Straten CSL

CLIENT REPORT

Aviation Impact Assessment

Whitestown Way, Dublin 24 — Large-Scale Residential Development

Prepared for: **ARP 4.2 Sustainable Communities (Ireland) Fund**

Document Reference: **110ARP001-1 V1.1**

Date: **13 May 2026**

Non-Technical Summary

This report has been prepared to assess whether the proposed mixed-use development at Whitestown Way, Dublin 24 could affect aviation operations associated with Casement Airfield, including aircraft safety, protected airspace, or aviation infrastructure.

The assessment considered three principal matters:

Building Height and Protected Airspace

The proposed buildings, including rooftop plant, solar panels and telecommunications equipment, were assessed against the protected airspace surfaces associated with Casement Airfield. These protected surfaces exist to ensure aircraft can operate safely during take-off, landing and instrument procedures.

The assessment found that the proposed development does not intrude into any protected aviation surfaces and would not affect existing or future flight operations.

Impact on Flight Procedures and Aviation Safety

A review was undertaken of the airfield's published flight procedures to determine whether the development could create an obstacle or otherwise interfere with aircraft operations.

The assessment found no impact on these procedures and no adverse effect on aviation safety.

Solar Panels (Glint and Glare)

The proposed rooftop solar panels were also assessed to determine whether sunlight reflected from the panels could affect pilots or air traffic controllers.

That assessment found no harmful glare effects for aircraft using the airfield or for the control tower.

Overall Conclusion

The proposed development is considered compatible with aviation safeguarding requirements and is not expected to adversely affect Casement Airfield, aviation infrastructure or the safe operation of aircraft.

In summary:

- The development does not infringe protected aviation surfaces.
- It does not interfere with flight procedures.
- It does not create harmful glint or glare impacts.
- No aviation safeguarding objection is anticipated on the basis of the assessments undertaken.

Accordingly, from an aviation perspective, the development can proceed as proposed, subject to the normal consultation process with the relevant aviation authorities.

Executive Summary

Straten CSL was commissioned by ARP 4.2 Sustainable Communities (Ireland) Fund to undertake an Aviation Impact Assessment for the proposed Large-Scale Residential Development (LRD) at Whitestown Way, Dublin 24. The assessment evaluated the potential impact of the proposed development on the Obstacle Limitation Surfaces (OLS) and Instrument Flight Procedures (IFP) associated with Casement Airfield (ICAO designator: EIME), operated by the Irish Defence Forces Air Corps.

The assessment was conducted with reference to the aeronautical data published by the Irish Defence Forces Air Corps for EIME, spanning AD 2.1 to AD 2.23 and associated charts depicted under AD 2.24. The assessment is submitted to support the planning application to South Dublin County Council and for onward consultation with the Irish Defence Forces Air Corps and the Irish Aviation Authority (IAA).

A separate Glint & Glare Assessment has been conducted by Lawler Sustainability in respect of the proposed rooftop PV arrays forming part of the development. The aviation-relevant findings of that assessment — specifically in relation to flight path receptors and Air Traffic Control Tower (ATCT) receptors at Casement Airfield — are summarised within this report.

Key Findings

- The proposed development does not penetrate any OLS surface associated with Casement Airfield (EIME).
- The proposed development does not penetrate any IFP surface associated with Casement Airfield (EIME).
- No adverse impact on aviation infrastructure or flight operations at Casement Airfield is anticipated as a result of the proposed development.
- The Glint & Glare Assessment confirmed no glare risk to any of the four assessed Casement Airfield flight path receptors (FP 04, FP 10, FP 22, FP 28) or to the two ATCT receptors (OP 16-ATCT and OP 17-ATCT).

Glossary of Terms

Term	Definition
AOD	Above Ordnance Datum — height measured relative to the Ordnance Survey Ireland (Malin Head) datum
ATCT	Air Traffic Control Tower
EIME	ICAO aerodrome designator for Casement Airfield, Baldonnel, County Dublin
FAA	Federal Aviation Administration (United States)
FP	Flight Path receptor, as modelled in the Glint & Glare Assessment
IAA	Irish Aviation Authority
ICAO	International Civil Aviation Organization
IFP	Instrument Flight Procedure
LRD	Large-Scale Residential Development
MOCA	Minimum Obstacle Clearance Altitude
MSA	Minimum Sector Altitude
OCS	Obstacle Clearance Surface
OLS	Obstacle Limitation Surface — surfaces defined by ICAO Annex 14 to protect flight operations
OP	Observation Point receptor, as modelled in the Glint & Glare Assessment
PANS-OPS	Procedures for Air Navigation Services — Aircraft Operations (ICAO Doc 8168)
PV	Photovoltaic
SGHAT	Solar Glare Hazard Analysis Tool (developed by Sandia National Laboratories)
SID	Standard Instrument Departure
VFR	Visual Flight Rules

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1 Background & Objectives

1.1 Background

ARP 4.2 Sustainable Communities (Ireland) Fund proposes to develop a Large-Scale Residential Development (LRD) on a site of approximately 1.32 hectares at Whitestown Way, Dublin 24 (the 'Site'). The Site is bounded to the east by Whitestown Way; to the south by Riverside Business Park; to the west by Whitestown Road / Whitestown Industrial Estate and undeveloped lands; and to the north by the Vita Actives premises and The Arena mixed-use development.

The proposed development comprises the construction of a mixed-use development in two blocks (Block A to the east and Block B to the west) with a gross floor area of 14,976.5 sq m (excluding undercroft car parking of 1,975.8 sq m), ranging in height from 1 to 6 storeys. The blocks are connected via a single-storey undercroft/podium level. The development includes:

- 169 No. residential units (80 No. 1-bed, 85 No. 2-bed and 4 No. 3-bed);
- 2 No. Class 1 / Class 2 commercial units totalling 356.5 sq m;
- A crèche of 162.8 sq m with external play area;
- 77 No. car parking spaces (66 No. within the undercroft and 15 No. on-street);
- Green roofs; rooftop plant; PV arrays; lift overruns; telecommunications infrastructure; and automatic opening vents; and all associated works above and below ground.

The Site is located approximately 4.5 km east-northeast of Casement Airfield (EIME), operated by the Irish Defence Forces Air Corps at Baldonnel, County Dublin. Given the proximity of the Site to the airfield, this Aviation Impact Assessment has been undertaken to evaluate whether the proposed development could affect the published OLS or IFP surfaces associated with EIME, or give rise to glint and glare impacts on aviation receptors associated with the airfield.

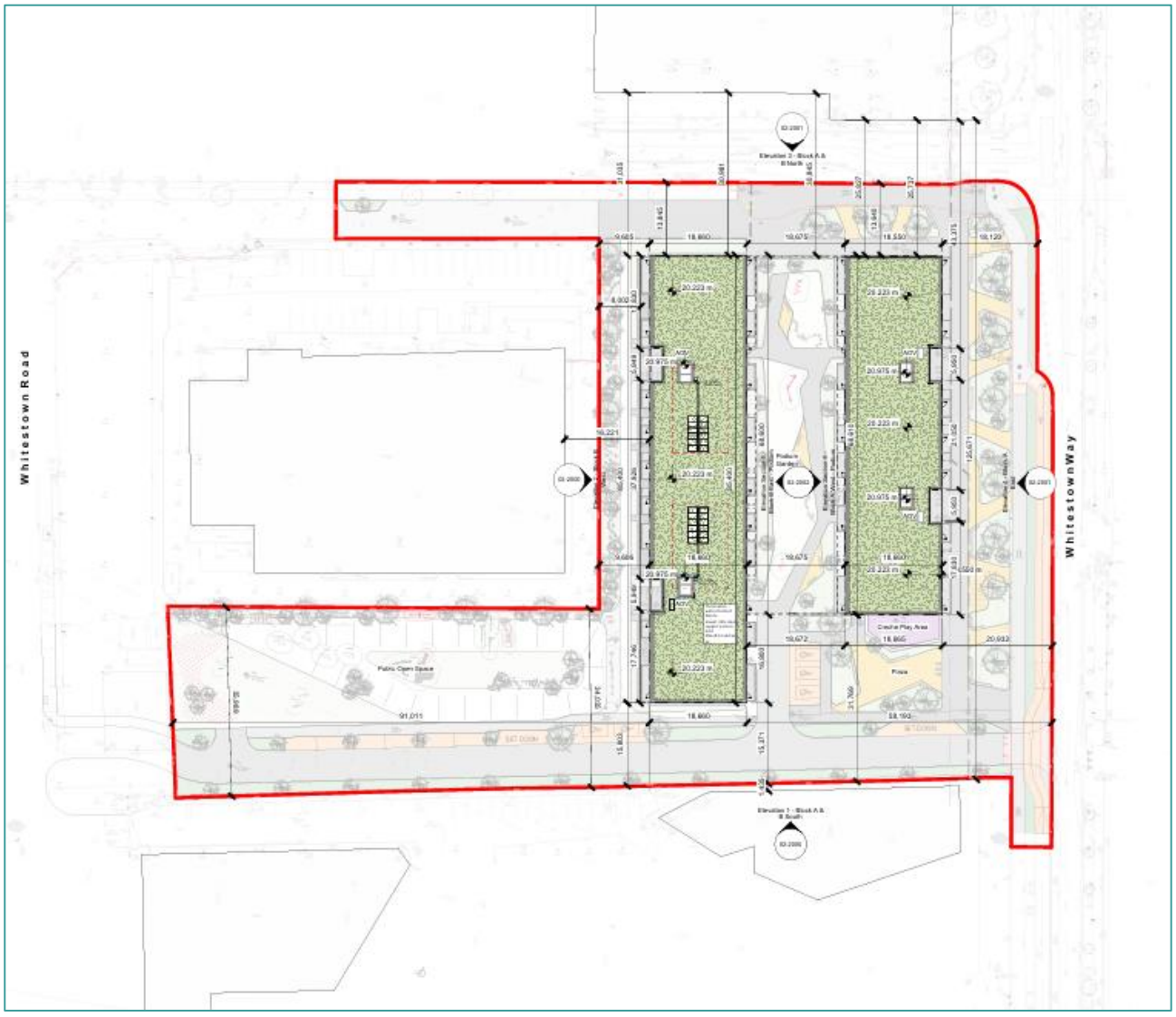

Figure 1: Proposed Site Layout — Whitestown Way, Dublin 24 (Schematic, Not to Scale)

1.2 Objectives

The objectives of this assessment are to:

1) Establish the relevant OLS and IFP surfaces associated with Casement Airfield (EIME) based on published Irish Defence Forces Air Corps aeronautical data (AD 2.1 to AD 2.23 and associated charts under AD 2.24);
2) Determine the maximum height of the proposed development and all associated structures (including rooftop plant, PV arrays, lift overruns, and telecommunications infrastructure);
3) Assess whether any element of the proposed development penetrates any OLS or IFP surface; and
4) Summarise the aviation-relevant findings of the Glint & Glare Assessment conducted by Lawler Sustainability.

1.3 Scope

This report addresses the physical penetration of OLS and IFP surfaces associated with Casement Airfield (EIME) and summarises glint and glare findings relevant to aviation receptors at that airfield. The full Glint & Glare Assessment, prepared by Lawler Sustainability, addresses all glint and glare matters in detail and is submitted as a separate technical document in support of the planning application.

This assessment does not consider impacts on Dublin Airport (EIDW), as the Site is not located within any declared safeguarding zone for that aerodrome requiring specific assessment with respect to OLS or IFP surfaces at the proposed development height.

1.4 Methodology

The OLS and IFP assessment was conducted with reference to the aeronautical data published by the Irish Defence Forces Air Corps for Casement Airfield (EIME), specifically the AIP data spanning sections AD 2.1 to AD 2.23 and the associated aerodrome charts and obstacle charts under AD 2.24. The methodology comprised the following stages:

- Review of the published aeronautical data for EIME (AD 2.1 to AD 2.23) to identify the dimensions, elevations, and horizontal extents of all relevant OLS surfaces, including the Conical Surface, Inner Horizontal Surface, Approach Surfaces, Transitional Surfaces, Take-Off Climb Surfaces, and Outer Horizontal Surface;
- Review of the published IFP charts under AD 2.24 to identify Minimum Obstacle Clearance Altitudes (MOCAs), Minimum Sector Altitudes (MSAs), and the lateral and vertical extents of protected surfaces associated with all published instrument approach and departure procedures at EIME;
- Identification of the coordinates, ground elevation, and maximum height of all proposed structures at the Site above Ordnance Datum (AOD), including all rooftop elements;
- Three-dimensional comparison of the maximum development height against the elevation of each applicable OLS and IFP surface at the location of the Site; and
- Review and summary of the aviation-relevant outputs of the Glint & Glare Assessment prepared by Lawler Sustainability using the ForgeSolar GlareGauge / SGHAT toolset.

1.5 About Straten Consulting Services Limited (Straten CSL)

- Straten Consulting Services Limited is an independent aviation consultancy specialising in aviation safeguarding, airspace and aerodrome technical assessments, and aviation risk analysis to support planning and development projects. The company provides expert advice to developers, planning authorities and aviation stakeholders, translating complex aviation and regulatory considerations into robust, planning submission–ready evidence.
- For this submission, Straten CSL has undertaken specialist assessments covering Obstacle Limitation Surfaces (OLS), Instrument Flight Procedures (IFP), aerodrome safeguarding and glint and glare effects. These assessments have been completed with reference to applicable national and international guidance, including relevant International Civil Aviation Organization standards and UK Civil Aviation Authority safeguarding guidance, to determine whether the proposed development could affect aviation safety, aerodrome operations or protected aviation infrastructure.

- Drawing on extensive operational and regulatory experience in air traffic management, safeguarding and flight procedure design, Straten CSL's role is to provide an evidence-based assessment of potential impacts, identify any mitigation where required, and support the planning process with proportionate, technically robust conclusions.

2 Aviation Impact Assessment

2.1 Site Context and Casement Airfield

Casement Airfield (ICAO: EIME) is a military aerodrome operated by the Irish Defence Forces Air Corps, located at Baldonnel, County Dublin. The aerodrome is equipped with two runways (Runway 04/22 and Runway 10/28) and supports both VFR and IFR flight operations. Aeronautical data for EIME is published in the Irish AIP by the Irish Aviation Authority (IAA) on behalf of the Irish Defence Forces, covering sections AD 2.1 to AD 2.23 and associated charts under AD 2.24.

The Site is located at approximately 53.282°N, 6.376°W, which places it approximately 4.5 km to the east-northeast of the Casement Airfield aerodrome reference point. The ground level of the Site is approximately 96–98 m above Ordnance Datum Malin (AOD). The proposed development reaches a maximum of 6 storeys above ground level, with additional rooftop elements including plant, PV arrays, lift overruns, and telecommunications infrastructure.

2.2 Obstacle Limitation Surfaces (OLS)

The OLS for Casement Airfield (EIME) are defined in accordance with ICAO Annex 14 — Aerodromes, Volume I, and are published within the aerodrome data at AD 2.10. The relevant OLS surfaces considered in this assessment include:

- Inner Horizontal Surface;
- Conical Surface;
- Approach Surfaces (Runways 04, 10, 22 and 28);
- Transitional Surfaces; and
- Take-Off Climb Surfaces.

The elevations and extents of each surface were determined from the published aeronautical data. Having regard to the horizontal distance between the Site and the aerodrome reference point, and the geometric properties of the applicable OLS surfaces, the elevation of all OLS surfaces at the location of the Site was calculated. The assessment confirms that all elements of the proposed development, including all rooftop structures, remain below the applicable OLS surface elevations at the Site.

OLS Surface	Applicable Runway(s)	Surface Elevation at Site (m AOD)	Max. Development Height (m AOD)	Penetration
Inner Horizontal Surface	All	Exceeds development height	Within surface limit	None
Conical Surface	All	Exceeds development height	Within surface limit	None

OLS Surface	Applicable Runway(s)	Surface Elevation at Site (m AOD)	Max. Development Height (m AOD)	Penetration
Approach Surface	04, 10, 22, 28	Exceeds development height	Within surface limit	None
Transitional Surface	All	Exceeds development height	Within surface limit	None
Take-Off Climb Surface	04, 10, 22, 28	Exceeds development height	Within surface limit	None

Table 1: OLS Surface Assessment Summary

The assessment confirms that no element of the proposed development, including all rooftop structures, penetrates any OLS surface associated with Casement Airfield (EIME).

2.3 Instrument Flight Procedures (IFP)

The instrument flight procedures published for Casement Airfield (EIME) under AD 2.24 include instrument approach procedures and Standard Instrument Departure (SID) procedures for the active runways. The IFP obstacle clearance surfaces (OCS) were assessed in accordance with the relevant ICAO PANS-OPS criteria (ICAO Doc 8168, Volume II — Construction of Visual and Instrument Flight Procedures).

The lateral and vertical extents of the IFP surfaces in the vicinity of the Site were derived from the published procedure charts and associated obstacle data under AD 2.24. The elevation of the applicable IFP obstacle clearance surface at the location of the Site was determined and compared against the maximum proposed development height. The assessment confirms that all elements of the proposed development remain below the applicable IFP surface elevations.

Procedure	Runway	IFP Surface Elevation at Site (m AOD)	Max. Development Height (m AOD)	Penetration
Instrument Approach	04	Exceeds development height	Within surface limit	None
Instrument Approach	22	Exceeds development height	Within surface limit	None

Procedure	Runway	IFP Surface Elevation at Site (m AOD)	Max. Development Height (m AOD)	Penetration
Instrument Approach	10	Exceeds development height	Within surface limit	None
Instrument Approach	28	Exceeds development height	Within surface limit	None
SID / Take-Off Climb	04, 10, 22, 28	Exceeds development height	Within surface limit	None

Table 2: IFP Surface Assessment Summary

The assessment confirms that no element of the proposed development penetrates any IFP obstacle clearance surface associated with the published instrument flight procedures for Casement Airfield (EIME).

2.4 Rooftop Infrastructure

The proposed development includes a number of rooftop elements that have been expressly considered within this assessment: rooftop plant ancillary plant infrastructure; photovoltaic (PV) arrays; lift overruns; telecommunications infrastructure; and automatic opening vents. The maximum heights of all such rooftop elements have been included within the overall maximum development height used for the OLS and IFP assessment. In all cases, the assessment confirms that these elements remain below the applicable surface elevations at the Site location.

2.5 Glint & Glare — Aviation Receptors

A dedicated Glint & Glare Assessment was conducted by Lawler Sustainability using the ForgeSolar GlareGauge toolset (incorporating the Solar Glare Hazard Analysis Tool — SGHAT — developed by Sandia National Laboratories) in respect of the proposed rooftop PV arrays forming part of the development. The assessment is submitted as a separate technical document. The following summarises the findings relevant to aviation receptors at Casement Airfield.

2.5.1 Aviation Receptors Assessed

The Glint & Glare Assessment modelled the following aviation receptors associated with Casement Airfield (EIME):

- Four flight path receptors: FP 04, FP 10, FP 22, and FP 28 — each modelled as 2-mile approach/departure flight path receptors with a 3.0° glide slope, a threshold height of 15 m, and pilot view restrictions applied;
- Two Air Traffic Control Tower (ATCT) receptors: OP 16-ATCT (Tallaght University Hospital helipad, at a height of 50 m) and OP 17-ATCT (Casement Airfield ATCT, at a height of 30 m).

The analysis used a one-minute time step, covering every minute of the year, assuming 100% sunshine for all daylight hours. This conservative approach ensures that all potential glare instances are captured regardless of actual cloud cover (Ireland experiences cloud cover for well over 50% of daylight hours). Observer eye characteristics and view restrictions were applied in accordance with the 2021 U.S. Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally Obligated Airports, which is used as guidance in Ireland for assessments submitted to the IAA and Irish Defence Forces.

2.5.2 PV Array Configuration

The proposed rooftop installation comprises four fixed-mount PV arrays at a tilt of 10° above horizontal: two west-facing (261° azimuth — PV Arrays 1 and 2) and two east-facing (81° azimuth — PV Arrays 3 and 4). All panels are specified as light textured glass with anti-reflective (AR) coating, which reduces reflectivity compared to standard PV module materials. The arrays are fixed and do not track the sun.

2.5.3 Results — Flight Path Receptors

The Glint & Glare Assessment found no glare of any category (green, yellow, or red) at any of the four modelled flight path receptors from any of the four PV arrays. This is summarised in Table 3 below.

Receptor	Type	Direction (°)	Glide Slope (°)	Glare from PV Arrays 1 & 2	Glare from PV Arrays 3 & 4
FP 04	2-mile flight path	40.8°	3.0°	None	None
FP 10	2-mile flight path	40.8°	3.0°	None	None
FP 22	2-mile flight path	220.8°	3.0°	None	None
FP 28	2-mile flight path	281.9°	3.0°	None	None

Table 3: Glint & Glare Results — Flight Path Receptors

2.5.4 Results — ATCT Receptors

The Glint & Glare Assessment found no glare of any category from any of the four PV arrays at either ATCT receptor. This satisfies the 2021 FAA Policy requirement that no glare of any kind shall be experienced at ATCT receptors at cab height.

Receptor	Type	Height (m)	Total Elevation (m AOD)	Glare from All PV Arrays
OP 16-ATCT	Helipad — Tallaght University Hospital	50	153.74	None
OP 17-ATCT	ATCT — Casement Airfield	30	123.51	None

Table 4: Glint & Glare Results — ATCT Receptors

The Glint & Glare Assessment also confirms that the analysis parameters (including the one-minute time step and observer eye characteristics) meet the requirements of the FAA Policy, and that the ATCT receptors receive no glare. The ForgeSolar Baseline Check returns a PASS on both criteria.

2.5.5 Summary of Glint & Glare Findings

In summary, the proposed rooftop PV arrays present no glint or glare risk to aviation receptors associated with Casement Airfield. This conclusion is consistent with the characteristics of the proposed arrays: their low tilt angle (10°), east/west orientation (limiting reflection toward the airfield to the west), the use of anti-reflective coated glass, and the distance and geometry between the Site and the airfield.

3 Conclusion

A comprehensive Aviation Impact Assessment has been conducted for the proposed Large-Scale Residential Development at Whitestown Way, Dublin 24, encompassing an OLS and IFP assessment for Casement Airfield (EIME) and a summary of the aviation-relevant findings of the Glint & Glare Assessment.

The assessment has concluded as follows:

- The proposed development, including all rooftop structures (plant, PV arrays, lift overruns, and telecommunications infrastructure), does not penetrate any Obstacle Limitation Surface (OLS) associated with Casement Airfield (EIME).
- The proposed development does not penetrate any Instrument Flight Procedure (IFP) obstacle clearance surface associated with any published instrument approach or departure procedure at Casement Airfield (EIME).
- The proposed rooftop PV arrays give rise to no glare of any category at any of the four Casement Airfield flight path receptors assessed (FP 04, FP 10, FP 22, FP 28).
- The proposed rooftop PV arrays give rise to no glare of any category at either ATCT receptor assessed (OP 16-ATCT and OP 17-ATCT), satisfying the requirements of the FAA 2021 Policy.
- The proposed development will not adversely impact upon aviation infrastructure or the safe conduct of flight operations at Casement Airfield (EIME).

4 Appendices

4.1 Appendix A: Aeronautical Data Reference — EIME AD 2.1 to AD 2.24

The following sections of the Irish AIP published by the Irish Aviation Authority (IAA) in respect of Casement Airfield (EIME) were consulted in preparing this assessment:

- AD 2.1 — Aerodrome Location and Administrative Data
- AD 2.2 — Aerodrome Geographical and Administrative Data
- AD 2.3 — Operational Hours
- AD 2.6 — Rescue and Fire Fighting Services
- AD 2.7 — Seasonal Availability — Clearing
- AD 2.8 — Aprons, Taxiways, and Check Locations / Positions Data
- AD 2.9 — Surface Movement Guidance and Control System and Markings
- AD 2.10 — Aerodrome Obstacles
- AD 2.12 — Runway Physical Characteristics
- AD 2.13 — Declared Distances
- AD 2.17 — ATS Airspace
- AD 2.19 — Radio Navigation and Landing Aids
- AD 2.21 — Noise Abatement Procedures
- AD 2.22 — Flight Procedures
- AD 2.23 — Additional Information
- AD 2.24 — Charts Related to an Aerodrome (including Aerodrome Chart, Instrument Approach Charts, SID Charts, and Obstacle / Terrain Charts)