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TECHNICAL SAFEGUARDING – INFRASTRUCTURE IMPACT ASSESSMENT

Engineering Case Study

OVERVIEW

This case study summarises a technical safeguarding assessment undertaken in support of a planning application affecting an operational surveillance radar system.

The work formed part of a formal engineering report used to assess and justify the impact of proposed infrastructure on radar performance.

SCENARIO

A proposed development was identified within the vicinity of an operational surveillance radar system.

The development had potential to affect radar performance through obstruction, reflection, and interaction with the radar environment.

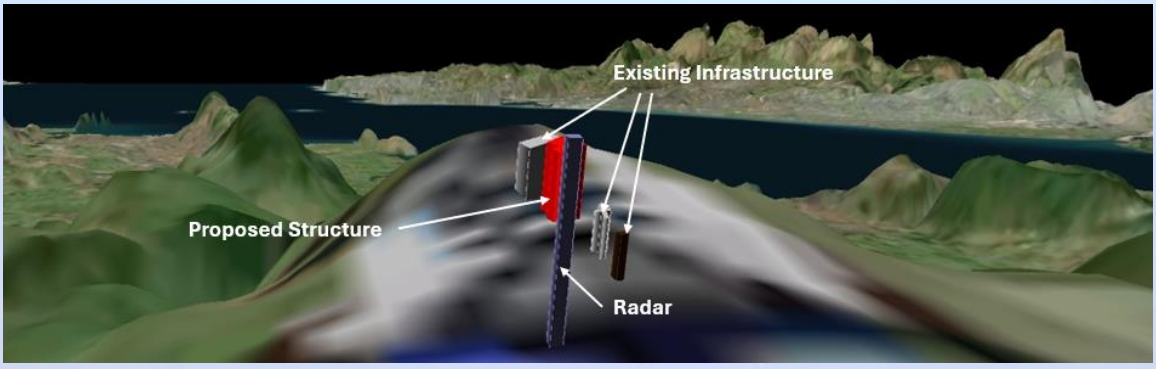
ENGINEERING ASSESSMENT

A technical assessment was undertaken to evaluate the potential impact of the development on radar performance.

This included:

- Line-of-sight and radar geometry analysis
- Assessment of potential obstruction and shadowing
- Evaluation of reflection and clutter mechanisms
- Consideration of impact on detection and tracking performance

The assessment considered both theoretical effects and practical system behaviour.



Line-of-sight and elevation modelling illustrating the interaction between radar systems, existing infrastructure, and proposed developments.

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KEY TECHNICAL CONSIDERATION

A key aspect of the assessment was understanding the interaction between the proposed structure and the radar line-of-sight, particularly in relation to reflection mechanisms and potential false target generation.

Initial assumptions suggested a higher potential impact; however, detailed analysis demonstrated that geometry and positioning limited any operational effect on radar performance.

KEY FINDINGS

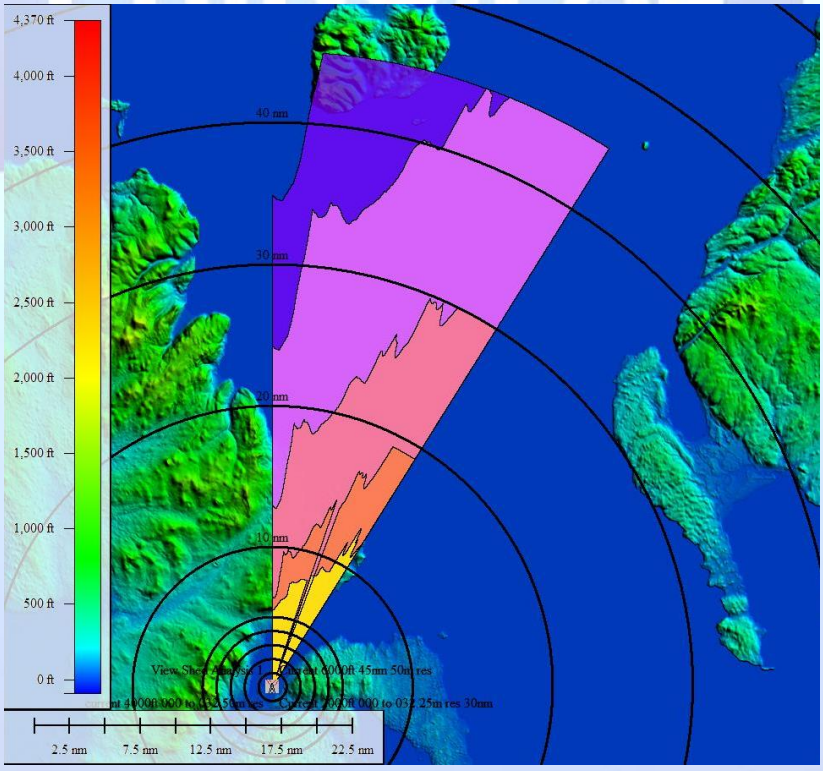
The analysis identified that while the development introduced potential interaction with the radar environment, the overall operational impact was limited when assessed against system performance characteristics.

Potential risks were understood and quantified, enabling clear interpretation of their significance.

OUTCOME

The assessment provided clear, technically justified guidance to support decision-making.

This enabled stakeholders to proceed with confidence, ensuring radar operational performance was protected while allowing appropriate development.



Example radar coverage modelling illustrating terrain influence and detection performance across range and bearing.

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