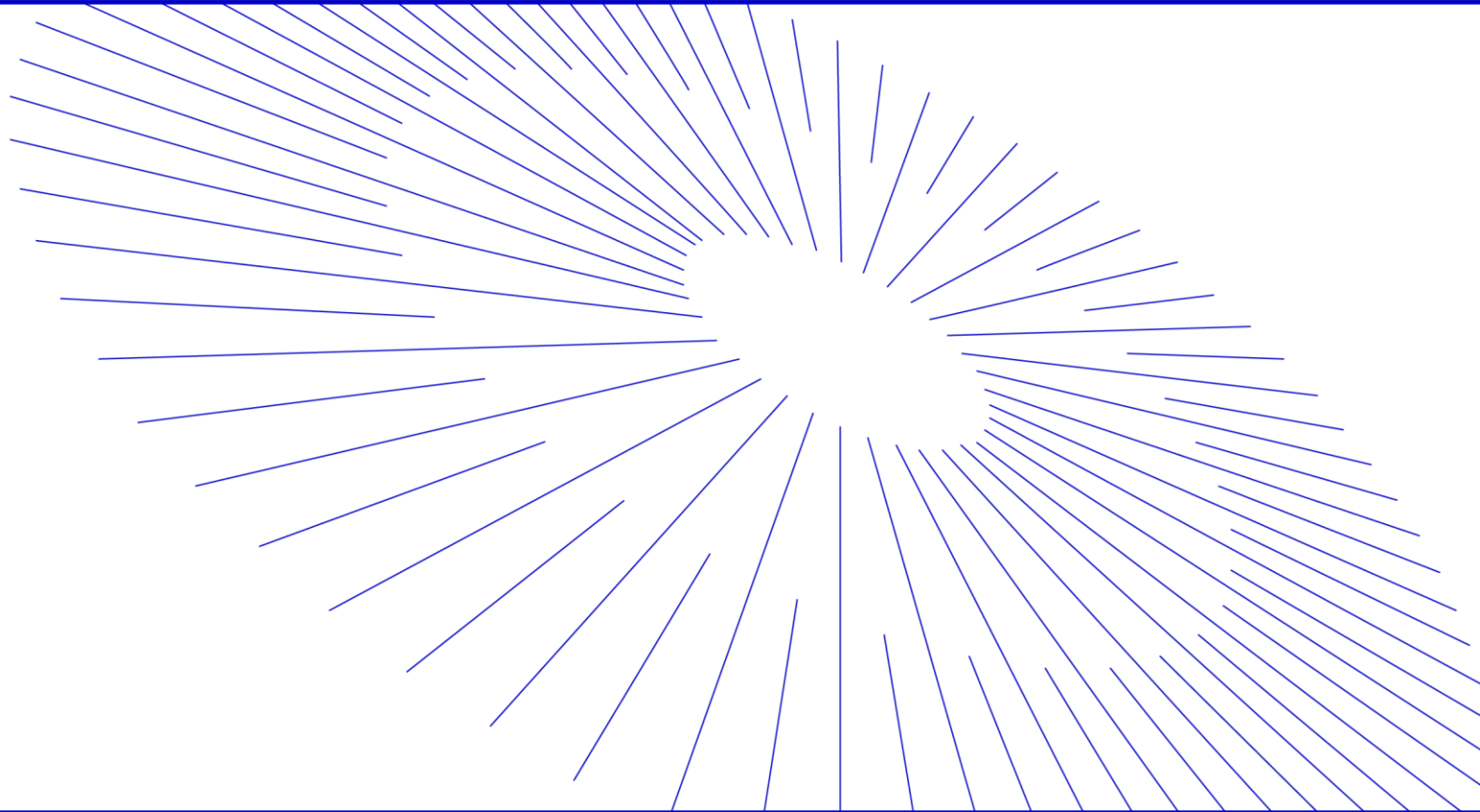


Smart Construction Groupware Release information 21.5.2014



- We will release these contents on the following schedule.

Release Schedule : JST 21st, May (expected) 19:00~21:00
(During releasing, temporally can not access the application)

NO.	Functions	Summary	Details
1	Point cloud 3D viewer	Function improvement "LAS Viewer" and "LandXML Viewer" have been integrated and "Groupware Viewer" has been added.	Please refer to the explanation on the following page.
2	Point cloud 3D viewer	Function improvement In addition to point clouds in LAS/TXT format, point clouds in CSV format can now be referenced.	The data that can be displayed is point clouds (LAS, TXT, CSV) and LandXML. The data limit is 10 GB for point clouds and 1 GB for LandXML.
3	Viewport of point cloud	Function improvement You can specify the size of the displayed point cloud between "0.1~10".	As shown on the left.
4	Viewport of point cloud	New function added The display color of the point cloud can be switched between "RGB" and "Elevation Gradient".	Please refer to the explanation on the following page.
5	Viewport of point cloud	New function added You can switch the coordinate system of the point cloud between "Cartesian Coordinates" and "Surveying Coordinates".	Please refer to the explanation on the following page.
6	Viewport of point cloud	Function improvement The point cloud projection method can be switched between "Perspective Projection" and "Orthographic Projection".	Please refer to the explanation on the following page.
7	Viewport of point cloud	New function added You can display the point cloud with the transparency specified in the display settings modal.	Please refer to the explanation on the following page.

- We will release these contents on the following schedule.

Release Schedule : JST 21st, May (expected) 19:00~21:00
(During releasing, temporally can not access the application)

NO.	Functions	Summary	Details
8	Viewport of LandXML	New function added You can switch the coordinate system of the LandXML between "Cartesian Coordinates" and "Surveying Coordinates".	Please refer to the explanation on the following page.
9	Viewport of LandXML	Function improvement The LandXML projection method can be switched between "Perspective Projection" and "Orthographic Projection".	Please refer to the explanation on the following page.
10	Viewport of LandXML	New function added You can display the LandXML with the transparency specified in the display settings modal.	Please refer to the explanation on the following page.
11	3D actions	Function improvement You can move the displayed point cloud / LandXML by moving the mouse cursor while left-clicking.	As shown on the left.
12	3D actions	Function improvement By operating the scroll (wheel), you can zoom in and out of the displayed point cloud and LandXML.	When magnifying, it is enlarged toward the tip of the mouse cursor.
13	3D actions	Function improvement By holding down the Ctrl key and left-clicking, you can rotate around the click position.	Please refer to the explanation on the following page.
14	3D actions	Function improvement By clicking the scroll (wheel), you can rotate the point cloud and LandXML in 3D.	Please refer to the explanation on the following page.

- We will release these contents on the following schedule.

Release Schedule : JST 21st, May (expected) 19:00~21:00
(During releasing, temporally can not access the application)

NO.	Functions	Summary	Details
15	Coordinate display XYZ	New function added Displays the coordinate value to which the tip of the mouse cursor is pointing.	Please refer to the explanation on the following page.
16	One-click viewpoint change	Function improvement Change the angle of the point cloud and LandXML so that it is referenced from the selected viewpoint.	Please refer to the explanation on the following page.
17	Measurement (distance, angle)	Function improvement You can add measurements between points placed by left-clicking.	Please refer to the explanation on the following page.
18	Measurement (distance, angle)	New function added You can view detailed information about the measurements that you have added.	Please refer to the explanation on the following page.
19	Measurement (distance, angle)	New function added You can edit the measurements that you have added.	Please refer to the explanation on the following page.
20	Measurement (distance, angle)	New function added You can duplicate, delete, or rename a measurement from the context menu of the measurement layer.	Please refer to the explanation on the following page.
21	Measurement (distance, angle)	Function improvement The distance between two points is measured by left-clicking on the point cloud / LandXML and placing the distance between two points.	As shown on the left.

- We will release these contents on the following schedule.

Release Schedule : JST 21st, May (expected) 19:00~21:00
(During releasing, temporally can not access the application)

NO.	Functions	Summary	Details
22	Measurement (distance, angle)	Function improvement The distance between multiple points measures the distance and the total distance between multiple points placed by left-clicking on the point cloud / LandXML.	Please refer to the explanation on the following page.
23	Measurement (distance, angle)	Function improvement The horizontal distance between two points is measured by left-clicking on the point cloud / LandXML and placing the horizontal distance between two points.	As shown on the left.
24	Measurement (distance, angle)	Function improvement The height difference between two points is measured by left-clicking on the point cloud / LandXML to measure the height difference between two points.	As shown on the left.
25	Measurement (distance, angle)	Function improvement The angle is measured by left-clicking on the point cloud / LandXML and measuring the angle consisting of two points placed in succession.	Please refer to the explanation on the following page.
26	Markup	New function added You can add markup on the point cloud or LandXML.	Please refer to the explanation on the following page.
27	Markup	New function added You can highlight the markup that you added.	Please refer to the explanation on the following page.
28	Markup	New function added You can edit the markup that you have added.	Please refer to the explanation on the following page.

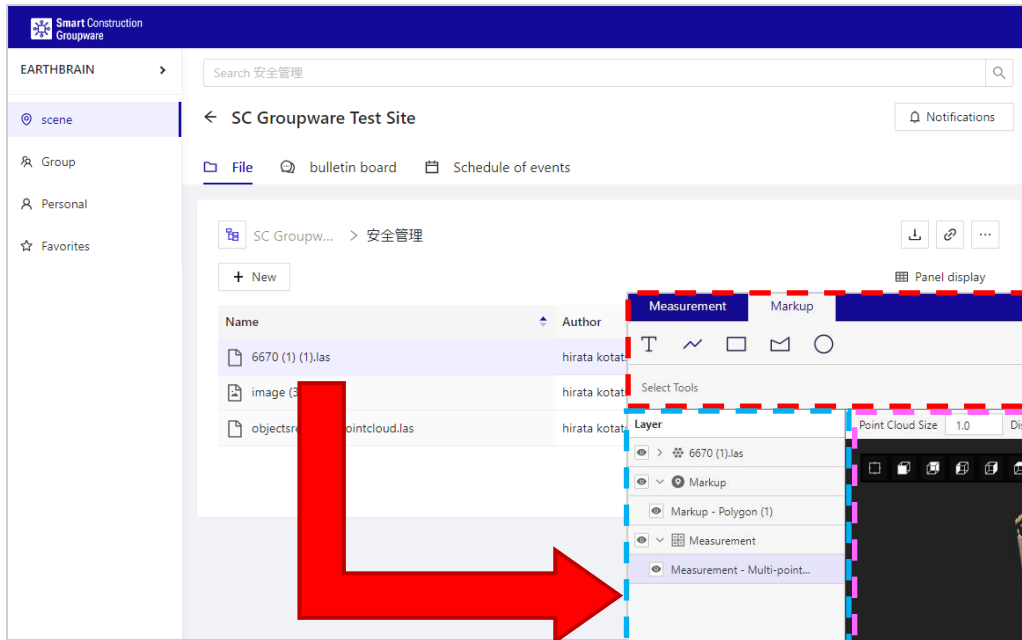
- We will release these contents on the following schedule.

Release Schedule : JST 14th, May (expected) 19:00~21:00
(During releasing, temporally can not access the application)

NO.	Functions	Summary	Details
29	Markup	New function added You can duplicate, delete, and rename markups from the context menu of the markup layer.	Please refer to the explanation on the following page
30	Markup	New function added The text can be placed in the markup of the pin at the position where you left-click on the point cloud / LandXML	As shown on the left.
31	Markup	New function added Lines can be placed by left-clicking on the point cloud / LandXML to place a line markup connecting multiple points.	Please refer to the explanation on the following page
32	Markup	New function added Rectangles can be placed by left-clicking on the start and end points on the point cloud / LandXML.	As shown on the left.
33	Markup	New function added Polygons can be placed in a polygon markup that connects multiple points placed by left-clicking on the point cloud / LandXML.	Please refer to the explanation on the following page
34	Markup	New function added Circles can be placed in the point cloud / LandXML with a perfect circle markup centered on the left-click position.	As shown on the left.
35	Point Cloud Optimization	New function added Uploaded and referenced point clouds (LAS, TXT, CSV) are optimized from time to time to improve browsing speed.	As shown on the left.

No.1

"LAS Viewer" and "LandXML Viewer" have been integrated and "Groupware Viewer" has been added. It is used when displaying point clouds (LAS, TXT, CSV) and LandXML from Smart Construction Groupware.



• **Toolbar**
You can select measurement and markup editing tools.

• **Information panel**
Displays detailed information, including measurement information. You can hide it by pressing ">".

• **Layer panel**
You can manage layer information such as point clouds, measurements, and markups. By pressing "[icon]", you can switch the display or hide of the corresponding layer.

• **Viewport**
You can view, measure, and add and edit point clouds and LandXML data.

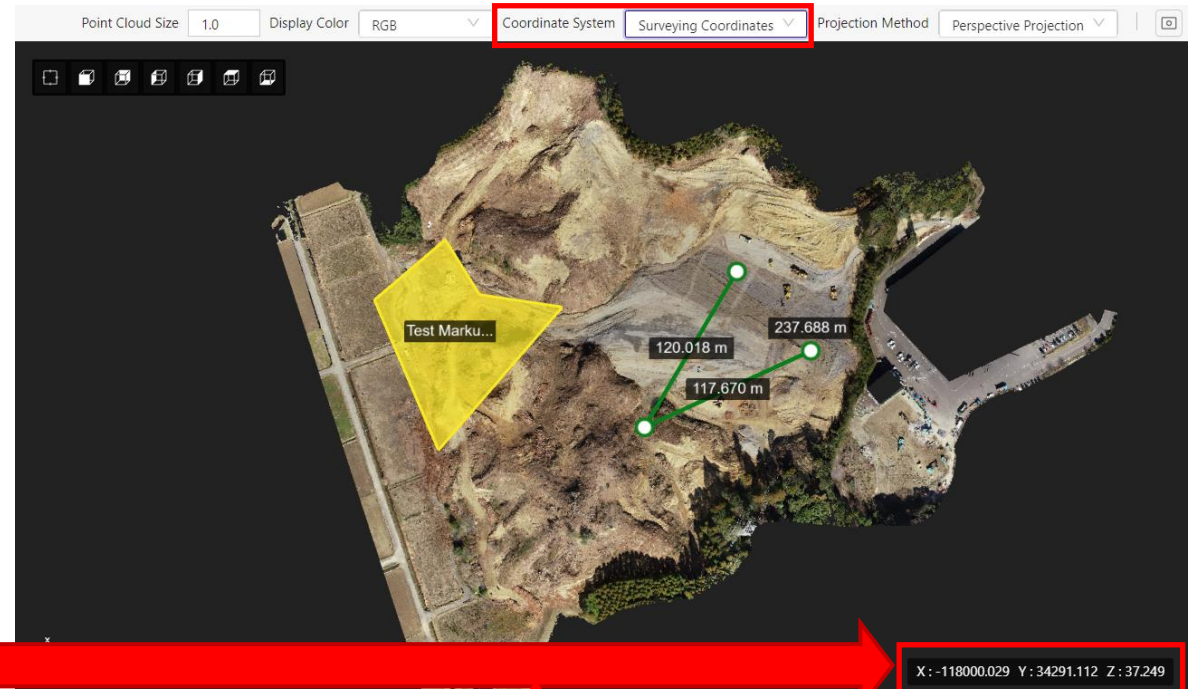
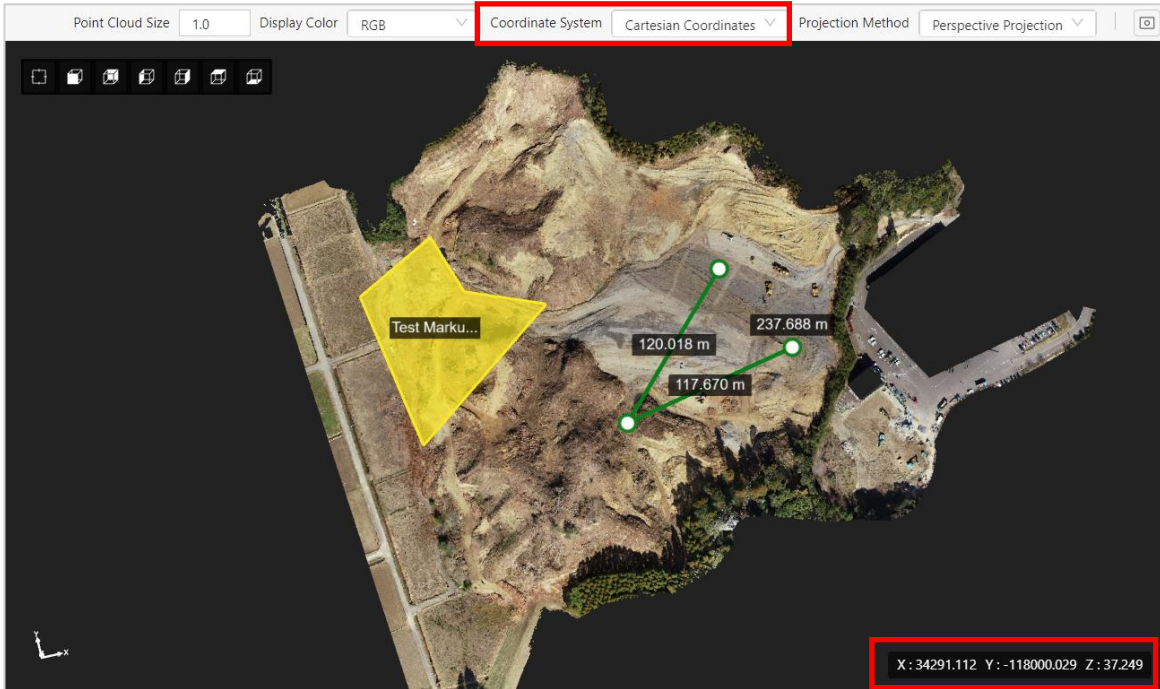
No.4

The display color of the point cloud can be switched between "RGB display" and "Elevation color".



No.5, 8

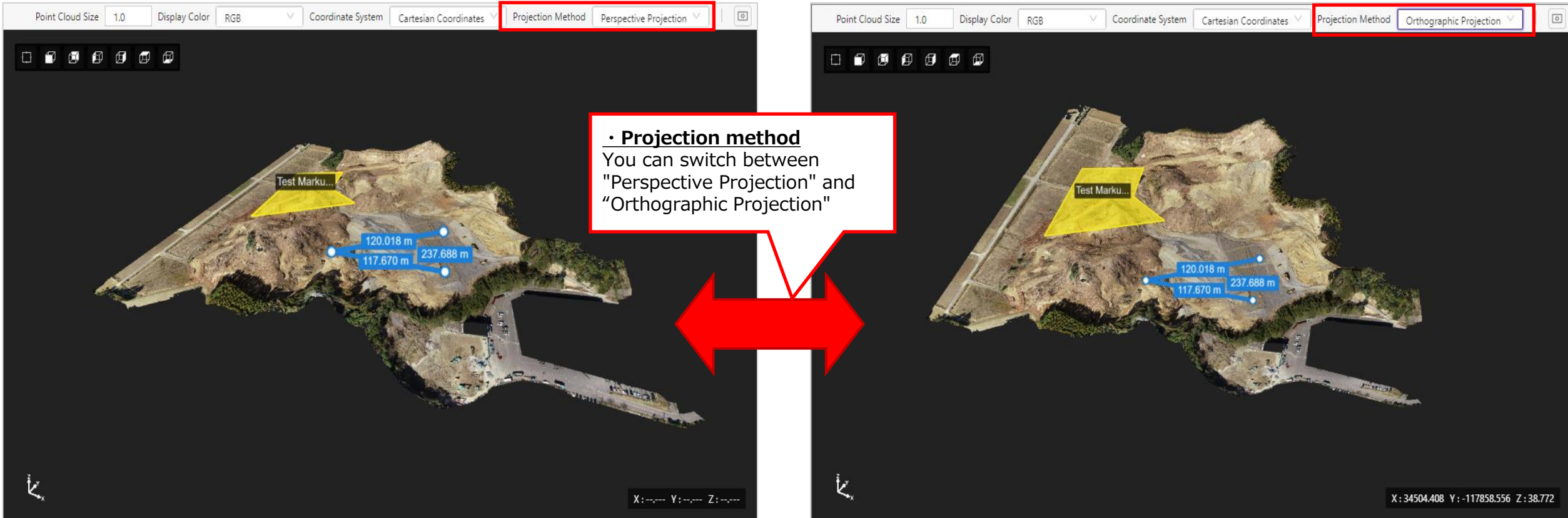
You can switch between the point cloud and LandXML coordinate system by "Cartesian Coordinates" and "Surveying Coordinates".



• **Coordinate system**
X and Y coordinates can be displayed interchangeably.

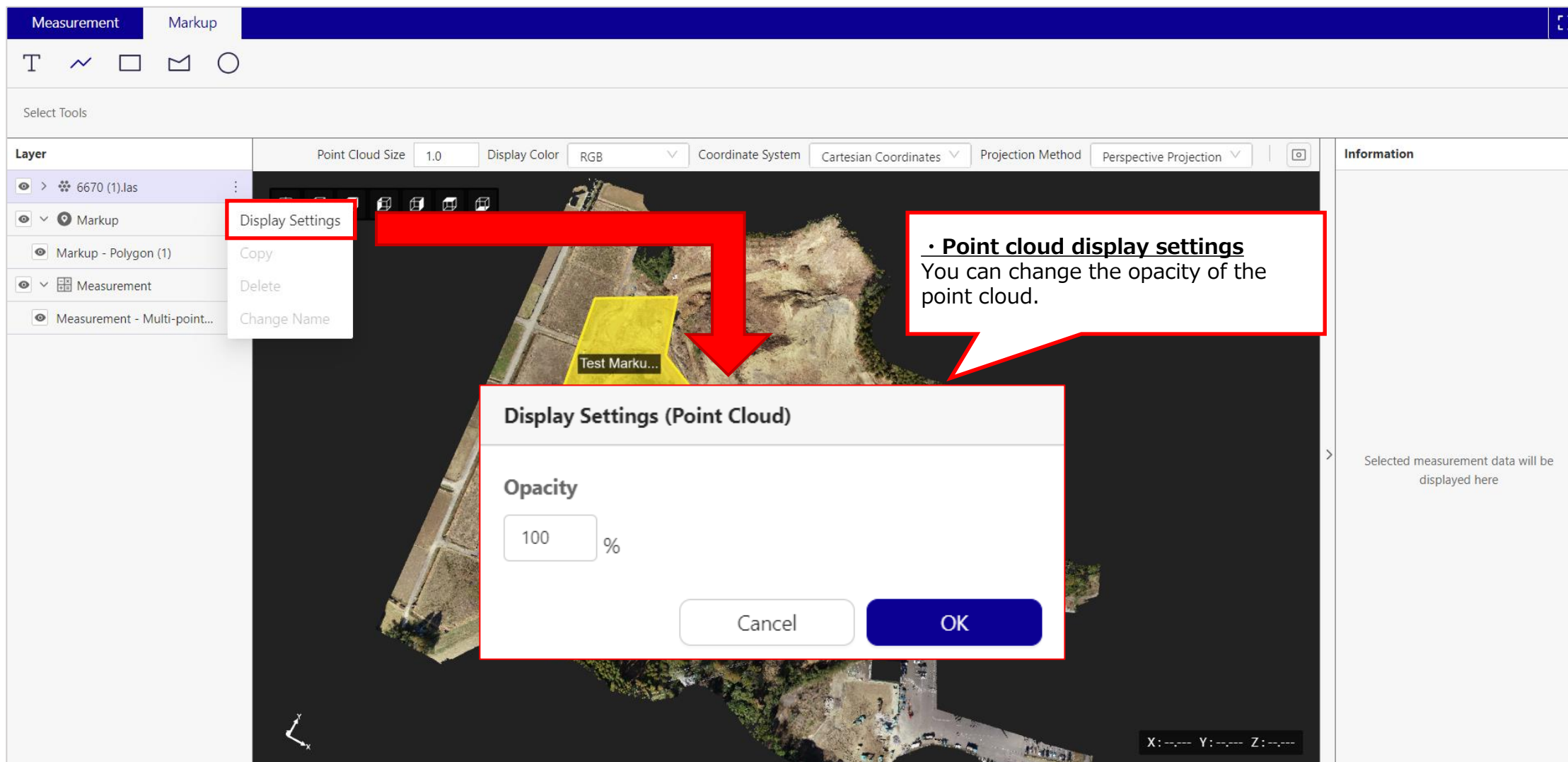
No.6, 9

You can switch between "Perspective Projection" and "Parallel Projection" projection methods for point clouds and LandXML.



No.7

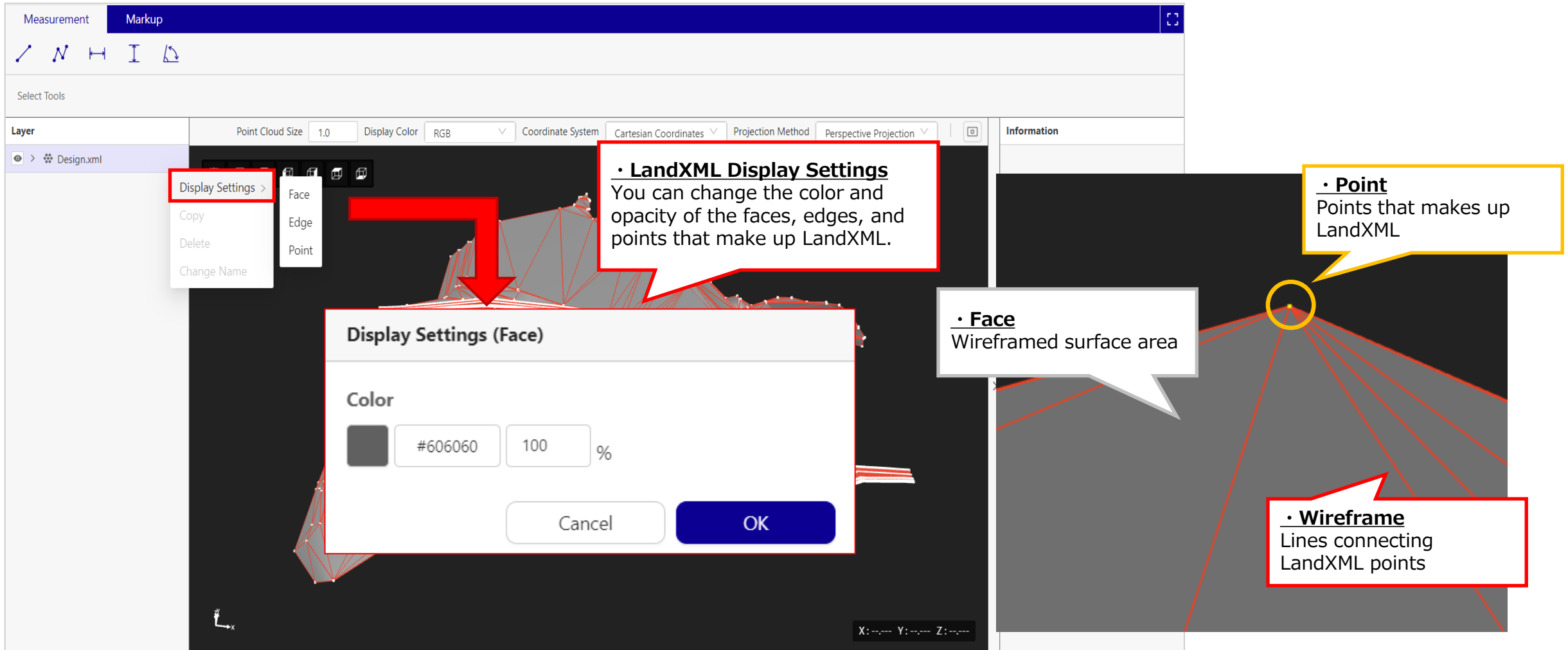
The point cloud can be displayed with the specified transparency on the display setting screen launched from the context menu.



The screenshot displays the EarthBrain software interface. At the top, there are tabs for 'Measurement' and 'Markup'. Below the tabs is a toolbar with icons for text, line, rectangle, and circle. A 'Select Tools' section is visible. The main workspace shows a 3D point cloud of a terrain with a yellow rectangular 'Test Marku...' overlaid. A context menu is open over the point cloud, with 'Display Settings' highlighted. A red arrow points from this menu item to a 'Display Settings (Point Cloud)' dialog box. The dialog box has an 'Opacity' field set to '100 %' and 'Cancel' and 'OK' buttons. A speech bubble points to the dialog box with the text: '• Point cloud display settings You can change the opacity of the point cloud.' The right sidebar contains an 'Information' panel with the text: 'Selected measurement data will be displayed here'. At the bottom right, there are coordinate fields for X, Y, and Z.

No.10

LandXML can be displayed with the specified color and transparency on the display settings screen launched from the context menu.



• LandXML Display Settings
You can change the color and opacity of the faces, edges, and points that make up LandXML.

• Point
Points that makes up LandXML

• Face
Wireframed surface area

• Wireframe
Lines connecting LandXML points

Display Settings (Face)

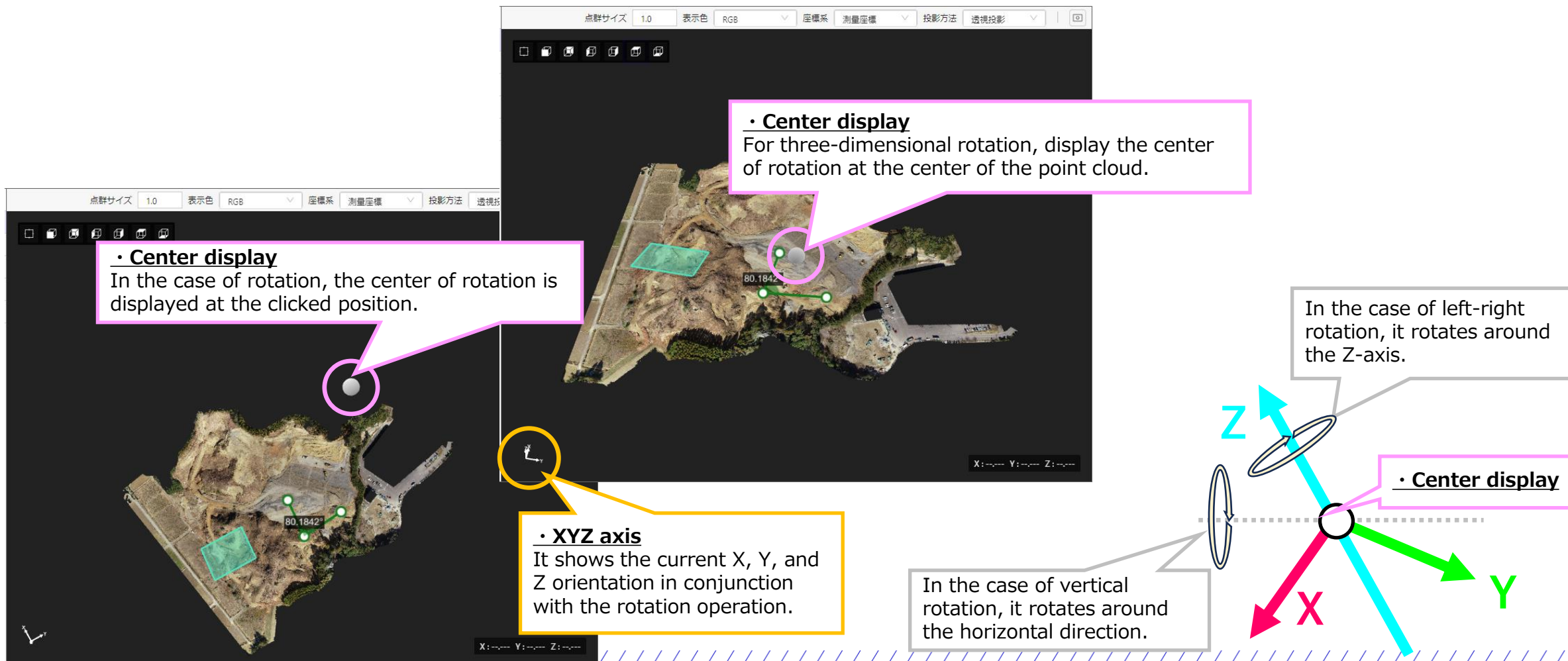
Color

#606060 100 %

Cancel OK

No.13

By holding down the Ctrl key and left-clicking, you can rotate around the click position.
 You can also click the scroll (wheel) to rotate the point cloud and LandXML in 3D.



• Center display
 In the case of rotation, the center of rotation is displayed at the clicked position.

• Center display
 For three-dimensional rotation, display the center of rotation at the center of the point cloud.

• XYZ axis
 It shows the current X, Y, and Z orientation in conjunction with the rotation operation.

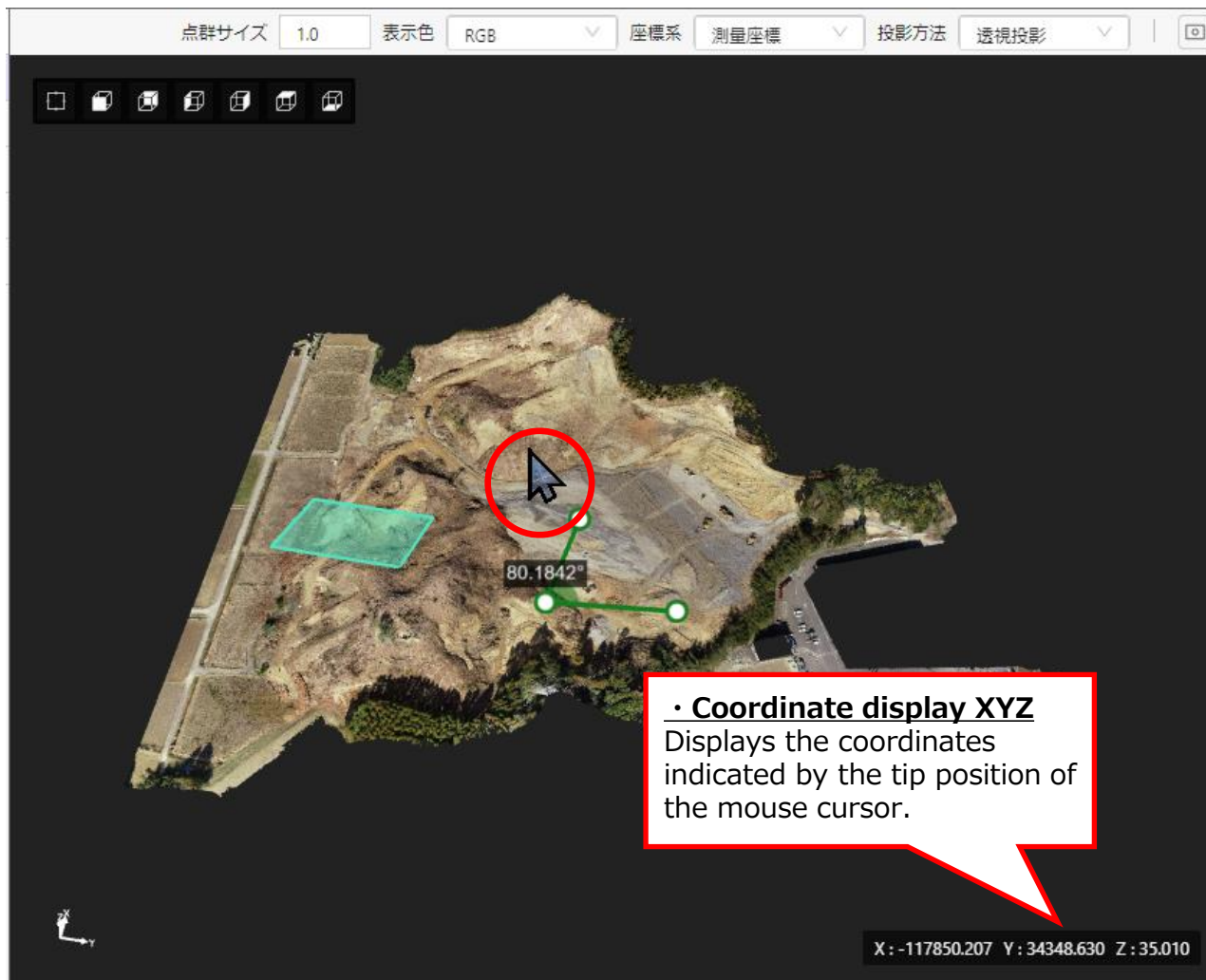
In the case of left-right rotation, it rotates around the Z-axis.

• Center display

In the case of vertical rotation, it rotates around the horizontal direction.

No.15

Displays the coordinate value to which the tip of the mouse cursor is pointing.



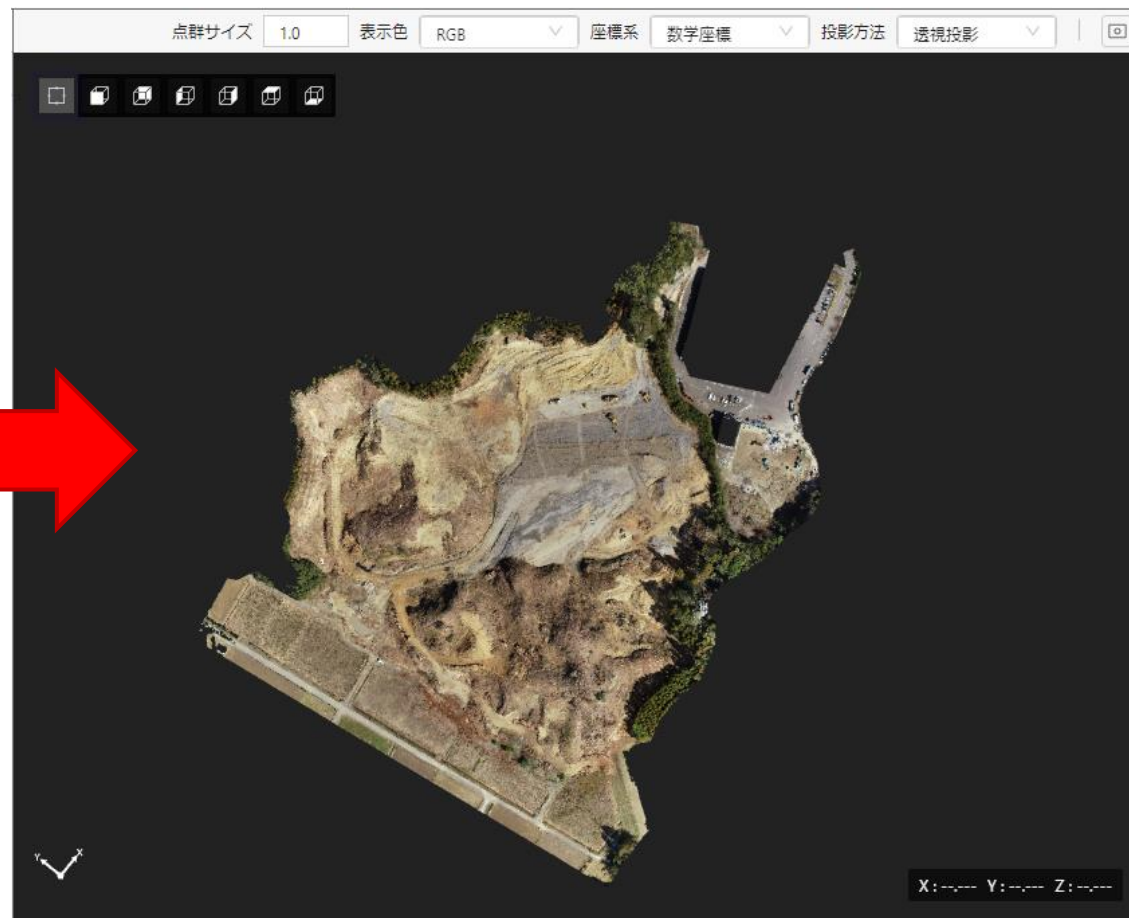
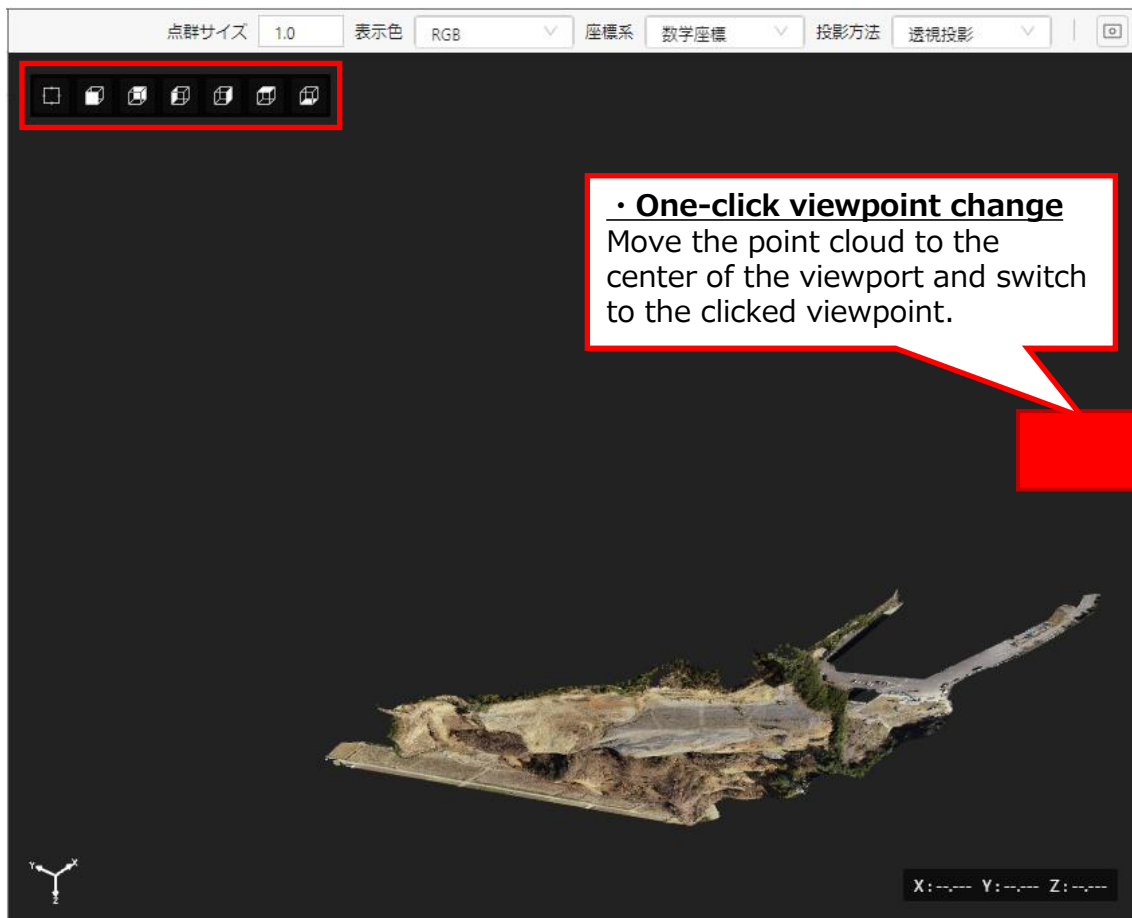
· **Coordinate display XYZ**
If the point cloud does not exist, it will be hyphenated.

X: --- Y: --- Z: ---

No.16

Change the angle of the point cloud and LandXML so that it is referenced from the selected viewpoint.

The viewpoint that can be selected can be changed from 7 directions: "top w/o changing direction", "front", "back", "left", "right", "top" and "bottom".

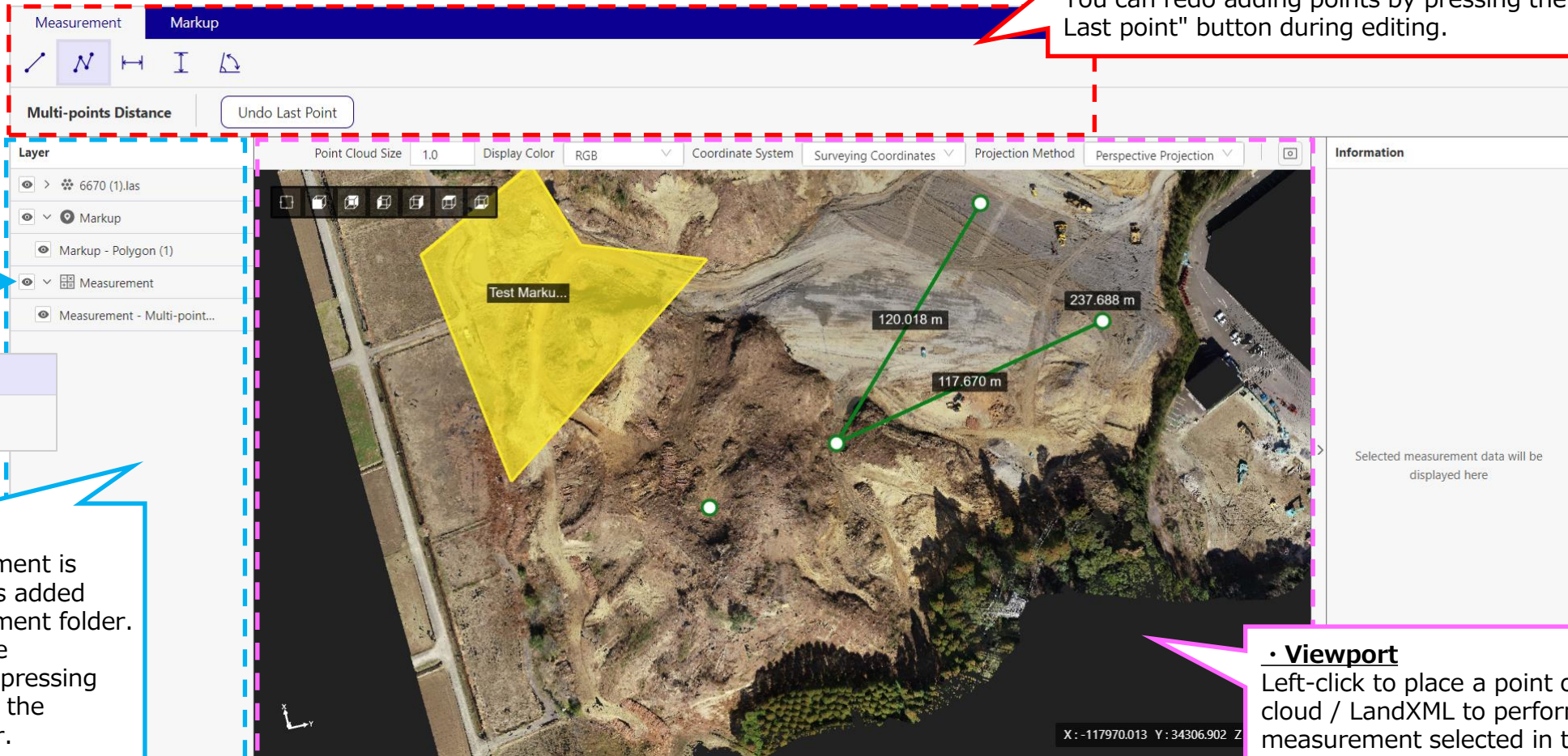


No.17

You can add measurements between points placed by left-clicking.

• **Toolbar**

Select the Measurement tab and select the measurement tool you want to add. You can redo adding points by pressing the "Undo Last point" button during editing.



• **Layer panel**

When the measurement is confirmed, a layer is added under the measurement folder. You can collapse the underlying layer by pressing the toggle button in the measurement folder.

• **Viewport**

Left-click to place a point on the point cloud / LandXML to perform the measurement selected in the toolbar.

No.18

You can view detailed information about the measurements that you have added.

• **Layer panel**
By making a selection, detailed measurement information is displayed in the information panel.

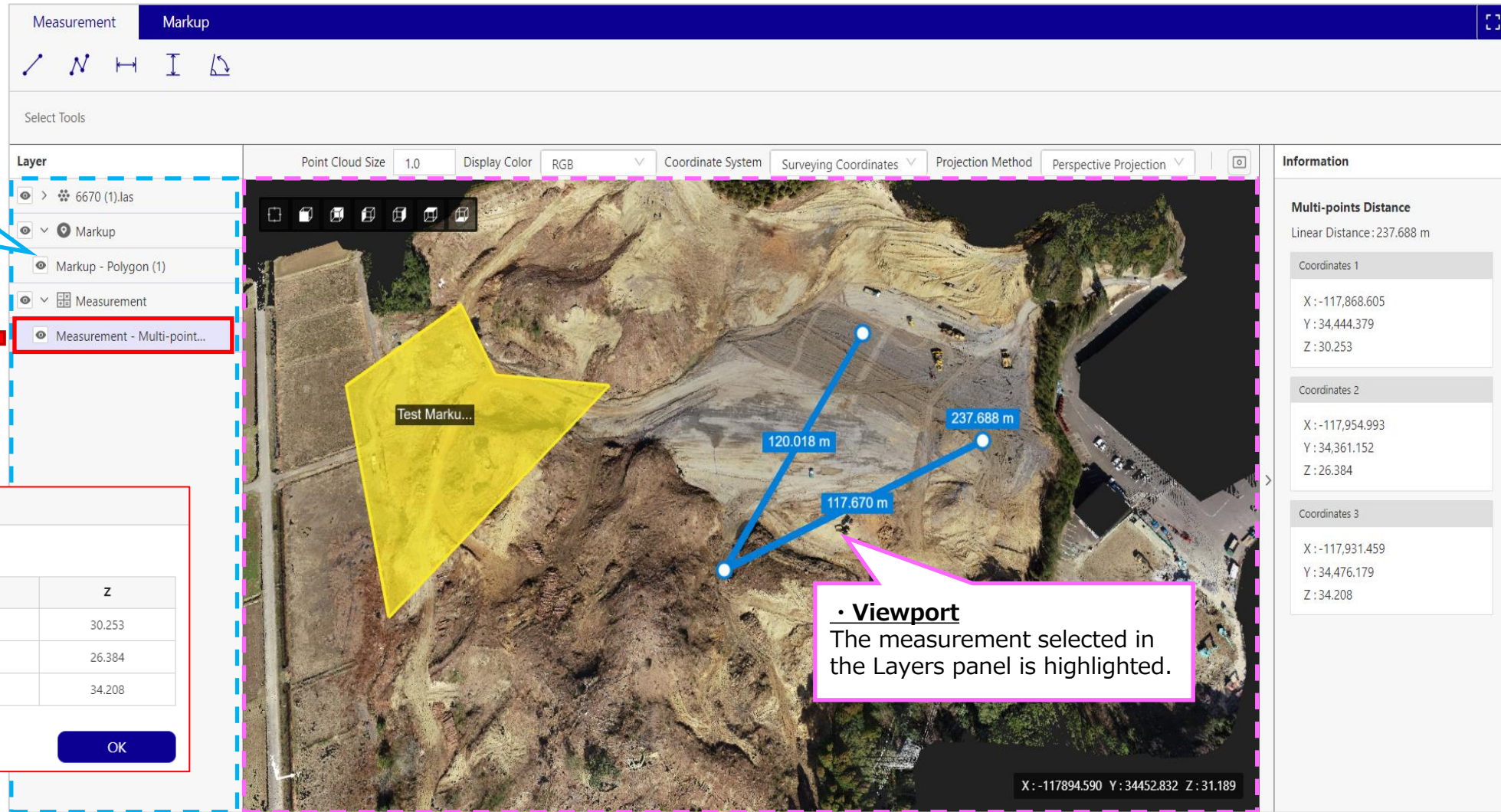
• **Detail screen**
You can double-click a layer to view detailed information on the child screen.

Multi-points Distance

Linear Distance: 237.688 m

No.	X	Y	Z
1	-117868.605	34444.379	30.253
2	-117954.993	34361.152	26.384
3	-117931.459	34476.179	34.208

OK



Layer

- 6670 (1).las
- Markup
- Markup - Polygon (1)
- Measurement
- Measurement - Multi-point...**

Information

Multi-points Distance

Linear Distance: 237.688 m

Coordinates 1

X: -117,868.605
Y: 34,444.379
Z: 30.253

Coordinates 2

X: -117,954.993
Y: 34,361.152
Z: 26.384

Coordinates 3

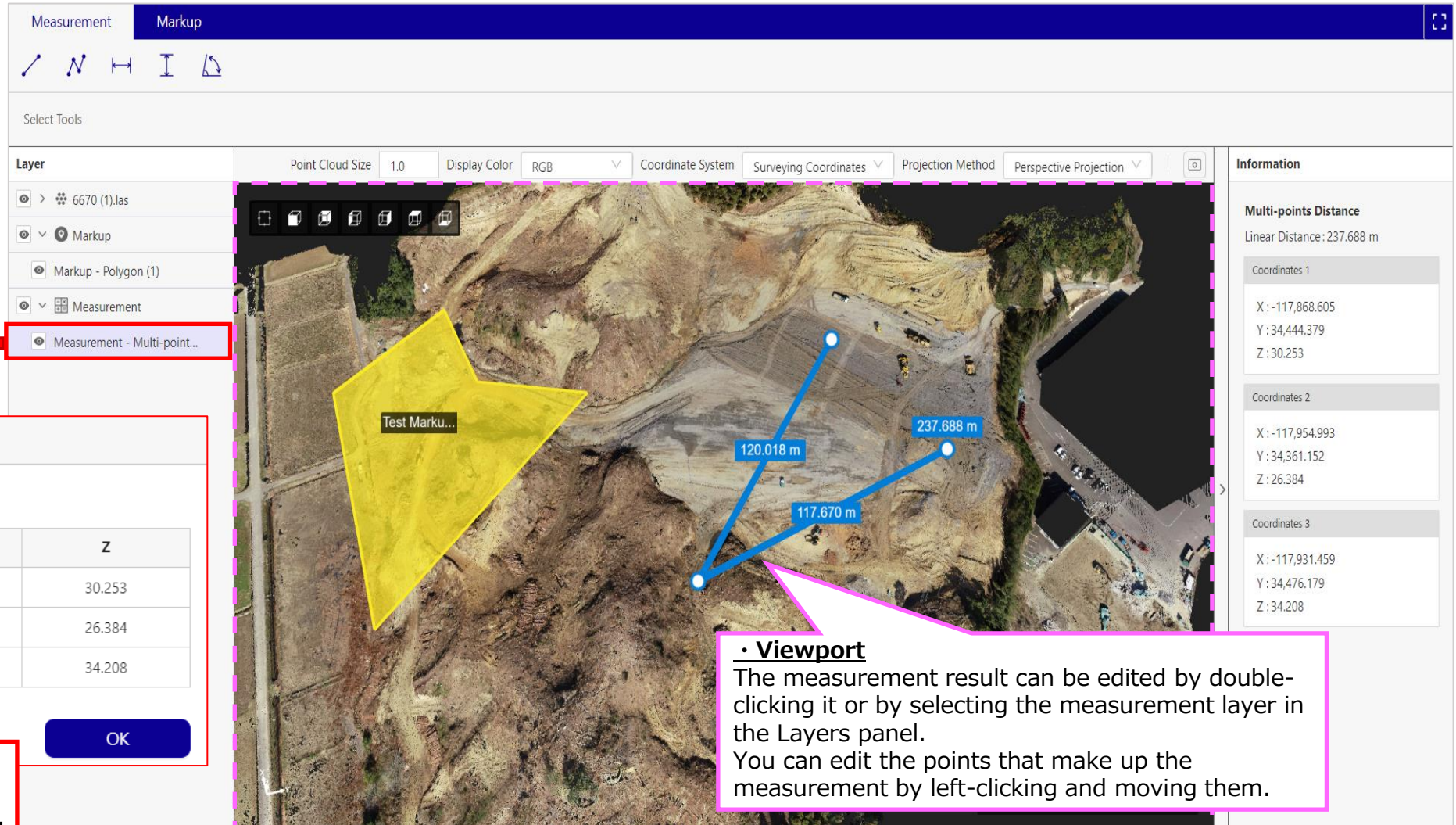
X: -117,931.459
Y: 34,476.179
Z: 34.208

X: -117894.590 Y: 34452.832 Z: 31.189

• **Viewport**
The measurement selected in the Layers panel is highlighted.

No.19

You can edit the measurements that you have added.



Layer

- 6670 (1).las
- Markup
 - Markup - Polygon (1)
- Measurement
 - Measurement - Multi-point...

Multi-points Distance

Linear Distance: 237.688 m

No.	X	Y	Z
1	-117868.605	34444.379	30.253
2	-117954.993	34361.152	26.384
3	-117931.459	34476.179	34.208

Information

Multi-points Distance

Linear Distance: 237.688 m

Coordinates 1

X: -117,868.605
Y: 34,444.379
Z: 30.253

Coordinates 2

X: -117,954.993
Y: 34,361.152
Z: 26.384

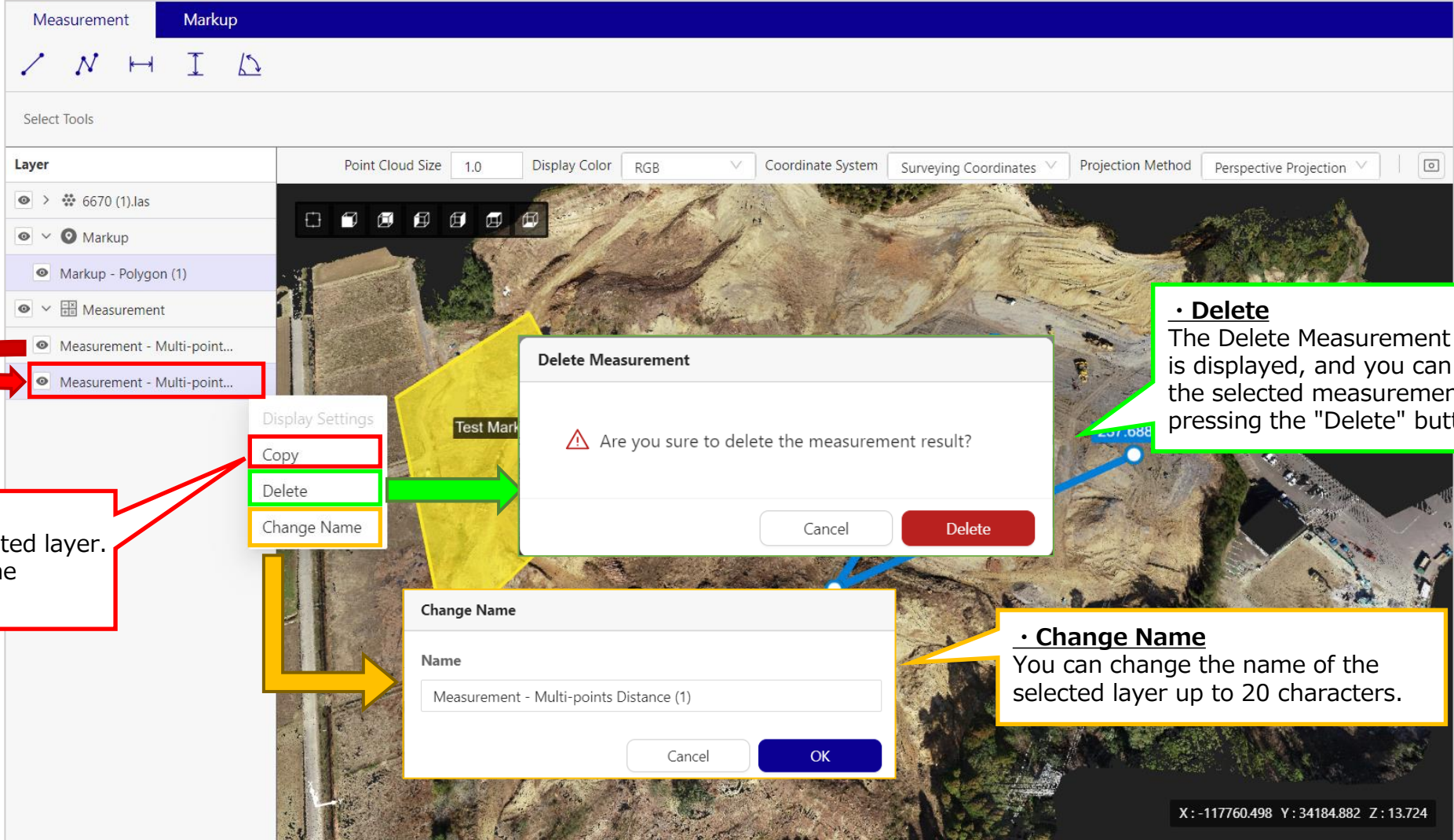
Coordinates 3

X: -117,931.459
Y: 34,476.179
Z: 34.208

• Viewport
The measurement result can be edited by double-clicking it or by selecting the measurement layer in the Layers panel. You can edit the points that make up the measurement by left-clicking and moving them.

• Detail screen
You can make detailed edits by changing the coordinate values directly.

No.20
 You can duplicate, delete, or rename a measurement from the context menu of the measurement layer.



• Copy
 You can duplicate the selected layer. After duplicating, display the rename dialog.

• Delete
 The Delete Measurement dialog is displayed, and you can delete the selected measurement by pressing the "Delete" button.

• Change Name
 You can change the name of the selected layer up to 20 characters.

No.22

Multi-points Distance measures the distance and the total distance between multiple points placed by left-clicking on the point cloud / LandXML.



• Distance between points

The distance between the two points is displayed between the points.

• Total distance

The end point of the point displays the total distance between all points. It is not displayed if there are two points.

• Points

You can measure the distance of multiple points up to 50 points. There are two ways to confirm the measurement.
 (1) Double-click; Add points and confirm
 (2) Right-click; Only confirmed with points that have already been added

No.25

The angle is measured by left-clicking on the point cloud / LandXML and measuring the angle consisting of two points placed in succession.



・ Reference points and angles
 Displays the angle created when the reference point (the first point) and the other two points are connected.

・ Points
 After adding the reference point (first point), you can measure any angle by adding the second and third points.

48.4385°

113.101 m

148.838 m

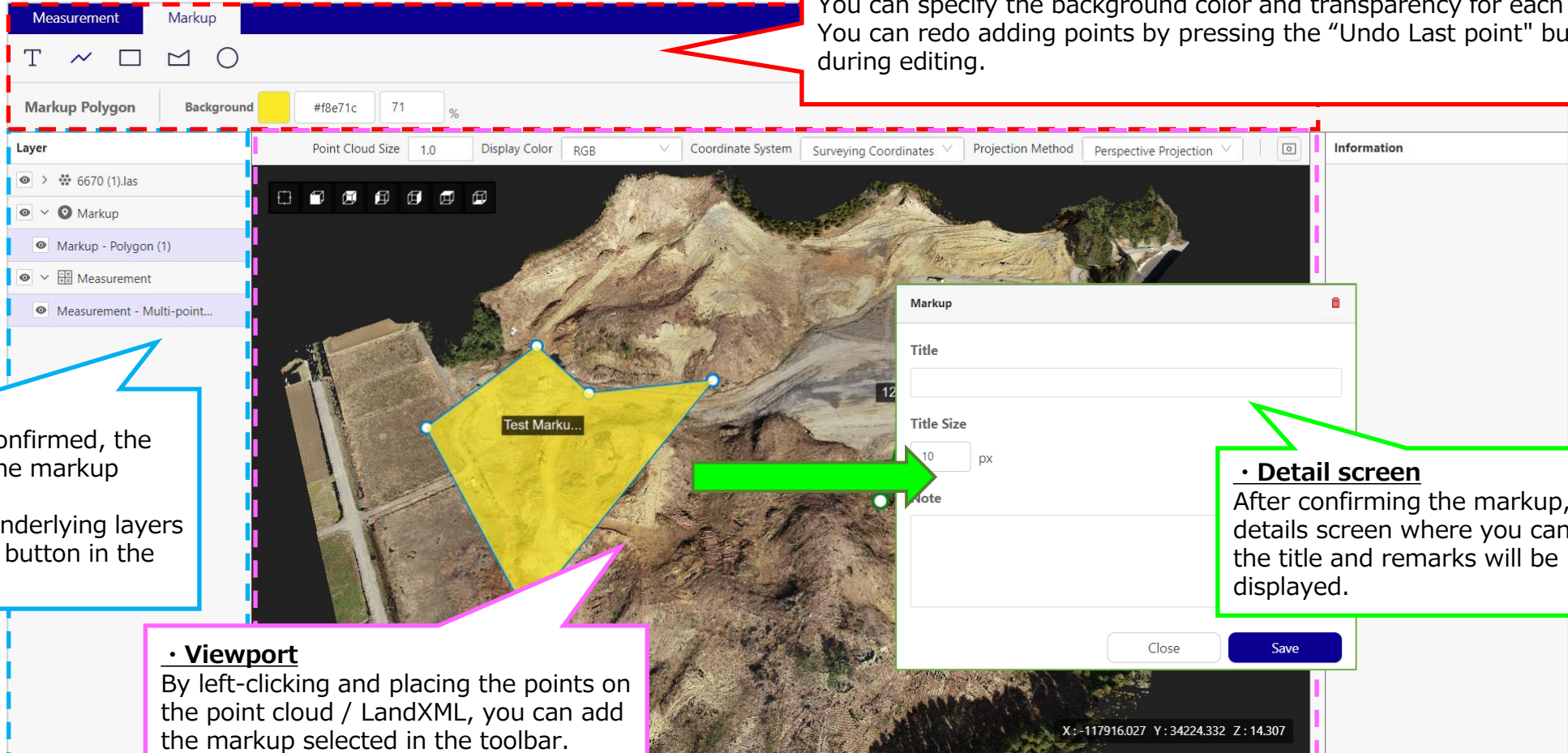
95.262 m

357.201 m

X: Y: Z:

No.26

You can add markup on the point cloud or LandXML by left-clicking.



• **Toolbar**

Select the Markups tab, and then select the markup tool you want to add. You can specify the background color and transparency for each markup. You can redo adding points by pressing the "Undo Last point" button during editing.

• **Layer panel**

When the markup is confirmed, the layer is added under the markup folder. You can collapse the underlying layers by pressing the toggle button in the markup folder.

• **Viewport**

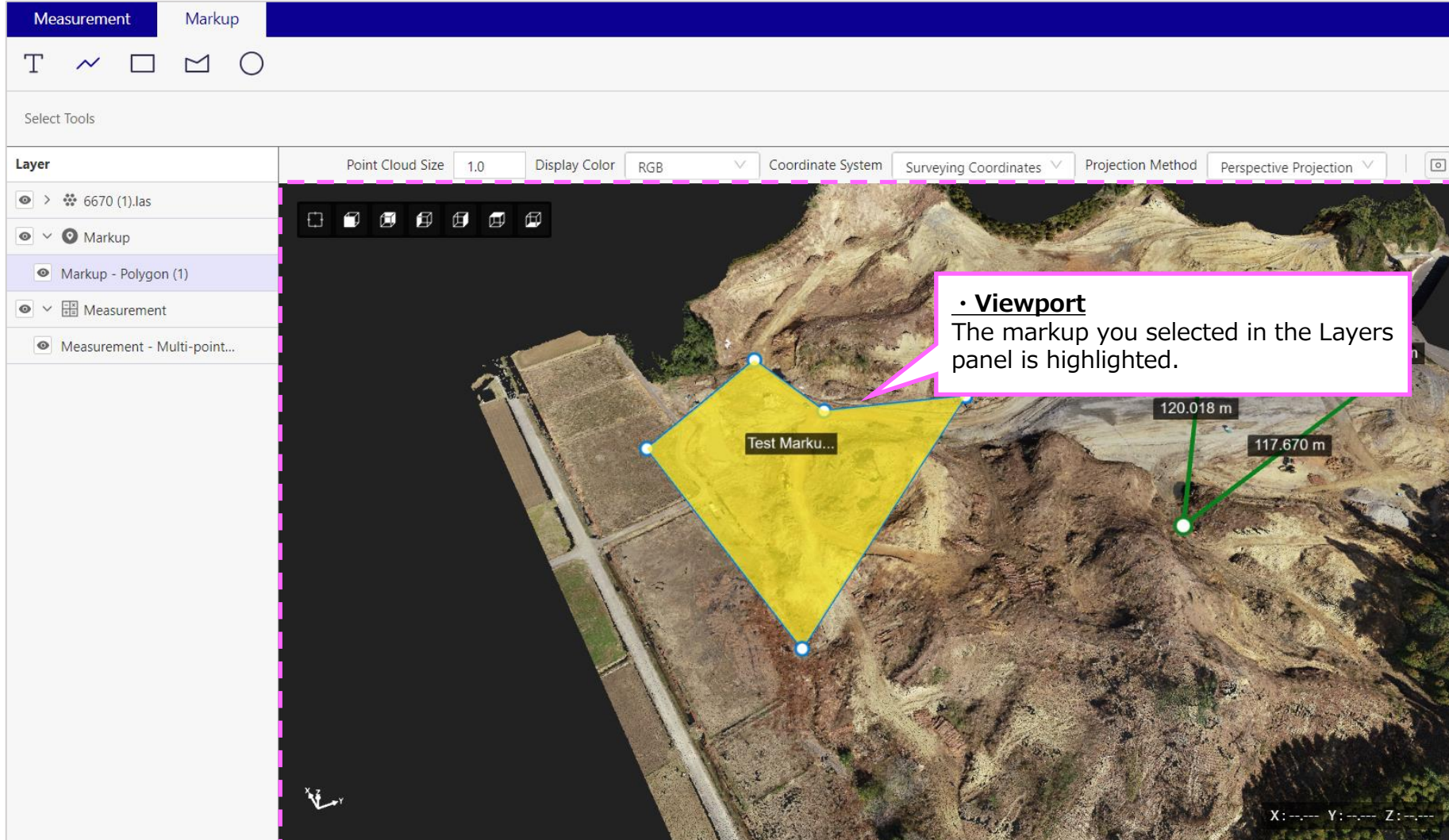
By left-clicking and placing the points on the point cloud / LandXML, you can add the markup selected in the toolbar.

• **Detail screen**

After confirming the markup, the details screen where you can enter the title and remarks will be displayed.

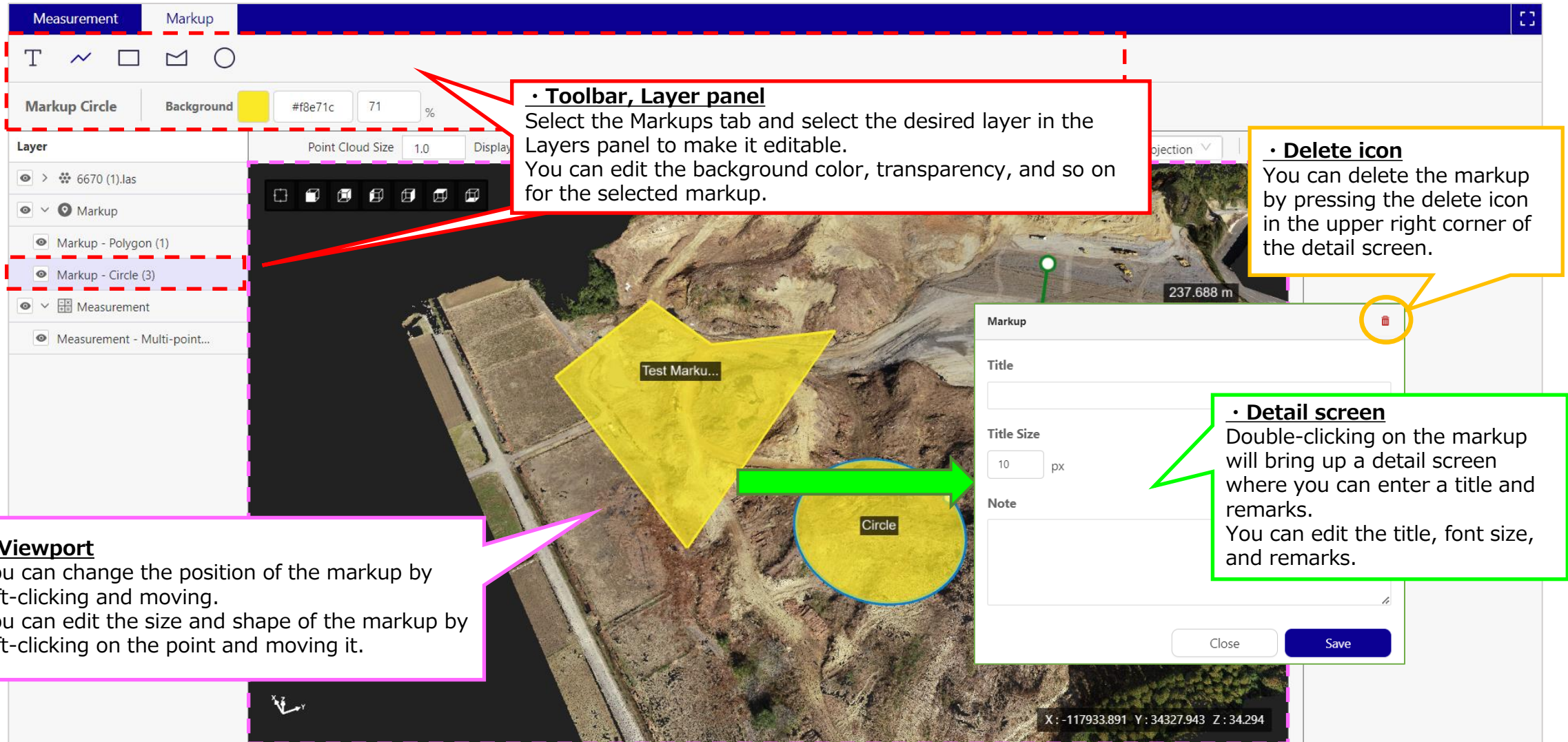
No.27

You can highlight the markup that you added.



No.28

You can edit the markup that you have added.



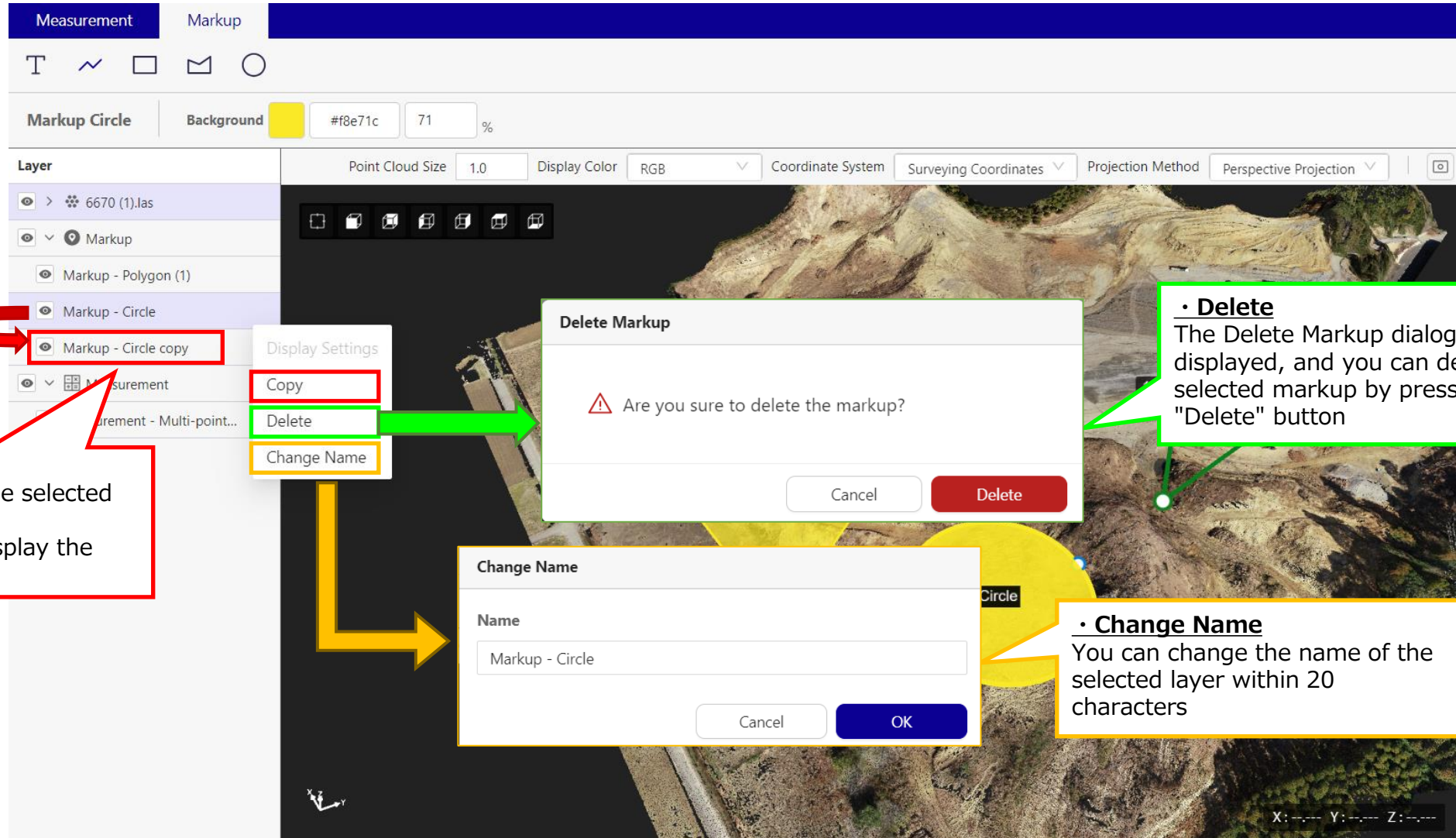
The screenshot displays the EarthBrain software interface with several callouts explaining markup editing features:

- Toolbar, Layer panel**
Select the Markups tab and select the desired layer in the Layers panel to make it editable. You can edit the background color, transparency, and so on for the selected markup.
- Delete icon**
You can delete the markup by pressing the delete icon in the upper right corner of the detail screen.
- Detail screen**
Double-clicking on the markup will bring up a detail screen where you can enter a title and remarks. You can edit the title, font size, and remarks.
- Viewport**
You can change the position of the markup by left-clicking and moving. You can edit the size and shape of the markup by left-clicking on the point and moving it.

The interface includes a 'Markup' toolbar with icons for text, line, polygon, and circle. The 'Markup Circle' settings show a background color of #f8e71c and 71% transparency. The 'Layer' panel lists 'Markup - Circle (3)' as the selected layer. The main viewport shows a 3D point cloud with a yellow polygon labeled 'Test Marku...' and a yellow circle labeled 'Circle'. A detail screen for the circle markup is open, showing fields for 'Title', 'Title Size' (10 px), and 'Note', with 'Close' and 'Save' buttons at the bottom.

No.29

You can duplicate, delete, and rename markups from the context menu of the markup layer.



The screenshot shows the EarthBrain interface with the Markup layer selected. The context menu is open, showing options: Copy, Delete, and Change Name. Three dialog boxes are overlaid on the interface:

- Delete Markup:** A dialog box with a warning icon and the text "Are you sure to delete the markup?". It has "Cancel" and "Delete" buttons.
- Change Name:** A dialog box with a text input field containing "Markup - Circle" and "OK" and "Cancel" buttons.
- Delete Markup (second instance):** A dialog box with a warning icon and the text "Are you sure to delete the markup?". It has "Cancel" and "Delete" buttons.

• Copy
 You can duplicate the selected layer
 After duplicating, display the rename dialog

• Delete
 The Delete Markup dialog box is displayed, and you can delete the selected markup by pressing the "Delete" button

• Change Name
 You can change the name of the selected layer within 20 characters

No.31, 33

You can place line and polygon markups that connect multiple points placed by left-clicking on the point cloud or LandXML.



The screenshot shows the Earth Brain software interface with a point cloud of a construction site. The top toolbar includes settings for point size (0.3), display color (RGB), coordinate system (Mathematical), and projection method (Perspective). Three callout boxes are present:

- Line markup:** A green line connects several points. The callout box states: "A markup that connects each point with a straight line, with the title appearing above the first point". The label "タイトル" (Title) is visible above the first point of the line.
- Polygon markup:** A purple polygon fills a specific area. The callout box states: "It is a markup that connects all the points with a straight line and fills the inside". The label "タイトル" (Title) is visible inside the polygon.
- Points:** Several individual points are marked with yellow circles. The callout box states: "You can create lines, polygons, and markups up to 10 points. There are two ways to finalize the markup: (1) Double-click; Add points and confirm; (2) Right-click; Only confirmed with points that have already been added".

