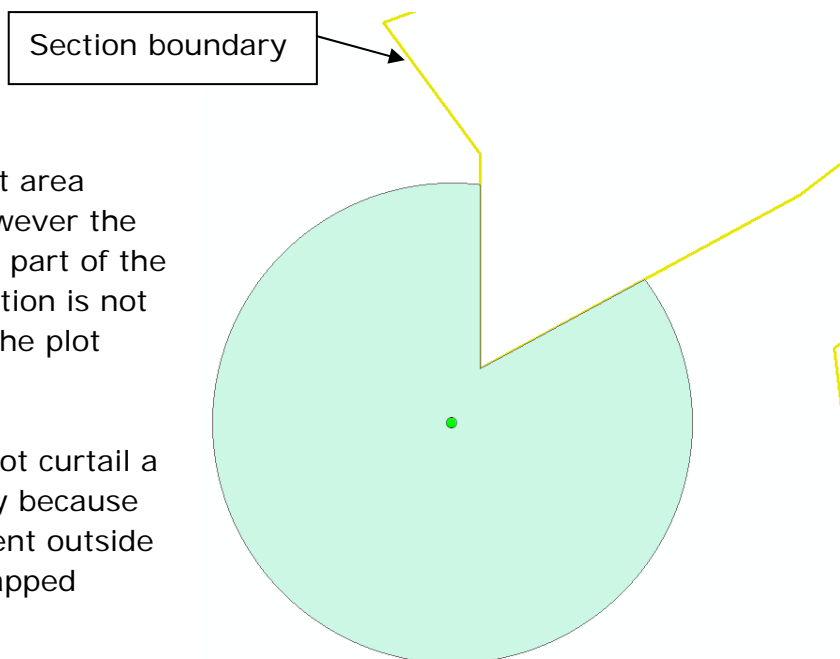
## 13.3 Circular plots crossing Square and Section boundaries

### 13.3.1 Section boundaries

**Plots may never cross Section boundaries under any circumstances.**

In the situation opposite the plot area crosses a Section boundary; however the software automatically cuts that part of the plot off so that the adjacent Section is not sampled as part of the Section the plot centre is located within.

In rare cases the software will not curtail a plot crossing a Section boundary because this boundary is physically present outside the Square but has not been mapped (unless as a RAS).

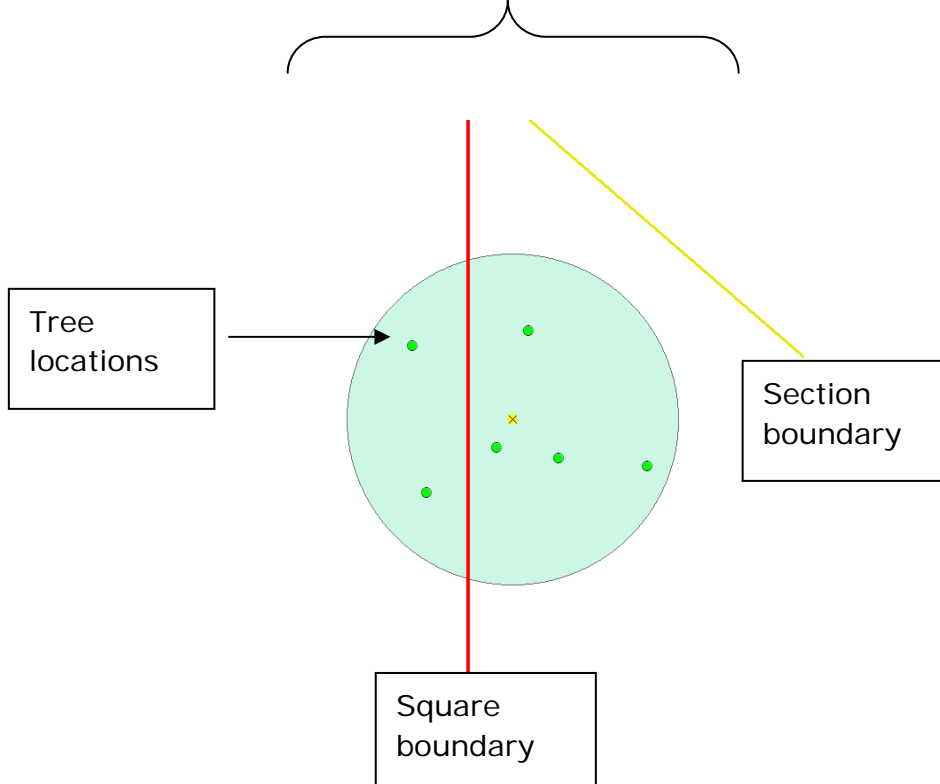
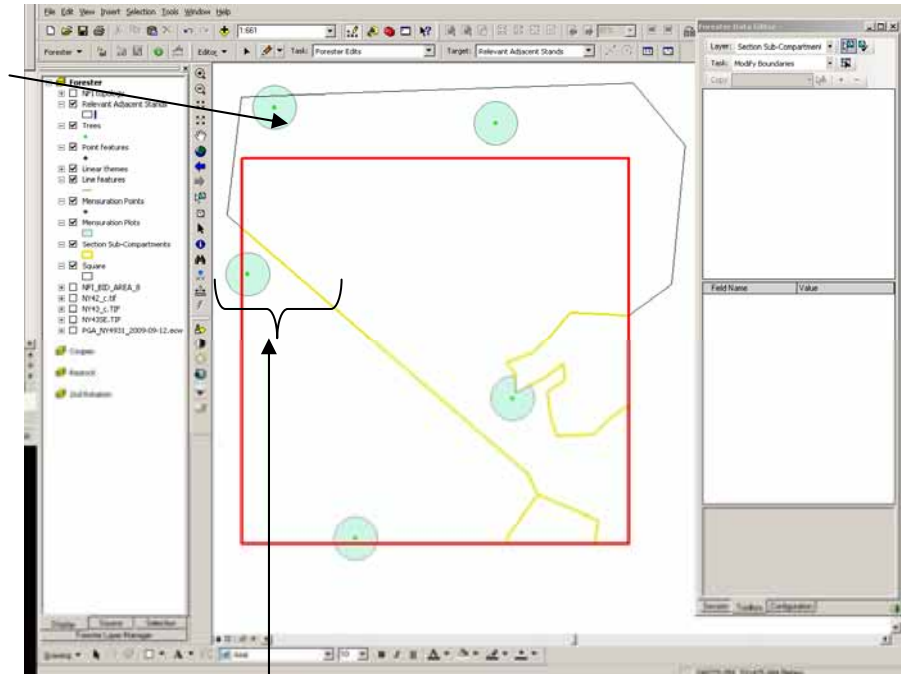


# NFI Survey Manual Section 13: Plot Assessments

## 13.3.2 Square boundaries

This plot spans the Square boundary.

It is often the case that, had the Square boundary not existed, the Section would carry on outside the Square. If this is the case the entire plot area is assessed, even those parts that land out with the Square. The exception to this is where the plot also crosses a Section boundary outside the Square.



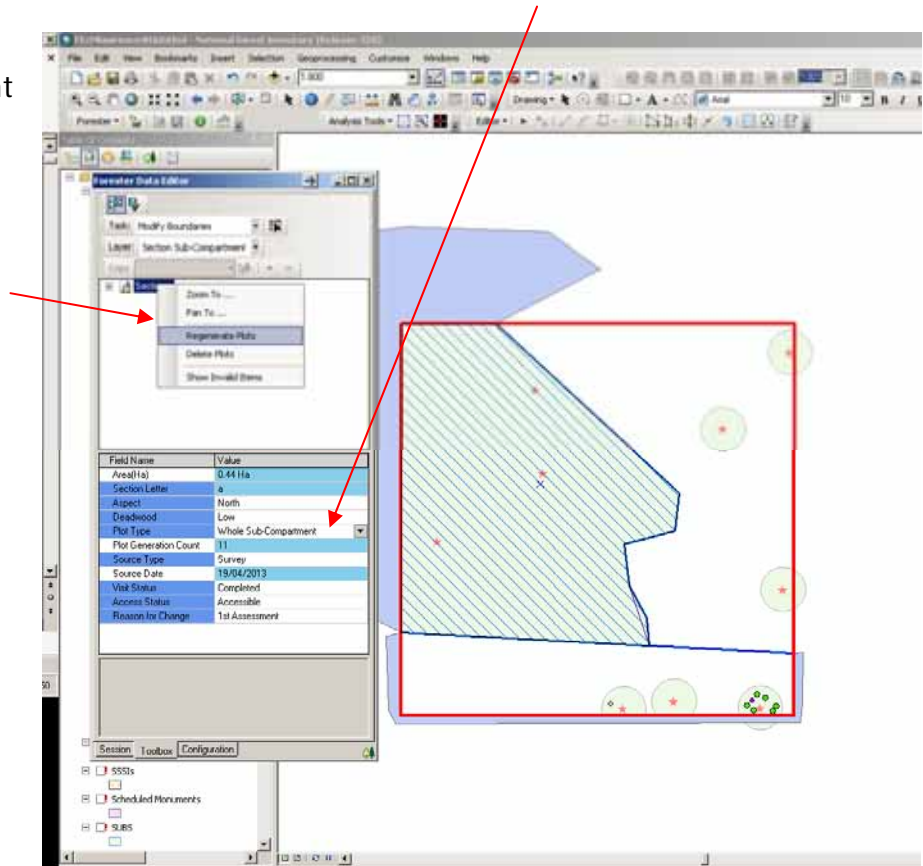
# NFI Survey Manual Section 13: Plot Assessments

## 13.4 Generating Whole Section plots

Ensure the 'plot type' data field at the Section level is set to Whole Sub-compartment.

Select the Section in which to generate points and right click on the Section in the Forester Data Editor window.

From the drop down menu choose Regenerate Plots. The Relevant Adjacent Stand (RAS) *cannot* be included when generating points.





# NFI Survey Manual Section 13: Plot Assessments

## 13.5 Points crossing Square and Section boundaries

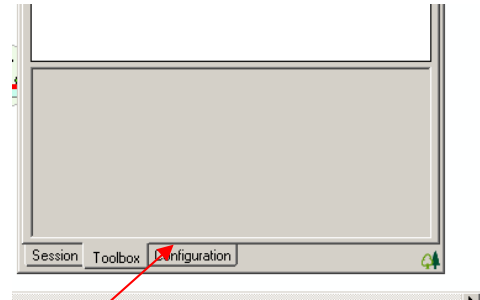
Whilst the actual Points generated can never cross Square or Section boundaries, the area for stump/stool assessments and transects can. Details of transect assessments can be found in **Chapter 18.0**.

### 13.5.1 Section boundaries

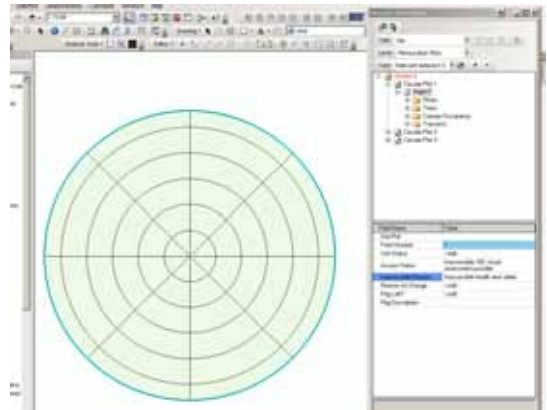
Ensure the plot target is turned on:

#### 13.5.1.1 Plot Target

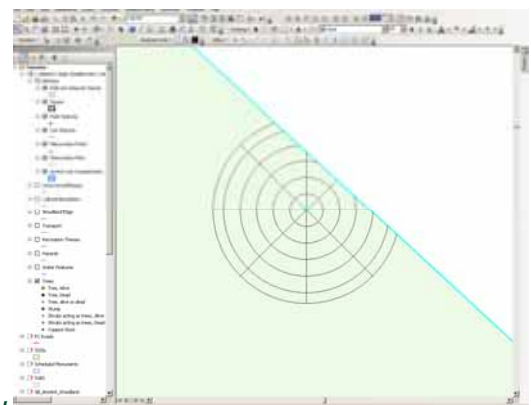
Clicking on the Configuration tab gives access to the Configuration part of the Forester Data Editor. Ticking the 'Display plot target on active point' will give a guide at each plot to help mapping stems and stumps/stools more accurately.



Each circle, starting from the centre is 1m apart except the last two which are 0.64m apart. The eight straight lines follow the main compass bearings.



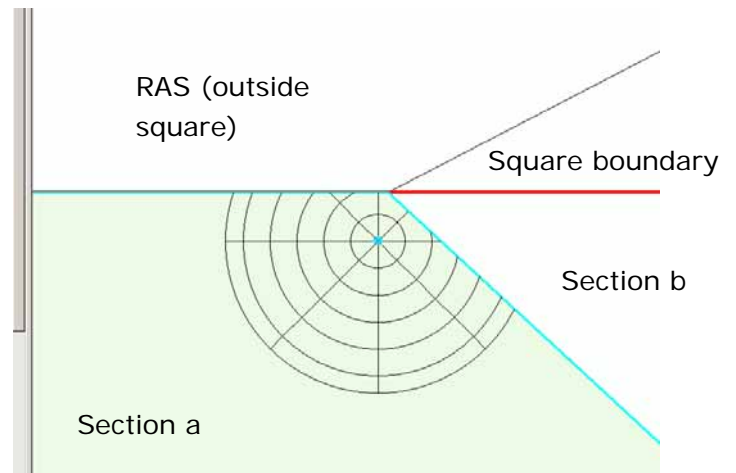
Using the plot target gives a clear indication of how much of the plot crosses the Section boundary and surveyors need to be aware of which stumps/stools are inside the plot and Section and which are not.



# NFI Survey Manual Section 13: Plot Assessments

## 13.5.1.2 Square boundaries

This plot spans the Square boundary as well as a Section boundary. As shown the software does not allow the plot to cross either boundary, and surveyors need to ensure that stump/stool assessments do not cross these boundaries.



## 13.6 Data Collection Procedure

When assessing Circular Plots and Section Plots surveyors are expected to adhere to the following procedure in order to ensure all data is collected and fields filled out correctly.

- Navigate to the chosen Plot/Point.
- Access status – determine accessibility of the Plot/Point.
- Place metal peg and red rod at the Point or Plot centre and attach biotape. Where possible, additional biotape placed at eye level will aid return visits for QA and survey staff.
- Record the field GPS reading of peg – do **not** record the coordinates from the ArcGIS software **unless** the Plot/Point is Inaccessible in which case use the ArcGIS coordinates.
- Complete peg description field and take photo to aid return visits up to 10 years in the future.
- Complete data collection for the Plot/Point – see below.

# NFI Survey Manual Section 13: Plot Assessments

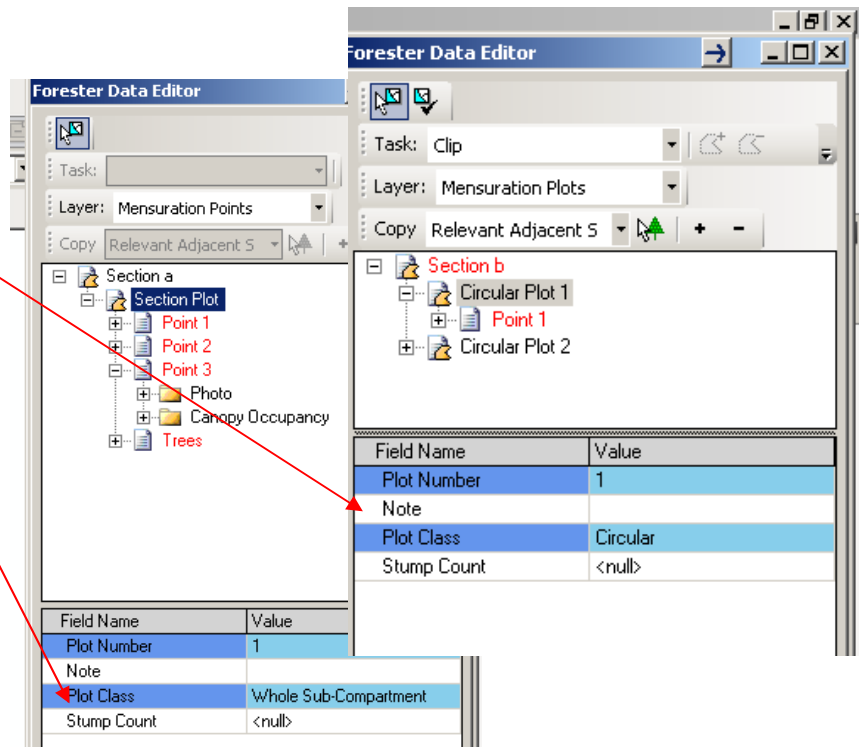
## 13.6.1 Circular and Section Plot level data

At this level there are only two fields which require completing:

1. Note
2. Stump Count

1. Note – put any comments in here relating to the plot e.g. guide to location, any issues etc.

2. Stump Count – If there are stumps present within the plot (stump centre, location of original seedling, must be within the plot circumference) select 'Yes'. If there are no stumps leave as <null>.

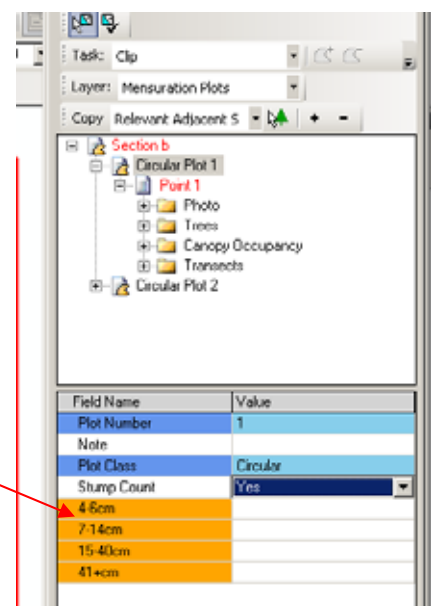


If 'Yes' has been selected for Stump Count enter the number of stumps, visually assessed, within the following size categories:

- 4-6cm
- 7-14cm
- 15-40cm
- 41+cm

Size based on visually estimated mean diameter.

All fields must be completed. Where there are no stumps within a given category enter '0'. See **Chapter 14.7** for more details.



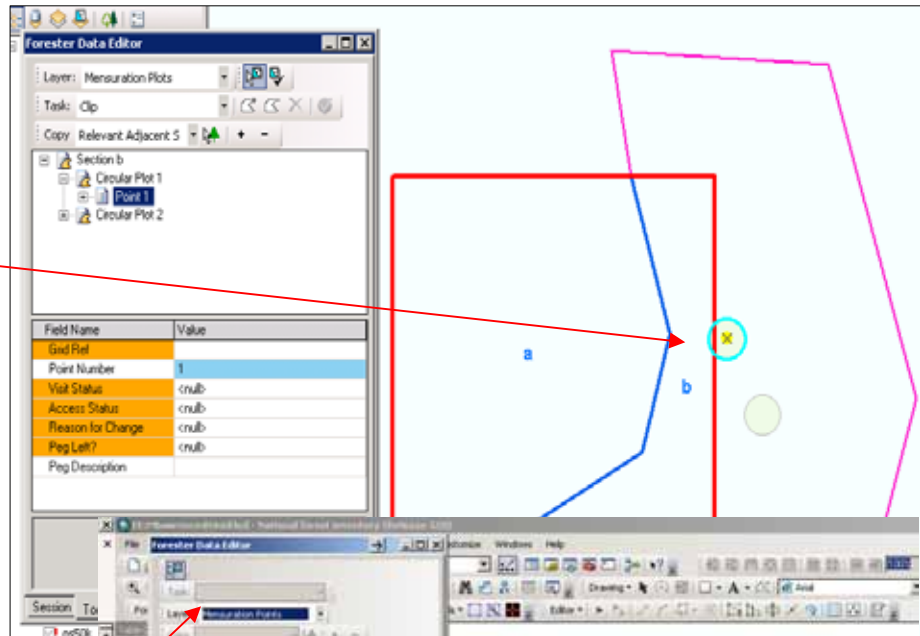
# NFI Survey Manual Section 13: Plot Assessments

## 13.6.2 Point 1 Data

In the Forester Data Editor window:

### For Circular Plots:

Click on "Point 1" for the Plot to be assessed. The plot centre will be highlighted in yellow on the map.

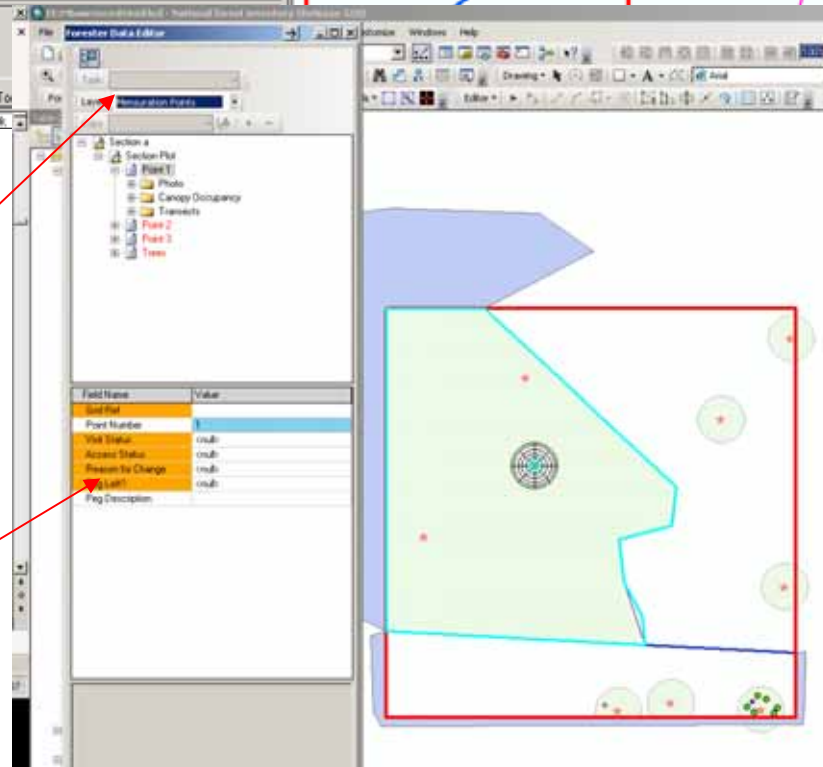


OR

### For Section Plots:

Ensure that "Mensuration Points" is showing in the Layer box and click on "Point 1" for the Plot to be assessed. The plot target will show if turned on as described above.

The Point 1 Data Fields will be displayed in the lower half of the Forester Data Editor window.



The orange data fields **must** be completed. The white "Peg Description" data field should always be completed. If there is nothing on the ground to help locate the peg in the future put 'Nothing' in the description.

# NFI Survey Manual Section 13: Plot Assessments

**Table 13 - 1: Point 1 Data Fields**

<b>Data Field</b>	<b>Options</b>	<b>Comments</b>
Grid Ref.	Free text	Enter the field GPS reading for the plot centre, using the "2 letter-10 digit format" e.g. TQ0901012008 unless the plot is Inaccessible in which case use the ArcGIS coordinates.
Point Number	Software generated	
Visit Status	<ul style="list-style-type: none"> <li>• Unvisited</li> <li>• In progress</li>   <li>• Completed</li>   <li>• Refused Access</li> <li>• Not possible to assess</li> </ul>	<p>In progress can be used if the surveyor needs to leave the site before completing data entry (e.g. it gets dark before completion). Ensure that this is changed to Completed when the square is finally completed.</p> <p>Completed should be used if the plot can be assessed, either physically or visually.</p>
Access Status	<ul style="list-style-type: none"> <li>• Accessible</li> <li>• Inaccessible, visual assessment possible</li> <li>• Inaccessible, NO visual assessment</li> </ul>	If either of the inaccessible options is selected, an "Inaccessible Reason" data field will appear (see table 13-2).
Reason for Change	<ul style="list-style-type: none"> <li>• No Change</li> <li>• Real Change</li> <li>• Error Change</li>   <li>• Spatial Error</li>   <li>• 1st Assessment</li> <li>•</li> <li>• Original</li> <li>• QA</li> </ul>	<ul style="list-style-type: none"> <li>• For use in the 2<sup>nd</sup> NFI.</li> <li>• For use in the 2<sup>nd</sup> NFI.</li> <li>• A change in the data due to an error found by NFI office staff.</li> <li>• A change in the data due to a spatial error found by NFI office staff.</li> <li>• The normal Reason – the 1<sup>st</sup> assessment of the site.</li> <li>• Unchanged data.</li> <li>• For QA staff only</li> </ul>

## NFI Survey Manual Section 13: Plot Assessments

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Data Field	Choices	Comments
Peg Left?	<ul style="list-style-type: none"><li>• No</li><li>• Yes</li></ul>	If "No" then the "Peg not Left Reason" data field will appear.
Peg not Left Reason	<ul style="list-style-type: none"><li>• No Landowner Permission</li><li>• Health &amp; Safety</li><li>• Legal Restriction</li> <li>• Public Access Area</li><li>• Residential</li><li>• Garden</li><li>• Impenetrable surface</li><li>• Puddling Ground</li><li>• Boggy Ground</li><li>• Inaccessible</li><li>• Multiple Causes</li><li>• Terrain</li><li>• Ground cover vegetation</li><li>• Forest operations</li><li>• Other</li></ul>	<p>E.g. the site is a Scheduled Ancient Monument and ground disturbance is forbidden.</p> <p>E.g. livestock-grazed woodland, graveyards.</p>
Peg Description	Free text	Record anything to help relocation of the peg for Quality Assurance purposes and for the return visit in 5-10 years time.

## 13.7 Inaccessible Plots/Points

### 13.7.1 Definition

A **Plot** is deemed Inaccessible if:

- A plot that has more than 10% of its measurable stems inaccessible
  - Where <10% of the measurable stems are inaccessible the mensuration assessments for those trees may be estimated.

A **Point** is deemed Inaccessible if:

- It is not possible to access the transects within that Point (Point 1 only) AND/OR,
- It is not possible to access the 5.64m radius area around the Point for stump assessments

Surveyors will need to decide which level of inaccessibility to use: whether the Point can be visually assessed or not.

*NB: The Section is Accessible as long as at least 50% of the measurable stems are accessible. Where stems are inaccessible their mensuration parameters (e.g. DBH) may be estimated.*

When either of the Inaccessible options is selected under "Access Status":

- Where Plot/Point 1 is inaccessible, a box will appear asking if the transects are to be moved. If 'Yes' is selected, the transect data is moved to another Plot/Point and the current Plot/Point number is changed. The new Plot/Point where the transects have been moved to is now numbered 1. If 'No' is selected the transects are not moved and the current Plot/Point becomes Accessible.
  - The Transect folder will move from the Inaccessible Plot/Point to an Accessible or un-assessed Plot/Point.
  - Transect data is required as long as at least 1 Plot/Point is 'Accessible'.
- An "Inaccessible Reason" data field appears. Select the most appropriate reason:

# NFI Survey Manual Section 13: Plot Assessments

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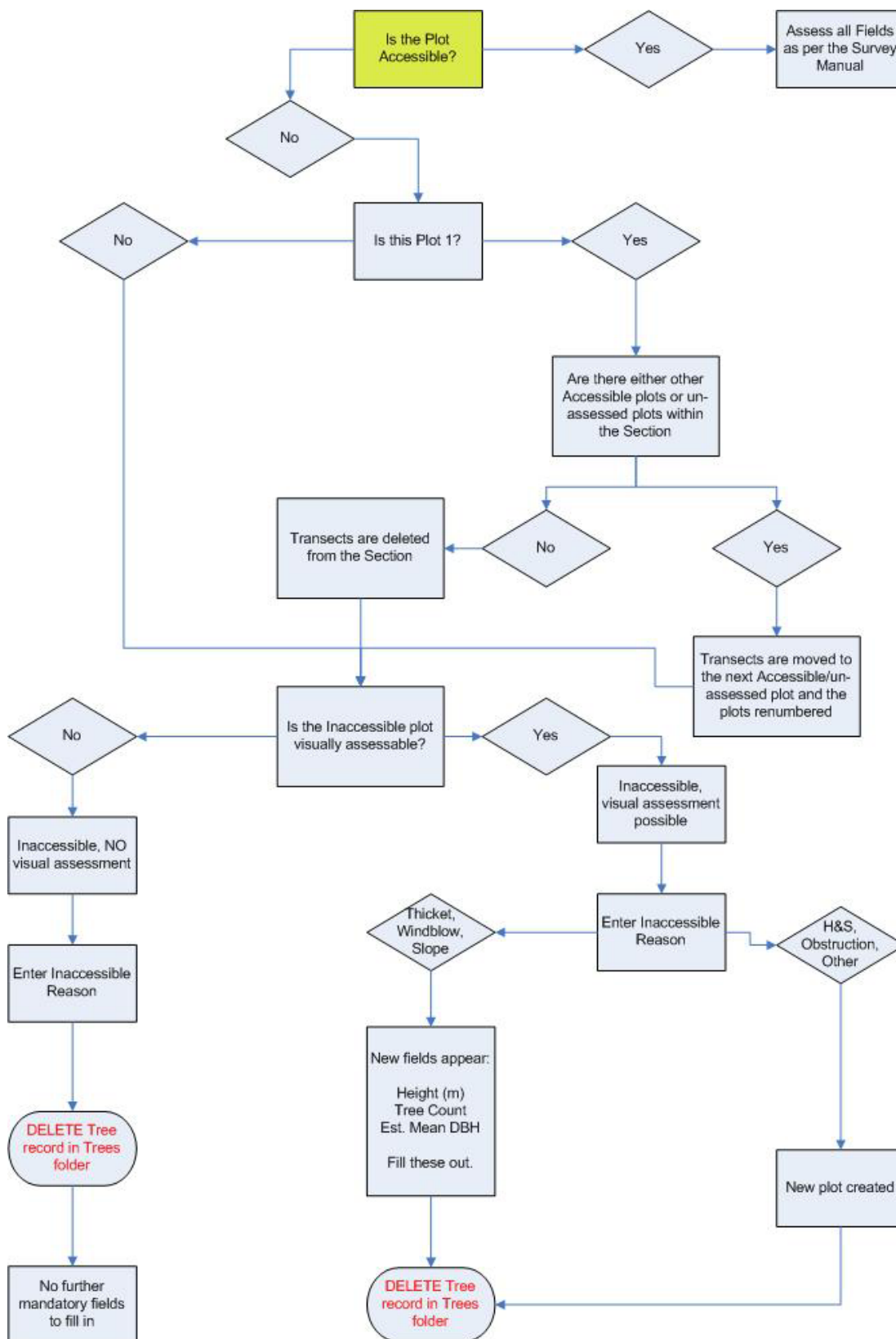
**Table 13 - 2: Plot Inaccessible Data Fields**

Data Field	Options	Comments
Inaccessible Reason	<ul style="list-style-type: none"><li>• Inaccessible thicket</li> <li>• Inaccessible health and safety</li><li>• Inaccessible slope</li><li>• Inaccessible obstruction</li><li>• Inaccessible wind blow</li><li>• Inaccessible other</li></ul>	<p>Thicket definition: "Stands of conifer/broadleaved trees where the bases of the live crowns of the trees are below 1m in height, and the live crowns interlock so tightly that access is impossible".</p> <p>E.g. dense gorse preventing access.</p>

See Flowcharts overleaf.

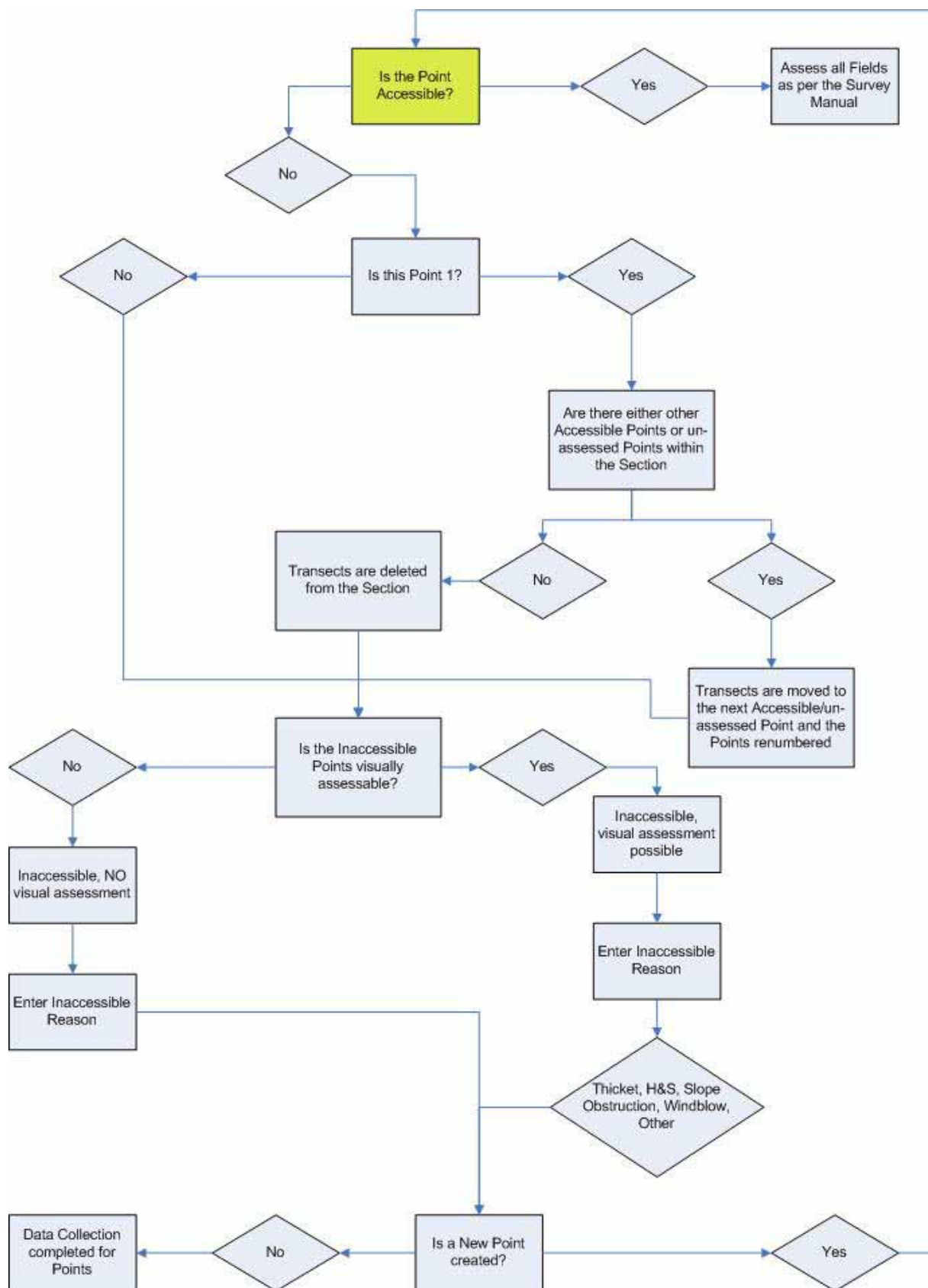


# NFI Survey Manual Section 13: Plot Assessments



Flowchart 13 - 2: Inaccessible Plots

# NFI Survey Manual Section 13: Plot Assessments



Flowchart 13 - 3: Inaccessible Points

13-18 Remember to Save your Edit Session Regularly, Validate the information and Backup the Data



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# NFI Survey Manual Section 13: Plot Assessments

If Access Status is set to 'Inaccessible, Visual Assessment Possible' AND Inaccessible Reason is thicket, slope or windblow, then an abbreviated mensuration tree assessment must be carried out by completing the Data Fields below:

**Table 13 - 3: Plot Visual Assessment Data Fields**

Data Field	Options	Comments
Height (m)	• Free text	Estimate the mean total height of all the stems within the plot across all Components.
Tree count	• Free text	Estimate the number of stems/coppice stools within the plot across all Components.
Est. Mean DBH (cm)	• Free text	Estimate the average DBH of all the stems within the plot across all Components.

NB: No stump or transect data is required for that plot.

If Access Status is set to 'Inaccessible, Visual Assessment Possible' AND Inaccessible Reason is health & safety, obstruction or other, then no abbreviated mensuration assessment is required at that plot, however a replacement plot will be generated for assessment (up to a maximum of three new plots).

## 13.8 Photo

Add a Photo in the same way as described in **Chapter 9.3**. Photos are Mandatory and need to illustrate the peg location.

In the Comment box note the bearing the photo was taken (from the surveyor to the peg) as well as a description.

