

Riverside Energy Park

Environmental Statement Technical Appendices

APPENDIX:

E.2

PLANNING INSPECTORATE REFERENCE NUMBER:

EN010093

DOCUMENT REFERENCE:

PHOTO VIEWPOINTS

November 2018 | Revision 0 | APFP Regulation 5(2)(a)

Planning Act 2008 | Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

1553 - RIVERSIDE ENERGY PROJECT AVR IMAGES

PREPARED FOR 23.08.18

Welcome—

INTRODUCTION

This document contains 21 TVIA views for the Riverside Energy Project, on land bounded by Riverside Energy Recovery Ltd, the Thames Path and the Crossness Nature Reserve in Belvedere.

The views are:

RH Ref	Description	TVIA Ref
1553_010	Near RRRF	VP01
1553_020	Crossness Nature Reserve	VP02
1553_031	Crossness Nature Reserve	VP03
1553_040	Crossness Nature Reserve	VP04
1553_050	Picardy Manorway	VP05
1553_060	South Mere	VP06
1553_070	Crossness Conservation	VP07
1553_080	Lesnes Abbey	VP08
1553_090	Halt Robin Road	VP09
1553_101	Ferry Lane NCN 13	VP10
1553_110	Barking Riverside	VP11
1553_120	Thamesmead Leisure Centre	VP12
1553_130	Erith	VP13
1553_140	Barnes Clay	VP14
1553_150	Littlebrook Nature Park	VP15
1553_160	Eaglesfield Recreation Ground	VP16
1553_200	Sequential Visual Assessment	SA-1 East 01
1553_210	Sequential Visual Assessment	SA-1 East 02
1553_220	Sequential Visual Assessment	SA-1 East 03
1553_250	Sequential Visual Assessment	SA-1 West 01
1553_260	Sequential Visual Assessment	SA-1 West 02
1553_270	Sequential Visual Assessment	SA-1 West 03



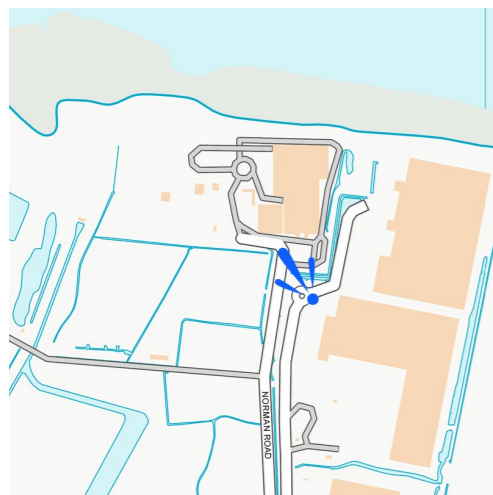


LOCATION MAP

Indicative location positions the TVIA views.

1553_010_00_00
VPO1 Near RRRF

BASELINE



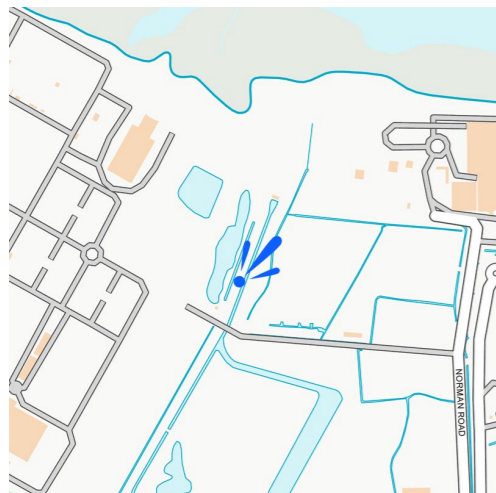
PROPOSED



1553_020_00_00

VP02 Crossness Nature Reserve

BASELINE



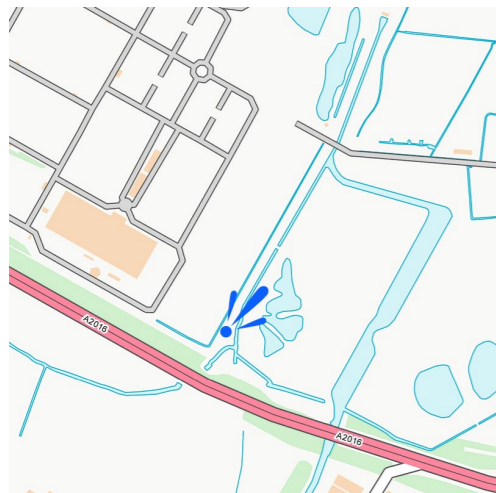
PROPOSED



1553_031_00_00

VPO3 Crossness Nature Reserve

BASELINE



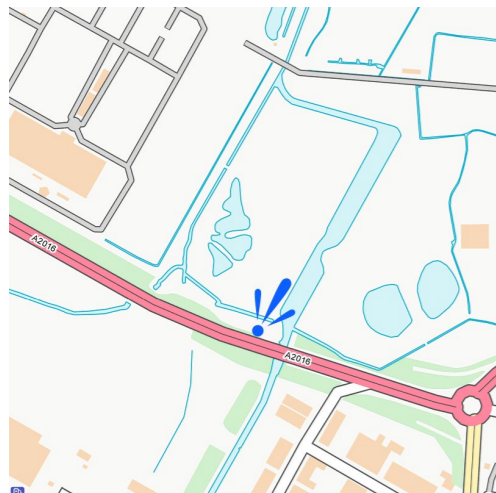
PROPOSED



1553_040_00_00

VPO4 Crossness Nature Reserve

BASELINE

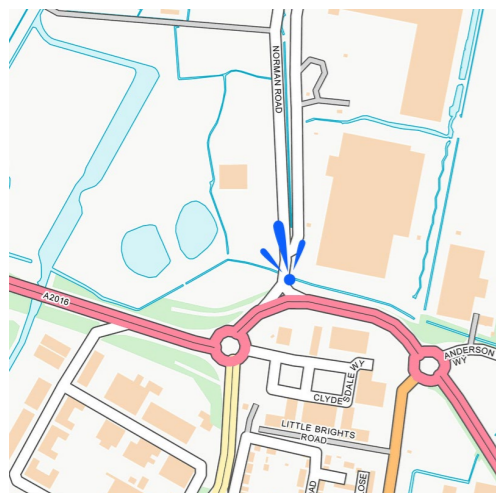


PROPOSED



1553_050_00_00
VP05 Picardy Manorway

BASELINE



PROPOSED



1553_060_00_00
VPO6 South Mere

BASELINE



PROPOSED



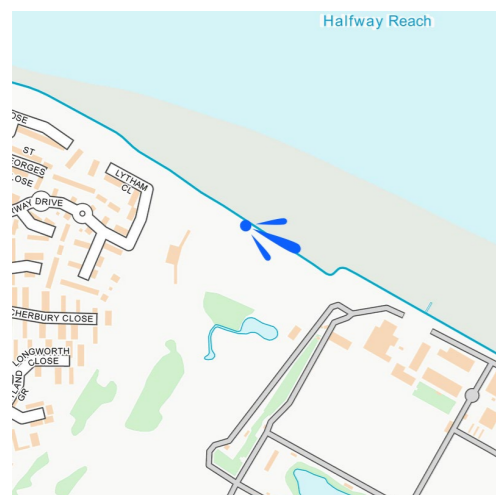
10

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1553_070_00_00

Edge of Crossness Conservation Area

BASELINE



PROPOSED



10

10

1553_080_00_00

Lesnes Abbey

BASELINE



PROPOSED



1553_090_00_00

Halt Robin Road at northwestern corner of Franks Park, near to Wood Side School

BASELINE



PROPOSED



1553_101_00_00

Ferry Lane, between Frog Island and Jetty

BASELINE



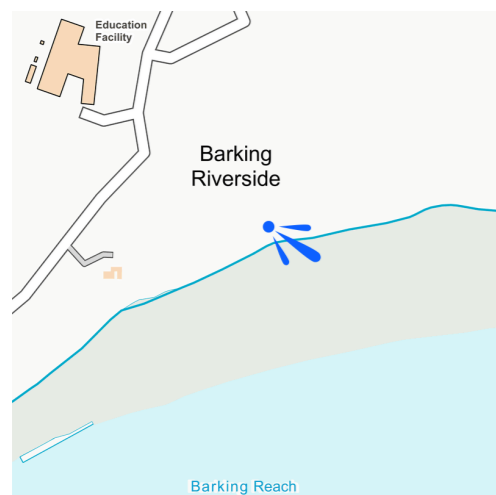
PROPOSED



1553_110_00_00

Public Right of Way, west of Horse Shoe Corner

BASELINE



PROPOSED



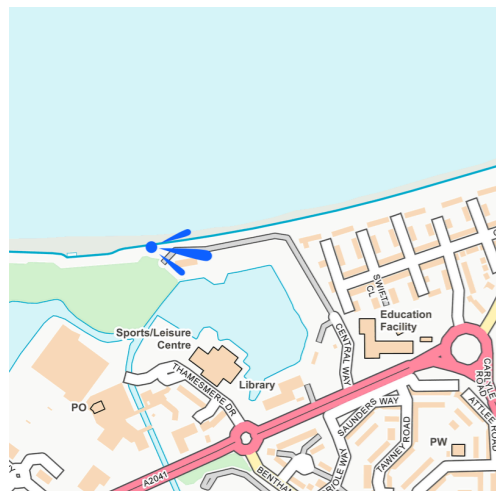
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1553_120_00_00

Thameside Walk / Thames Path National trail, northwest of Thamesmere Leisure Centre

BASELINE



PROPOSED



1553_130_00_00

Roundabout at junction of A202, A2016,
Walnut Tree Road and Bexley Road

BASELINE



PROPOSED



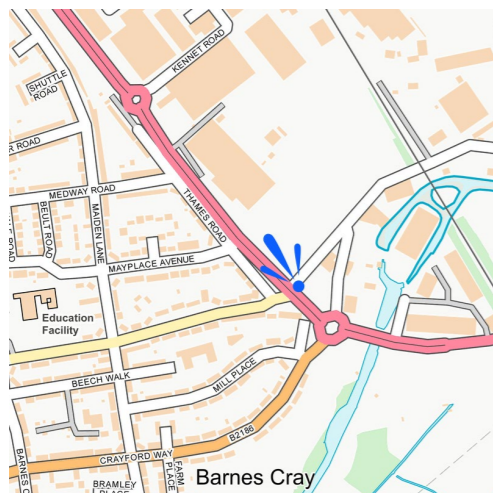
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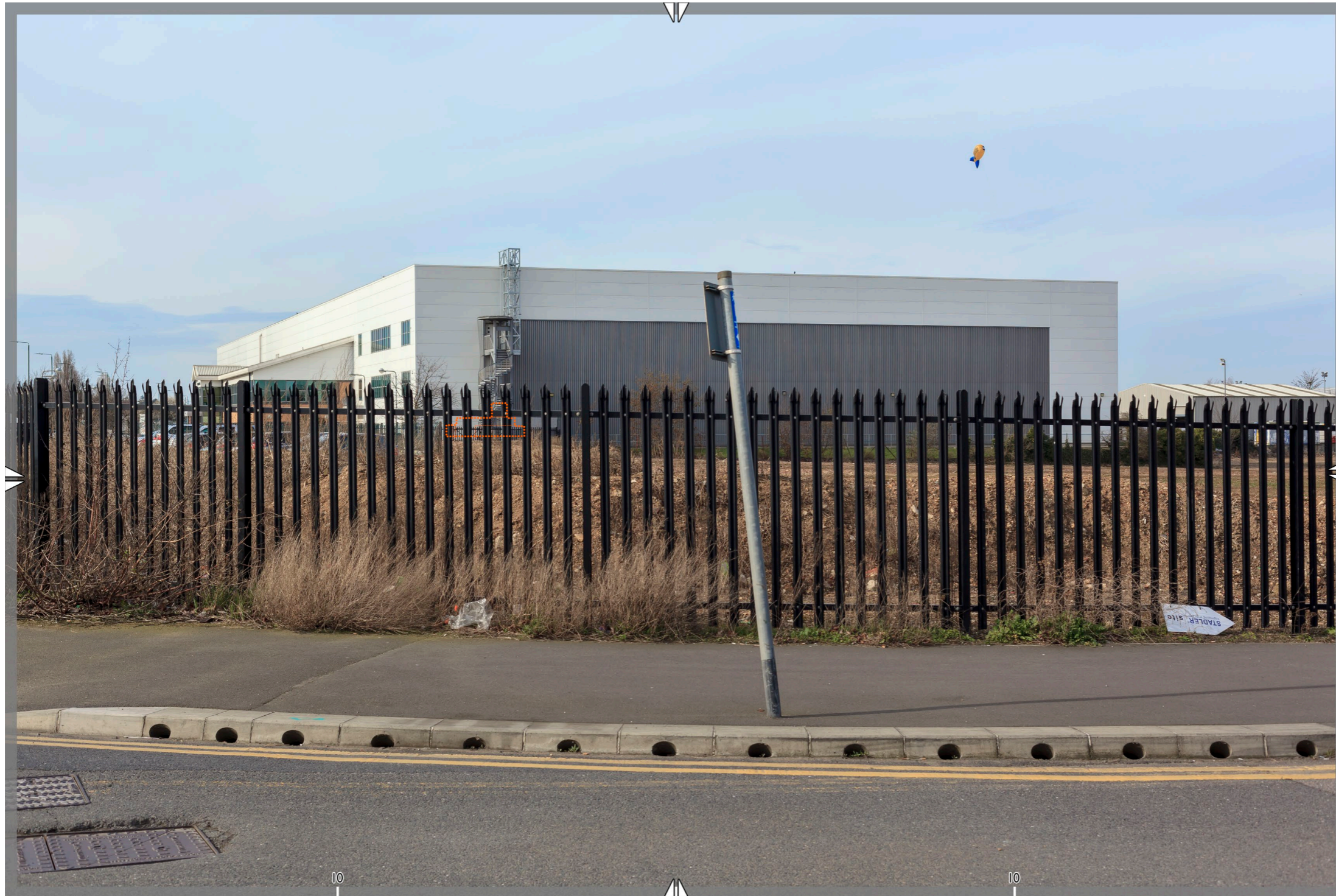
1553_140_00_00

Barnes Clay

BASELINE



PROPOSED



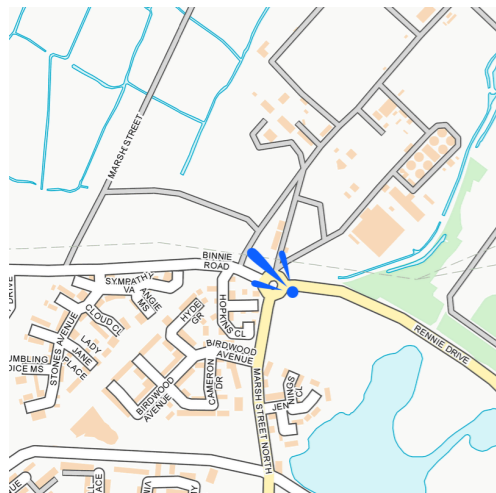
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1553_150_00_00

Bridleway west of Littlebrook Nature Park

BASELINE



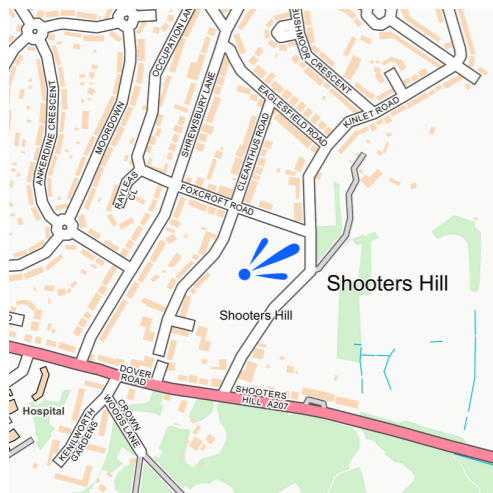
PROPOSED



1553_160_00_02

Eaglesfield Recreation Ground

BASELINE



PROPOSED



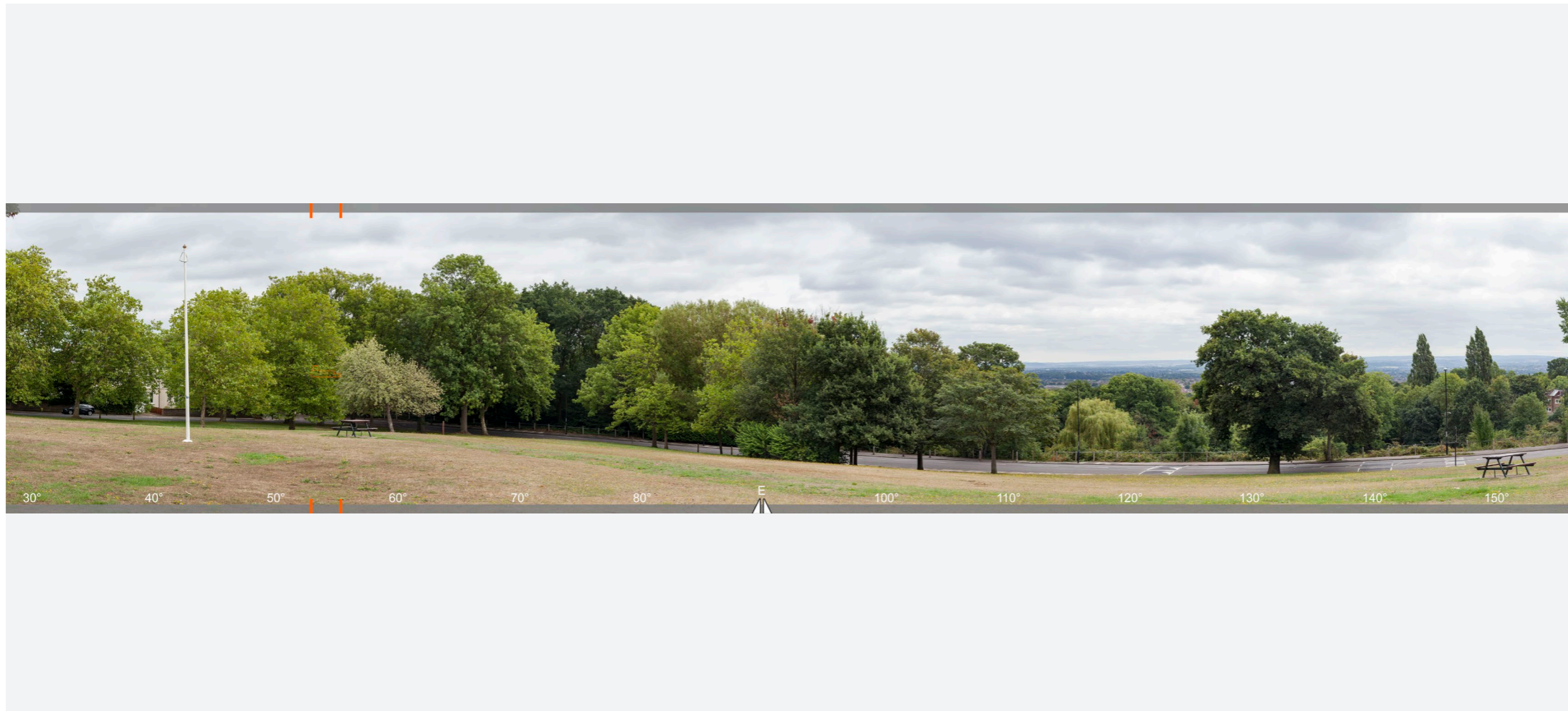
1553_160_P000_00

Eaglesfield Recreation Ground

BASELINE PANORAMA



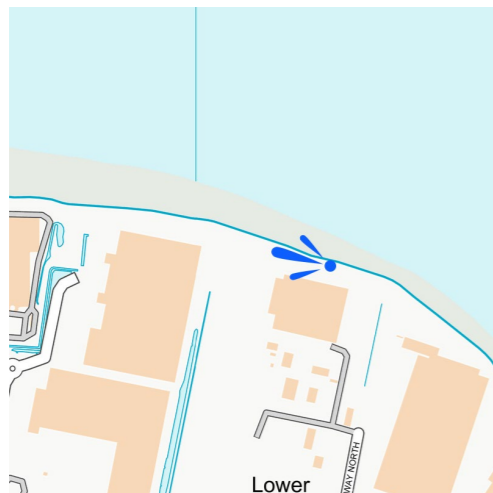
PROPOSED PANORAMA



1553_200_00_00

Sequential View 1 East

BASELINE

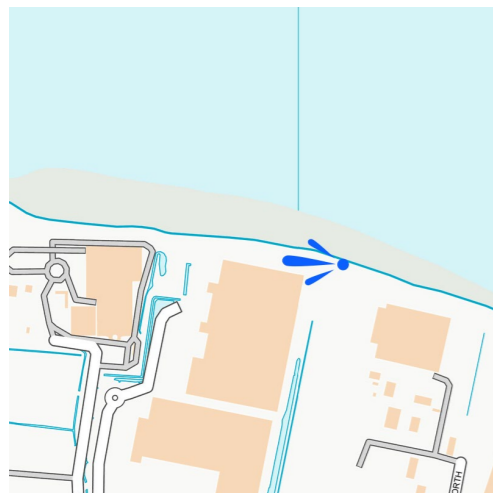




1553_210_00_00

Sequential View 2 East

BASELINE

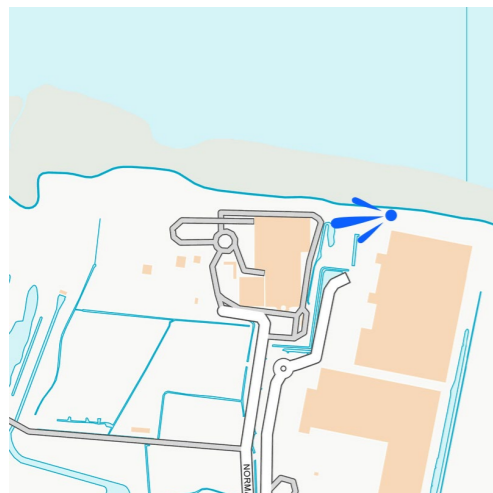


PROPOSED



1553_220_00_00
Sequential View 3 East

BASELINE



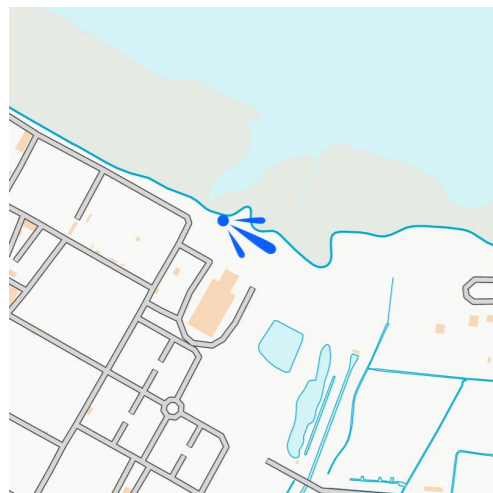
PROPOSED



1553_250_00_00

Sequential View 1 West

BASELINE



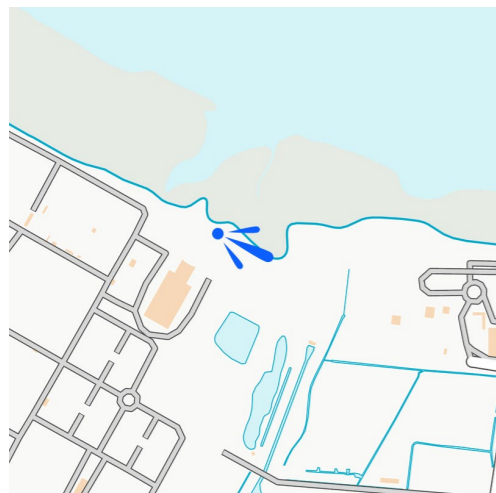
PROPOSED



1553_260_00_00

Sequential View 2 West

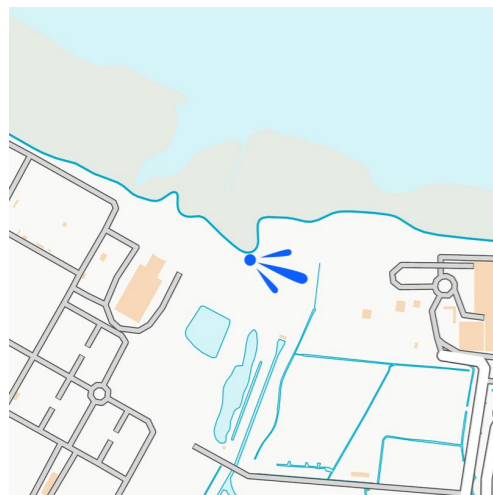
BASELINE



1553_270_00_00

Sequential View 3 West

BASELINE



PROPOSED



Documentation

July 2018, Accurate Visual Representations
Project Address: Riverside Resource Recovery Ltd, DA17 6JY
AVR creator: Rock Hunter Ltd.

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GLOSSARY:

LVMF: Revised Supplementary Planning Guidance, London View Management Framework, March 2012
LI: Landscape Institute; "Photography and photomontage in landscape and visual impact assessment. 01/11"
AVR: Accurate Visual Representation - as defined in LVMF.
HfoV: Horizontal Field of View.
CCP: Camera Control Point
Visualiser: skilled 3D modeller and software operator
RH: Rock Hunter Ltd.
LB: London Borough
SPG: Supplementary Planning Guidance
OS: Ordnance Survey
3D Software: summary of all CAD, CAM and rendering software involved in generating and processing of the computer model.

SCOPE OF WORK

Overview
Rock Hunter Ltd. were appointed as imaging consultant and producers of AVRs by Peter Brett Associates. The architects are Weedon Architects. Rock Hunter Ltd. is an architectural visualisation company with 18 years of experience in creation of 3D computer models, rendering and digital imaging.

AFFILIATION AND PLACE OF WORK

Rock Hunter Ltd. is not affiliated with any party involved in the planning, consultation or design of the Riverside Energy Project and is acting as an independent consultant on the project. All processing of data, documentation and production of this document has been carried out in Rock Hunter's offices at: 5a Priory Grove, London, SW8 2PD.

COMPUTER MODEL

Rock Hunter received georeferenced 2d parameter cad files of the proposed development and a site survey. Rock Hunter 3d modelled the parameter model based on those drawings. All AVRs in this document are based on this computer model.

PHOTOGRAPHY

Rock Hunter produced all photography used in these images. A digital 35mm format DSLR, mounted on a tripod, was used throughout the project. The details of each photo (Camera, Lens, Date, Time, as well the position are listed in a separate table.) The camera is positioned 1.6m above ground level, and the positions permanently marked on the ground. Alternatively, where marking of the ground is impractical or not permanent, an existing, distinct feature on the ground was chosen, or the point marked with temporary markings and surveyed within a few days of the photograph taken.

SURVEY

A professional surveyor was commissioned to survey the marked camera location and a set of camera control points for each viewpoint.

TYPE OF AVR SHOWN

Based on the above mentioned information and our computer model, Rock Hunter then generated a set of AVRs for each viewpoint. The set includes the "baseline" photograph depicting the existing situation and one montage showing a wire-outline (AVR 1) of the parameter model.

VERIFICATION

Rock Hunter publishes in this document all relevant details of the recorded photographs and the source information of all computer models as well as the working methods used in the creation of the AVRs to which will allow independent verification of the AVRs.

METHOD STATEMENT

Definition

This document was created by Rock Hunter Ltd., and shows Accurate Visual Representations of the proposed development at Riverside Resource Recovery Ltd. The LVMF Supplementary Planning Guide (03/2012) defines an AVR as:

"An AVR is a static or moving image which shows the location of a proposed development as accurately as possible; it may also illustrate the degree to which the development will be visible, its detailed form or the proposed use of materials. An AVR must be prepared following a well-defined and verifiable procedure so that it can be relied upon by assessors to represent fairly the selected visual properties of a proposed development. AVRs are produced by accurately combining images of the proposed building (typically created from a three-dimensional computer model) with a representation of its context; this usually being a photograph, a video sequence, or an image created from a second computer model built from survey data. AVRs can be presented in a number of different ways, as either still or moving images, in a variety of digital or printed formats."

CHOICE OF VIEWS

Rock Hunter was provided with location maps for photography for each view by Peter Brett Associates. Where no exact location was provided, Rock Hunter took candidate photography and alternative candidate photography based on aesthetic considerations. From these candidate views Peter Brett Associates selected the final short list of camera locations.



FIELD OF VIEW

Every optical instrument has a field of view, which is the angle that delineates the extend of the visible field from the entrance pupil of the optical element. Field of view is typically given as a horizontal field of view, (HfoV) which in a landscape photograph is the angle of view parallel to the long edge of the photograph. As viewpoints are located in different contexts, ranging from open spaces and parks to narrow urban context and residential roads, each viewpoint was chosen to demonstrate the effect of the proposed scheme within that context, and the HfoV determines how much of the context is visible ion the photograph. Cameras were chosen so that sufficient resolution would be achieved for the resulting size of the proposed development in the image, and lenses were chosen on a judgement of what HfoV would provide a suitable selection of context. While lenses are generally longer focus (narrower field of view) for distance shots and become increasingly short focus (wider field of view) with proximity to the proposed development, this approach may produce an unsuitably selection of context. A graticule overlay has been created for each view, which shows an angle grid for the HfoV and acts as a comparative ruler for the image assessors.

EYE LEVEL, SHIFT, ROLL

The camera was mounted on a tripod, centred over the surveyed camera locations, so that the camera is vertically positioned 1.6m above ground level (measured to the centre of the lens). This can reasonably be considered eye level, and is an accepted common practice for creating AVRs.

The camera is also levelled horizontally with the aid of spirit levels. This method of “looking” horizontally results in a two point perspective, where parallel lines on the ground converge in the distance (i.e. roads, railway tracks), but vertical lines, such as the corners of buildings remain parallel to each other (without convergence) and are also parallel to the edge of the photograph. This is similar to the way the human eye perceives the environment. This means however, that the horizon falls into the centre of the image, limiting the view vertically and often crops tall buildings and foreground objects out of the frame. To keep a two point perspective and still “look up” a lens with “perspective control” (a.k.a “shift lens”, “tilt and shift lens”) is employed. They work by offsetting the optical axis of the lens against the body of the camera and effectively record an image with the same extent as an image that is tilted up while maintaining parallel vertical lines. The graticule overlays on the images show the horizon line with markers on the sides, allowing the viewer to assess the amount of perspective control that was used. Virtual cameras in 3D computer programs can currently not accurately simulate this perspective control effect. For the purpose of camera matching photographs with perspective control, the image canvas is enlarged vertically so that the horizon comes to rest again in the centre of the image and a standard camera simulation is used in the 3D software package. Despite best efforts to level the camera on the tripod the equipment manufacturers specify a 0.5 degree tolerance in spirit levels, resulting in images that can have both tilt (looking up or down) and roll (rotation of the horizon). Such movements are typically compensated for during the camera matching process in two ways. Firstly, a camera match by overlaying the surveyed camera control points can only be achieved satisfactory when the virtual camera in the 3D software package has the same rotation parameters as the “real” camera had. The software operator uses the overlay seen on screen to adjust the virtual camera’s settings until a satisfactory match is achieved. Secondly, where possible, horizon control points where surveyed and allow the camera rotations to be determined from overlaying the horizon control points and photograph directly.

COMPUTER MODEL

Rock Hunter combined the computer model as well as the camera survey data and maps into a common, unified coordinate system. This unified system allows schemes and cameras to appear correctly in relation to each other and is based on OS mapping information with datum point defined near the proposed site. This alleviates inherent numerical tolerances that occur in 3D software packages.

CAMERA MATCH

Photographs were taken from tripods at a fixed height of 1.6m above ground level. The position of the camera was recorded by photographing the tripod, and permanently marking the camera position on the ground. When permanent marking was not possible because the view was located in a field or other unsuitable ground, the camera location was either surveyed in situ or the ground position marked with a temporary marker. The marked positions (i.e. a survey nail) were recorded by a surveyor together with a set of camera control points for each view. These are easily identifiable, static objects in the view such as corners of windows, roofs, bases of street lights, chimney tops or road-markings. When overlaying the coordinates of these known locations with the photograph, a virtual camera can be created in the 3D software package that is in the same relationship to the computer model of the proposed scheme as the “real” camera was to the real site.

LIMITATIONS

Rock Hunter strives to work accurately and fairly throughout the creation of AVR images and employs a selection of advanced software packages and working methods. Despite all advances in computer simulations, rendering techniques and care taken in the process, no simulation is currently able to take into account all physical properties of camera equipment and all lighting effects inside the software package. The purpose of these AVRs is to allow a fair representation of the proposed scheme in it’s photographic context as described in the LVMF and LI documents. Adjustments to the proposed scheme’s appearance are done to the judgement and experience of the visualisation artist to allow for lighting and atmospheric conditions of the photograph, they are not however a scientific simulation.

OS INFORMATION AND SURVEYS

The basis of the 3D computer model and survey information are Ordnance Survey Sitemap® digital maps, at a 1:1250 survey scale. OS define their tolerances as follows:

Survey Scale	Absolute accuracy compared with the National Grid. Absolute error - root mean square error (RMSE)	Absolute accuracy 99% confidence level	Relative accuracy Distance between points taken from the map. Relative error	Relative accuracy 99% confidence level
1:1250 (urban)	0.5 metres	<0.9 metres	+/- 0.5 metres (60 metres)	<+/- 1.1 metres (60 metres)

Source Ordnance Survey “os-sitemap-user-guide.pdf”

The camera positions and camera control points were surveyed using GPS bases surveying equipment.

GPS surveying methods are typically accurate to within 50mm of OS coordinates for spot readings. Points that cannot be reached (elevated points, or occluded points where there is no GPS signal) were surveyed by laser surveying equipment.

Camera locations which are positioned on bridges are typically subject to greater tolerances than camera locations which are positioned on stable ground. Bridges are flexible structures and can be subject to movement caused by vibration, loading and wind. This is especially noticeable on suspension bridges.

CROPPING

No photographs were cropped in this document. The image graticule helps to establish the field of view, and denotes the original image centre.

Where indicated for aesthetic reasons, a photograph was vertically extended by adding an additional photograph taken with a different amount of perspective control on the lens from the same location as the base photograph. This does not affect the quality of the camera match, as the full base photograph was used for camera matching.

COMPOSITING

Compositing aims to blend the computer generated content with the source photograph into a consistent montage. The proposed scheme will often be partially occluded by urban context. In long and medium distance views this will typically be buildings and terrain topography, for close views it may also include street lighting, signs, vegetation and movable objects like vehicles. The visualiser will determine the degree to which the proposed development will be visible by identifying its urban context in the photograph from site visits and notes as well as combining information from maps, camera survey data, our 3D London model, aerial and ground level photographs of the site and its surroundings. For close distance views the visualiser will determine the local context from general observations.

The proposed scheme may in places reveal context in the photograph that is hidden from the “existing” view by buildings or parts of buildings that are being removed as part of the development plan for the site. Where necessary, the revealed context was visually reconstructed from additional photography.

PANORAMAS

A view is presented as single image and a panorama. This has been stitched in software into a cylindrical projection. The proposed scheme has been composited into the “source photograph” before stitching, so the underlying camera match is identical to the single photograph. The proposed scheme falls within a single underlying photograph and the full panorama can be viewed “as is” without concern to distortion as all panoramic image transformations are applied uniformly to the base photo and the proposed scheme representation. The graticule represents the calculated HFOV.



TABLE OF CAMERA LOCATIONS

RH Reference	Description	PBA Reference	OS Coordinates	Height AOD	Camera	Lens	Bearing	Distance
1553_010	Near RRRF	VP01	549727.9, 180474.2	3.66	Canon 5D MK II	TS-E24mm f/3.5L II	308	352
1553_020	Crossness Nature Reserve	VP02	549269.6, 180432.4	3.04	Canon 5D MK II	TS-E24mm f/3.5L II	44	338
1553_031	Crossness Nature Reserve	VP03	549076.6, 180080.3	1.42	Canon 5D MK II	EF50mm f/1.4 USM	43	738
1553_040	Crossness Nature Reserve	VP04	549220.8, 179931.7	3.17	Canon 5D MK II	TS-E24mm f/3.5L II	23	814
1553_050	Picardy Manorway	VP05	549657.7, 179934	3.37	Canon 5D MK II	TS-E24mm f/3.5L II	349	798
1553_060	South Mere	VP06	547873.9, 180126.2	5.49	Canon 5D MK II	EF50mm f/1.4 USM	74	1694
1553_070	Crossness Conservation	VP07	548289.1, 181245.4	7.36	Canon 5D MK II	EF50mm f/1.4 USM	119	1293
1553_080	Lesnes Abbey	VP08	548003.3, 178841.3	20.15	Canon 5D MK II	EF50mm f/1.4 USM	42	2371
1553_090	Halt Robin Road	VP09	549720.6, 178875.7	22.63	Canon 5D MK II	EF50mm f/1.4 USM	358	1850
1553_101	Ferry Lane NCN 13	VP10	551306, 180696.8	7.31	Canon 5D MK II	EF50mm f/1.4 USM	266	1841
1553_110	Barking Riverside	VP11	547322.2, 182184.9	9.62	Canon 5D MK II	EF50mm f/1.4 USM	123	2602
1553_120	Thamesmead Leisure Centre	VP12	546329.9, 181054.5	6.6	Canon 5D MK II	EF50mm f/1.4 USM	87	3154
1553_130	Erith	VP13	551323.8, 177995.2	16.29	Canon 5D MK II	EF50mm f/1.4 USM	327	3289
1553_140	Barnes Clay	VP14	552624.7, 175400.2	10.14	Canon 5D MK II	EF50mm f/1.4 USM	335	6177
1553_150	Littlebrook Nature Park	VP15	555193.3, 176271.2	5.3	Canon 5D MK II	EF50mm f/1.4 USM	308	7246
1153_160	Eaglesfield Recreation Ground	VP16	543907, 176648	128.6	Canon 5D MK II	EF50mm f/1.4 USM	55	6883
1553_200	Sequential Visual Assessment	SA-1 East 01	550220.1, 180648.5	7.6	Canon 5D MK II	TS-E24mm f/3.5L II	277	757
1553_210	Sequential Visual Assessment	SA-1 East 02	550054.3, 180700.1	7.6	Canon 5D MK II	TS-E24mm f/3.5L II	262	589
1553_220	Sequential Visual Assessment	SA-1 East 03	549876, 180730.7	7.6	Canon 5D MK II	TS-E24mm f/3.5L II	258	412
1553_250	Sequential Visual Assessment	SA-1 West 01	549107.6, 180816.9	7.47	Canon 5D MK II	TS-E24mm f/3.5L II	117	374
1553_260	Sequential Visual Assessment	SA-1 West 02	549202.5, 180771.6	7.47	Canon 5D MK II	TS-E24mm f/3.5L II	122	270
1553_270	Sequential Visual Assessment	SA-1 West 03	549296.2, 180730.9	7.55	Canon 5D MK II	TS-E24mm f/3.5L II	116	170