



APPENDIX 5.5

Night-time visualisations methodology



Night-time photomontage methodology

3D MODELLING

Lawray Architects provided a geo-referenced 3D Autocad model of the proposed scheme and a 3D topographic model of the existing landscape terrain, also geo-referenced.

The proposed lighting model was constructed from the TCE lighting layouts for the proposed site, including details on luminaires to be modelled and which IES files should be used. This lighting model was then geo-positioned to a TCE site plan of the proposed layout, before being merged into the same 3D file with the Lawray 3D model.

CAMERA MATCHING

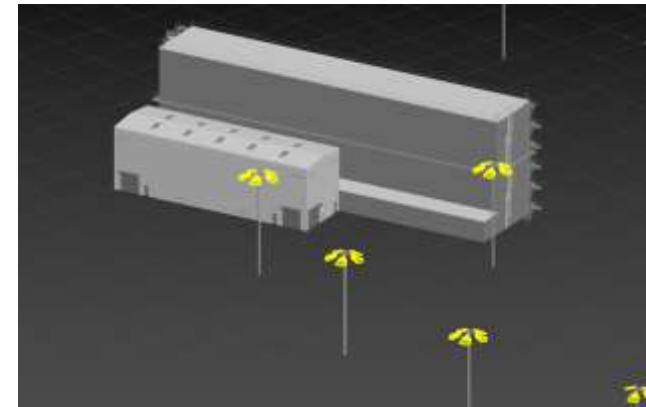
In 3dsMax, we positioned 5x virtual cameras using the surveyed GPS data of our camera viewpoint. Each virtual camera can replicate precisely the camera and lens settings used in the real world cameras. The virtual cameras were configured to mimic each of the 5x viewpoint's lens settings, ISO and shutter speed.

In order to correctly align each camera to each of the 5x viewpoint photos, a series of 'visual aids' were extruded from building footprints of buildings that were also present within each of the 5x viewpoints. To determine the height of the extrusions generated from these building footprints, rough AOD measurements were taken from Google Earth views of the existing steelworks site. Site sections were also utilised to align the Canopy Hood Building over the visible existing BOS plant. Using this method, we were able to develop a good alignment between our virtual camera, and the photographic view.

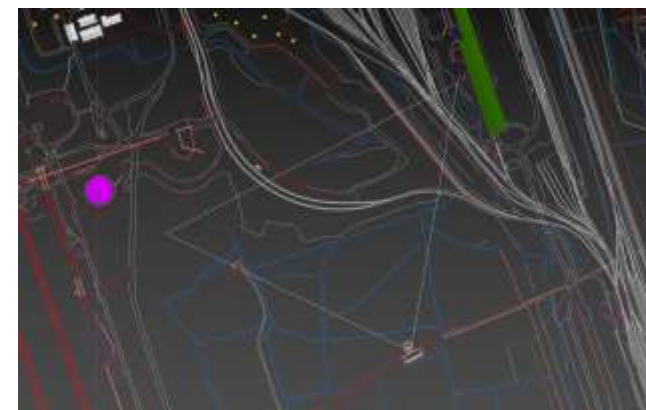
3D RENDERING & PHOTOMONTAGE

IES luminaire files were sourced from Philips, as specified by TCE in their lighting calculation report and product data sheets. 3D renders were generated using Corona for 3dsMax. Renders were created using a virtual camera copying real world camera settings, along with IES files that reflect the actual luminaire dimensions, lumens power and temperature colour. This approach to rendering means that the operator makes no additional input to manipulate the outcome of the rendered image.

Finally, the rendered images were overlaid with the viewpoint photo in Photoshop and masking was added to hide the render behind blocking foreground elements such as treelines or existing buildings.



3D model with IES lights



Geo referenced virtual camera and massing visual aids



Close up of render superimposed over VP1 image without masking



Baseline photography methodology

The following photography has been undertaken in accordance with TGN 07/19 and the developing understanding of night-time photography, published by the Landscape Institute.

PHOTOGRAPHY & SURVEYING

All photographs were taken with a Nikon Z7ii full frame professional camera and lens combination. The choice of lens length was determined based on the viewpoint distance from the proposed EAF development. The aim was to capture enough of the site within it's context. Either a 24mm or 50mm lens was used.

The position of each camera location was surveyed using a Leica GS16 GNSS Smart Rover Antennae which can capture Eastings and Northings and height (in metres Above Ordnance Datum) along with a CS20 data controller and recorder to display the antennae point location down to cm accuracy.

An Ifootage carbon tripod with Manfrotto XPro ball head was used to mount the camera. The Leica GS16 Smart Rover antennae was first mounted to the camera for the location to be recorded. The tripod was then positioned according to pre-provided GPS co-ordinates as closely as possible. Once in position, the antennae was removed, and the camera level was fine tuned using a three-way levelling base and inclinometer. The camera was set with the centre of the lens at 1.60m above ground level. Camera settings were set to Manual mode to allow full control over aperture and shutter speed. ISO was fixed at ISO 100, and an aperture of f/8 was used while sunlight was still available. The aperture was gradually opened in conjunction with a slower shutter speed as light levels dropped. Care was taken not to reduce the shutter speed to far, due to windy conditions and billowing steam stacks on site, which would have created blurry and confusing shapes within the images.

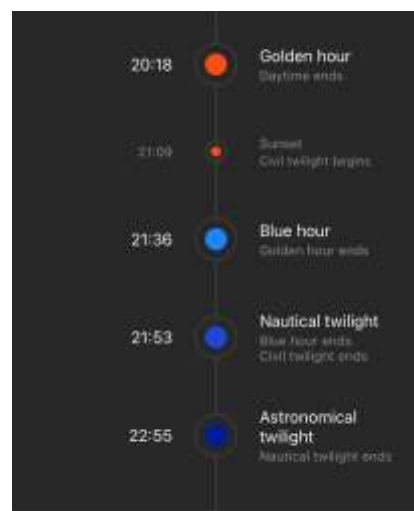
The 5x viewpoints were captured in July under favourable conditions.



Ifootage tripod with
GS16 antennae



Three-way levelling base
and inclinometer



Photopills information showing
natural light stages on 17 July 2024

VIEWPOINTS & METHOD

Scottish Natural Heritage 2017 guidance on *Visual Representation of Wind Farms*, has suggested that approximately 30mins after sunset provides the most reasonable balance between visibility of form and the brightness of artificial lights, when considering night-time photography and photomontage.

Using a photography planning app (<https://www.photopills.com/>) to determine the golden hour, sunset, dusk (blue hour) and twilight time for each night of photography, times were calculated to capture a series of shots at roughly 20-30 minute intervals as a bracket around sunset time and the recommended 30 minutes after sunset.

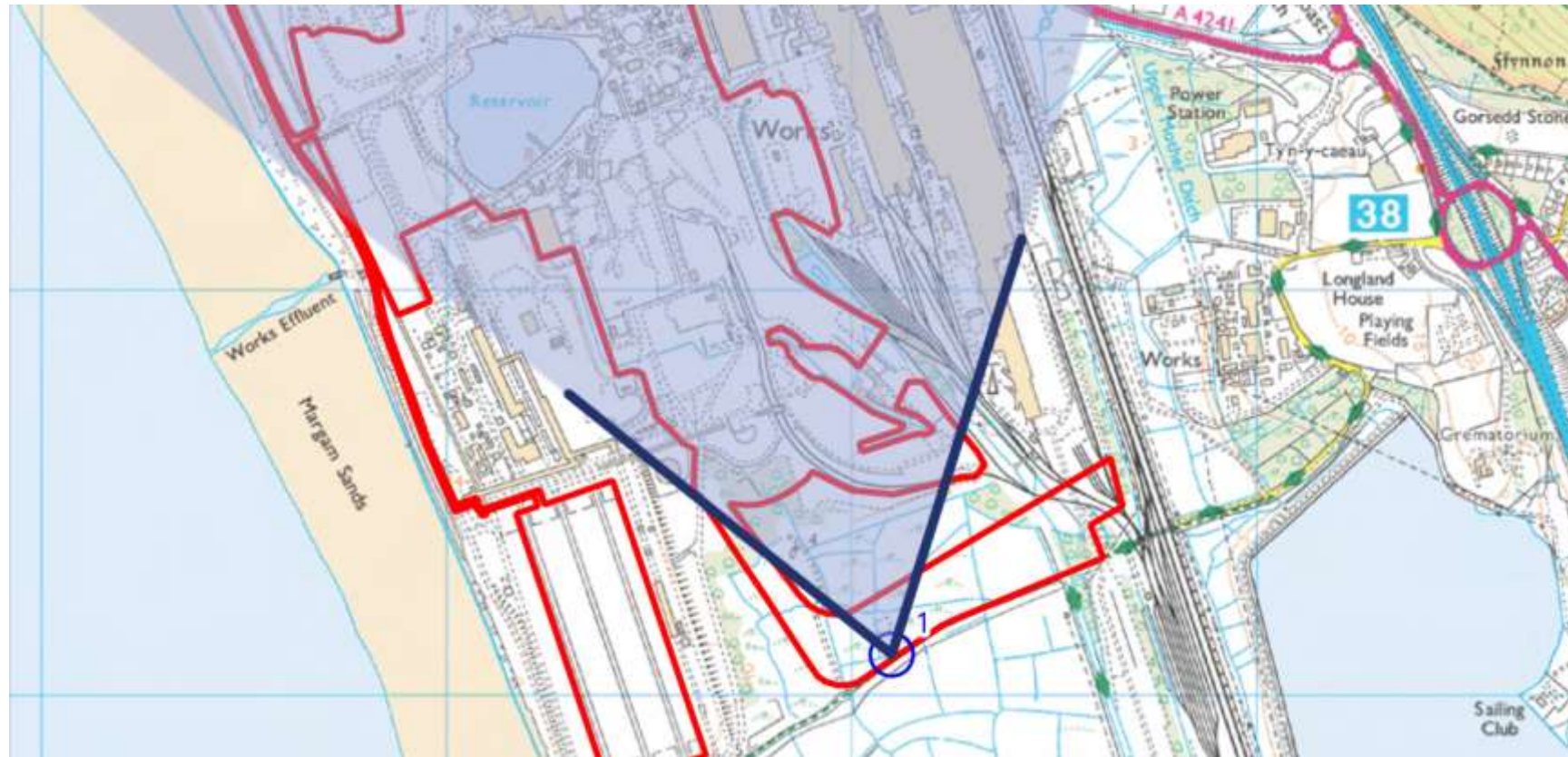
Each viewpoint required 9x photographs to capture the passage of natural light from the end of day through sunset, dusk, twilight and then night-time. During the time of shooting in July, shots were taken from roughly 2015 hours through to 2330 hours.



VIEWPOINT 1, LONGLANDS LANE

278250.3875m (E), 185189.2581m (N), 4.7759m (AOD)

6 JULY 2024



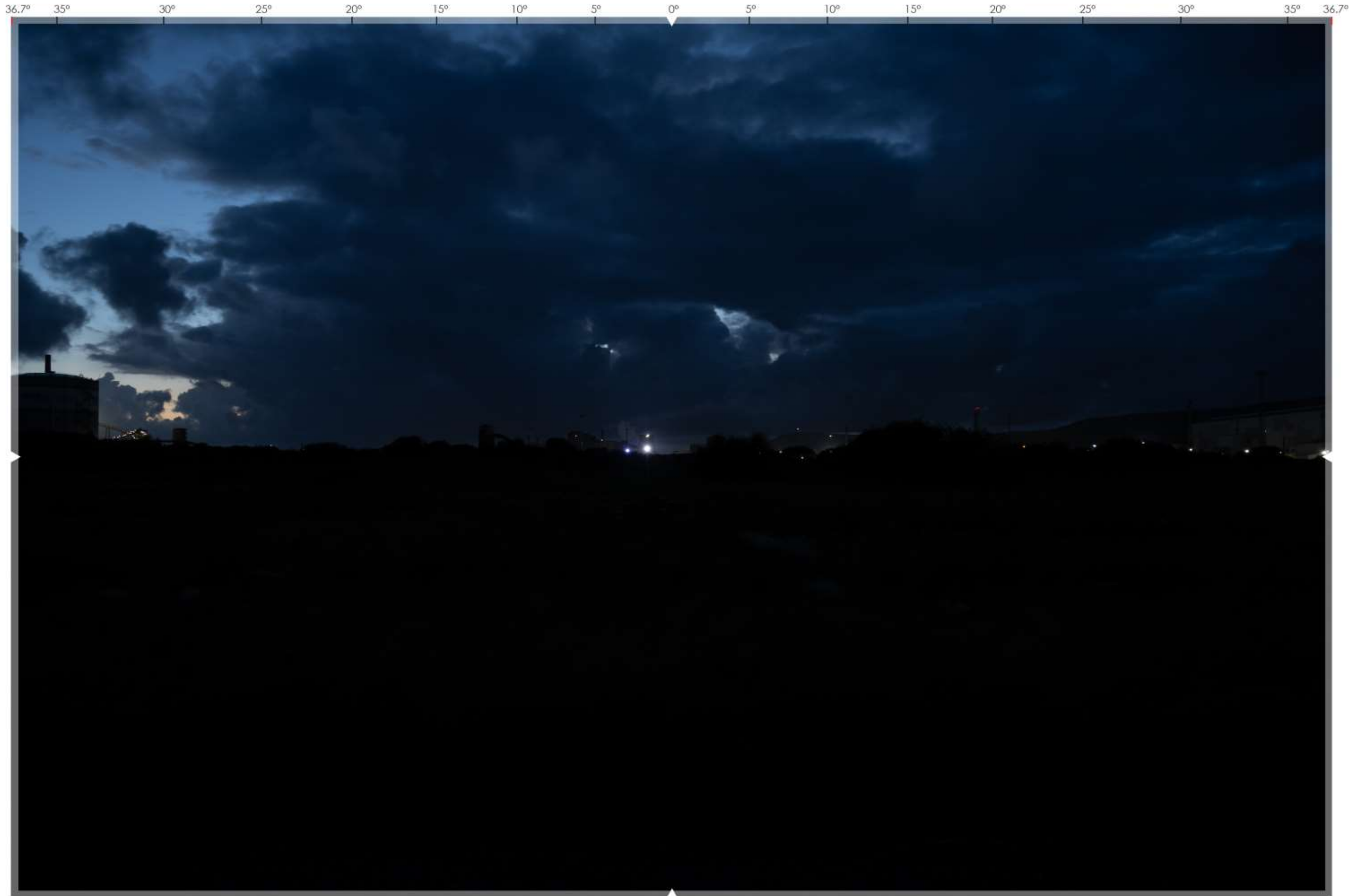
















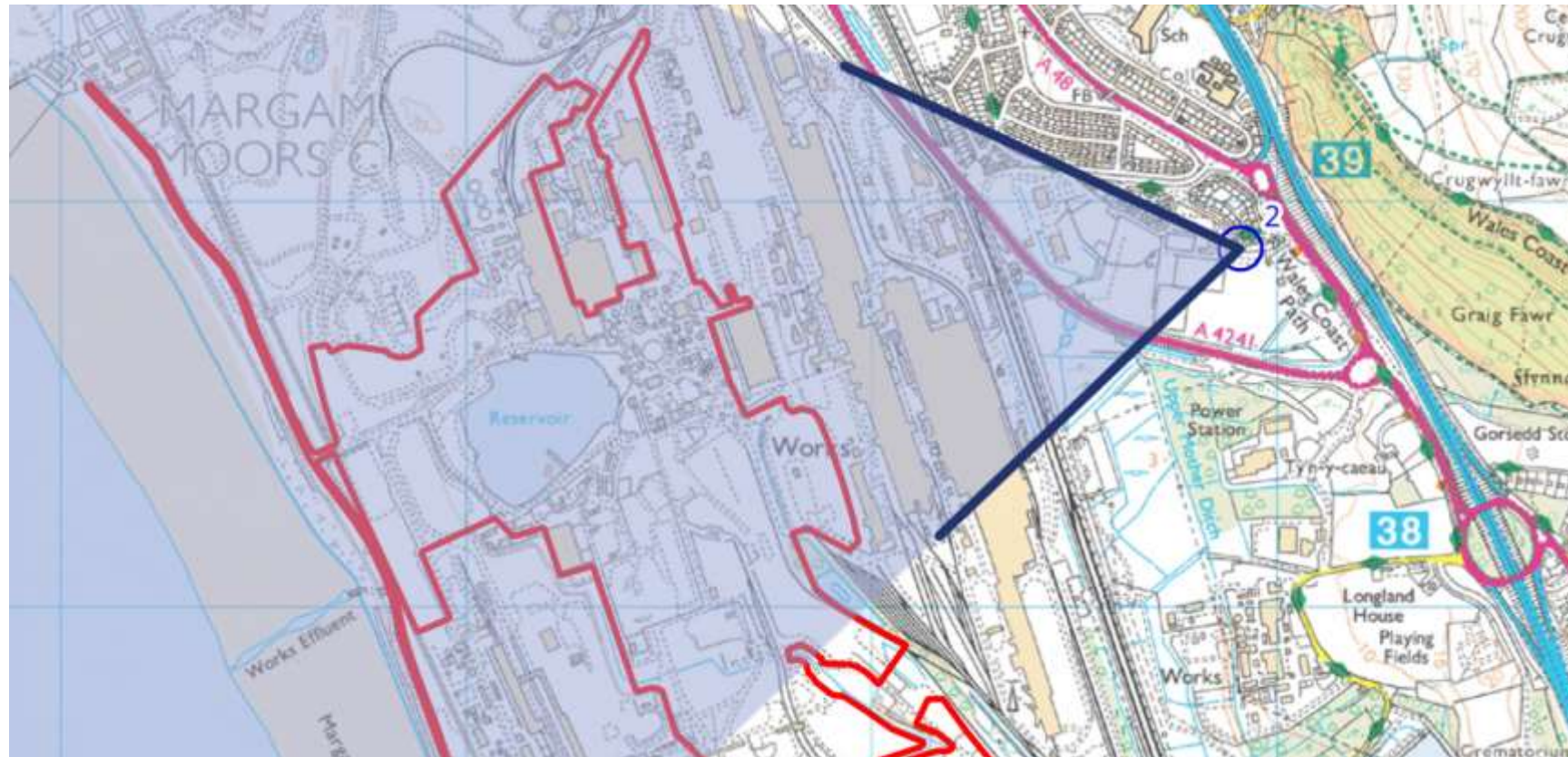




VIEWPOINT 2, ABBOTS CLOSE, MARGAM

278900.6560m (E), 186867.2878m (N), 6.8647m (AOD)

10 JULY 2024





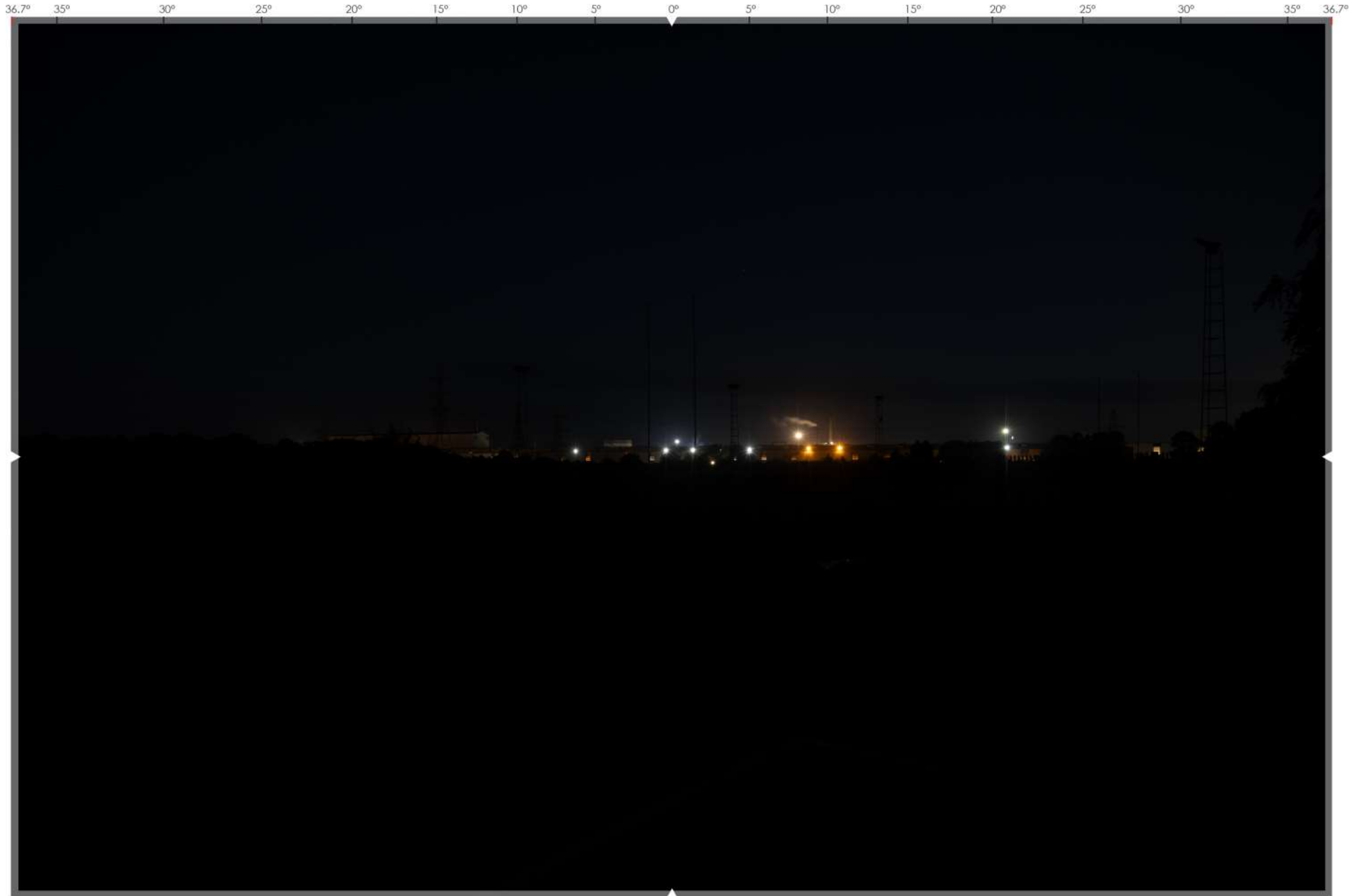




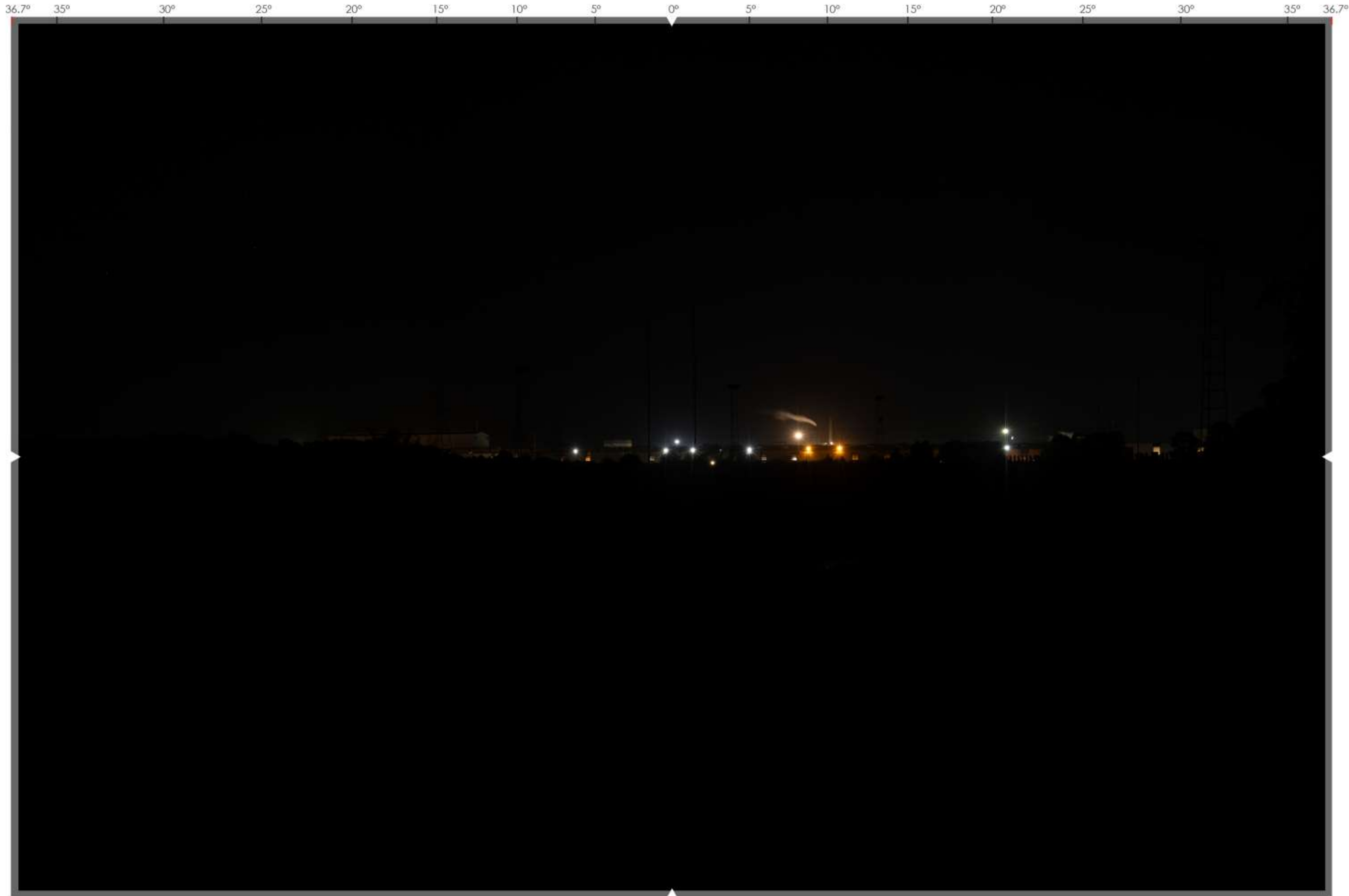










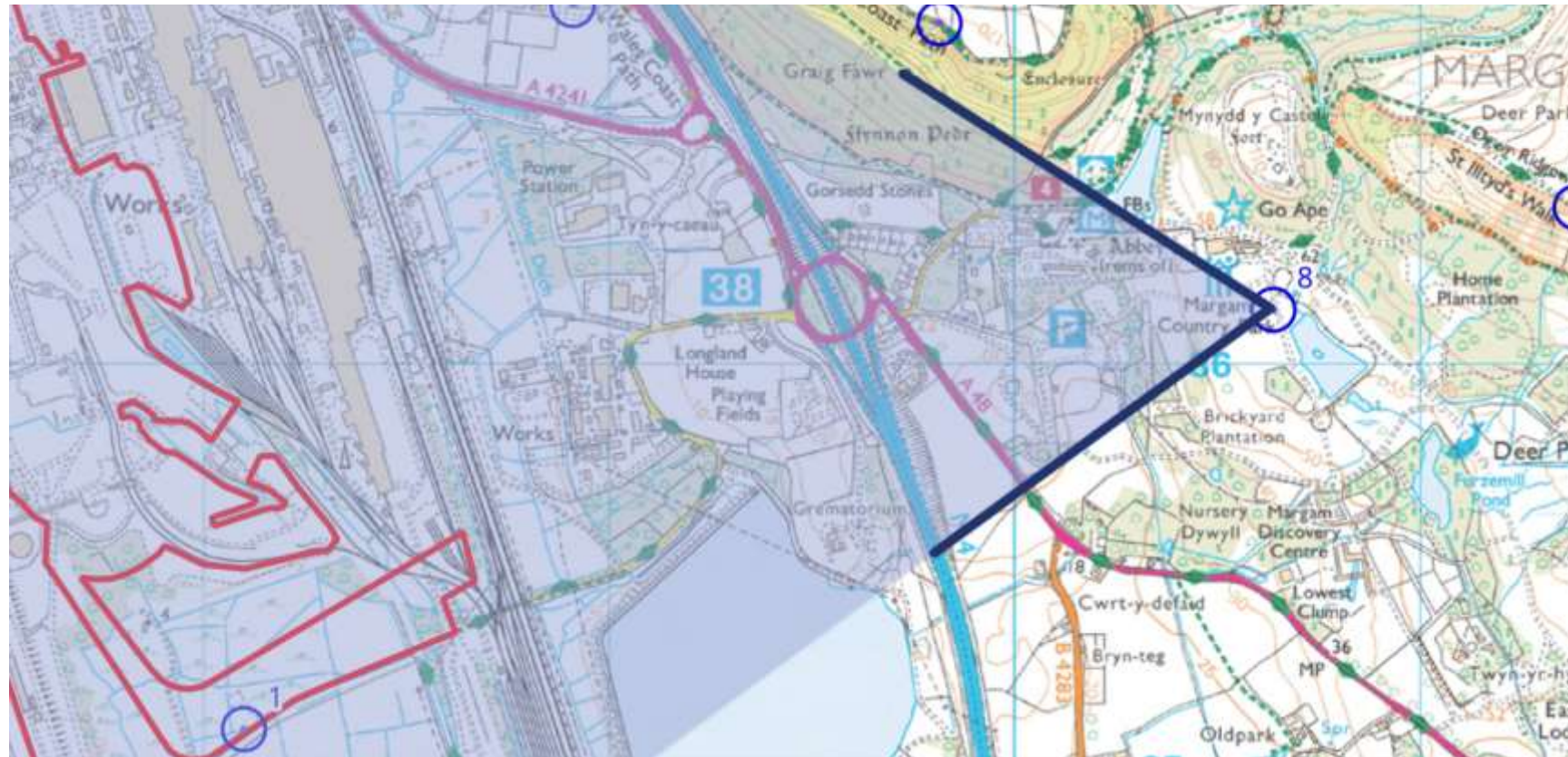




VIEWPOINT 8, MARGAM COUNTRY PARK

280658.6602m (E), 186086.8725m (N), 56.1036m (AOD)

17 JULY 2024



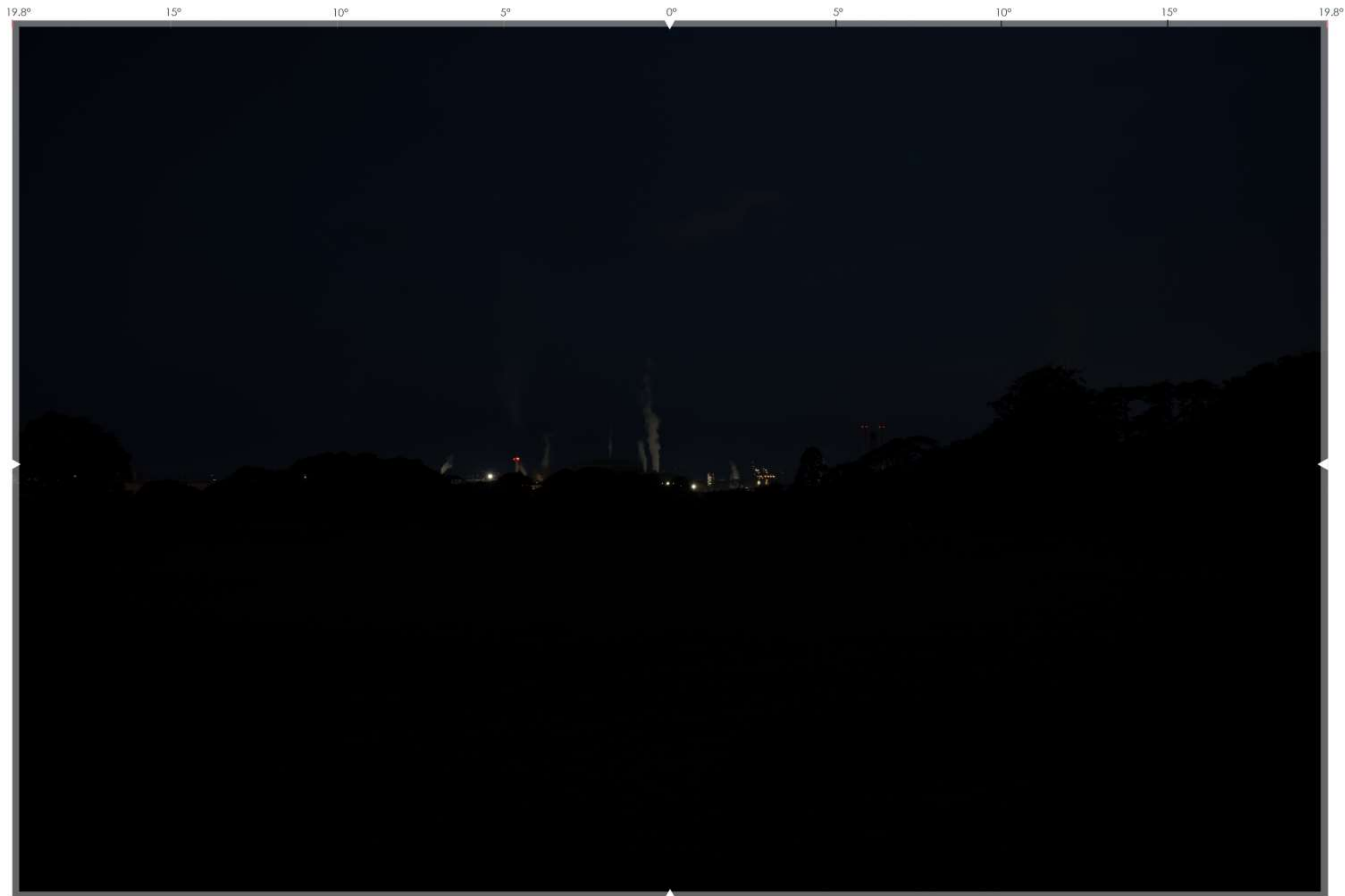




















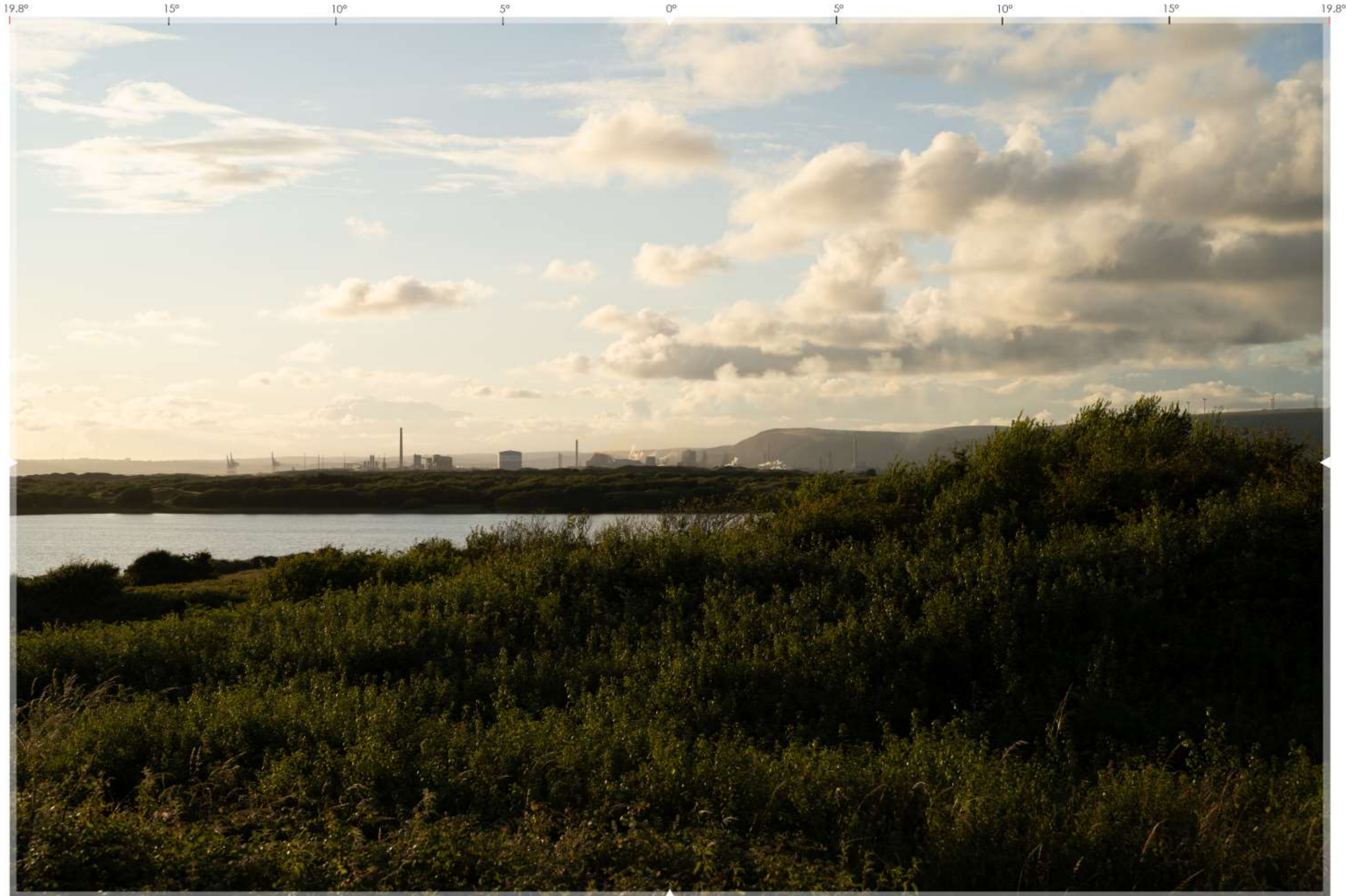
VIEWPOINT 13, KENFIG NATURE RESERVE

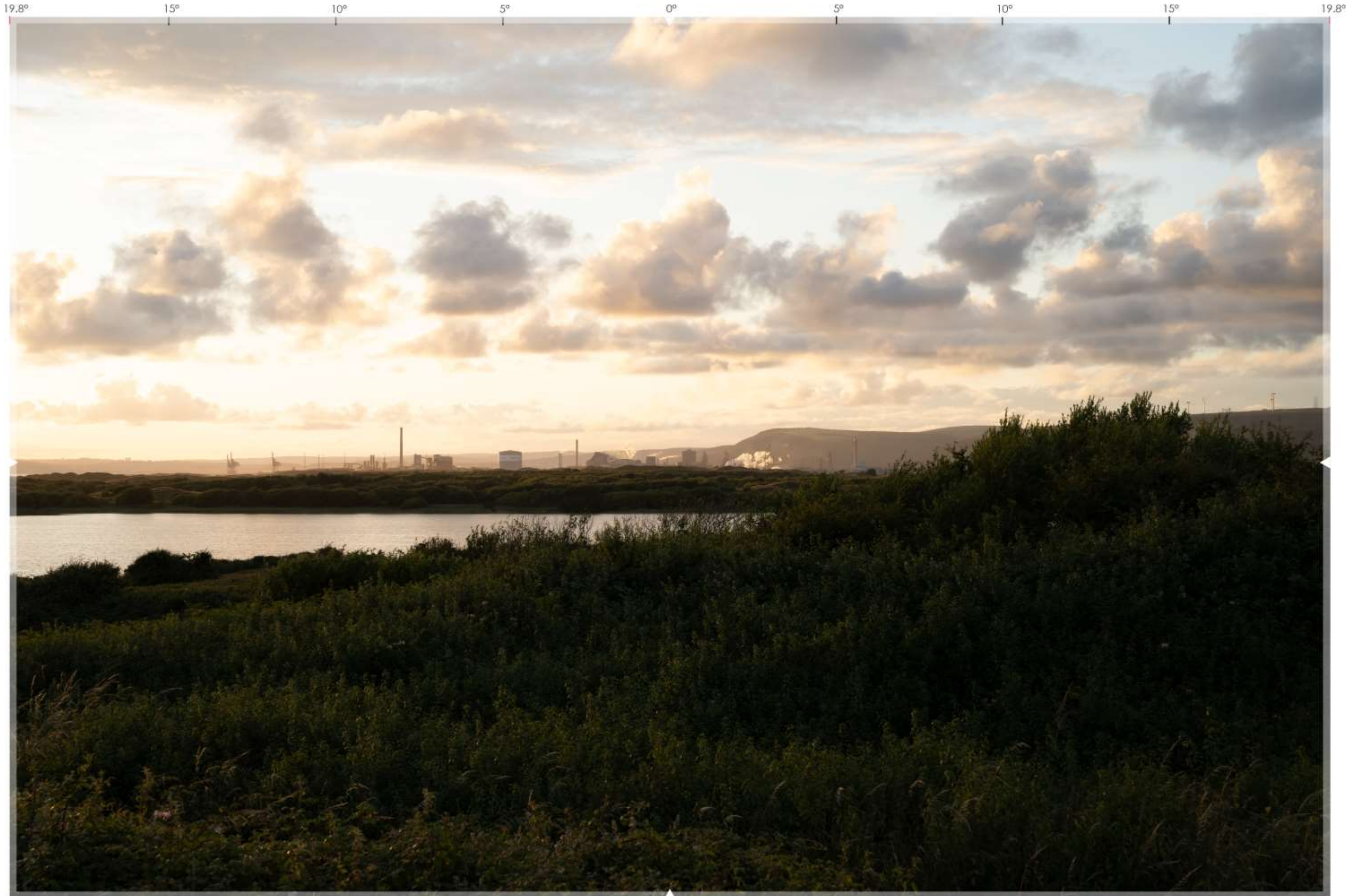
279982.8673m (E), 181090.9291m (N), 24.3846m (AOD)

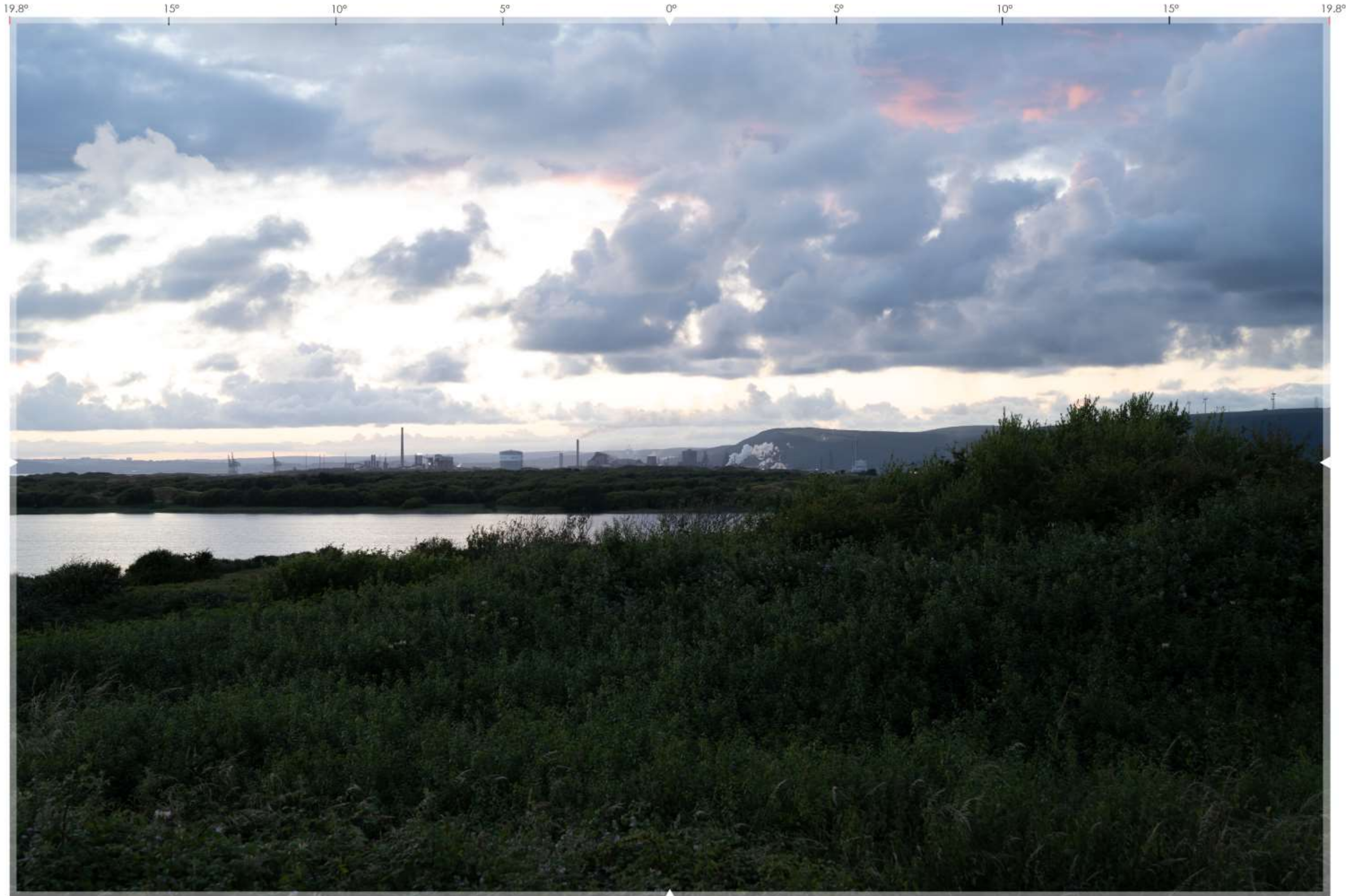
07 JULY 2024

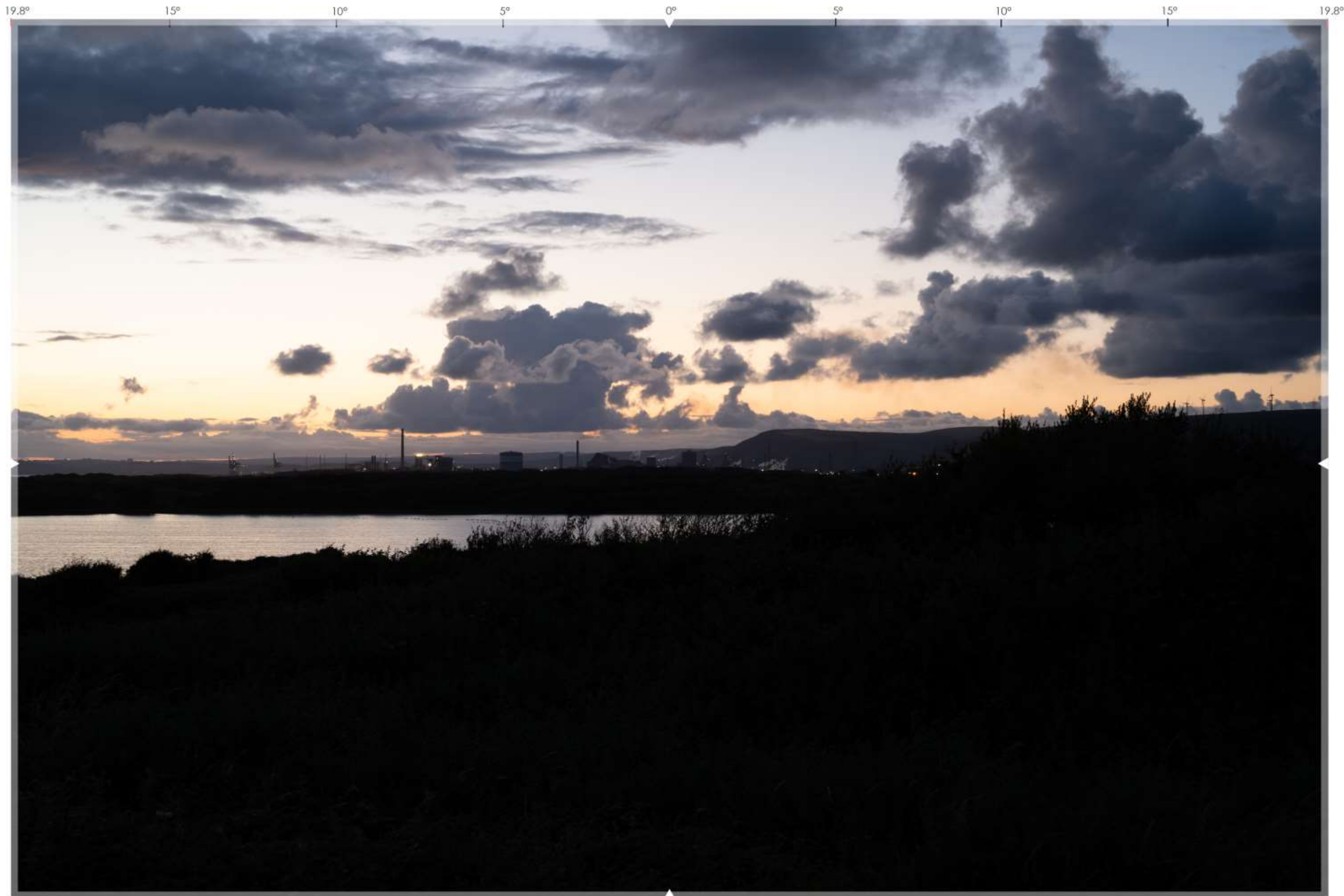


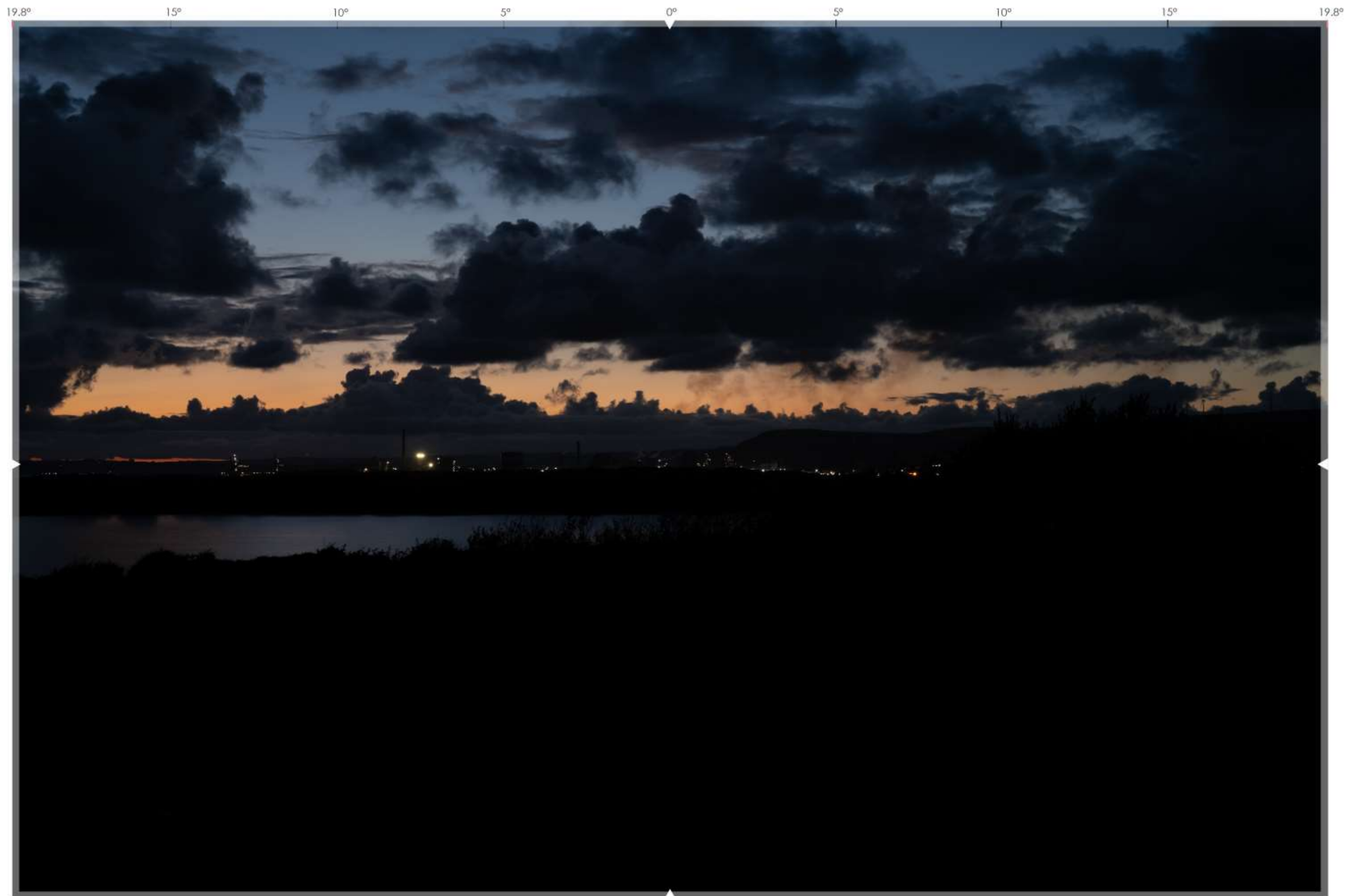


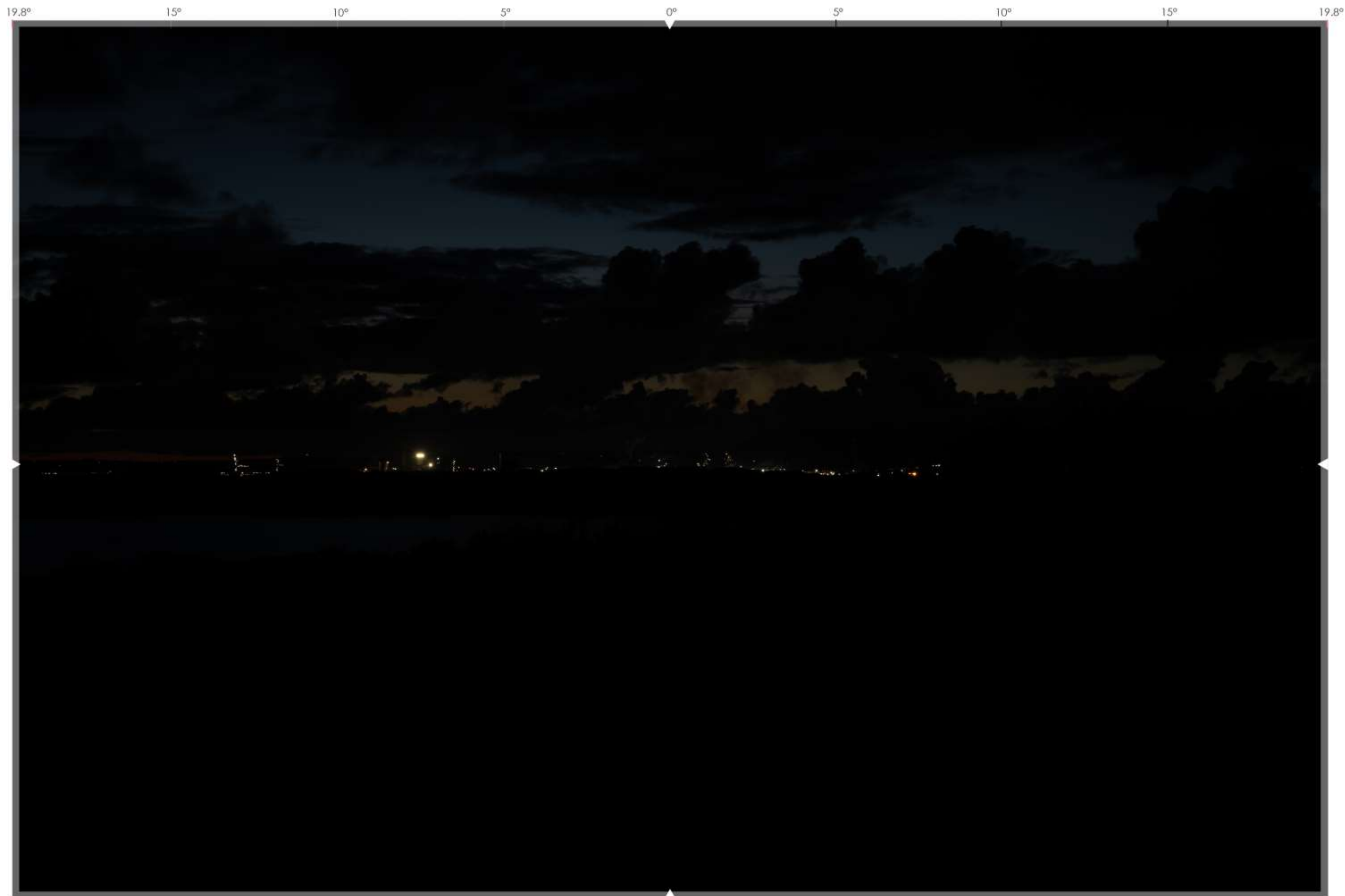


















VIEWPOINT 21, MUMBLES HILL

262649.0774m (E), 187395.3324m (N), 65.0803m (AOD)

11 JULY 2024



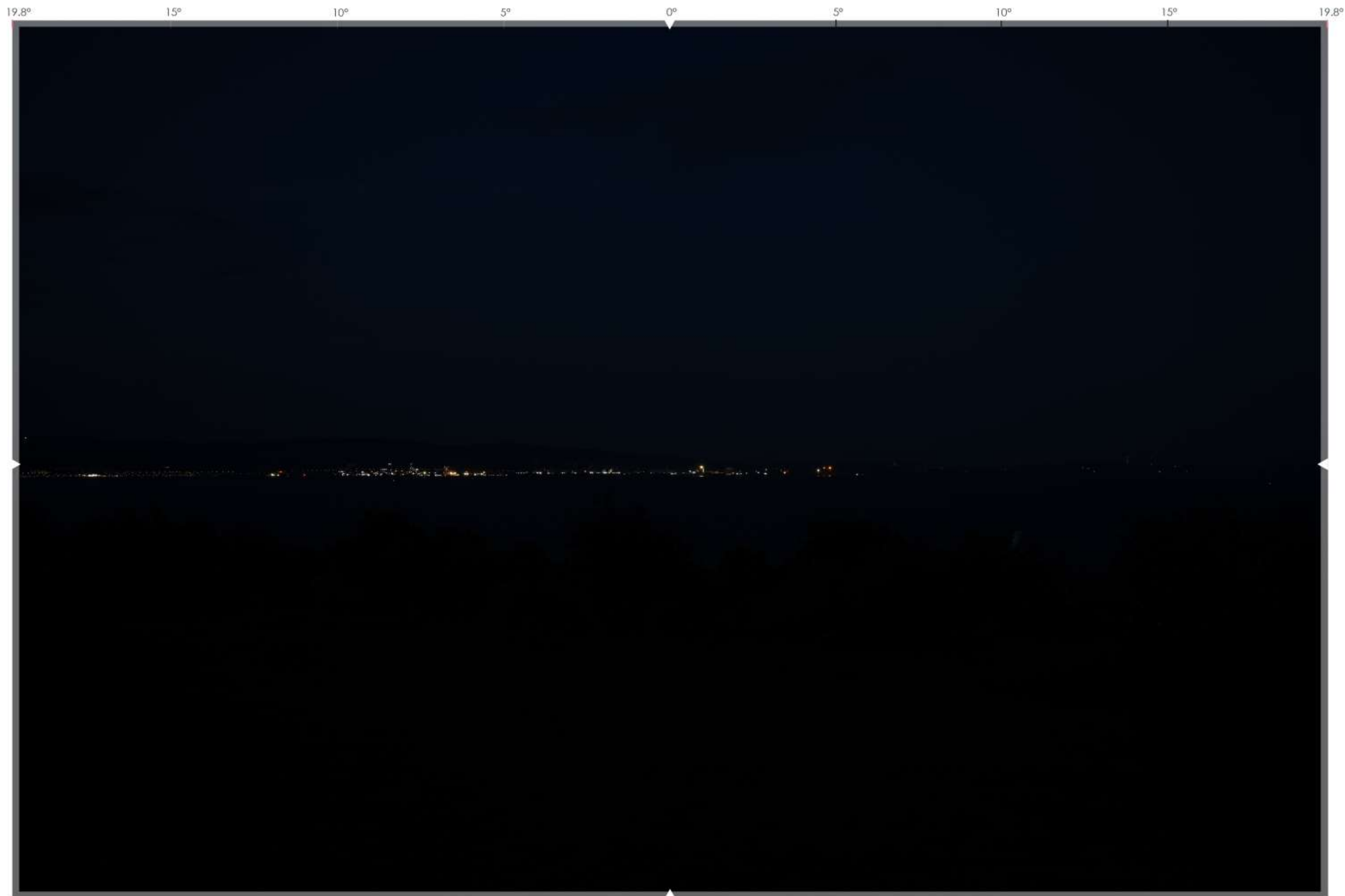




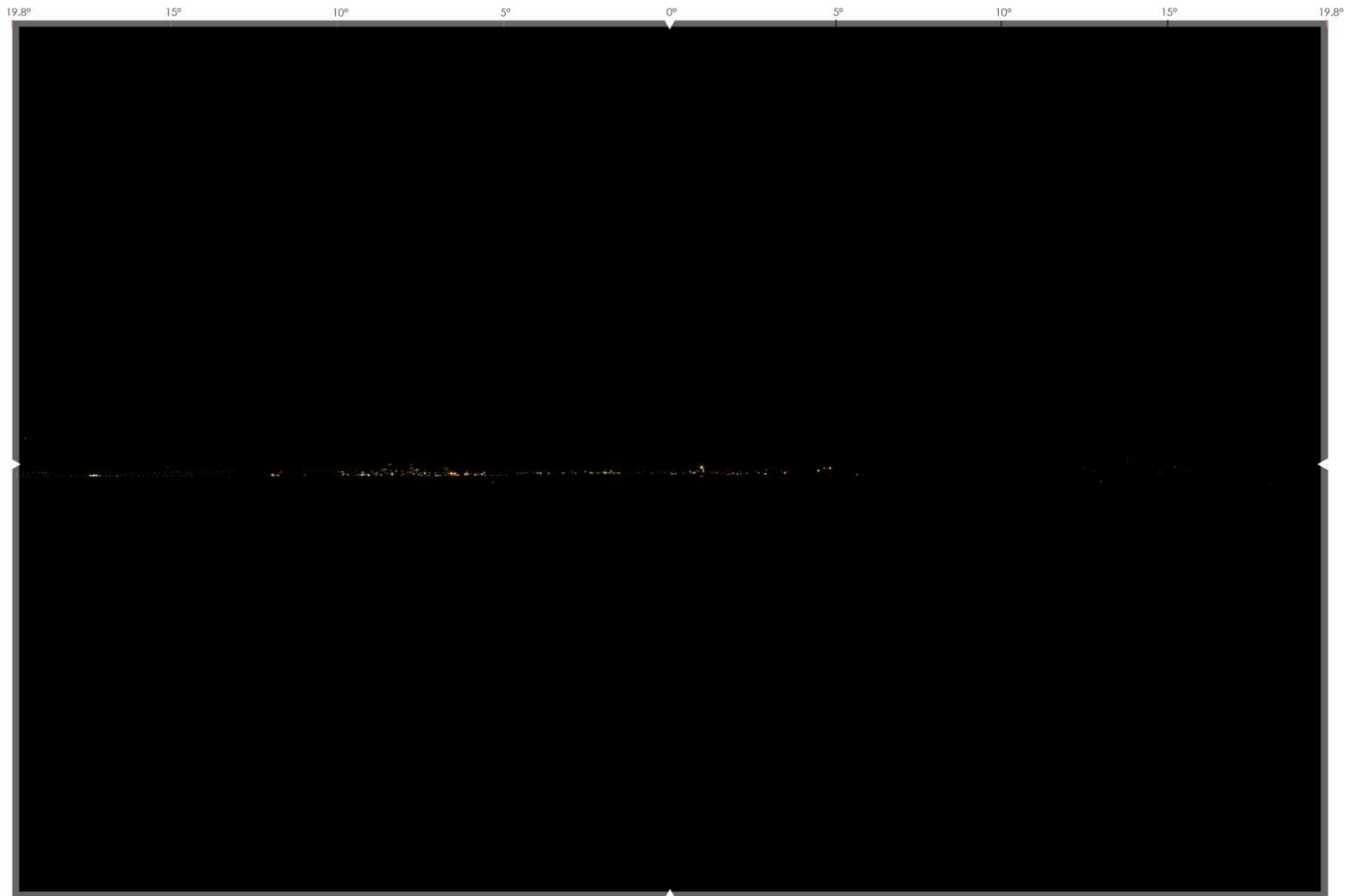


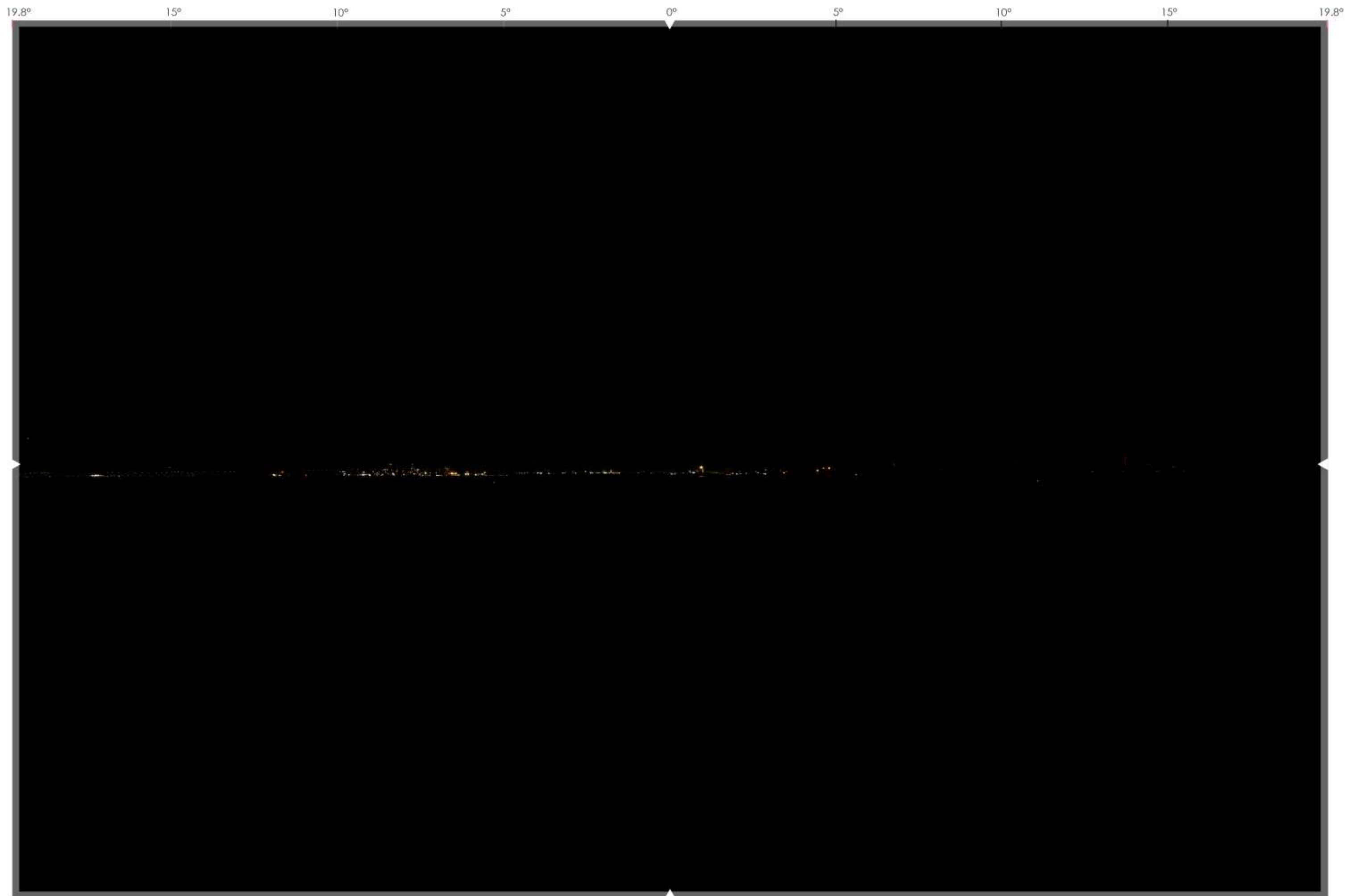












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ELECTRIC ARC FURNACE, PORT TALBOT

NIGHT-TIME EFFECTS TECHNICAL NOTE

May 2024

Document history

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Technical Reviewer	Zachary Ford CMLI	20.05.2024
Approved	Zachary Ford CMLI	20.05.2024

1 APPROACH & SCOPE

- 1.1 The approach to the assessment of night-time lighting effects as part of the Landscape and Visual Impact Assessment (LVIA) will be cognisant of the fact that it is not a technical lighting assessment but will focus on the night-time effects as a result of the introduction of new artificial lighting, with consequent effects on landscape and visual receptors. In other words, it is the assessment of the potential effect of lighting on the character and amenity of the landscape and visual receptors at night and not a technical study concerning light pollution or nuisance.
- 1.2 In terms of the potential for landscape character effects at night, these are almost exclusively concerned with perceptions of darkness and an absence of development; the key characteristics of such landscapes is that they possess a dark sky baseline. An assessment regarding night-time changes on landscapes would therefore be required where development is currently absent and there are existing dark sky landscapes that could be affected by new lighting. This would particularly be the case where existing night-time skies are valued for star-watching etc.
- 1.3 As the Tata Steel UK Limited (Tata Steel) Port Talbot Site is already well lit, it does not present a baseline of dark skies. Within the study area, however, there are some darker sky landscapes, particularly to the less populated elevated areas to the north and east, and to the south in the Kenfig Dunes. Within these areas effects would not be of such magnitude that there would be a substantial change, as they are generally well separated from the Site.
- 1.4 In summary, it is our intention to focus solely on changes to the views of people rather than effects on the landscape as the additional lighting has the potential for night-time impacts that could affect the visual amenity of people but would not change the character of the wider landscape.

2 VIEWPOINT SELECTION

- 2.1 The selection of views (as shown on Viewpoint Figures 2-4) has been guided by a set of principals outlined as follows:
- Walkers on Public Rights of Way (PRoW) which would require artificial lighting to safely access at night are not considered as potential receptors. Walkers on PRoW/Wales Coast Path outside of the built-up area (eg viewpoints 5, 6, 7, 11, 16, 17) would not readily appreciate any lighting changes within the site.
 - The lighting plan provided shows minimal changes to the Electric Arc Furnace (EAF) facility within the existing plant area and lighting changes would therefore be negligible and not readily appreciable from receptors to the north of the site (eg viewpoints 3, 9, 10, 16 and 22-25).
 - Views from distant roads and built-up areas such as the A48 (viewpoint 15) and Kenfig Hill (viewpoint 14) would again appear negligible given the transitory nature of the view and/or the existing artificial lighting.
- 2.2 The potential for viewpoints to be selected along PRoW outside of well-lit areas was raised and discussed at the scoping meeting with Neath Port Talbot Council (NPTC) on 25 April 2024. It was noted at the meeting that the safe access of footpaths could be an issue along unlit footpaths during the hours of darkness. Following further discussion with the project ecologist, following the meeting it was confirmed that such footpaths were not safely accessible at night-

time without the use of artificial lighting. It is also considered that members of the public would not commonly use the 'off-road' PRoW in these unlit areas. It is therefore not considered appropriate to use these routes as typical examples of areas that the public would access and view the Site at night.

2.3 The lighting plan illustrates that new floodlighting will be located within the proposed scrap facility and will have a 24 hour function. The focus of the night-time study will therefore be on receptors that are the most likely to experience a change in light levels. The existing views from the south and east, which could be effected are therefore viewpoint 1 (Longlands Lane PRoW), viewpoint 2 (Abbots Close /Tata Steel UK Limited (Tata Steel) recreation ground), viewpoint 8 (Margam Country Park), viewpoint 12 (M4 overbridge) and viewpoint 13 (Kenfig Nature Reserve).

2.4 Although there is potential to view the proposed scrap area from the unlit section of the M4 overbridge at viewpoint 12, this has been omitted from the list of potential viewpoints for night-time photomontage, on the basis that intervening lighting from both the Kenfig Industrial Estate and moving traffic on the motorway would negate any additional distant lighting effects. Viewpoint 13 from Kenfig Nature Reserve appears to be a more suitable location, particularly if accessible within the nature reserve away from the housing and street lighting at Kenfig.

2.5 Viewpoint 21 (Mumbles Hill) would provide a fifth receptor to provide an understanding of the effects of lighting on long distance views across the Bay to within the eastern most extents of the Gower National Landscape/Tirwedd Cenedlaethol Gwyr.

3

3.1 CONCLUSION

It is our intention to focus on changes to the views of people rather than effects on the landscape as the additional lighting has the potential for night-time impacts that could affect the visual amenity of people but would not change the character of the wider landscape. The new floodlighting would be located within the proposed scrap facility to the south of the main Site hence the focus of the night-time study will be on receptors that could be effected by changes to this area. Our list of potential viewpoints for night-time photomontage is as follows:

- Viewpoint 1, Longlands Lane
- Viewpoint 2, Abbots Close, Margam
- Viewpoint 8, Margam Country Park
- Viewpoint 13, Kenfig Nature Reserve
- Viewpoint 21, Mumbles Hill.