

# ADDRESSING THE EMERGING NEEDS OF EXPLOSIVE ORDNANCE STORAGE

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## Abstract

This paper will present the key design considerations and outcomes of the redesign including the blast and structural design, mechanical functional and operational considerations for the updated Earth Covered Building (ECB) generic design.

Flexible safe and modern EO storage facilities are required to support fully networked and integrated functionality and capability outcomes that are delivered by next generation guided weapons to achieve joint effects. The objective of the Explosive Ordnance Logistics Reform Program (EOLRP) of purpose-built logistics infrastructure was to increase the EO storage and handling capability of the Defence Estate and to rectify *existing* network deficiencies.<sup>1</sup> Whilst the program successfully rectified the existing network deficiencies and provided modernised EO storage facilities its purpose was not to provide storage facilities that met the emerging needs of next generation guided weapons.

Force Structure Plan 2020 directed Defence to ‘*develop options to increase supplies of munitions through an increase in weapon inventory across the ADF to ensure weapons stock holdings are adequate to sustain combat operations.*’<sup>2</sup> ECB’s are the preferred storage means for any increased holding of mass EO munitions due to their efficiencies. ECBs are a reinforced concrete warehouse-type structure for storage of pallets and containers containing EO, with an external earth covering, and a hardstand to assist with receipt and dispatch activities.

A ‘generic’ template ECB design was developed for the delivery of the Enhanced Land Force and EOLRP projects. The template has been utilised to enable the delivery of ECBs across the Defence Estate. To achieve the optimal economic and safety results demanded by the EO network and Defence, the functional layout of ordnance inside the ECB has been designed for the composition and volumetric size of ordnance to be stored.

Security & Estate Group (SEG) engaged AECOM to undertake a redesign of the ‘generic’ template ECB to modernise and optimise the ECB to the utmost safety standards. The identification of functional requirements to meet the emerging needs of the ADF was clearly articulated by the SEG Project Director to provide agile options. Working collaboratively as a project team, the effects of Maximum Critical Events were mitigated by integrating analysis with the design efforts to meet the protection aims of the Defence Explosive Ordnance Publication while addressing the emerging capability requirements. This will allow the ADF to safely store the ‘*sufficient stocks of guided weapons and explosive ordnance*’ directed in the Defence Strategic Review.<sup>3</sup>

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<sup>1</sup> Statement of Evidence to the Parliamentary Standing Committee on Public Works – Explosive Ordnance Logistics Reform Program (EOLRP) Project; (Department of Defence, 2017)

<sup>2</sup> Force Structure Plan 2020, para. 8.7, (Australian Federal Government, 2020)

<sup>3</sup> Defence Strategic Review, para 8.70 (Australian Federal Government, 2023)