

Volume 5: Appendix 7.2 – Aviation Impact Assessment

Aviation Impact Assessment

SSEN Transmission

Kintore to Tealing Overhead Line (OHL)

August 2025

PLANNING SOLUTIONS FOR:

- Solar
- Telecoms
- Railways
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- Buildings
- Wind
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ADMINISTRATION PAGE

Issue	Date	Detail of Changes
1	August 2024	Initial issue
2	October 2024	Administrative revisions
3	January 2025	Administrative revisions
4	March 2025	Administrative revisions
5	May 2025	Additional aerodrome
6	June 2025	Administrative revisions
7	July 2025	Administrative revisions
8	August 2025	Administrative revisions
9	August 2025	Administrative revisions

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EXECUTIVE SUMMARY

Background

Pager Power has conducted an aviation impact assessment for the proposed overhead line between Kintore and Tealing (also known as the Proposed Development), Scotland, to determine its potential impact upon aviation activity.

The impact assessment has been assessed based on the tower heights with the highest tower at 71.67m above ground level.

Overall Conclusions

No significant impact is predicted upon aviation activity associated with licensed aerodromes, military aerodromes, and their associated infrastructure. A significant impact is predicted upon unlicensed civil airfields due to the proximity of the Proposed Development relative to the aerodromes. The assessment conclusions and recommendations are presented in the following sections.

Licensed Airports

Aberdeen Dyce Airport

The Proposed Development is laterally within and vertically clear of the Outer Horizontal Surface of the Obstacle Limitation Surfaces (OLS), and greater than five nautical miles laterally clear of the closest Instrument Flight Procedure (IFP).

Consultation with the safeguarding team at Aberdeen Dyce Airport has been undertaken and no concerns have been raised¹.

Dundee Airport

Sections of the Proposed Development breaches the Outer Horizontal Surface of the OLS. The Proposed Development is greater than three nautical miles laterally clear of the closest IFP.

Consultation with the safeguarding team at Highlands and Islands Airports Limited, who safeguard Dundee Airport, has been undertaken and no concerns have been raised².

NATS En Route Ltd (NERL)

The Proposed Development is predicted to be hidden (screened by terrain) to the Aberdeen Beacon and Perwinnes Primary Surveillance Radar (PSR). Sections of the Proposed Development is within line-of-sight to the Air-Ground-Air 46 radar. The towers are not predicted to cause a significant technical impact (i.e. radar clutter due to false returns) compared to wind turbines and

¹ Source: SSE, March 2025

² Source: Highlands and Islands Airports Limited, March 2025

buildings, due to not featuring a rotating blade or large areas of flat uniform surfaces (causing reflection or shadowing effects).

Consultation with NATS NERL has been undertaken and no concerns have been raised³.

Ministry of Defence (MoD)

Low Flying Zones

Sections of the Proposed Development are located within an area of 'low priority for military low flying concerns'. No significant impacts upon military low flying operations are predicted.

Consultation with the MoD has been undertaken at each stage of the project, and no concerns have been raised⁴.

Aviation Lighting

Consultation has been undertaken with the MoD at each stage of the project, who have confirmed⁴ they have no lighting requirements.

Radar Impact

The Proposed Development is predicted to be hidden (screened by terrain) to the Remote Radar Head at Buchan. Sections of the Proposed Development are within line-of-sight to the RAF Leuchars PSR. The towers are not predicted to cause a significant technical impact (i.e. radar clutter due to false returns) compared to wind turbines and buildings, due to not featuring a rotating blade or flat and opaque surfaces (causing reflection or shadowing effects).

Consultation with the MoD has been undertaken at each stage of the project, and no concerns have been raised⁴.

Civil Airfields

In general, the Proposed Development will be less easily visible to pilots flying visually (i.e. no navigation aids). The Proposed Development will intersect the runways at Gossesslie Airfield, and Fordoun Airfield, and will be adjacent to the runway at Laurencekirk Airstrip. It is understood the airfields would not be able to continue to operate safely in their current manner, therefore a significant adverse impact is predicted.

SSEN Transmission is in liaison⁵ with the owners and operators of Gossesslie Airfield, Laurencekirk Airstrip and Fordoun Airfield regarding the impacts on their operations. Liaison with the airfields will continue to confirm the airfield operators' position in relation to the Proposed Development.

³ Source: NATS, December 2024

⁴ Source: MoD, May 2025

⁵ Source: SSE, July 2025

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1 INTRODUCTION

1.1 Overview

Pager Power has conducted an aviation impact assessment for the proposed overhead line network between Kintore and Tealing (the Proposed Development), Scotland, to determine its potential impact upon aviation activity.

The impact assessment has been assessed based on the tower heights with the highest tower at 71.67m above ground level (agl).

The report includes:

- Identification of relevant aviation infrastructure including:
 - Aerodromes (licensed, unlicensed and military);
 - Radar; and
 - Radio navigation aids.
- Overview of relevant safeguarding assessment distances;
- Radio line-of-sight assessment for the relevant infrastructure, including:
 - Radar installations; and
 - Radio navigation aids.
- Overall risk and key issues.

The aim is to identify and assess the aviation risks associated with achieving planning permission and construction of the Proposed Development.

2 PROPOSED DEVELOPMENT INFORMATION

2.1 Proposed Development Details

The coordinates (Eastings and Northings as per British National Grid) and heights above ground level of towers assessed are presented in Appendix A. The proposed overhead line, indicated in white, is shown on to aerial imagery in Figure 1 below.



Figure 1 Proposed overhead line network

3 AVIATION IMPACT ASSESSMENT

3.1 Impact Assessment Results

Table 1 on the following pages present the aviation impact assessment chart and identified risks.

An initial risk level (Low, Medium, or High) is given based on the distance between the Proposed Development and the aviation risk.

Stakeholder	Aviation Risk	Distance	Risk Level
Met Office	No risks identified		
Licensed Airports and Radar	Aberdeen Dyce Airport	15km	Medium
	Dundee Airport	9.6km	Medium
NATS En-Route Limited (NERL)	Dundee Beacon	11km	Low
	Perwinnes Secondary Surveillance Radar (SSR)	15.4km	Low
	Allanshill Primary Surveillance Radar (PSR)	49.2km	Low
	Air-Ground-Air (AGA) 46	1.1km	High
	Aberdeen Beacon	0.8km	High
	Perwinnes PSR	22.2km	High
Ministry of Defence (MoD)	Low flying system	-	Low
	RAF Leuchars Airfield	18km	Low
	RAF Leuchars Precision Approach Radar	18km	Low
	Remote Radar Head (RRH) Buchan	55.5km	Medium

Stakeholder	Aviation Risk	Distance	Risk Level
	RAF Leuchars PSR	19.8km	High
Unlicensed Civil Airfields	Banchory Heliport	8km	Low
	Aberdeen Heliport	5km	Low
	Gossesslie Airfield	0m	High
	Fordoun Airfield	0m	High
	Laurencekirk Airstrip	0m	High

Table 1 Identified aviation risks

4 AVIATION IMPACT ASSESSMENT DISCUSSION

4.1 Overview

The following section presents the results and discussion of the medium and high risks as identified by the impact assessment. Low risks are not considered further as they are not likely to have a significant effect, due to the distance between the Proposed Development and aviation risk.

The most significant constraint with respect to physical safeguarding at licensed and military aerodromes is the Obstacle Limitation Surfaces (OLS). The OLS consists of a set of imaginary planes defined in three dimensions for physical safeguarding purposes (i.e., ensuring that physical structures do not present a safety hazard at an airfield) and are defined around licensed and military aerodromes. The dimensions and geometry of the surfaces are constructed based on detailed rules defined in the UK Civil Aviation Authority's (CAA) Civil Aviation Publication (CAP) 168 for licensed aerodromes. The size of the surfaces is dependent on the dimensions of the runways and the procedures carried out at the aerodrome.

The approach taken for the radar installations is as follows:

- Radar line-of-sight assessment for the most significant radar and tower;
- Consideration of the distance from the radar;
- Sensitivity of the location in which the development is situated.

Radar line-of-sight determines how much of a structure is illuminated by the radar signal, which considers:

- The radar position;
- The structure position;
- The intervening terrain profile;
- Radar refraction;
- Earth curvature.

The box labelled 'certainty' (within the line-of-sight charts) provides the distance (in metres) by which the structure is or is not within line-of-sight to the assessed radar.

Assessment of the predicted impact in the context of the existing environment has been undertaken, where appropriate. The modelling described above accounts for the intervening terrain. It does not account for additional obstructions on the ground along the radar line-of-sight e.g. buildings or vegetation.

When evaluating new infrastructure in the vicinity of radar installations it is necessary to consider:

- Whether there is potential for a technical impact. Simplistically a technical impact means that the behaviour of the physical signals to and from the radar is physically affected in some way by the development. If there is no technical impact, the radar is

unaffected by the development. Determining technical impact is almost entirely a matter of accurately modelling signal propagation and interaction based on technical data for the radar and the towers;

- Where there is a potential technical impact, it is necessary to evaluate the associated operational or cumulative impact it causes. Simplistically this means the extent to which the effect on the physical signals is noticeable and/or important for the radar operator. Determining operational impact requires consideration of the technical impact's magnitude and the operational requirements of the radar operator.

Structures that are detectable to a PSR can cause a technical impact because:

- They can appear as targets on the radar screen – known as clutter;
- They can cause some shadowing due to physical blocking of the signals;
- They can cause reflections of inbound and outbound radar signals;
- They can desensitize the radar in the vicinity of the structure.

The operational significance of technical impacts is influenced by the radar operator's requirements – which in this case are likely to be confidential to a certain degree. However, it is generally the case that:

- The technical impacts of radar clutter are predominantly of operational concern because:
 - They have the potential to cause a distraction to a radar operator observing the screen.
 - The clutter could be mistaken for a return from a genuine radar target.
 - The clutter could 'hide' a genuine radar target.
 - An operator may have to direct traffic of some kind around an area of clutter.
- The technical impacts of shadowing are predominantly of operational concern because genuine targets will be harder to detect behind the obstruction – particularly if they are small/weak.

The technical impacts of reflected inbound and outbound radar signals are that targets may be displayed on the wrong bearing or at the wrong range.

4.2 Licensed Airports and Radar

4.2.1 Obstacle Limitation Surfaces Assessment

Towers as part of the Proposed Development and within 15km of Aberdeen Dyce Airport and 10km of Dundee Airport have been assessed against the OLS for both airports. Figures 2 and 3 on the following page shows the Proposed Development (red line) plotted against the OLS for Aberdeen Dyce Airport and Dundee Airport respectively.

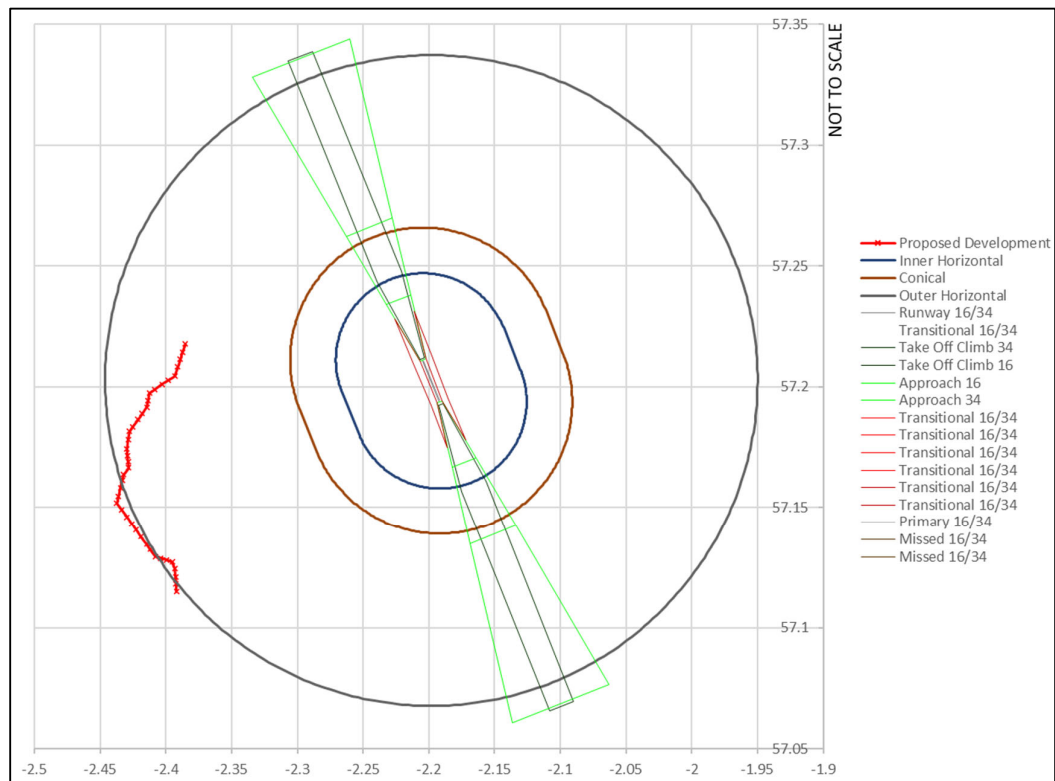


Figure 2 OLS plot for Aberdeen Dyce Airport

The Proposed Development is laterally underneath the Outer Horizontal Surface but vertically clear. The minimum vertical clearance is calculated to be 4.49m, between the Outer Horizontal Surface and tower N22.

The OLS plot for Dundee Airport is presented in Figure 3 on the following page. The assessment results are presented in Appendix B.

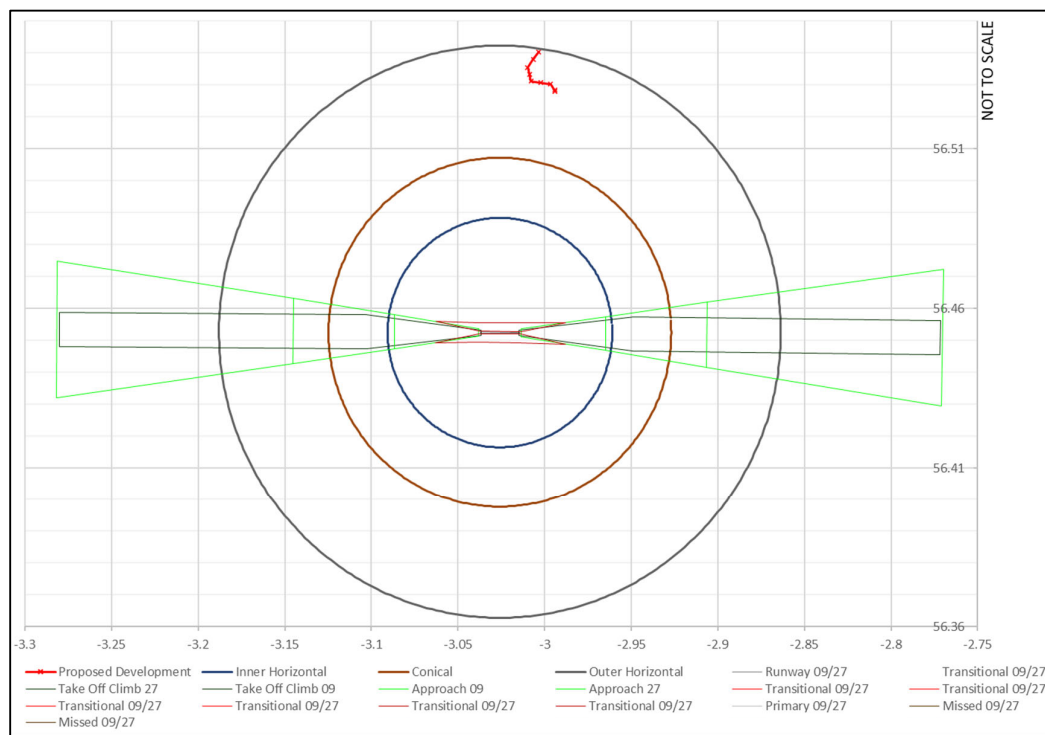


Figure 3 OLS plot for Dundee Airport

The Proposed Development is laterally underneath the Outer Horizontal Surface but vertically clear. The minimum vertical clearance is calculated to be 58.55m.

Consultation with the safeguarding team at Highlands and Islands Airports Limited, who safeguard Dundee Airport, has been undertaken and no concerns have been raised.

4.2.2 High-Level Instrument Flight Analysis

Aircraft flying Instrument Flight Rules (IFR) have been assessed at a high-level by considering the Maximum Elevation Figure (MEF), Surveillance Minimum Altitude Chart (SMAC) and published Instrument Flight Procedures (IFP) and their location relative to the Proposed Development. This has been undertaken to determine whether an impact upon IFR are expected or whether a more detailed analysis is required.

4.2.2.1 Maximum Elevation Figure (MEF)

The MEF shows the maximum altitude of the highest terrain or structure in a particular quadrangle of a standard aeronautical chart. The highest elevated tower pertaining to the Proposed Development has a maximum⁶ altitude of 1,298 feet. The Proposed Development is located within two quadrants of different MEF values. Table 2 on the following page summarises the MEF for both quadrants, and the vertical clearance between the MEF and maximum altitude of the Proposed Development.

⁶ Tower T15R1 is elevated at 395.37 metres amsl. The elevation is rounded up to be conservative.

MEF	MEF Compared to Maximum Altitude of Proposed Development
2,700	1,402
3,400	2,102

Table 2 MEF compared to maximum altitude of Proposed Development

The Proposed Development is 1,402 feet below the MEF (at a minimum), and therefore the MEF will not be impacted by the Proposed Development.

4.2.2.2 Surveillance Minimum Altitude Figure (SMAC)

Surveillance Minimum Altitude Charts (SMAC) are published to show the lowest altitude a pilot will be instructed to fly whilst receiving instruction from an Air Traffic Control service.

Figure 4 on the following page shows the ATC SMAC for Aberdeen Dyce Airport. The figure has been annotated with a red rectangle to indicate the approximate location of the Proposed Development.

Dundee Airport does not have a radar and therefore does not have a SMAC.



Figure 4 ATC SMAC - Aberdeen Dyce Airport

The Proposed Development will be in sectors where the minimum altitude for each sector varies. Table 3 below and on the following page summarises the maximum altitude for the Proposed Development, the sectors of the SMAC and the vertical clearance between the Proposed Development and aircraft subject to a radar control service.

SMAC Elevation (ft above mean sea level)	Maximum Elevation of Proposed Development (ft above mean sea level)	Vertical clearance (ft)
2,800	1,298	1,502
3,200	1,298	1,902

SMAC Elevation (ft above mean sea level)	Maximum Elevation of Proposed Development (ft above mean sea level)	Vertical clearance (ft)
4,100	1,298	2,802

Table 3 Vertical clearances relative to SMAC

The vertical clearances are significantly greater than the specified clearance of 984 feet⁷ in the CAA procedure (CAP 777) for designing SMACs. The SMAC is not likely be affected by the Proposed Development.

4.2.2.3 Obstacle Clearance Margins

As a general rule Instrument Flight Procedures (IFP) are designed so that there are vertical and horizontal safety margins between the specified trajectory and surrounding terrain and obstacles. These margins vary depending on the phase of flight and whether UK, European or International rules are being considered. Nevertheless, the vertical margins are always 1,000 feet or less (except in particularly mountainous regions). This means that if the vertical clearance between an IFP route and the top of the Proposed Development exceeds 1,000 feet then it will not have a significant safety impact on aircraft flying the route.

The maximum altitude of the Proposed Development is 1,298 feet. This means that aircraft subject to any IFP route or limit which is more than 2,298 feet will be unaffected by the Proposed Development.

4.2.2.4 Consideration of IFP

The IFP procedure 'INSTRUMENT APPROACH CHART ILS/DME RWY 16 - ICAO' for Aberdeen Dyce Airport is shown in Figure 5 on the following page. The closest tower (N1) relative to the procedure is annotated by the red dot and has an elevation of 498 feet⁸ amsl.

⁷ 300 metres

⁸ 152 metres

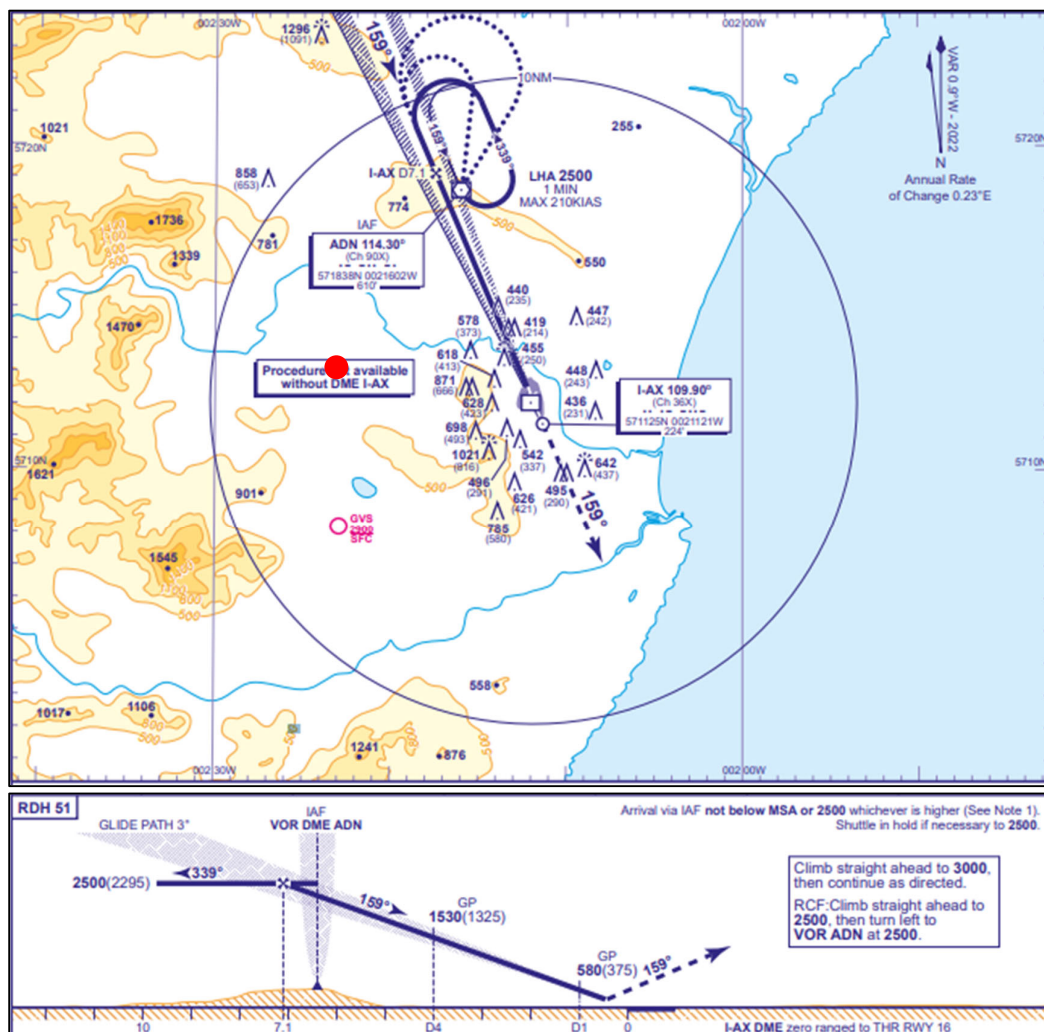


Figure 5 IFP relative to Proposed Development

The closest tower has a lateral clearance of 9,824m; more than 5 nautical miles. At this distance, from the procedure, the Proposed Development will not have a significant impact on this procedure.

The IFP procedure 'INSTRUMENT APPROACH CHART RNP RWY 27 (CAT A,B,C) - ICAO' for Dundee Airport is shown in Figure 6 on the following page. The closest tower (S206) relative to the procedure is annotated by the red dot and has an elevation of 663 feet⁹ amsl.

⁹ 202 metres

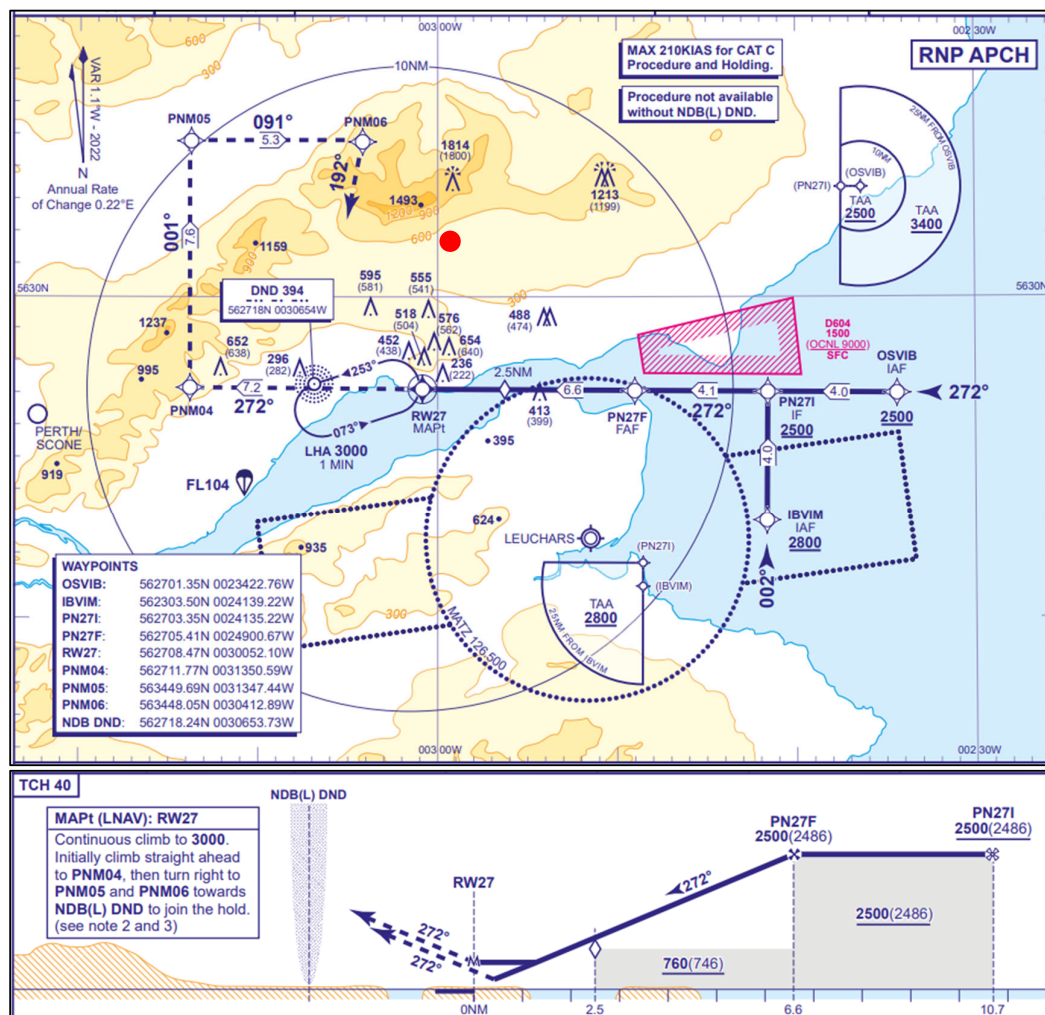


Figure 6 IFP relative to Proposed Development

The missed approach (dashed line within the chart) outlined on for this procedure is part of an 'RNP APCH' procedure with area widths for safeguarding based on specific criteria for these sorts of approaches. The half area width (and therefore required clearance to be laterally clear for this procedure) is calculated to be 2.00 nautical miles. The Proposed Development is approximately 3.41 nautical miles laterally from the closest point of this procedure, and therefore laterally clear and are not expected to have an impact on this procedure.

4.2.3 Conclusions

The initial assessment indicates that the SMAC at Aberdeen Dyce Airport is unlikely to be affected by the Proposed Development. Other high-level assessments for Aberdeen Dyce Airport and Dundee Airport have shown that the clearance distances between the assessed procedures and the proposed obstacles exceeded the relevant IFP clearance minima.

Consultation with the safeguarding team at Aberdeen Dyche Airport, and Highlands and Islands Airports Limited, who safeguard Dundee Airport, has been undertaken and no concerns have been raised.

4.3 NATS En Route Ltd (NERL)

The radar line-of-sight analysis has been completed for the Proposed Development to determine the extent of the visibility to the Air-Ground-Air (AGA) 46, Aberdeen Beacon, and Perwinnes Primary Surveillance Radar (PSR).

Figures 7 to 9 on the following pages present the line-of-sight charts from the radar to the most visible tower. The box labelled 'certainty' provides the distance (in metres) by which the Proposed Development is within line-of-sight to the assessed radar. All proposed towers will be hidden (screened by terrain) to the Aberdeen Beacon and Perwinnes PSR.

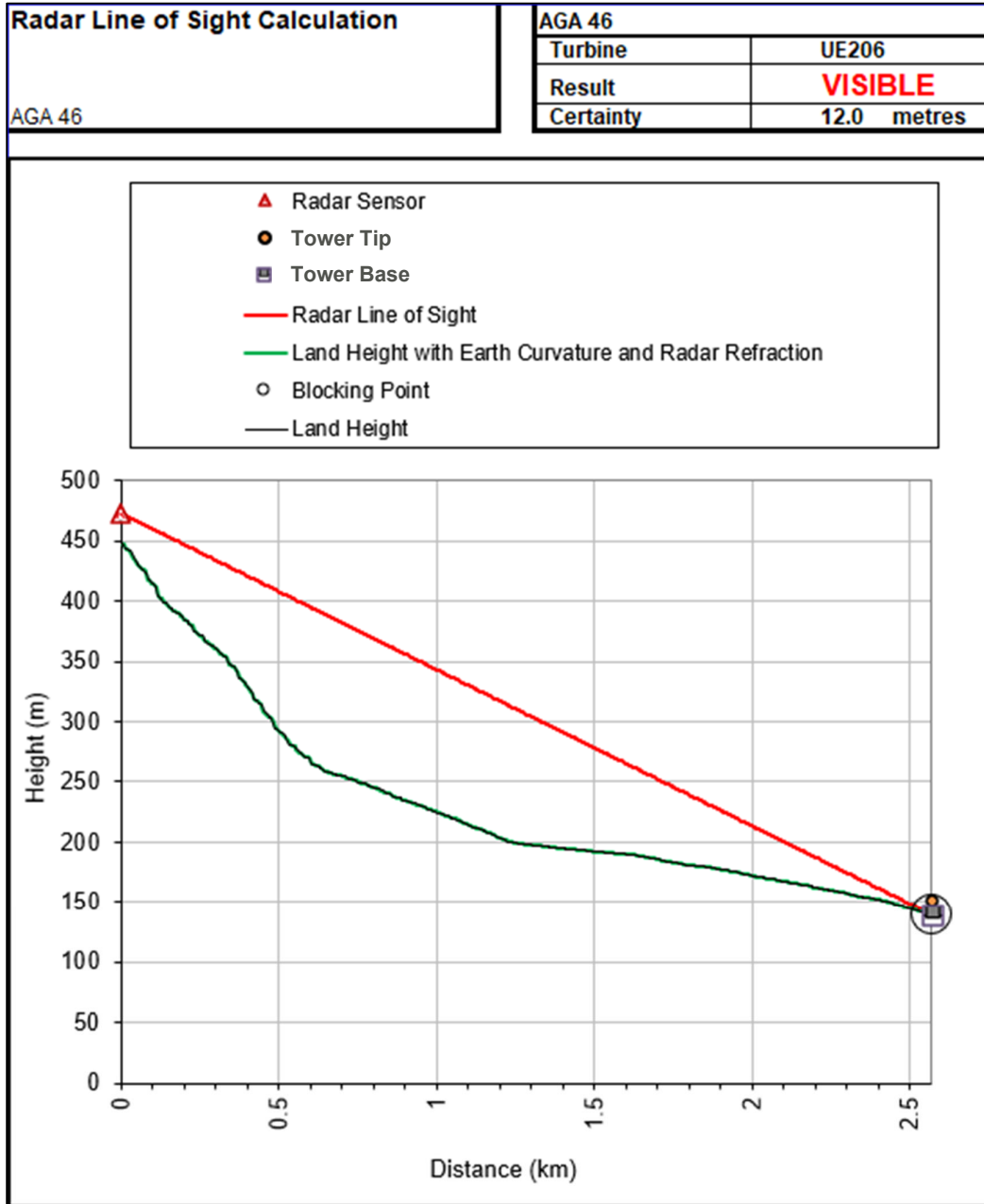


Figure 7 Line-of-sight chart for AGA 46

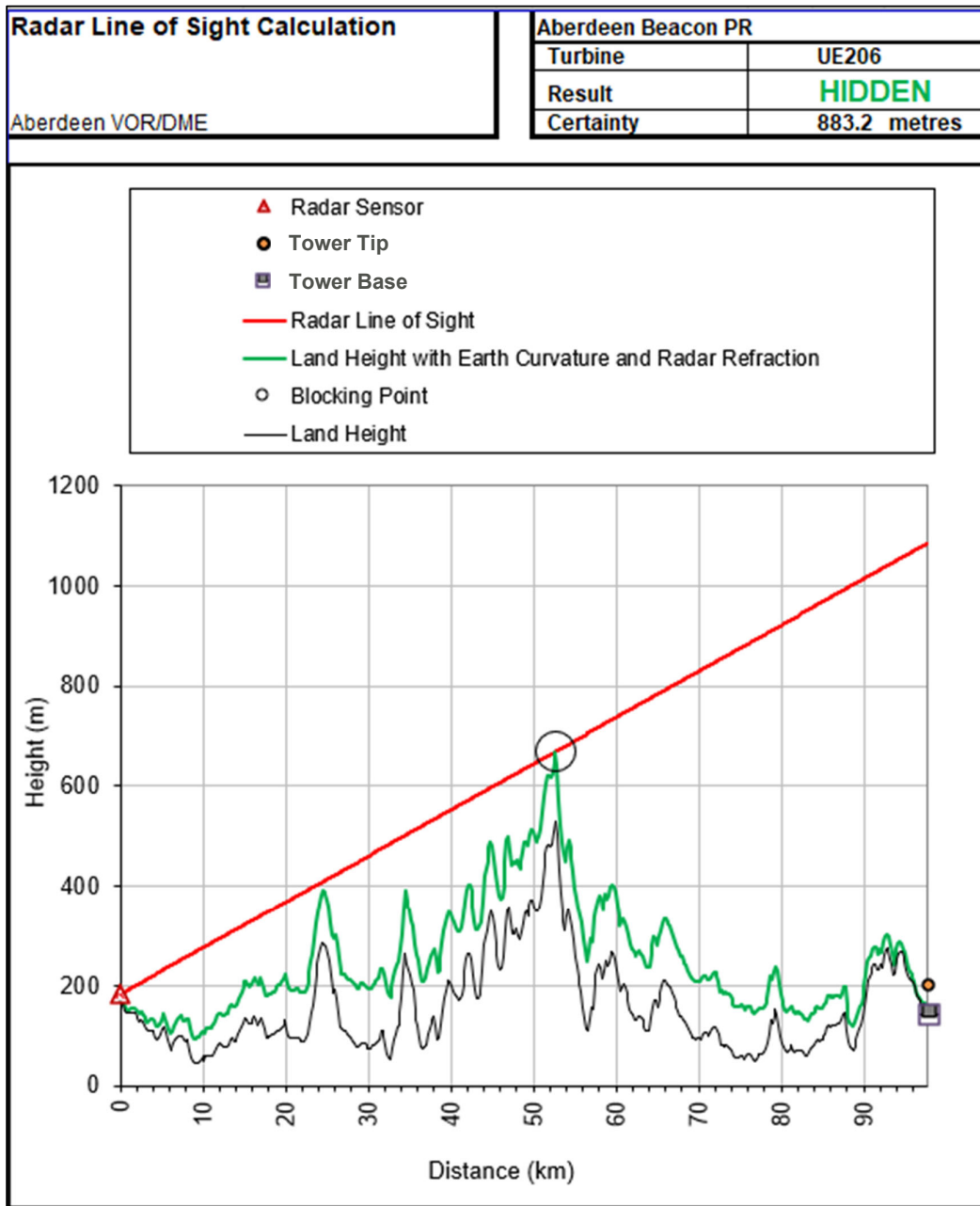


Figure 8 Line-of-sight chart for Aberdeen Beacon

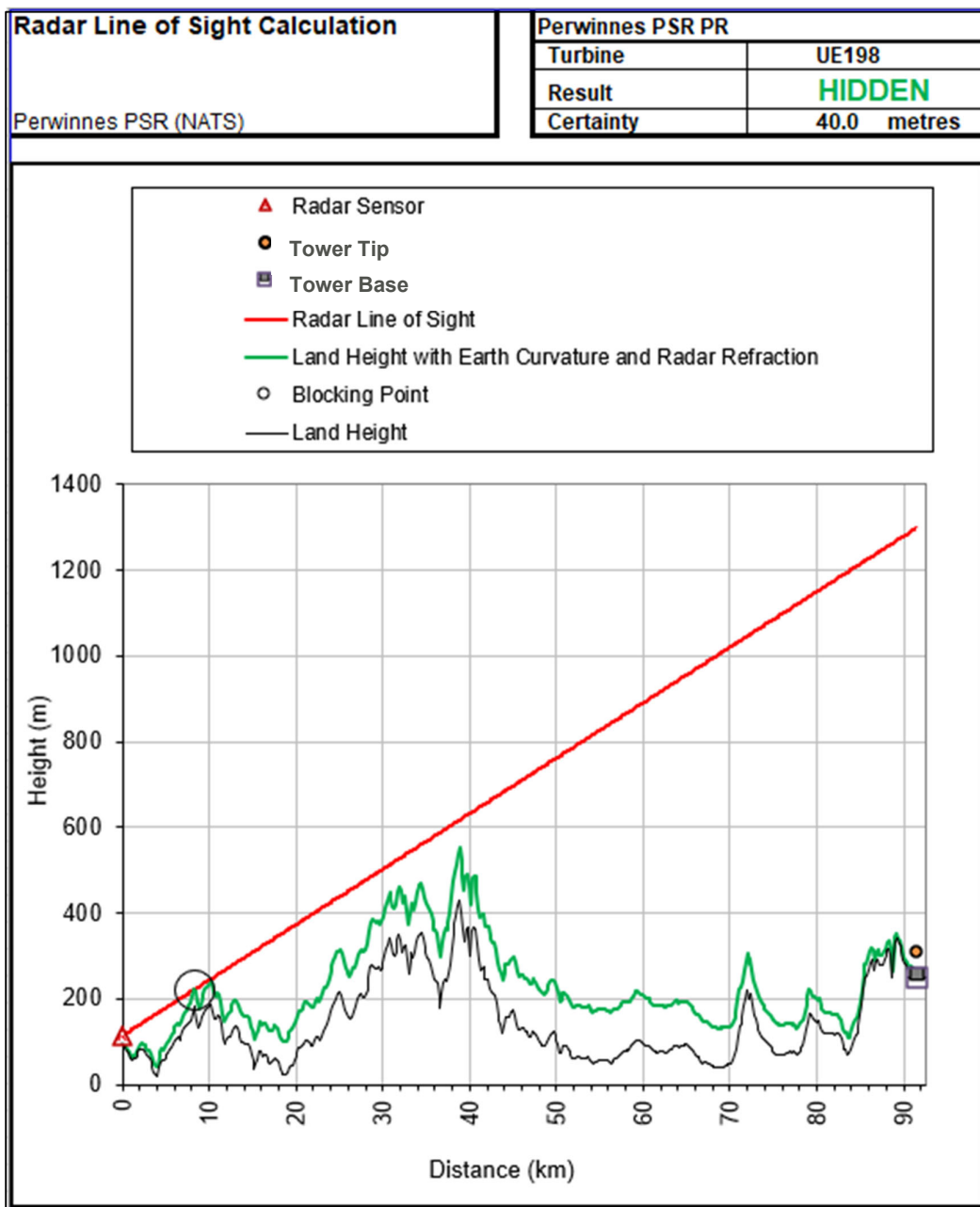


Figure 9 Line-of-sight chart for Perwinnes PSR

Static obstructions such as the proposed towers for this Proposed Development are less likely to cause an impact upon radar compared to wind turbines and buildings. The rotating blades of wind turbines move at speeds similar to some aircraft that most Doppler radar are designed to detect, which will not be a feature of the proposed towers. Buildings can impact a radar in two ways:

- Reflections – reflections from a structure can potentially result in genuine aircraft returns being plotted in the wrong place as a result of the structure reflecting signals in a specular (mirror-like) way; and
- Shadowing – large obstructions within a radar’s area of coverage can have a ‘shadowing’ effect, reducing the signal strength immediately behind them.

The proposed towers will not feature a rotating blade or large areas of flat uniform surfaces, and therefore are not predicted to cause reflection or shadowing effects. No significant impact upon the identified radar is predicted.

Consultation with NATS NERL has confirmed that the Proposed Development does not conflict their safeguarding criteria no concerns have been raised.

4.4 Ministry of Defence (MoD)

4.4.1 Military Low Flying

Military low flying can take place throughout the UK. The MoD has published a map indicating the priority for low flying within areas of the UK. The map is colour-coded as follows:

- Green – Area with no military low flying concerns;
- Blue – Low priority military low flying areas less likely to raise concerns;
- Amber – Regular military low flying area where mitigation may be necessary to resolve concerns;
- Red – High priority military low flying area likely to raise considerable and significant concerns.

The location of the Proposed Development (white line) relative to the military low flying zones is shown in Figure 10 on the following page. The figure shows that the proposed line network is located within the ‘green’ and ‘blue’ zones, which are areas with no concerns or low priority for military low flying concerns.



Figure 10 Military low flying zones relative to Proposed Development

Consultation has been undertaken with the MoD at each stage of the project, who have confirmed they have no concerns regarding the Proposed Development pertaining to low flying zones¹⁰.

4.4.2 Aviation Lighting

Consultation has been undertaken with the MoD at each stage of the project, who have confirmed they have no lighting requirements.

4.4.3 Radar Line-of-Sight Assessment

The radar line-of-sight analysis has been completed for the Proposed Development to determine the extent of the visibility to the RRH Buchan and RAF Leuchars PSR.

Figure 11 and 12 on the following page presents the line-of-sight charts from the radar to the most visible tower. The box labelled 'certainty' provides the distance (in metres) by which the Proposed Development is within line-of-sight to the assessed radar. All proposed towers will be hidden (screened by terrain) to the RRH Buchan and RAF Leuchars PSR.

¹⁰ Source: MoD, May 2025

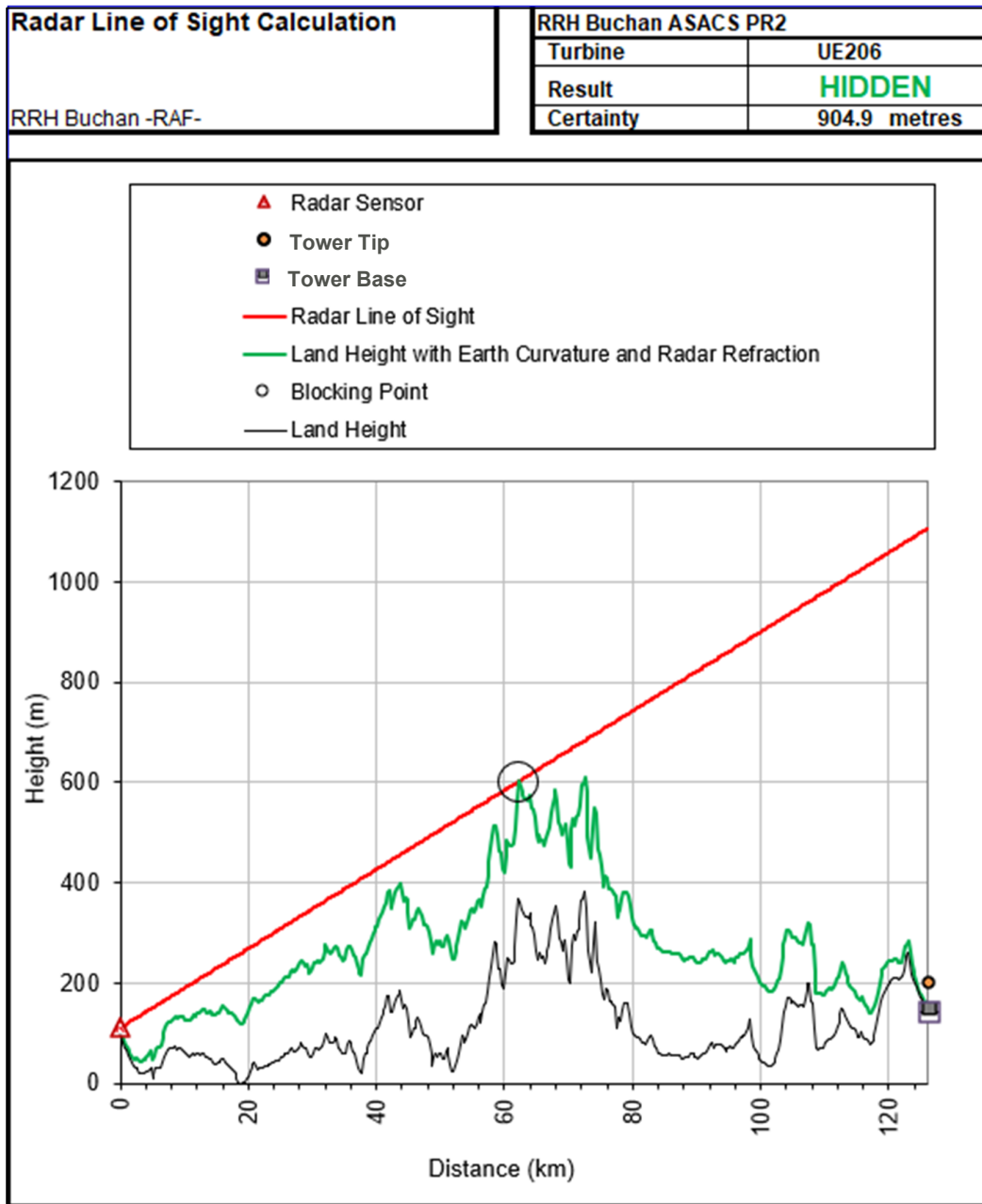


Figure 11 Line-of-sight chart for RRH Buchan

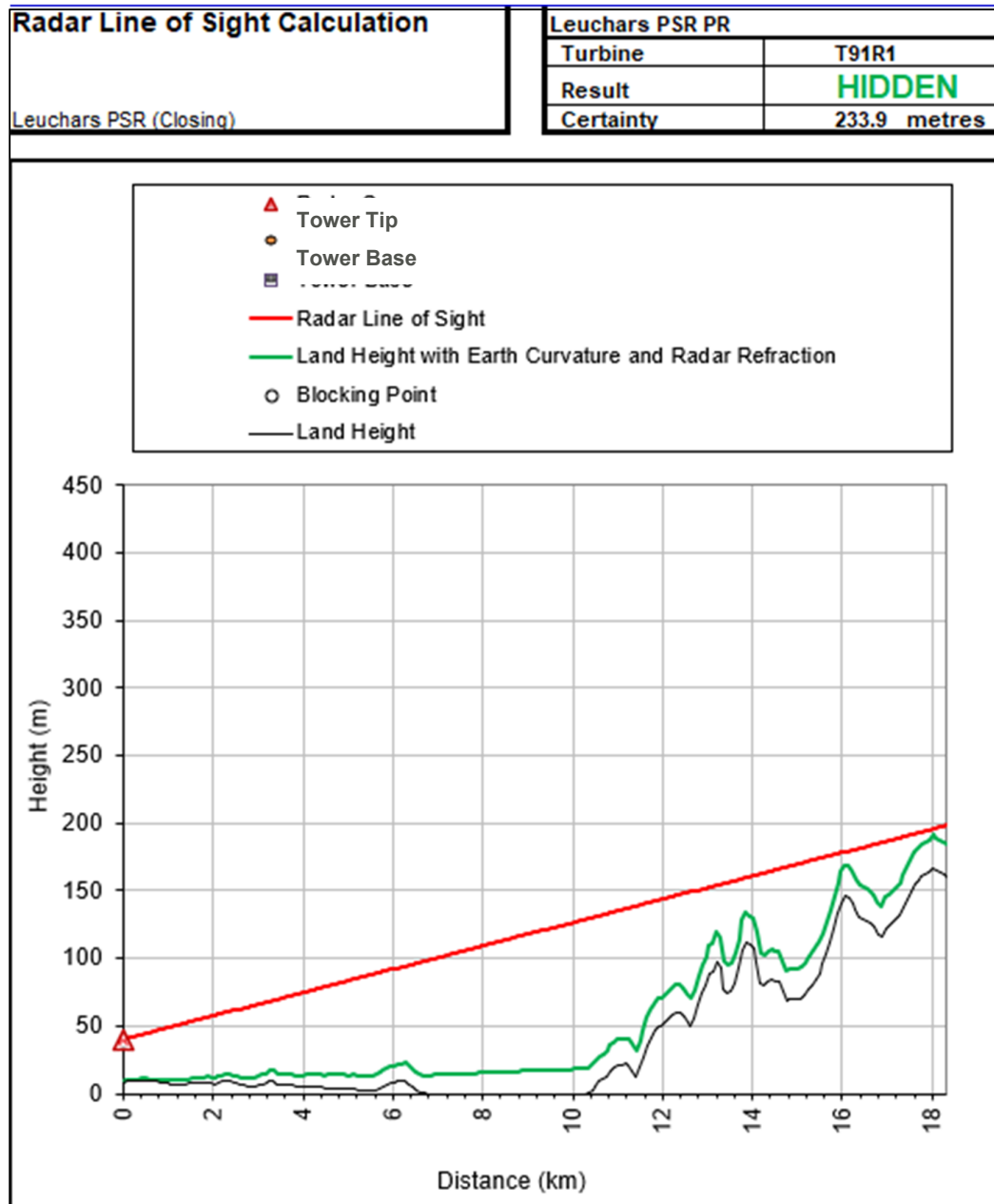


Figure 12 Line-of-sight chart RAF Leuchars PSR

Consultation with the MoD has been undertaken at each stage of the project, and no concerns have been raised.

4.5 Civil Airfields

The Proposed Development will pose a collision risk to aviation activity due to introducing a physical structure extending into the existing airspace. Unlicensed civil airfields, such as Gossesslie Airfield, Fordoun Airfield, and Laurencekirk Airstrip as identified in the impact assessment, do not have officially safeguarded OLS like licensed aerodromes. Unlicensed aerodromes should take steps to protect their locations from the effects of possible adverse developments.

Gossesslie Airfield, Fordoun Airfield, and Laurencekirk Airstrip are unregistered aerodromes, where aviation activity is understood to be for recreational use, and flights are considered to be of low frequencies due to their unmarked runways.

Figures 13 to 15 below and on the following page show the Proposed Development relative to Gossesslie Airfield, Fordoun Airfield, and Laurencekirk Airstrip respectively.

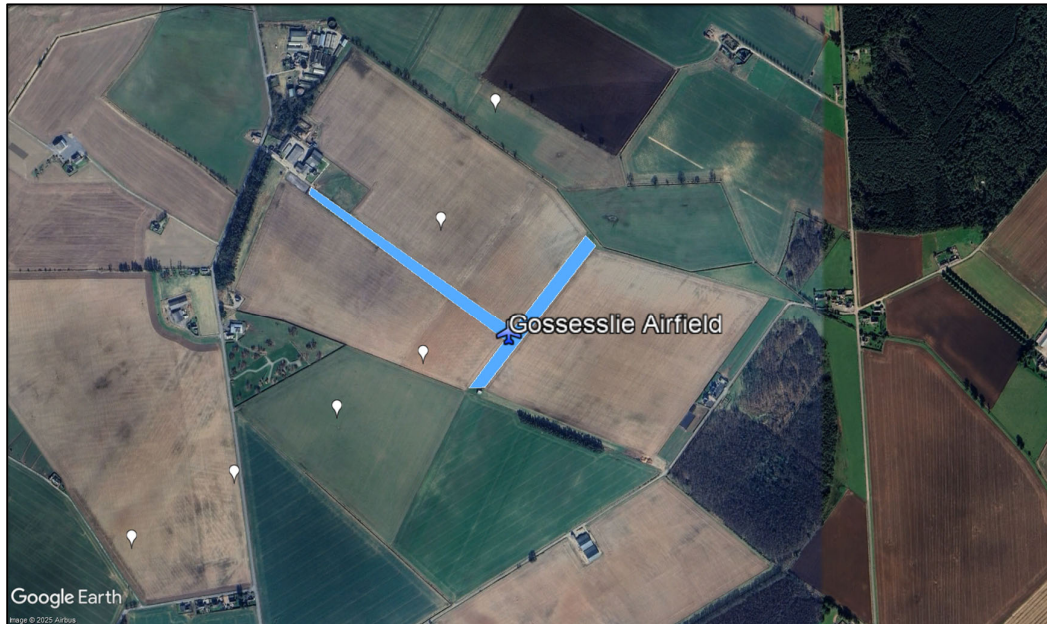


Figure 13 Proposed Development relative to Gossesslie Airfield

The Proposed Development towers (white icons) will intersect the middle of the operational runway (highlighted blue) at Gossesslie Airfield. Towers will be located to the south and north of the runway and the overhead line will run north to south directly over the middle of the runway. Therefore, the Proposed Development is predicted to have a significant adverse effect on operations at the airfield.



Figure 14 Proposed Development relative to Fordoun Airfield

The Proposed Development runs across the southern half of the operational runway at Fordoun Airfield. Therefore, the Proposed Development is predicted to have a significant adverse effect on operations at the airfield.



Figure 15 Proposed Development relative to Laurencekirk Airstrip

The Proposed Development will run adjacent to the operational runway at Laurencekirk Airfield. Therefore, the Proposed Development is predicted to have a significant adverse effect on operations at the airfield.

It is understood that the airfields would not be able to continue to operate safely in their current manner. Therefore, a significant adverse impact is predicted.

SSEN Transmission is in liaison¹¹ with the owners and operators of Gossesslie Airfield, Laurencekirk Airstrip and Fordoun Airfield regarding the impacts on their operations. Liaison with the airfields will continue to confirm the airfield operators' position in relation to the Proposed Development.

¹¹ Source: SSE, July 2025

5 OVERALL CONCLUSIONS AND RECOMENDATIONS

5.1 Licensed Airports

5.1.1 Aberdeen Dyce Airport

The Proposed Development is laterally within and vertically clear of the Outer Horizontal Surface of the Obstacle Limitation Surfaces (OLS), and greater than five nautical miles laterally clear of the closest Instrument Flight Procedure (IFP).

Consultation with the safeguarding team at Aberdeen Dyce Airport has been undertaken and no concerns have been raised.

5.1.2 Dundee Airport

Sections of the Proposed Development breaches the Outer Horizontal Surface of the OLS. The Proposed Development is greater than three nautical miles laterally clear of the closest IFP.

Consultation with the safeguarding team at Highlands and Islands Airports Limited, who safeguard Dundee Airport, has been undertaken and no concerns have been raised.

5.2 NATS En Route Ltd (NERL)

The Proposed Development is predicted to be hidden (screened by terrain) to the Aberdeen Beacon and Perwinnes Primary Surveillance Radar (PSR). Sections of the Proposed Development is within line-of-sight to the Air-Ground-Air 46 radar. The towers are not predicted to cause a significant technical impact (i.e. radar clutter due to false returns) compared to wind turbines and buildings, due to not featuring a rotating blade or large areas of flat uniform surfaces (causing reflection or shadowing effects).

Consultation with NATS NERL has been undertaken and no concerns have been raised.

5.3 Ministry of Defence (MoD)

5.3.1 Low Flying Zones

Sections of the Proposed Development are located within an area of 'low priority for military low flying concerns'. No significant impacts upon military low flying operations are predicted.

Consultation with the MoD has been undertaken at each stage of the project, and no concerns have been raised.

5.3.2 Aviation Lighting

Consultation has been undertaken with the MoD at each stage of the project, who have confirmed they have no lighting requirements.

5.3.3 Radar Impact

The Proposed Development is predicted to be hidden (screened by terrain) to the Remote Radar Head at Buchan. Sections of the Proposed Development are within line-of-sight to the RAF Leuchars PSR. The towers are not predicted to cause a significant technical impact (i.e. radar

clutter due to false returns) compared to wind turbines and buildings, due to not featuring a rotating blade or flat and opaque surfaces (causing reflection or shadowing effects).

Consultation with the MoD has been undertaken at each stage of the project, and no concerns have been raised.

5.4 Civil Airfields

In general, the Proposed Development will be less easily visible to pilots flying visually (i.e. no navigation aids). The Proposed Development will intersect the runways at Gossesslie Airfield, and Fordoun Airfield, and will be adjacent to the runway at Laurencekirk Airstrip. Therefore a significant adverse impact is predicted.

SSEN Transmission is in liaison with the owners and operators of Gossesslie Airfield, Laurencekirk Airstrip and Fordoun Airfield regarding the impacts on their operations. Liaison with the airfields will continue to confirm the airfield operators' position in relation to the Proposed Development.

APPENDIX A – TOWER COORDINATES

The coordinates (Eastingings and Northings as per British National Grid) and heights above ground level of towers are presented in the table below.

Reference	Easting	Northing	Height (m agl)
S206	338946	737816	62.67
S205	338827	737958	51.22
S204	338567	738030	60.57
S203	338209	738129	54.22
S202	338107	738399	51.57
S201	338031	738613	51.22
S200	338216	738896	63.57
S199	338388	739155	57.57
S198	338604	739479	57.57
S197	338820	739804	66.57
S196	339036	740125	63.22
S195	339428	740300	60.57
S194	339809	740470	54.22
S193	339972	740822	60.22
S192	339857	741043	51.57
S191	339696	741349	63.22
S190	339822	741631	52.52
S189	339916	741836	52.52
S188	340118	742146	60.57

Reference	Easting	Northing	Height (m agl)
S187	340299	742422	60.57
S186	340509	742744	54.02
S185	340557	743050	69.57
S184	340609	743376	60.57
S183	340657	743672	69.57
S182	340701	743964	54.22
S181	340529	744302	54.57
S180	340396	744559	60.57
S179	340263	744817	63.02
S178	340203	745070	57.57
S177	340145	745313	57.57
S176	340076	745612	54.22
S175	340214	745803	52.52
S174	340448	746036	60.57
S173	340710	746297	54.57
S172	340985	746574	54.22
S171	341077	746936	60.02
S170	341063	747360	55.52
S169	341051	747720	51.57
S168	341041	748010	54.57
S167	341029	748390	57.57
S166	341017	748740	52.52

Reference	Easting	Northing	Height (m agl)
S165	341006	749069	57.57
S164	340992	749499	63.57
S163	340979	749889	60.57
S162	340965	750319	60.57
S161	340953	750734	63.22
S160	341284	751009	54.57
S159	341609	751276	63.57
S158	341953	751561	60.22
S157	342067	751951	54.02
S156	342324	752271	60.57
S155	342598	752614	55.52
S154	342846	752965	57.57
S153	343089	753308	66.57
S152	343325	753643	55.52
S151	343557	753878	54.57
S150	343831	754156	57.57
S149	344124	754454	54.02
S148	344281	754767	54.57
S147	344428	755062	54.57
S146	344585	755375	58.52
S145	344709	755724	60.57
S144	344843	756106	57.57

Reference	Easting	Northing	Height (m agl)
S143	344958	756432	54.57
S142	345110	756861	54.57
S141	345212	757143	54.22
S140	345508	757427	60.57
S139	345805	757709	54.57
S138	346059	757950	57.57
S137	346320	758198	54.57
S136	346532	758398	49.52
S135	346706	758618	66.57
S134	346955	758931	60.57
S133	347235	759285	57.02
S132	347381	759647	57.57
S131	347527	760009	66.57
S130	347697	760423	63.22
S129	347993	760601	54.57
S128	348342	760807	54.57
S127	348686	761010	57.57
S126	348979	761183	57.57
S125	349337	761395	58.52
S124	349616	761559	51.57
S123	349857	761702	51.57
S122	350098	761844	54.57

Reference	Easting	Northing	Height (m agl)
S121	350368	762000	54.22
S120	350718	762003	57.57
S119	351078	762003	57.57
S118	351438	762004	54.57
S117	351708	762004	54.57
S116	351988	762004	54.57
S115	352298	762004	52.52
S114	352677	762029	57.57
S113	353086	762057	60.57
S112	353520	762086	60.57
S111	353959	762115	57.02
S110	354252	762217	51.57
S109	354564	762325	54.57
S108	354904	762443	54.57
S107	355253	762565	57.57
S106	355593	762683	57.57
S105	355962	762811	57.57
S104	356311	762932	58.52
S103	356684	763036	54.57
S102	356983	763119	57.57
S101	357392	763236	57.22
S100	357613	763580	60.57

Reference	Easting	Northing	Height (m agl)
S99	357824	763914	57.57
S98	358041	764256	54.02
S97	358350	764477	51.57
S96	358659	764698	54.02
S95	358873	765042	63.57
S94	359063	765348	51.57
S93	359226	765611	57.57
S92	359433	765944	54.02
S91	359737	766191	54.22
S90	360095	766219	57.57
S89	360504	766247	60.57
S88	360823	766269	51.57
S87	361142	766291	54.57
S86	361551	766319	60.57
S85	361959	766350	54.22
S84	362134	766581	51.57
S83	362318	766828	54.02
S82	362660	767035	60.57
S81	362955	767214	51.57
S80	363182	767352	54.57
S79	363430	767502	51.57
S78	363654	767638	54.02

Reference	Easting	Northing	Height (m agl)
S77	364002	767699	57.22
S76	364194	768068	58.52
S75	364353	768431	57.57
S74	364517	768807	57.57
S73	364662	769132	54.22
S72	364915	769292	51.57
S71	365170	769450	51.57
S70	365382	769583	54.22
S69	365431	769912	54.02
S68	365598	770319	60.57
S67	365738	770661	54.02
S66	366004	770940	57.57
S65	366270	771218	54.57
S64	366460	771417	51.57
S63	366654	771619	52.52
S62	366929	771851	54.57
S61	367126	772020	51.22
S60	367211	772275	51.57
S59	367283	772492	57.02
S58	367673	772573	60.57
S57	367967	772632	54.57
S56	368281	772696	60.57

Reference	Easting	Northing	Height (m agl)
S55	368701	772783	57.22
S54	368866	773020	51.57
S53	369030	773259	51.57
S52	369177	773473	54.02
S51	369495	773662	60.57
S50	369778	773831	57.57
S49	370122	774036	52.52
S48	370448	774231	57.57
S47	370767	774421	52.52
S46	371010	774596	54.57
S45	371238	774760	51.57
S44	371505	774953	54.57
S43	371769	775143	52.52
S42	372072	775364	60.57
S41	372403	775605	57.57
S40	372729	775843	54.57
S39	372996	776037	52.52
S38	373286	776258	57.57
S37	373577	776479	54.57
S36	373840	776679	54.57
S35	374060	776846	54.57
S34	374389	777096	60.57

Reference	Easting	Northing	Height (m agl)
S33	374669	777312	54.22
S32	374699	777721	54.57
S31	374725	778100	54.57
S30	374745	778404	52.52
S29	374782	778832	60.57
S28	374811	779171	51.57
S27	374840	779516	52.52
S26	374860	779845	51.57
S25	374874	780075	57.57
S24	374900	780470	54.22
S23	375242	780752	64.52
S22	375616	781048	54.22
S21	375914	781077	63.22
S20	376121	781398	60.02
S19	376199	781739	60.57
S18	376263	782011	63.57
S17	376337	782324	54.22
S16	376612	782640	63.57
S15	376778	782828	57.57
S14	377030	783115	63.02
S13	377362	783320	57.57
S12	377693	783526	54.57

Reference	Easting	Northing	Height (m agl)
S11	377911	783660	49.52
S10	378177	783871	54.57
S9	378430	784070	54.02
S8	378565	784284	51.57
S7	378683	784472	60.57
S6	378905	784825	54.02
S5	379194	785057	66.57
S4	379563	785356	60.22
S3	379586	785685	60.57
S2	379618	786129	66.22
S1	379790	786374	68.67
N1	376832	814165	56.67
N2	376712	813833	61.52
N3	376591	813471	61.57
N4	376475	813120	57.57
N6	376330	812695	51.22
N7	376101	812490	49.52
N8	375816	812313	59.57
N9	375424	812071	57.57
N10	375166	811908	54.22
N11	375099	811580	51.57
N12	375037	811264	54.02

Reference	Easting	Northing	Height (m agl)
N13	374833	810980	54.57
N14	374626	810692	54.57
N15	374384	810356	55.57
N16	374237	810149	55.22
N17	374179	809792	59.57
N18	374111	809357	54.02
N19	374141	809044	54.57
N20	374167	808764	53.57
N21	374191	808488	57.22
N22	373963	808183	60.02
N23	373896	807909	51.57
N24	373811	807563	57.57
N25	373719	807186	56.57
N26	373641	806855	54.22
N27	373820	806600	55.22
N28	374234	806592	60.22
N29	374570	806374	56.57
N30	374906	806151	53.57
N31	375162	805979	57.02
N32	375112	805560	61.57
N33	375063	805168	58.52
N34	375054	804771	60.22

Reference	Easting	Northing	Height (m agl)
N35	375268	804413	52.22
N36	375587	804301	55.57
N37	375915	804190	55.57
N38	376182	804096	51.22
N39	376280	803896	51.57
N40	376446	803549	55.02
N41	376728	803262	58.57
N42	376999	802986	62.57
N43	377249	802728	55.22
N44	377243	802388	62.57
N45	377231	801919	60.57
N46	377224	801632	50.57
N47	377217	801366	51.57
N48	377209	801032	54.57
N49	377203	800680	54.22
N50	377358	800327	56.02
N51	377365	799992	52.57
N52	377374	799647	55.57
N53	377382	799298	52.52
N54	377379	798976	58.57
N55	377376	798585	53.57
N56	377373	798320	56.57

Reference	Easting	Northing	Height (m agl)
N57	377368	797946	53.22
N58	377159	797693	55.57
N59	376953	797447	55.57
N60	376752	797203	53.22
N61	376788	796905	63.57
N62	376847	796441	58.22
N63	376687	796160	58.22
N64	376845	795790	58.02
N66	377139	795499	57.02
N67	377254	795193	53.52
N68	377427	794794	54.57
N69	377530	794555	54.02
N70	377745	794335	59.57
N71	378039	794033	53.57
N72	378236	793830	59.57
N73	378458	793603	53.52
N74	378759	793294	53.57
N75	378956	793091	54.57
N76	379233	792804	52.22
N77	379220	792476	59.57
N78	379207	792173	56.57
N79	379194	791873	58.57

Reference	Easting	Northing	Height (m agl)
N80	379172	791385	61.57
N81	379160	791115	54.02
N82	379052	790716	53.57
N83	378950	790338	55.57
N84	378885	790100	54.02
N85	378928	789842	55.57
N86	378991	789470	54.57
N87	379054	789090	53.52
N88	379099	788823	60.57
N89	379140	788580	51.02
N90	379102	788080	56.57
N91	379078	787765	56.57
N92	379054	787446	58.57
N93	379032	787120	53.22
N94	379185	786862	57.57
N95	379357	786582	56.22
N96	379627	786503	71.67

Tower coordinates and heights

APPENDIX B – OBSTACLE LIMITATION SURFACES ASSESSMENT RESULTS

Aberdeen Dyce Airport

The table below presents selective towers assessed, the most restrictive surface and the vertical clearance.

Tower	Most Restrictive Surface	Vertical Clearance (m)
N8	Outer Horizontal Surface	6.21
N7	Outer Horizontal Surface	25.29
N6	Outer Horizontal Surface	47.72
N4	Outer Horizontal Surface	45.08
N3	Outer Horizontal Surface	44.66
N1	Outer Horizontal Surface	60.44

Dundee Airport

The table below presents the towers assessed, the most restrictive surface and the vertical infringement.

Tower	Most Restrictive Surface	Vertical Infringement (m)
S206	Outer Horizontal Surface	58.55
S205	Outer Horizontal Surface	72.65
S204	Outer Horizontal Surface	76.36
S203	Outer Horizontal Surface	92.19
S202	Outer Horizontal Surface	101.19
S201	Outer Horizontal Surface	114.38
S200	Outer Horizontal Surface	136.64



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