Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 97.9m	Date & Time: 04/06/2024,15:12:14

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 10
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 97.9m	Date & Time: 04/06/2024,15:12:14

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 10
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 115.8m	Date & Time: 06/06/2024,09:47:18

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 11
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 115.8m	Date & Time: 06/06/2024,09:47:18

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 11
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 115.8m	Date & Time: 06/06/2024,09:47:18

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 11
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

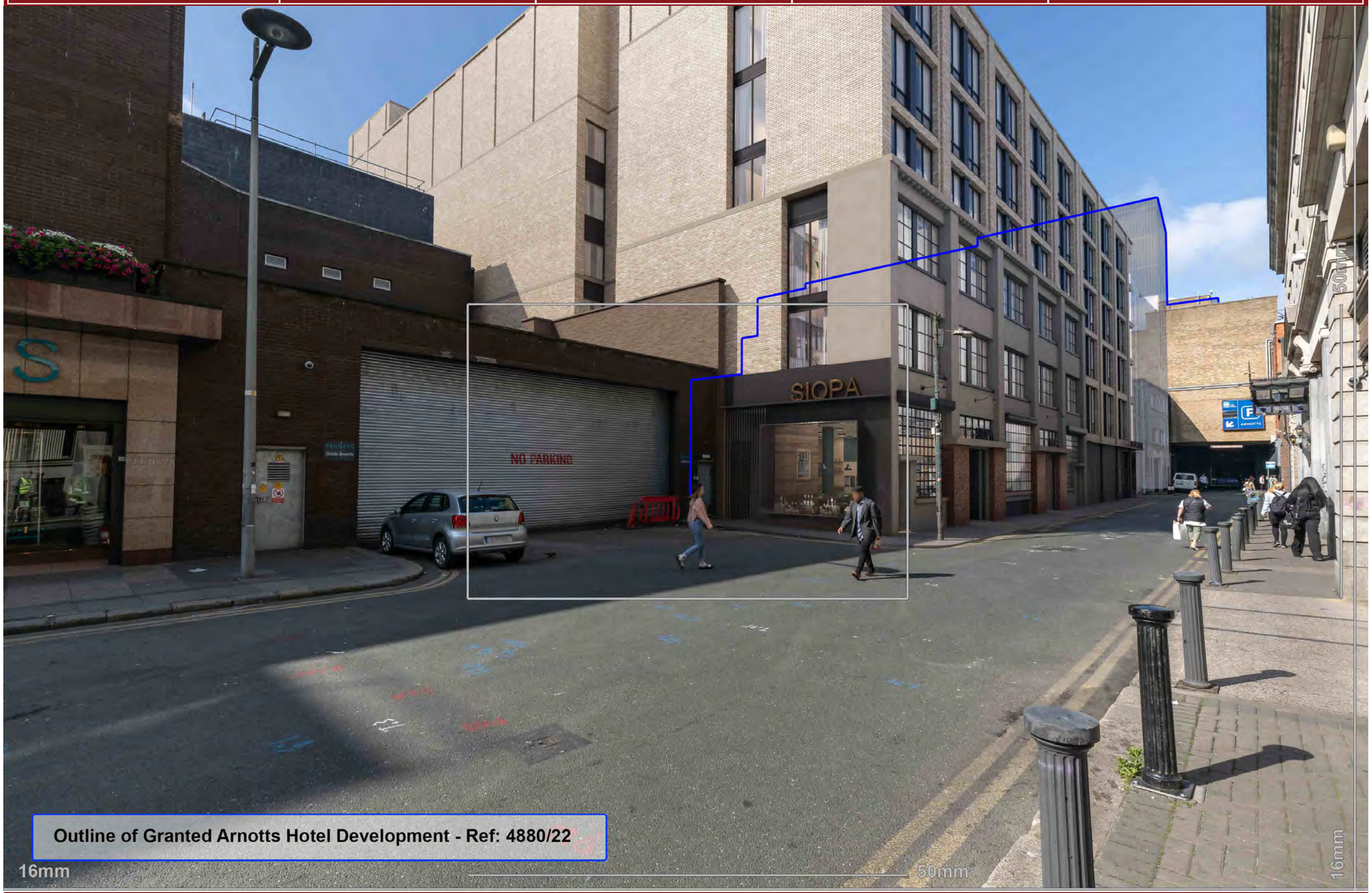
Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 19.3m	Date & Time: 06/06/2024,09:47:18

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 12
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 19.3m	Date & Time: 06/06/2024,09:47:18

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 12
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 19.3m	Date & Time: 06/06/2024,09:47:18



Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 12
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 10.2m	Date & Time: 24/06/2024,15:51:21

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 13
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

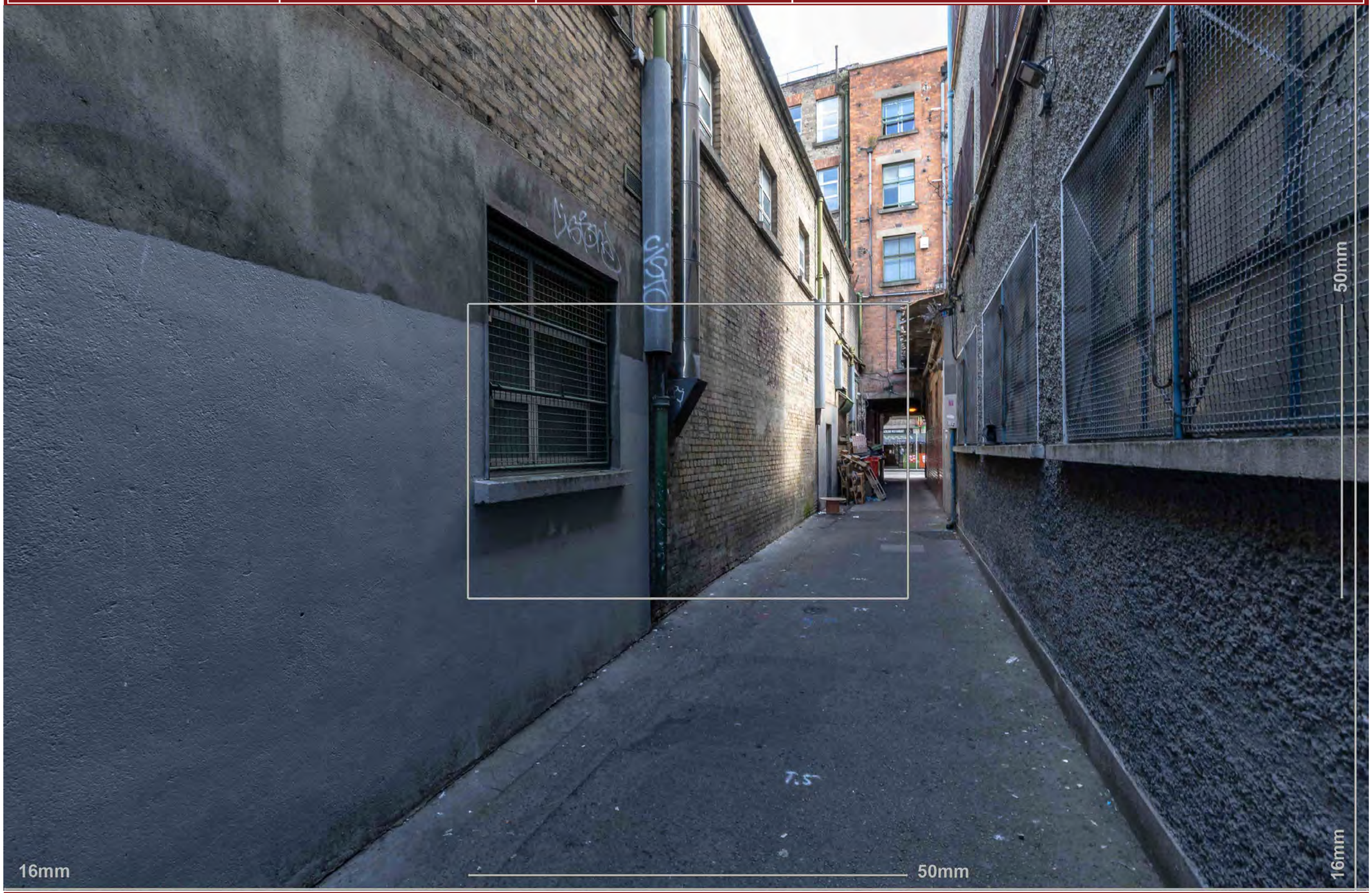
Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 10.2m	Date & Time: 24/06/2024,15:51:21

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 13
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 10.2m	Date & Time: 24/06/2024,15:51:21

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 13
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 4.6m	Date & Time: 24/06/2024,15:47:23



Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 14
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 4.6m	Date & Time: 24/06/2024,15:47:23

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 14
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 16mm	Approx Dist: 4.6m	Date & Time: 24/06/2024,15:47:23

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 14
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 150.9m	Date & Time: 06/06/2024,09:43:11

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 15
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 150.9m	Date & Time: 06/06/2024,09:43:11

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 15
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 150.9m	Date & Time: 06/06/2024,09:43:11

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 15
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 198.1m	Date & Time: 06/06/2024,09:36:35

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 16
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 198.1m	Date & Time: 06/06/2024,09:36:35

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 16
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 198.1m	Date & Time: 06/06/2024,09:36:35

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 16
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

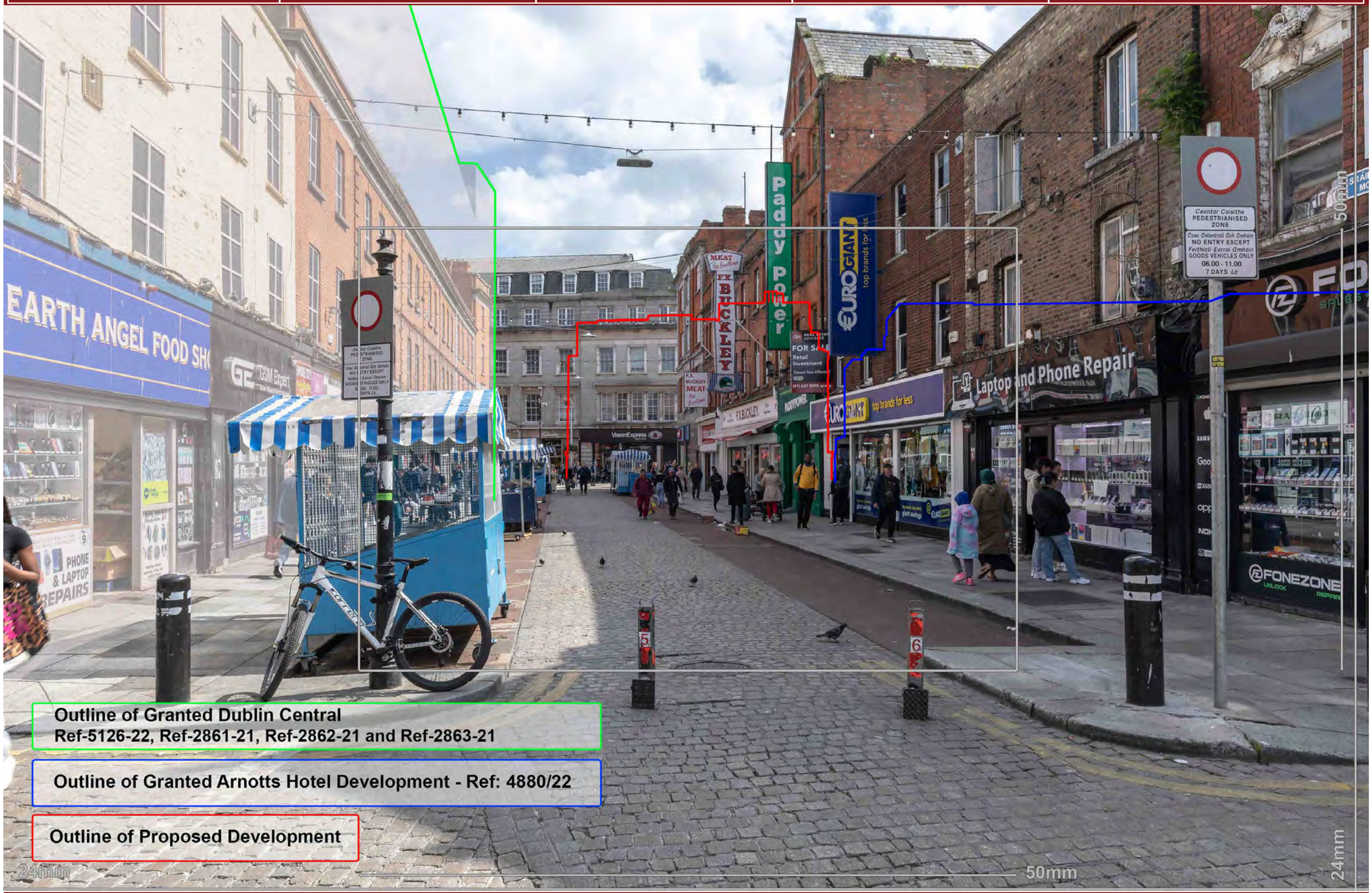
Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 152.1m	Date & Time: 04/06/2024,15:33:41

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 17
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 152.1m	Date & Time: 04/06/2024,15:33:41

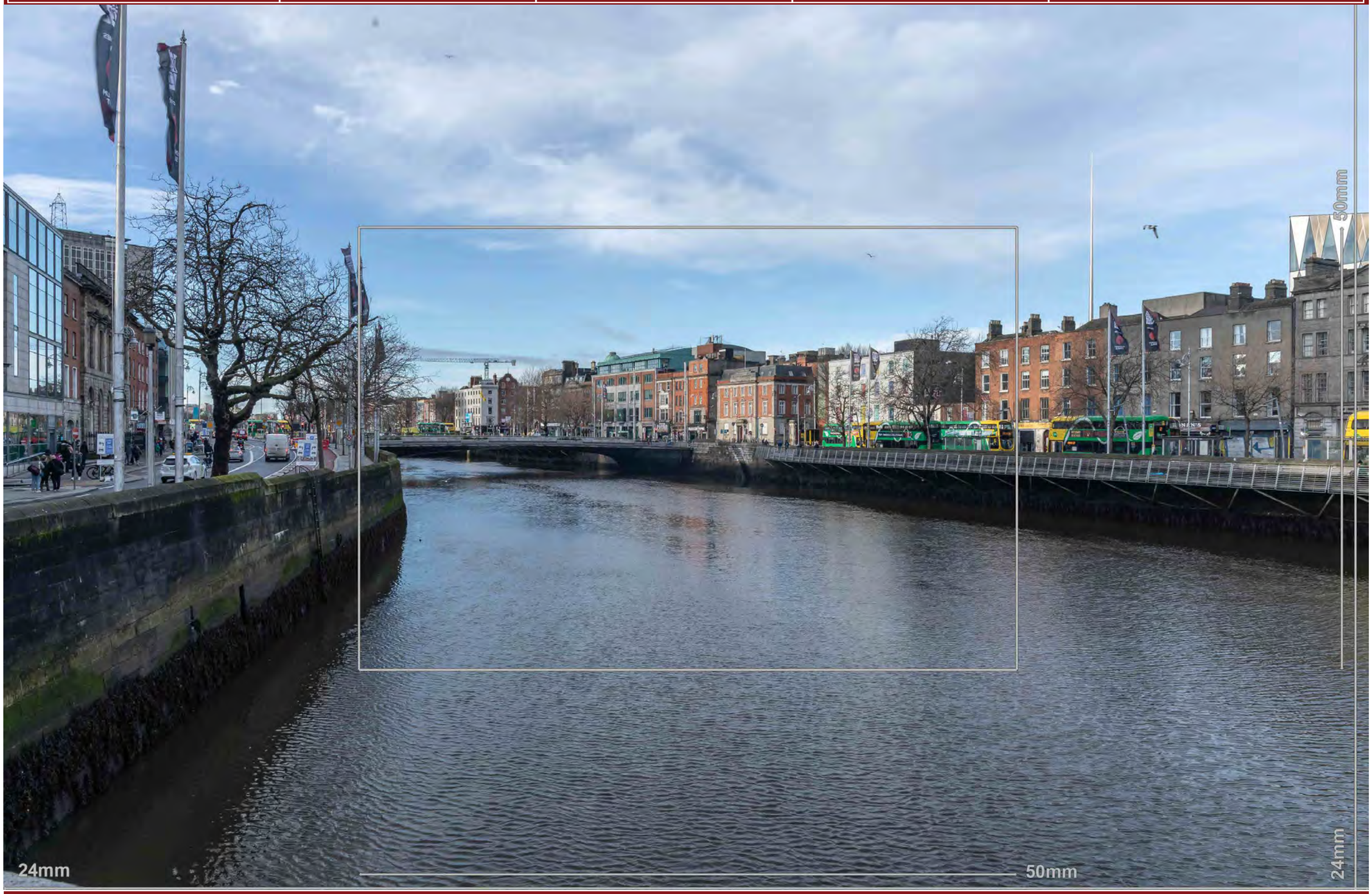
Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 17
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 152.1m	Date & Time: 04/06/2024,15:33:41



Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 17
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF24-70mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 401m	Date & Time: 06/01/202511:25:07

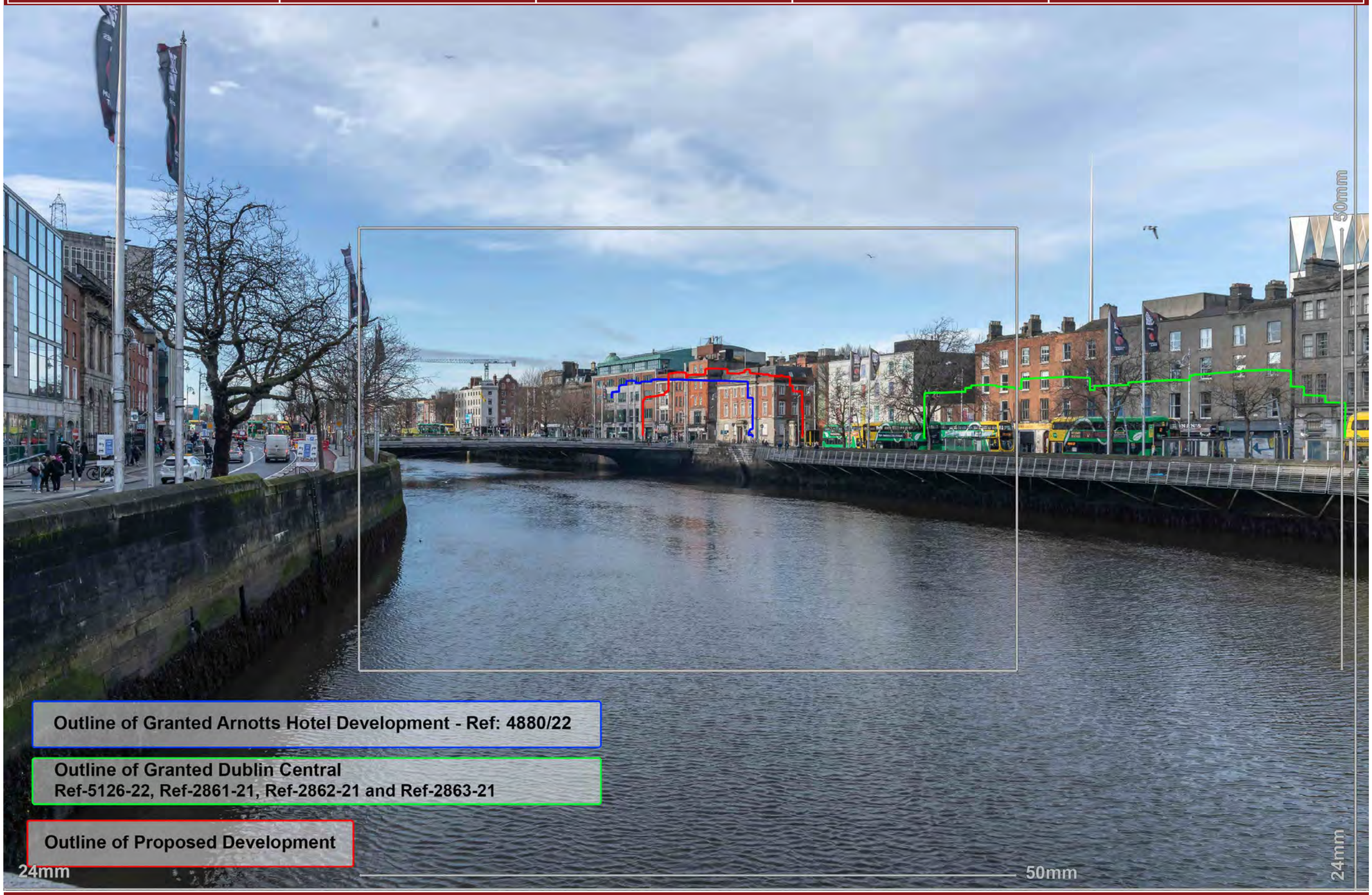


Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 18
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF24-70mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 401m	Date & Time: 06/01/202511:25:07

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 18
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF24-70mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 401m	Date & Time: 06/01/202511:25:07



Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 18
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

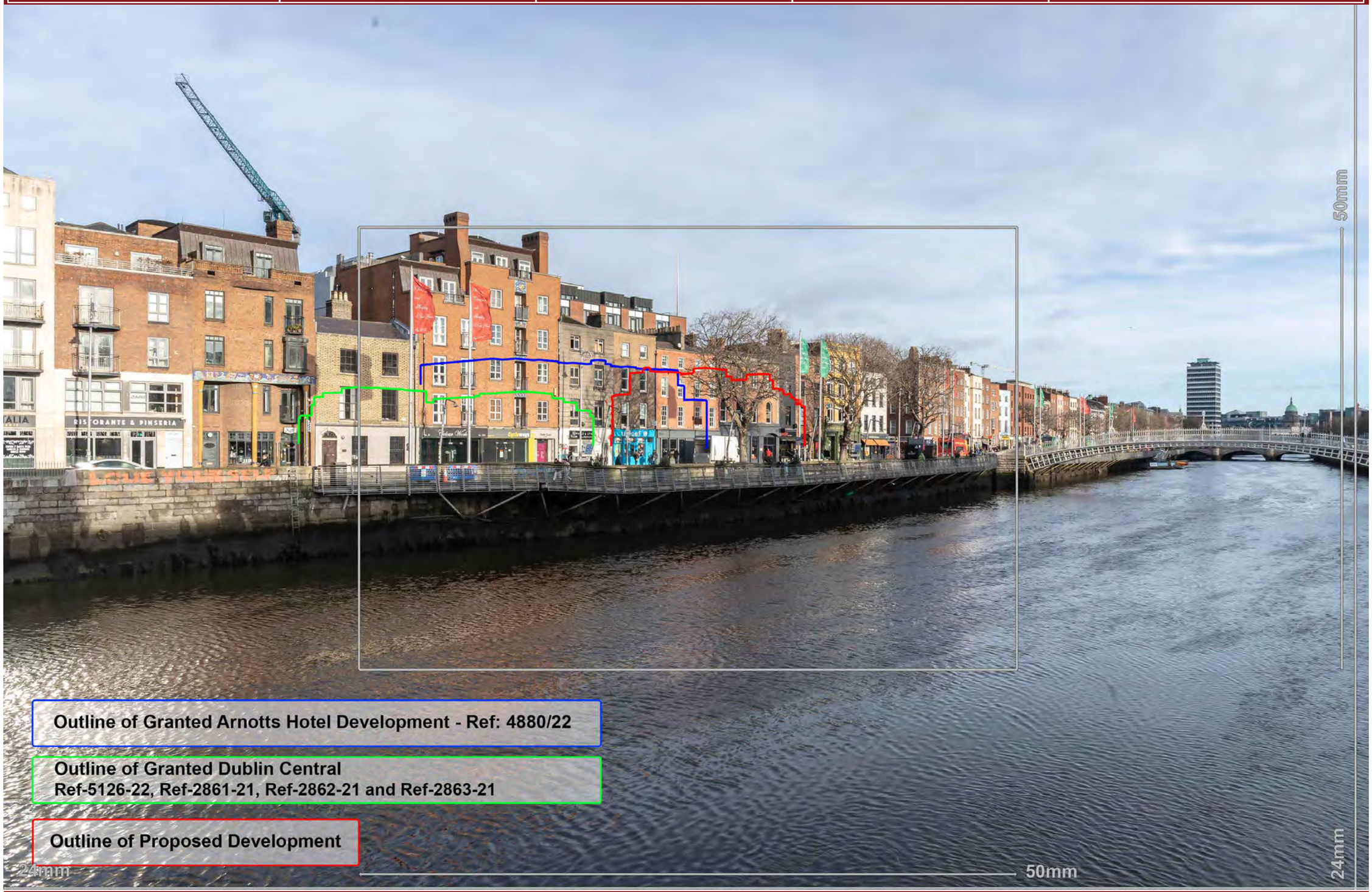
Camera Type: Canon EOS 5D Mark IV	Lens Type: EF24-70mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 345m	Date & Time: 06/01/202511:36:13

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 19
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF24-70mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 345m	Date & Time: 06/01/202511:36:13

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 19
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF24-70mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 345m	Date & Time: 06/01/202511:36:13

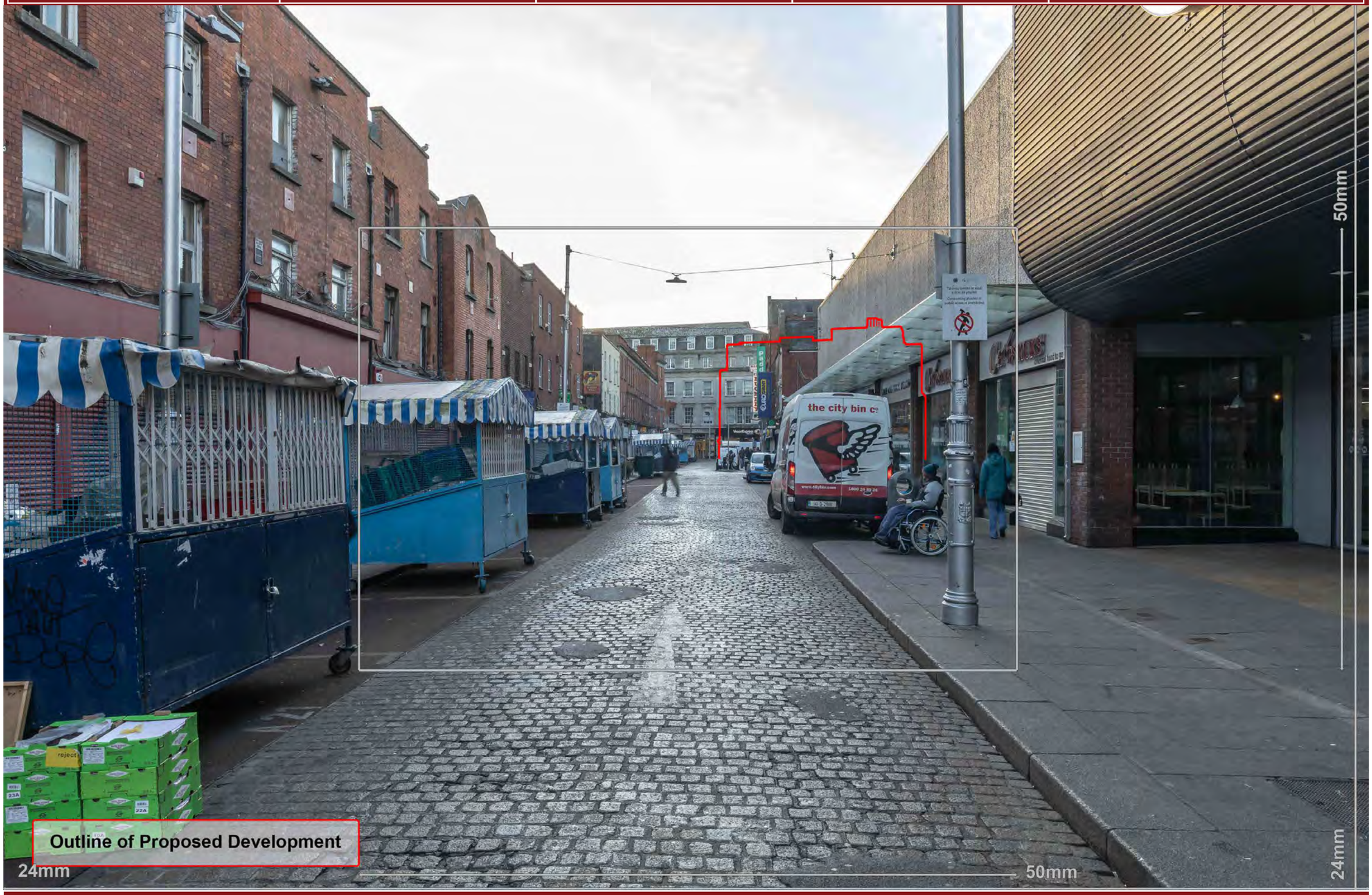


Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 19
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 207m	Date & Time: 17/01/202509:35:11

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 20
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 207m	Date & Time: 17/01/202509:35:11



Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 20
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 207m	Date & Time: 17/01/202509:35:11

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 20
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 115m	Date & Time: 17/01/202509:49:06

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 21
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 115m	Date & Time: 17/01/202509:49:06

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 21
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 115m	Date & Time: 17/01/202509:49:06

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 21
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 52m	Date & Time: 17/01/202509:58:25

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Baseline VVM 22
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 52m	Date & Time: 17/01/202509:58:25

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed VVM 22
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mmf/4LISUSM	Focal Length: 24mm	Approx Dist: 52m	Date & Time: 17/01/202509:58:25

Project Title: 87-93 Middle Abbey Street	Applicant Name: Summix IHD Developments Limited	Image Title: Proposed Cumulative VVM 22
	Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

3D DESIGN BUREAU

APPENDIX

Methodology

Verified Views Montages (VVM)

Table Of Contents **Page**

1. Overview 3

2. What is a Verified View Montage 3

3. Methodology 4

3.1 Project Planning 4
3.2 Data Capture: Baseline Photography 4
3.3 Baseline Photo Surveying 7
3.4 3D Modelling & Visualisation 8
3.5 Camera Matching/Rendering/ Post Production 10

4. Results 13

1.Overview

This methodology has been prepared by 3D Design Bureau to explain the production of Verified View Montages (VVM). The preparation and presentation of reliable verifiable visual information is a key component to the writing of Landscape Visual Impact Assessment reports. It should be noted that VVMs are technical images and should be produced and used in a technically appropriate manner.

This booklet maybe accompanied by the inclusion of a number of CGIs from various viewpoint locations within the proposed site. These have been produced to give a better understanding of the design intent from a close range perspective. Whilst we have included soft landscaping that reflects the proposed design as close as possible, artistic license may have been used for certain planting and trees with regard to species, size and exact locations.

2.What Is A Verified View Montage

A Verified View Montage (VVM) is an accurate visual representation of the potential impact (or lack there of) that a proposed development may have on its surrounding environment when constructed. VVMs are produced using technical scientific verification methods, through the use of photography, surveying, 3D modelling, rendering and post-production.
Verified View Montages work by using the correct geospatial insertion of accurate and detailed digital 3D models in the existing landscape allowing for a photorealistic view of the planned development in its intended location.
The correct combination of all these fields of expertise will deliver a result in which we believe and trust to be accurate for official usage by the client for their intended purposes (ex. Planning applications, impact studies,...).

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.1 Project Planning

Following appointment to the project, a desktop study is carried out with a full list of suggested views being drawn up for review prior to visiting the site. This is carried
out between 3D Design Bureau, the client, and the planning consultant.

Note: If a LVIA report is being written by a third party (landscape architect or planning consultant), the medium to long range views will be guided by them. After obtaining a full list of viewpoint locations, it is reviewed, checked and a plan for the taking of baseline photographs is put in place.
Note: 3D modelling of the proposed scheme can, and usually is, commenced prior to the photographic site visit.

3.2 Data Capture: High Resolution Baseline Photography

Every baseline photograph is captured in raw settings using a high-resolution digital SLR camera. This allows for the maximum possible information to be retained in the digital file. It also avoids the file being altered by any internal camera processing definitions, which retains the maximum control and fidelity on the end results.

The focal lengths used depend on the surrounding context and proximity to the subject site. 3D Design Bureau use high quality lenses with focal lengths that allow for capturing enough surrounding context without compromising quality and fidelity, by avoiding excessive barrelling, distortion, or aberrations. All shots are taken horizontally with the use of a 50mm lens (where possible) and wider angle also.

Note: Although the 50mm focal length represents the perceived scale of the human eye, it does not represent the human field of view and therefore should not necessarily be used to show the proposed development in its context. Peripheral vision needs to be accounted for and whilst the 50mm lens option is recommended in the *British Landscape Institute Technical Guidance Note*, this does not take into account the dynamic movement of the human eye.

Furthermore, panoramic VVMs are described in the *British Landscape Institute Technical Guidance Note*. 3DDB do not produce these type of VVMs as they are made up of a series of individual VVMs stitched together. The stitching process is a non repeatable action which can result in different outputs of the same image each time. Therefore accuracy and verifiability can be called into question.

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.2 Data Capture: High Resolution Baseline Photography (cont`d)

Each photo location is correctly recorded and marked as follows

On-Site:

The tripod location on site is paint marked and photographed in relation to existing elements. (Fig 1 below)
The location of each photo is manually marked on a printed map while on site.
The camera height is recorded.

In-Studio:

All photographs go through post processing back in the studio. The full set of photos along with a viewpoint location map (Fig 2 below) are issued to the client for review and to choose the best shots that will demonstrate the visual impact that the proposed scheme may/may not have. For each photo at each location, two focal lengths will be issued – the 50mm option and a wider field of view option. The most appropriate shot will be chosen depending on the surrounding context and location of the shot. See earlier section 3.2 for further explanation.

Fig.1: Camera Location marked and photographed.

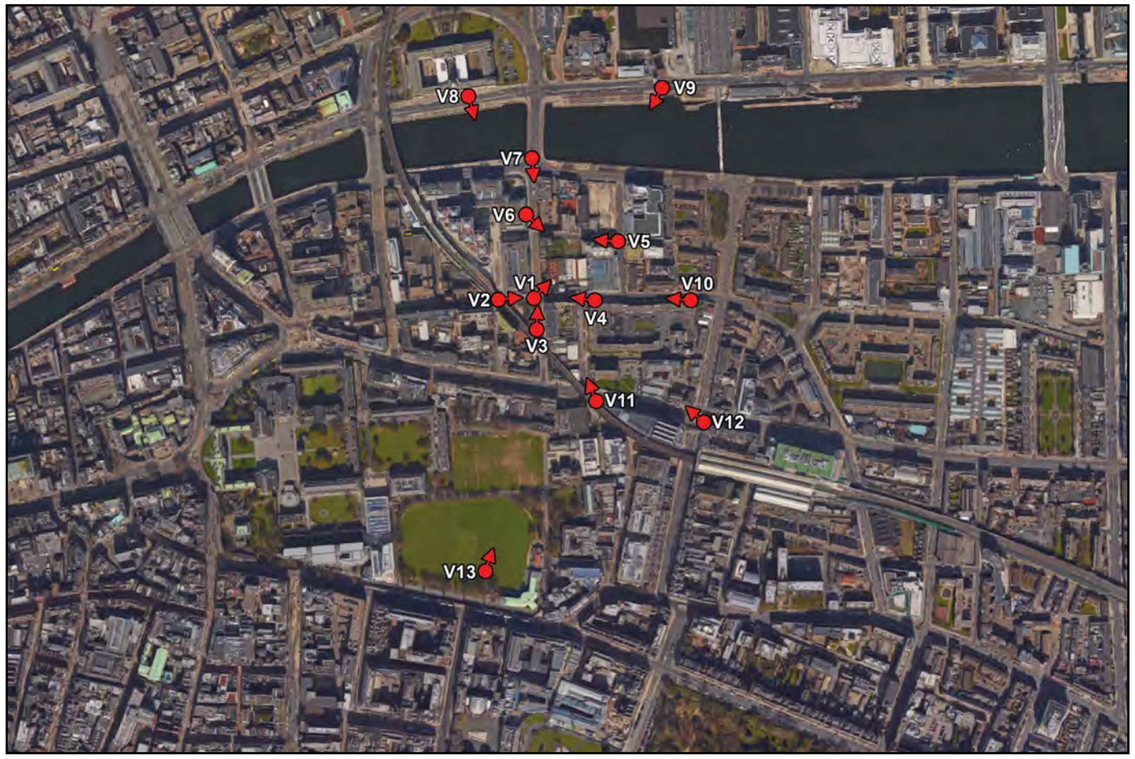


Fig.2: Viewpoint location map post site visit.

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.2 Data Capture: High Resolution Baseline Photography (cont`d)

Sample baseline photographs prior to selection and prior to marking up for surveying.

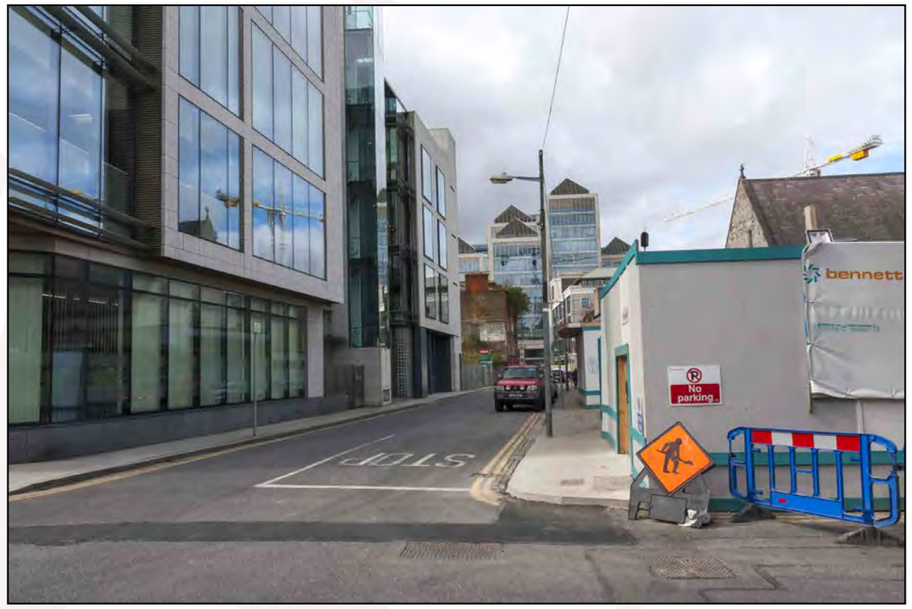


Fig.3: Baseline photo for view 5

Fig.4: Baseline photo for view 3

Fig.5: Baseline photo for view 4

Fig.6: Baseline photo for view 9

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.3 Baseline Photo Surveying

When all baseline photos are chosen for the VVMs, each one is marked up in studio as per Fig 7 below. Fixed reference points within each photo, such as parapet heights, kerbing, lamp posts etc are coloured coded on the baseline photos. All ‘marked up’ baseline photos are then issued to our qualified topographical surveyor for surveying purposes.
The survey team records the camera/tripod position using GPS and Total Station to an accuracy of +/-1cm Northing and Easting and to an accuracy of +/- 2cm Elevation. The ‘marked up’ fixed reference points identified in each photo are then surveyed to establish exact orientation of the view and to verify the photomontage process. (Fig 8 below). This survey data is later modelled and included in the digital 3D model of the proposed development. (See section 3.4)

Fig.7: Fixed reference points marked for surveyour.

Fig.8: Fixed reference points surveyed and numbered by surveyor.

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.4 3D Modelling & Visualisation

3D Modelling

An accurate digital 3D model of the ‘proposed’ development is produced using 3D software of choice. All of 3D Design Bureau’s 3D modelling is carried out within AutoDesk’s Revit. The digital 3D model is created from a combination of the third party architectural, engineering and landscape drawings. All proposed model information is contained in the one file and it is always positioned relative to the existing topographical site survey information supplied.
The ‘marked up’ fixed reference points (see section 3.3) which have been surveyed, are also modelled along with any other relevant survey information from the supplied topographical survey drawings. As stated above, the proposed 3D model and survey 3D model information are geospatially positioned relative to one another. This is imperative to ensure the accurate positioning and camera matching of the proposed digital 3D model within each chosen photo.

Visualisation

Once the digital 3D Revit model is complete, it is handed over to the 3D visualisation team for production. This stage of production involves matching of textures & finishes, lighting conditions and asset population for the proposed scheme. This ensures the accurate visual representation of the digital 3D model is as close as possible to the intended future ‘As Built’ development. Note: For accurate camera matching of the digital model to the baseline photography (which can take place prior to the visualisation process) please see Section 3.5.
There are various 3D visualisation software’s that are widely used for this stage of production. 3D Design Bureau use Autodesk 3D Studio Max as its main software for the visualisation process. This is accepted as the leading industry standard for architectural visualisation work and production of VVMs.

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.4 3D Modelling & Visualisation

Fig.8: Digital 3D model including the fixed reference points

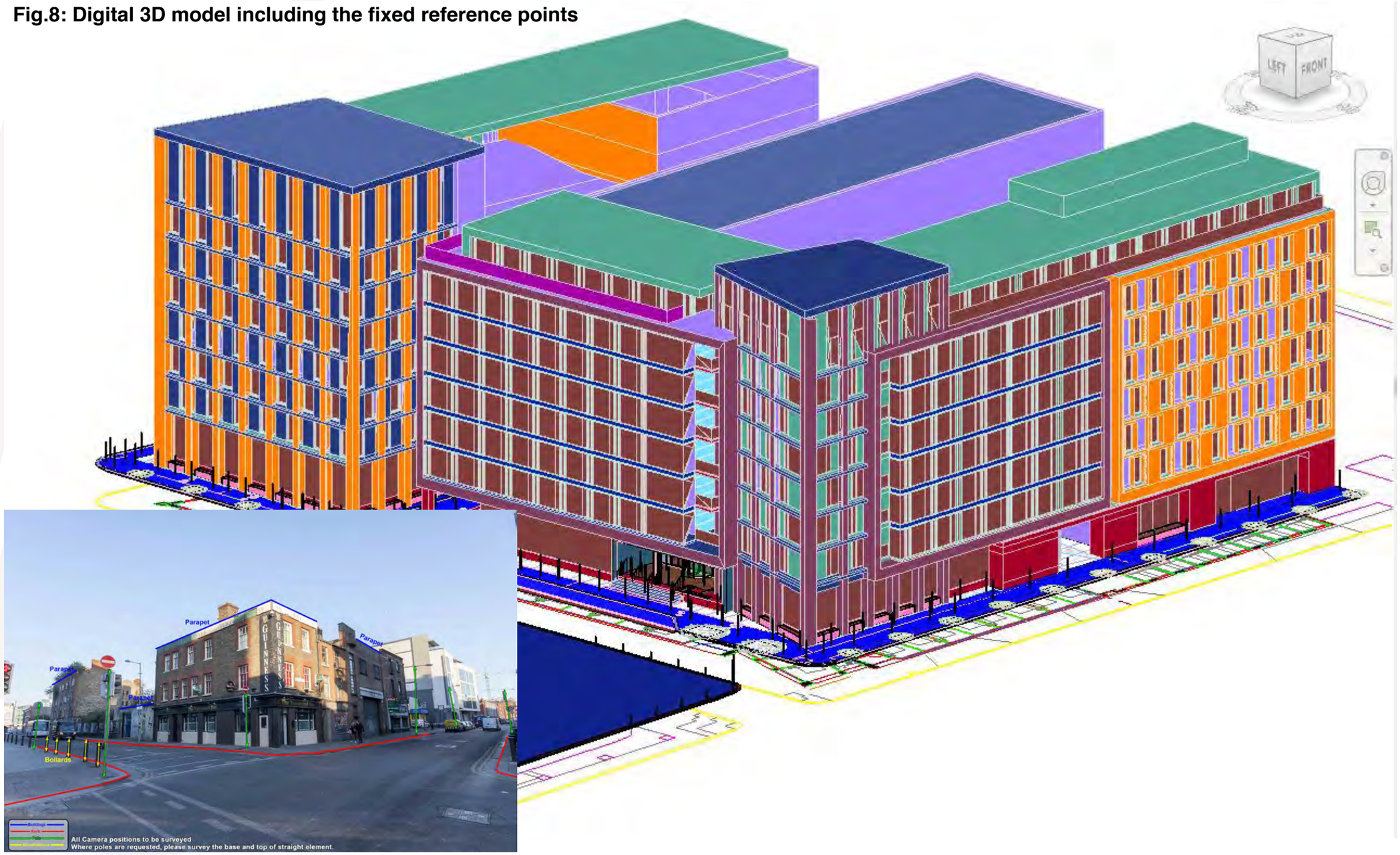


Fig.9: Fixed reference points surveyed and numbered by surveyor.

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.5 Camera Matching / Rendering / Post Production

Following the completion of the 3D visualisation process, Section 3.4, (but in some instances prior to this) the following methodology is applied to ensure views are verifiable.

Camera Matching

All of the information recorded at the time of the baseline photographic site visit, that is, camera co-ordinates, angle of view, and direction of view, is programmed into the virtual camera within the 3D software package of choice - 3D Studio Max. Insertion of digital cameras within the software, with the matching attributes of the physical camera, is carried out. All elements of the photo survey, that have been surveyed and included in the digital model and geolocated relative to the proposed development are a key component to the camera matching process. This careful methodology ensures that the size, position, and height, of the proposed development in each VVM is correct to an accuracy of 0.33% i.e. +/- 1mm on an A3 print.

Rendering

Following the camera matching and 3D visualisation process the views are ‘rendered’ at high resolution and placed onto its matching baseline photograph using Adobe Photoshop software. The mathematical accuracy is then double checked and verified by ensuring that existing ‘marked up’ fixed reference p point features, which were also rendered, line up exactly in the baseline photo.

Post Production

Post production for all views is the last stage in the VVM process. The VVM specialist establishes which existing features such as buildings, landscape and trees, are in the foreground of the proposed development and those that are in the background, i.e. which features will mask the development and which ones will appear behind the development. When it is found that the development is not visible due to foreground features, its extremities will be indicated with a red outline. Furthermore on wide angle chosen views, the extent of 50mm lens is identified on the shot.

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

3.5 Camera Matching / Rendering / Post Production

Fig.10: Fixed reference points for surveyor on Baseline untreated photo.

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

3.Methodology

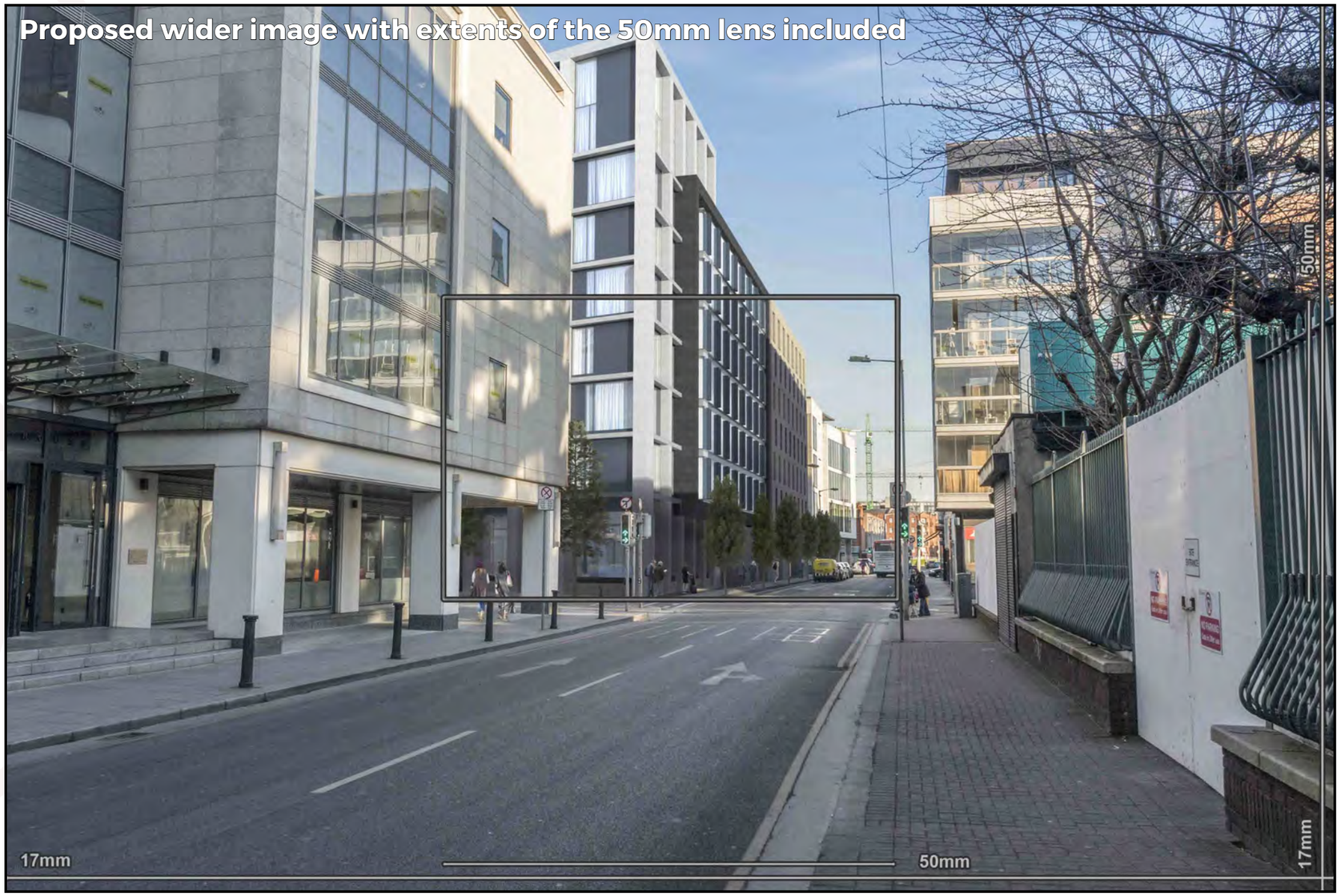
3.5 Camera Matching / Rendering / Post Production

Fig.11: Fixed reference points modelled, rendered and overlaid on baseline photo confirming accuracy

+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com

4. Results

The resulting VVM, having gone through this extensive procedure, is classed as an accurate and verifiable representation of the proposed development as viewed from the selected photo locations. This shows, as closely as possible, any future impact a proposed development may have on the surrounding environment and existing buildings. It should be noted that the foundation of any Landscape/Townscape Visual Impact Assessment (LVIA / TVIA) report are accurate verified view montages.



+353 (0) 1 2880186 info@3ddesignbureau.com www.3ddesignbureau.com