STONEYFIELDS, OXTED

TYPE 3 VISUALISATIONS - METHODOLOGY AND SURVEY DATA

DECEMBER 2024 | BLP_007_02A

SNAPSHOT VISUALS

CONTENTS

1.0 INTRODUCTION

1.1 The visualisations for the proposed scheme have been produced in accordance with the Landscape Institute Technical Guidance Note 06/19 (17 September 2019).

1.2 There are 4 Visualisation Types within the LI guidance

Type 1 - Annotated Viewpoint Photograph - To represent context and outline or extent of development and of key features

Type 2 - 3D Wireline / Model (non-photographic) - To represent 3D form of development / context

Type 3 - Photomontage / Photowire - To represent appearance, context, form and extent of development

Type 4 - Photomontage / Photowire Survey / Scale Verifiable - To represent scale, appearance, context, form, and extent of development

The visualisations produced for the scheme accord to Type 3 Visuals.

1.3 The Landscape Institute defines Type 3 visuals as:

'intended to represent design, form and context to a reasonable degree of objectivity and accuracy, one which can be understood and relied on by competent authorities and others.'

1.4 Due to the close proximity of the viewpoints to the proposed scheme, the visualisations have been produced as Type 3 Visuals in order to show a wider horizontal field of view. Although they use cylindrical projection at a 90° HFoV, they have been produced using the highest accuracy possible, and follow the guidance for Type 4 Visuals as closely as possible with verified survey data and techniques.

2.0 VIEWPOINT LOCATION

2.1 A total of 16 viewpoints were identified as requiring Type 3 visuals, as shown in Figure 1.

Figure 1: Viewpoint Location Plan

3.0 METHODOLOGY

Site Visit and Viewpoint Locations

Snapshot Visuals carried out the site photography and survey on the 12th November 2024.

Photography

For each agreed viewpoint location, high resolution photography was taken with a full frame digital SLR camera. The camera is set up on a calibrated tripod at a height of 1.5m to replicate a typical eye level. The camera was levelled horizontally and vertically using a tripod mounted levelling base and two camera mounted spirit levels. The location of the camera was GPS/RTK recorded and photographed.

Lens Selection

In order to capture the full vertical extent of the proposed development and an appropriate amount of contextual built form, a 50mm lens in either portrait or landscape format was used for the photography.

Photography Equipment

- Canon 6D mkII digital SLR camera (35mm)
- Canon EF 50mm f/1.4 USM Lens
- Canon TS-E 24mm f.3.5 Lens (for optional 24mm shots)
- Tripod indexed pano head
- Levelling base with spirit level

Field Survey Methodology & Survey Data Post Processing

A RTK Rover with LIDAR and Photogrammetry capabilities was used to scan relevant areas or points within each view. The RTK Rover uses a combination of LIDAR points and Photogrammetry to build a 3D point cloud of the scanned area, which is then processed on PIX4D Cloud. This 3D point cloud is accurate to +/- 20mm. The point cloud is exported as a LAS dataset and then imported into 3ds Max for alignment. The RTK Rover is also used to pinpoint the location and height of the camera lens.

Survey Equipment

- RTK Rover & Iphone 13 Pro with HxGN SmartNet Real-Time Kinematic (RTK) Corrections to provide a tolerance of +/- 20mm.

Photography Post Processing

The relevant images were stitched using PTGui to create a 90° cylindrical panorama. The stitched panoramas were then edited in Adobe Photoshop to adjust the levels and exposure where necessary.

The Development Proposal

Snapshot Visuals were provided with PDF and DWG files of the proposed layout by the project architect as well as a 3D model.

Once imported into 3ds Max, the proposals were aligned to the OSGB36 co-ordinate system to correlate with the 3D survey data.

Photographic Alignment within the 3d Environment

A virtual camera was created within 3ds Max using the surveyed camera location, recorded target point and field of view (FOV) based on the camera and lens combination selected for the shot .

The baseline photograph was attached as a background to this view, to assist the Visualiser in aligning the point cloud to each corresponding background point, based on the Camera Matching Technique.

Where access is limited, or survey points are limited, opensource LIDAR is used for alignment.

At this stage a 2nd member of the visualisation team cross-checked the camera alignment to verify the view was correctly set.

Using this virtual camera, a render was created of the aligned model at a resolution to match the baseline photograph. This was overlaid onto the baseline photograph to assess the accuracy of the alignment. When using a wide-angle lens, observations outside the circle of distortion are given less weighting.

Final Rendering and Post-Production

The photomontages were produced in line with Landscape Institute TGN 06/19: Visual Representation of Development Proposals. They were produced as Type 3 verified visuals.

The final renders were exported at the same resolution as the baseline photography. Multi pass renders are exported to give the visualiser more control in enhancements of the final image. These multi passes may included but not limited to Reflections, Refractions, Shadows, Lighting, Ambient Occlusion and Global Illumination.

The multi pass renders are layered within Adobe Photoshop and blended together to produce the correct level of detail and photo-realistic feel. Finally, masking is applied to the image. Endless aesthetic effects can be applied to the rendered image to enhance the realism of the final image and/or make adjustments as a result of proposed material changes. However, the visualiser always attempts to be faithful to the proposed design within the environment.

The final image is verified by a second visualiser to check the appearance, masking and form of the development.

The final photomontages are then saved in an appropriate format for inclusion within the InDesign document. The renders were set out in accordance with the LI TGN 06/19 with the relevant data on each sheet.

Software Used

- AutoCAD
- 3ds Max 2024
- V-Ray 6 for 3ds Max
- Adobe Photoshop
- Adobe InDesign
- PTGui 12.16
- PIX4D Cloud
- PIX4D Catch

NOTE

The visualisations have been prepared using a 3d model of the Illustrative Masterplan rather than a model of the Land Use and Building Heights parameter plans submitted for approval. This has allowed a realistic representation of how ridgelines, massing, the relationship between units, landscaping etc could present in the view from each representative viewpoint. Details of the layout, materials, plant species, hard materials etc would be subject to specification and approval.

4.0 DATA SOURCES

Supplied Data

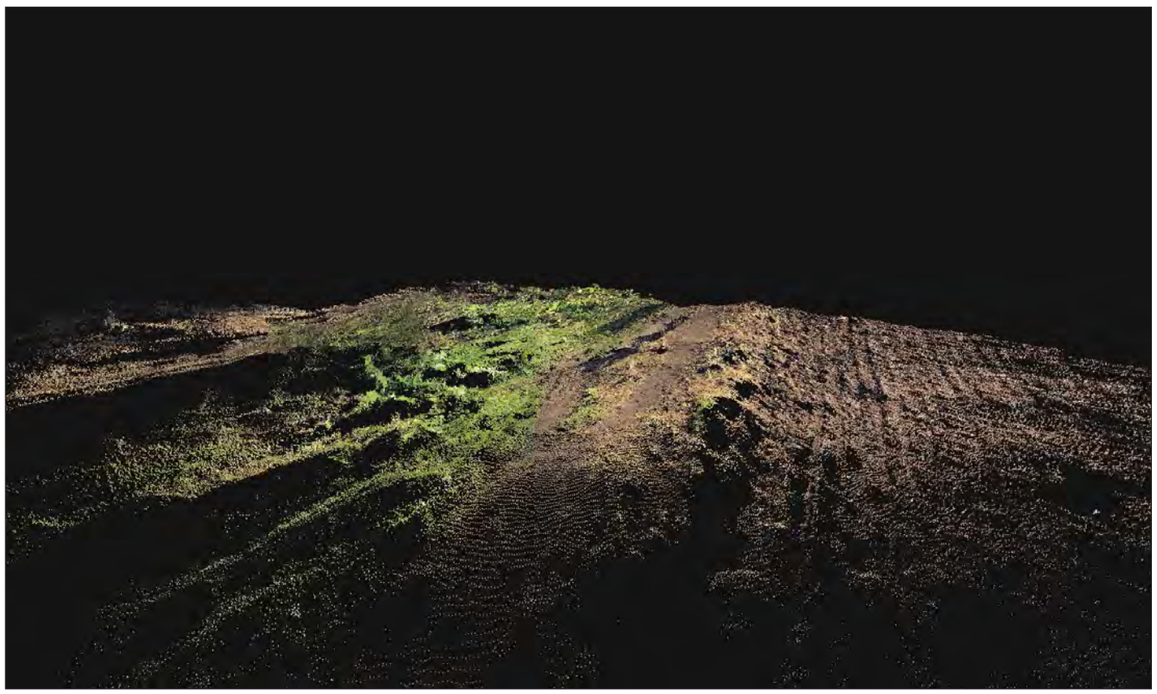
Asset	File Type	Supplier	Reference	Date Supplied	Comments
Site layout & 3D model	dwg/skp	Omega Architects	3129-A-1005-PR-F_Site Layout / Site Model	11/11/2024	imported into 3ds Max
Revised 3D model	skp	Omega Architects	Site Model	04/12/2024	imported into 3ds Max
Topo survey	dwg	Omega Architects	2699-Oxted 3D Ground Model	11/11/2024	imported into 3ds Max
Landscape plan	pdf	CSA Environmental	6514_100_Landscape Strategy Plan	22/11/2024	Modelled in 3ds Max
Elevations	pdf & dwg	Corgan	Various	28/10/2024	Modelled in 3ds Max

Generated Data by Snapshot Visuals

Asset	File Type	Reference	Date	Comments
Point Cloud	las	Point_Cloud_VP01 - VP16.las	12/12/2024	Imported into 3ds Max
Viewpoint Locations	csv	BLP_007_vps-PIX4Dmatic.csv	12/12/2024	Imported into 3ds Max

5.0 TYPE 4 VISUALS VERIFICATION DATA

Verification Data - LIDAR and Photogrammetry scans taken on Site

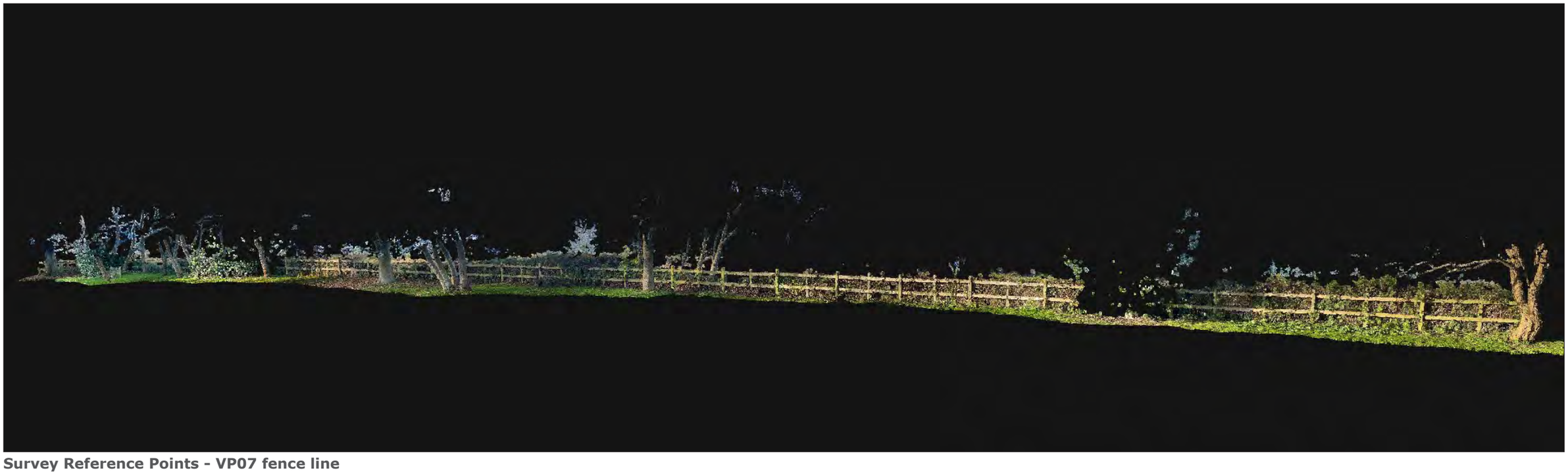


Survey Reference Points - VP01 footpath scan

Survey Reference Points - VP02 footpath scan

Verification Data - LIDAR and Photogrammetry scans taken on Site

Survey Reference Points - DEFRA LIDAR DSM data used for alignment for VP03, VP04, VP05 and VP06



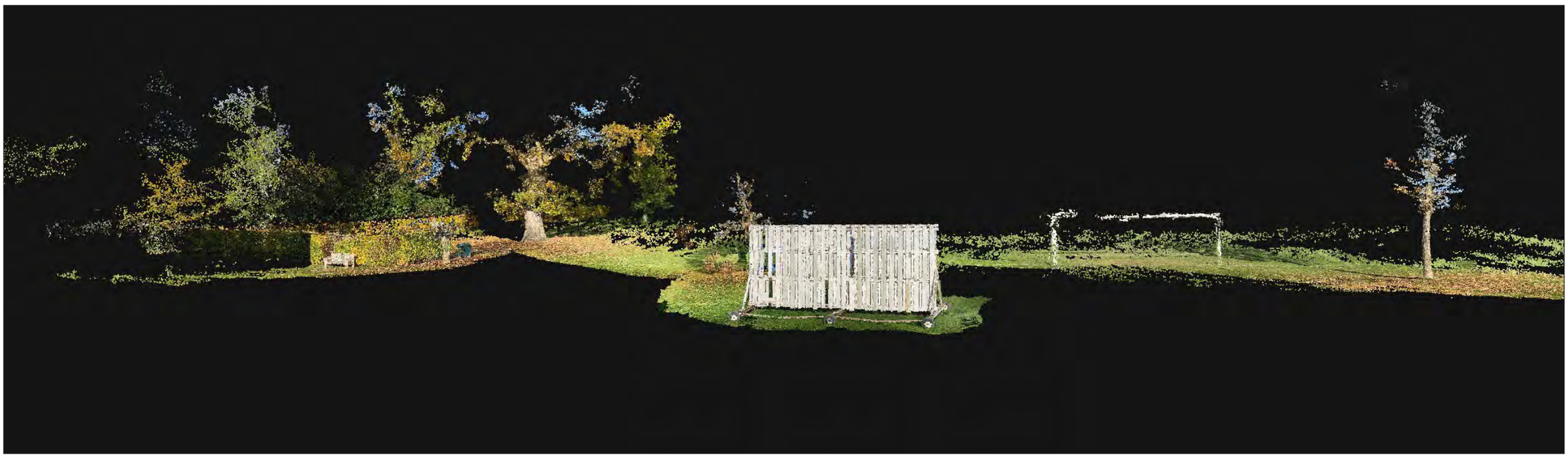
Survey Reference Points - VP07 fence line

Verification Data - LIDAR and Photogrammetry scans taken on Site

Survey Reference Points - VP05B

Survey Reference Points - VP08 cemetery entrance

Verification Data - LIDAR and Photogrammetry scans taken on Site



Survey Reference Points - VP09

Survey Reference Points - VP10

Verification Data - LIDAR and Photogrammetry scans taken on Site

Survey Reference Points - VP11

Survey Reference Points - VP12

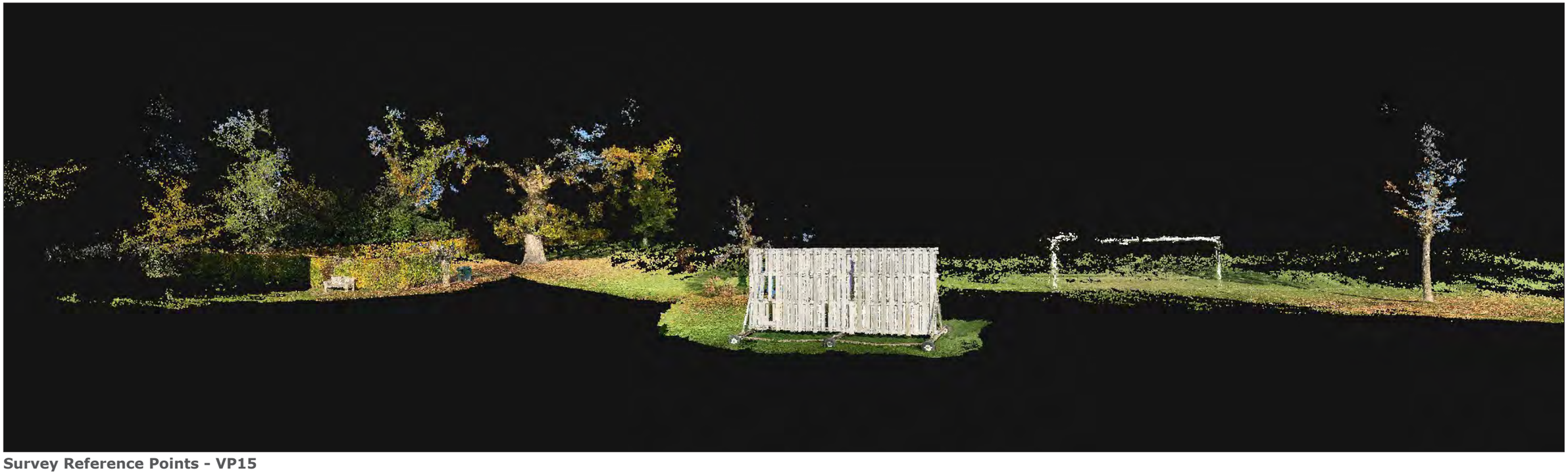
Verification Data - LIDAR and Photogrammetry scans taken on Site

Survey Reference Points - VP13

Survey Reference Points - VP14 part 1

Verification Data - LIDAR and Photogrammetry scans taken on Site

Survey Reference Points - VP14 part 2



Survey Reference Points - VP15

Verification Data - LIDAR and Photogrammetry scans taken on Site

Survey Reference Points - VP16

Viewpoint 1 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

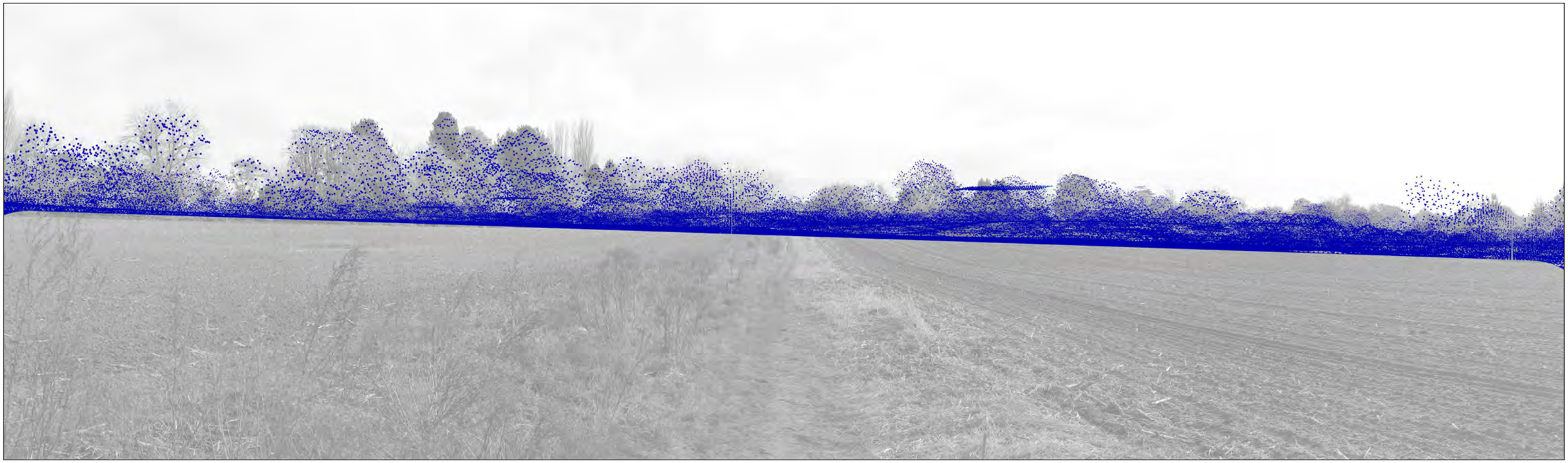
Viewpoint 2 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 3 - Verification Data Alignment



Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

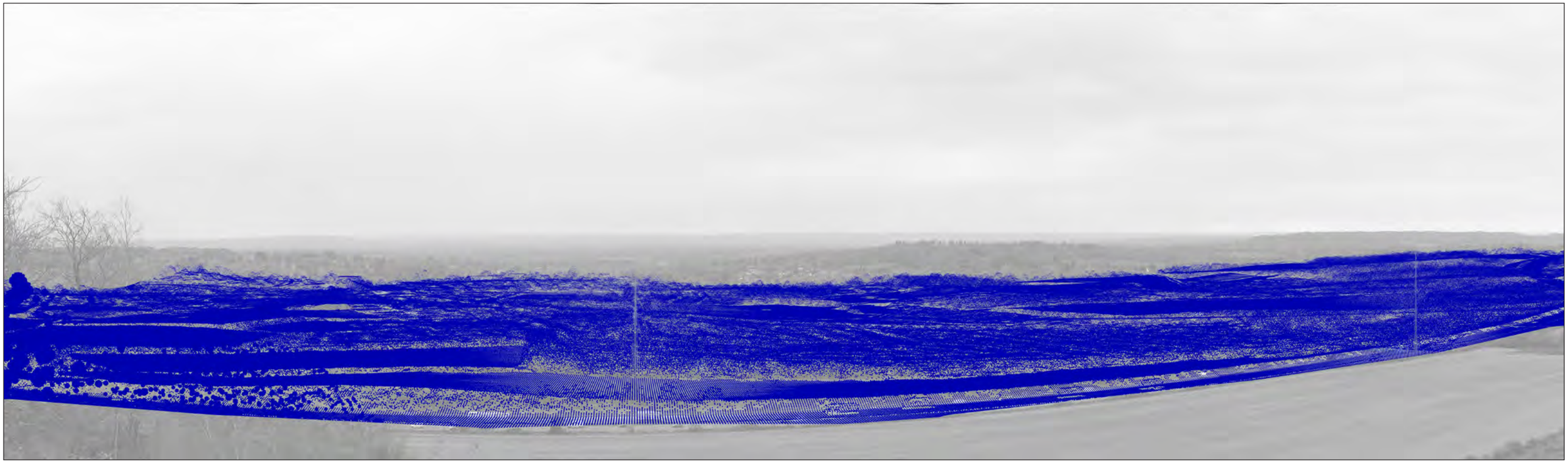
Viewpoint 4 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 5 - Verification Data Alignment

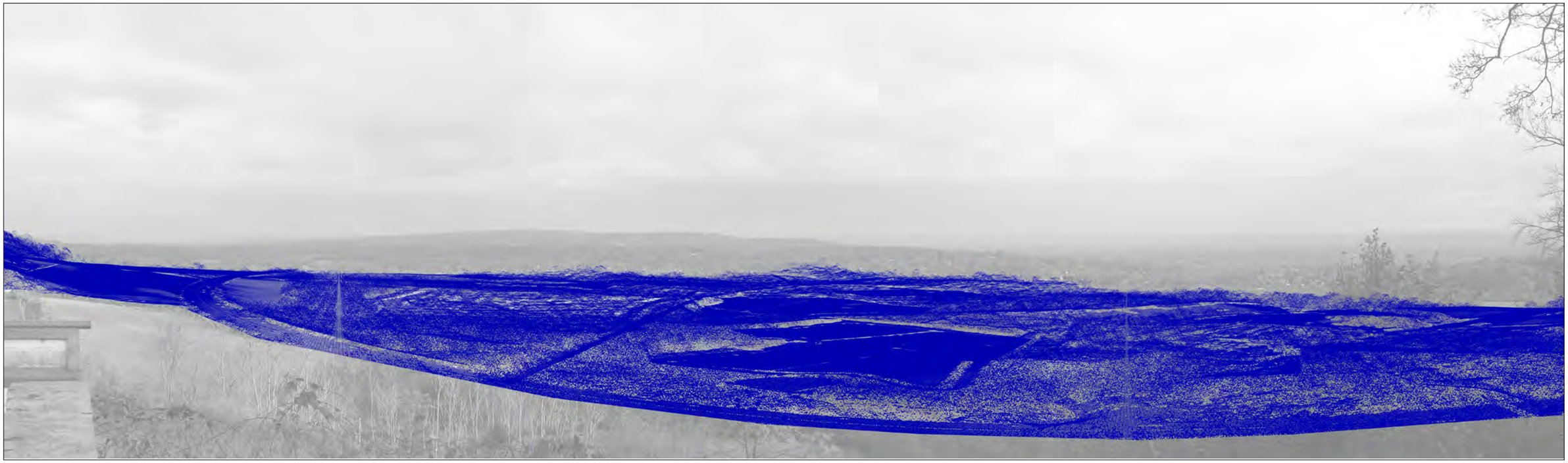


Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 6 - Verification Data Alignment



Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 7 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 8 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 9 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

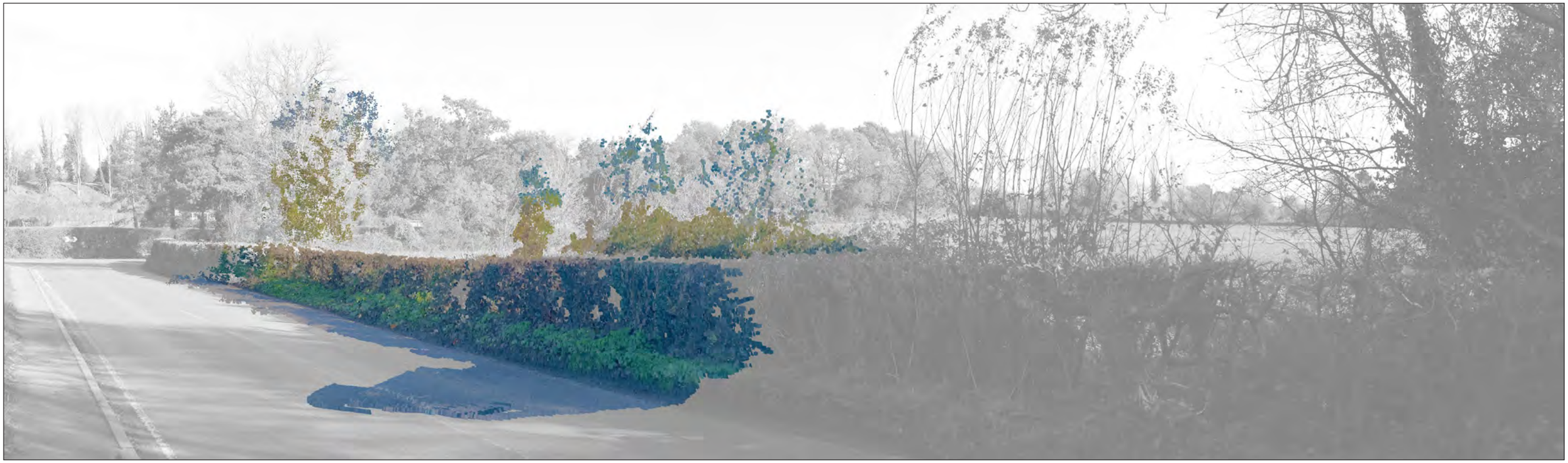
Viewpoint 10 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 11 - Verification Data Alignment



Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 12 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 13 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 14 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 15 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

Viewpoint 16 - Verification Data Alignment

Survey Reference Points - Point Cloud Alignment on existing photography

Viewpoint Location

Tripod Location

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