

AERONAUTICAL ASSESSMENT REPORT

**RE
RESIDENTIAL DEVELOPMENT
AT
ELMFIELD LANDS, CLONDALKIN
DUBLIN 22**

**FOR
THORNMEADOW DEVELOPMENTS LTD.**

DECEMBER 2025



**O ' D W Y E R & J O N E S D E S I G N P A R T N E R S H I P
A V I A T I O N P L A N N I N G & A R C H I T E C T U R E C O N S U L T A N T S
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*Note: In all maps /diagrams /aerial photos in this report
which do not contain a North Point, north lies to the top.*

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1. Scope of Report and Description of the Site.

1.1 Scope of this Report:

This report assesses the aviation aspects of a proposed residential development at Elmfield in Clondalkin, Dublin 22.

1.2 Description of the Site and Development:

The proposed mixed-use residential-led development at Clondalkin is to be located on a site of 2.25 ha. area approx., to the east of the Ninth Lock Road [L1026]. It is about 200m south-east of the 9th lock of the Grand Canal in Dublin 22.

It will provide a total of 415 no. residential units and 1 no. childcare facility. The residential units will comprise a mixture of apartments and own-door houses and will range in height from 2-8 storeys.

The site (*outlined in red on the aerial photo below*) lies at 3.92 km north-east of Casement Aerodrome's Runway 22 Threshold, and at 6.61 km south-east of Weston Airport's Runway 25 Threshold. The site is reasonably flat, with proposed ground floor FFLs varying from 54.14m OD to 55.07m OD.



1.3 The Site's Location in Relation to Casement and Weston Aerodromes:

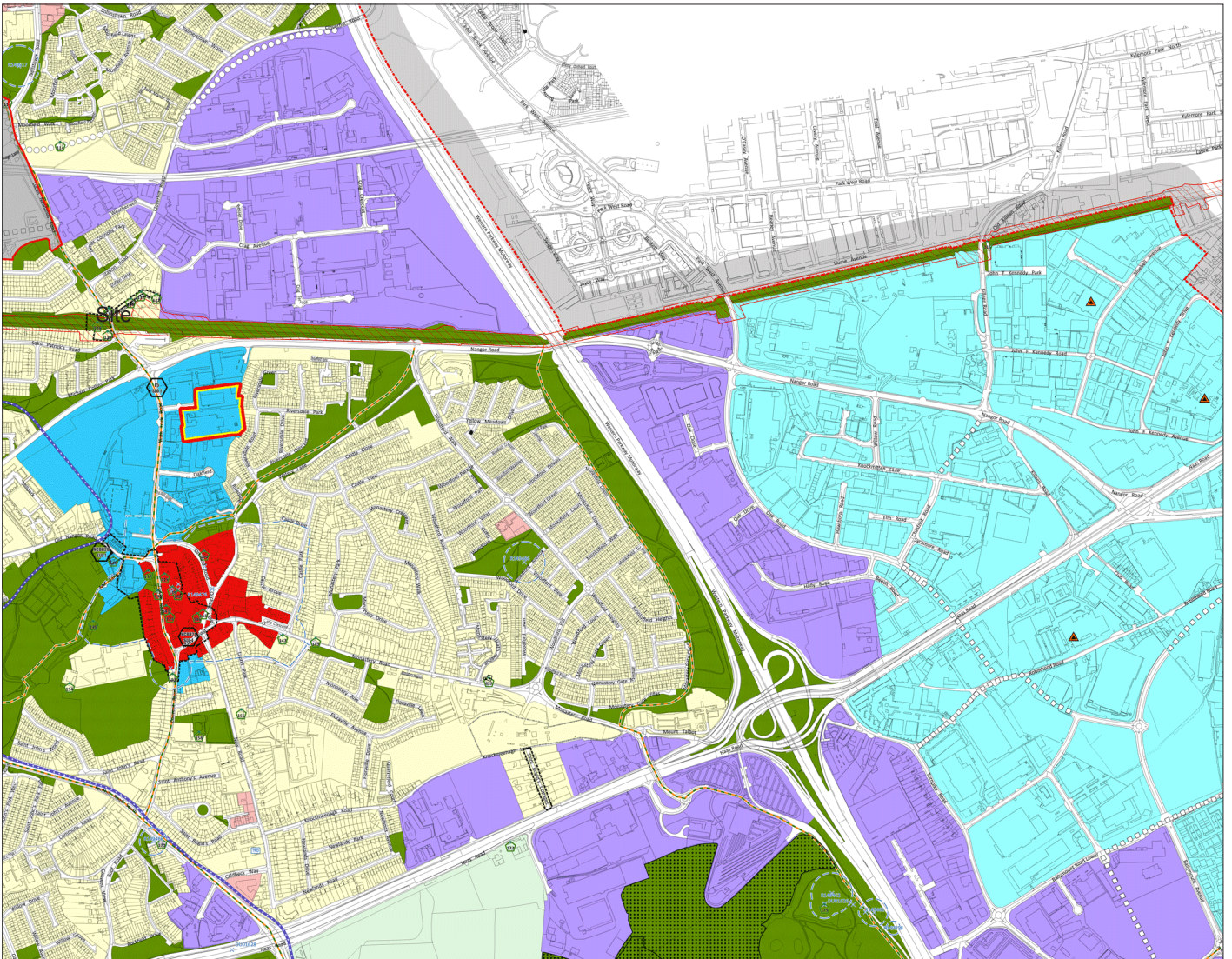
The aerial photo below shows the site of the proposed development (*outlined in red*) in relation to Weston Airport (at 6-7km to north-west) and Casement Aerodrome (at 3-4km to south-west).



1.4 Site Zoning:

The site is zoned “Objective TC: to protect, improve and provide for the future development of Town Centres.”

This zoning is coloured a darker blue in the extract below from Map 5 of the SDCC Development Plan 2022-2028 (on which the Elmfield Site is outlined in added red+yellow).

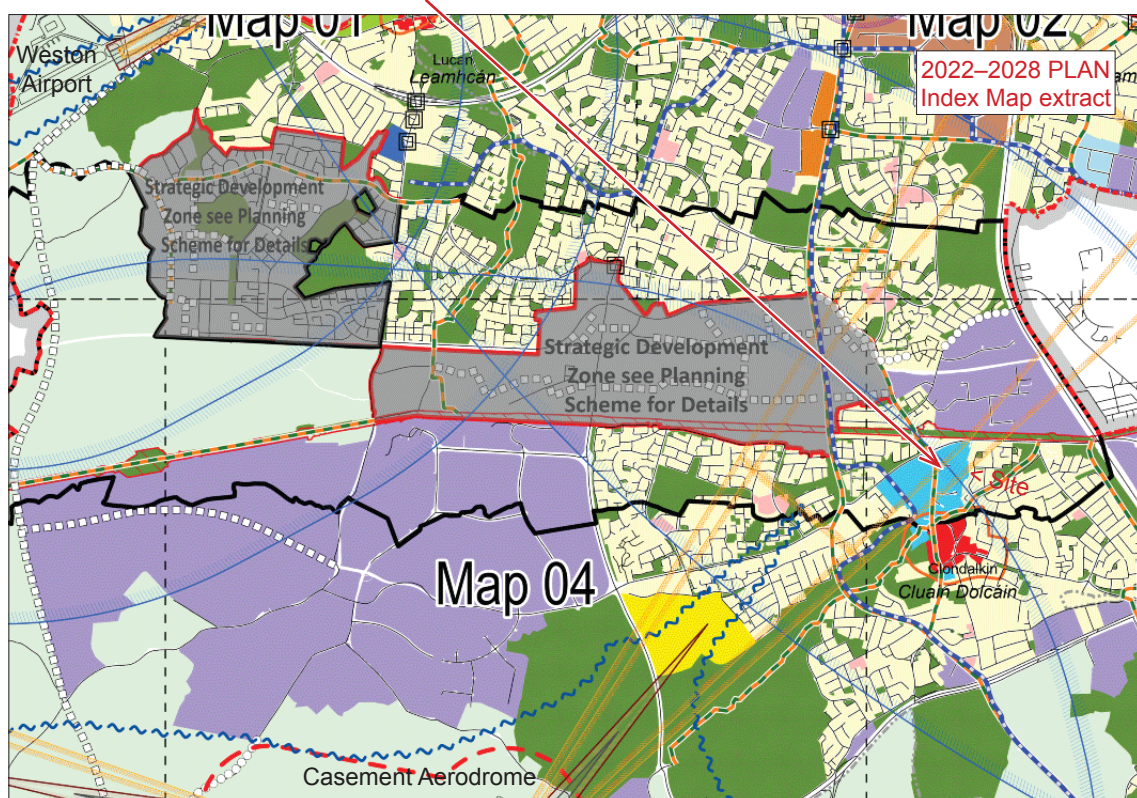


2. Aviation-Related Items Affecting the Elmfield Site at Clondalkin

2.1 The Department of Defence has adopted the International Civil Aviation Organization's [ICAO's] "Obstacle Limitation Surfaces" in relation to Casement Aerodrome. Being a military aerodrome, Casement is not bound by these *civil* aviation standards, but the Department of Defence has opted to apply these Standards at Casement to protect aircraft in flight. These "Surfaces" – which also currently apply at Weston Airport – are outlined on the SDCC Index Map, and are as set out by ICAO as *International Standards and Recommended Practices* in its "*Annex 14 – Aerodromes*" document, [eighth revised edition of 8th November 2018].

2.2 The Site's location in relation to Aviation & Aeronautical Features:

The site's location is arrowed on the extract below from the SDCC Index Map 2022-28:



It can be seen (*from the Index Map extract above*) that all of the site, at 3.92km to 4.15km from Casement's Threshold 22, lies **under the Approach Surface to Runway 22** (*in orange*), and that part of the site also lies **under the Take-off Climb Surface from Casement's Runway 04** (*also in orange*). The site also lies partly **under Casement Aerodrome's Inner Horizontal Surface**, and partly **under Casement Aerodrome's Conical Surface**, and the site also lies **under Dublin Airport's Outer Horizontal Surface** (*blue lines centred on relevant airports*).

However the site lies outside Casement's Security Zone (*red hatch*), outside all Airport Noise Zones (*blue chain-hatch*), outside all new Public Safety Zones for Casement and Weston (*in brown*), and outside all of Weston Airport's current "obstacle limitation surfaces".

3. Relevant S.D.C.C. Development Plan Paragraphs

3.1 Of relevance to the aeronautical /aviation assessment of the Elmfield site at Clondalkin are the paragraphs reproduced below from the current South Dublin County Council Development Plan 2022-2028, which include —

3.2 Section 11.8 re ‘Airports and Aerodromes’ in general, on page 417 of the Plan:

11.8 Airports and Aerodromes

This section sets out the general restrictions and requirements on development within the County for Dublin Airport, Casement Aerodrome and Weston Airport. The safeguarding requirements in the vicinity of civil aerodromes located in South Dublin (Dublin Airport and Weston Airport) are set out in:

- a. International Standards and Recommended Practices’ within *Annex 14* to the *Convention on International Civil Aviation*, which is published by the International Civil Aviation Organisation (ICAO) and the Irish Aviation Authority Guidance Material on Aerodrome Annex 14 Surfaces (2015);
- b. Certification Specifications & Guidance Material for Aerodromes Design published in 2017 by the European Aviation Safety Agency (EASA).

Safeguarding is dealt with in more detail in Chapter 12: *Implementation and Monitoring*.

Casement Aerodrome is a fully equipped military base and includes the main centre for Air Corps Operations. Its operations and requirements are dealt with by the Department of Defence.

3.3 Paragraphs 11.8.1 & 11.8.2 re ‘Casement Aerodrome,’ on page 418 of the Plan:

Casement Aerodrome, being a military aerodrome, does not come under the control of the Irish Aviation Authority but the ICAO Standards and Recommended Practices are applied as policy by the Department of Defence. Additionally, the Department of Defence applies a ‘Security Zone’ closely aligned with the areas around the runways known as flight strips.

11.8.2 Casement Aerodrome

Casement Aerodrome is in continuous aviation use and is the only fully equipped military airbase in the State serving as the main centre of Air Corps operations. The aerodrome has two runways:

- 1 Runway 10 / 28: The existing main runway with east to west orientation (north of Newcastle and over Kingswood);
- 2 Runway 04 / 22: Existing secondary runway with a south-west to north-east orientation (04 over Rathcoole and 22 over Corkagh Park).

3.4 Policy (and Objectives) IE9 re Casement Aerodrome on pp. 418-9 of the Plan:

Policy IE9: Casement Aerodrome Safeguard, having regard to the requirements of the Department of Defence, the current and future operational, safety and technical requirements of Casement Aerodrome and facilitate its ongoing development for military and ancillary uses.
IE9 Objective 1: To ensure the safety of military and other air traffic, present and future, to and from Casement Aerodrome with full regard for the safety of persons on the ground as well as the necessity for causing the least possible inconvenience to local communities.
IE9 Objective 2: To maintain the airspace around Casement aerodrome free from obstacles to facilitate aircraft operations to be conducted safely, as identified in the Development Plan Index map and Map 12 and as outlined in Chapter 12: <i>Implementation and Monitoring</i>.
IE9 Objective 3: To implement the principles of shielding in assessing proposed development in the vicinity of Aerodromes, having regard to Section 3.23 of the Irish Aviation Authority <i>Guidance Material on Aerodrome Annex 14 Surfaces</i> (2015) (See Chapter 12: <i>Implementation and Monitoring</i>).
IE9 Objective 4: To prohibit and restrict development in the environs of Casement aerodrome, where it may cause a safety hazard. (See also Policy IE13 Public Safety Zones and Chapter 12: <i>Implementation and Monitoring</i>).

3.5 And Policy (and Objective) IE11 re Dublin Airport on p. 420 of the Plan:

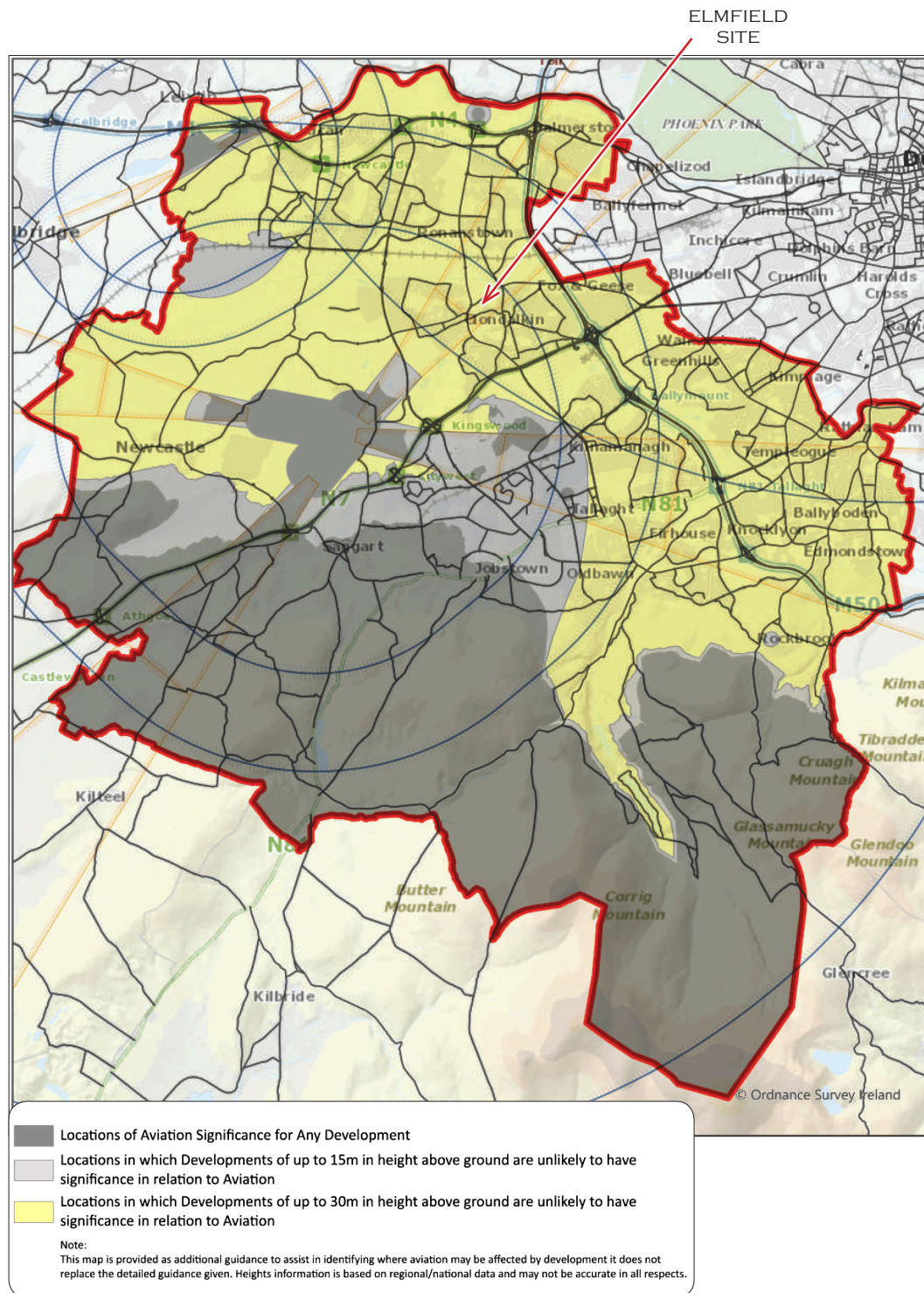
11.8.4 Dublin Airport

The outer horizontal surface for Dublin airport overlaps a limited area to the north of the County. The area is delineated on the Development Plan Maps.

Policy IE11: Dublin Airport Refer planning applications for development within the Outer Horizontal Surface of Dublin Airport (and of over 90m in height above ground level) to the airport operator and regulator (DAA and IAA) and to have regard to the requirements of the IAA and DAA in the assessment of development proposals (see Index Map and Map 12 for details).
IE11 Objective 1: To limit building heights to 90m above ground level so as to prevent any object from penetrating the Outer Horizontal Surface for Dublin Airport (as defined in the 2017 <i>Certification Specifications</i> of the European Aviation Safety Agency, and in accordance with Irish Aviation Authority guidance material in relation to this Surface).

3.6 **Figure 12.1 on page 525 of the 2022-28 Plan (containing general height guidelines), in Section 12.11.5 re 'Aviation, Airports and Aerodromes':**

The site at Elmfield, to north-north-east of Casement Aerodrome and to south-east of Weston Airport, is in the cream-coloured area shown on this map – in which structures of more than 30m in height require special aviation assessment. The proposed buildings however are all less than 30m in height.



4. Site & Roof Plan with Elevations-OD of the Proposed Development

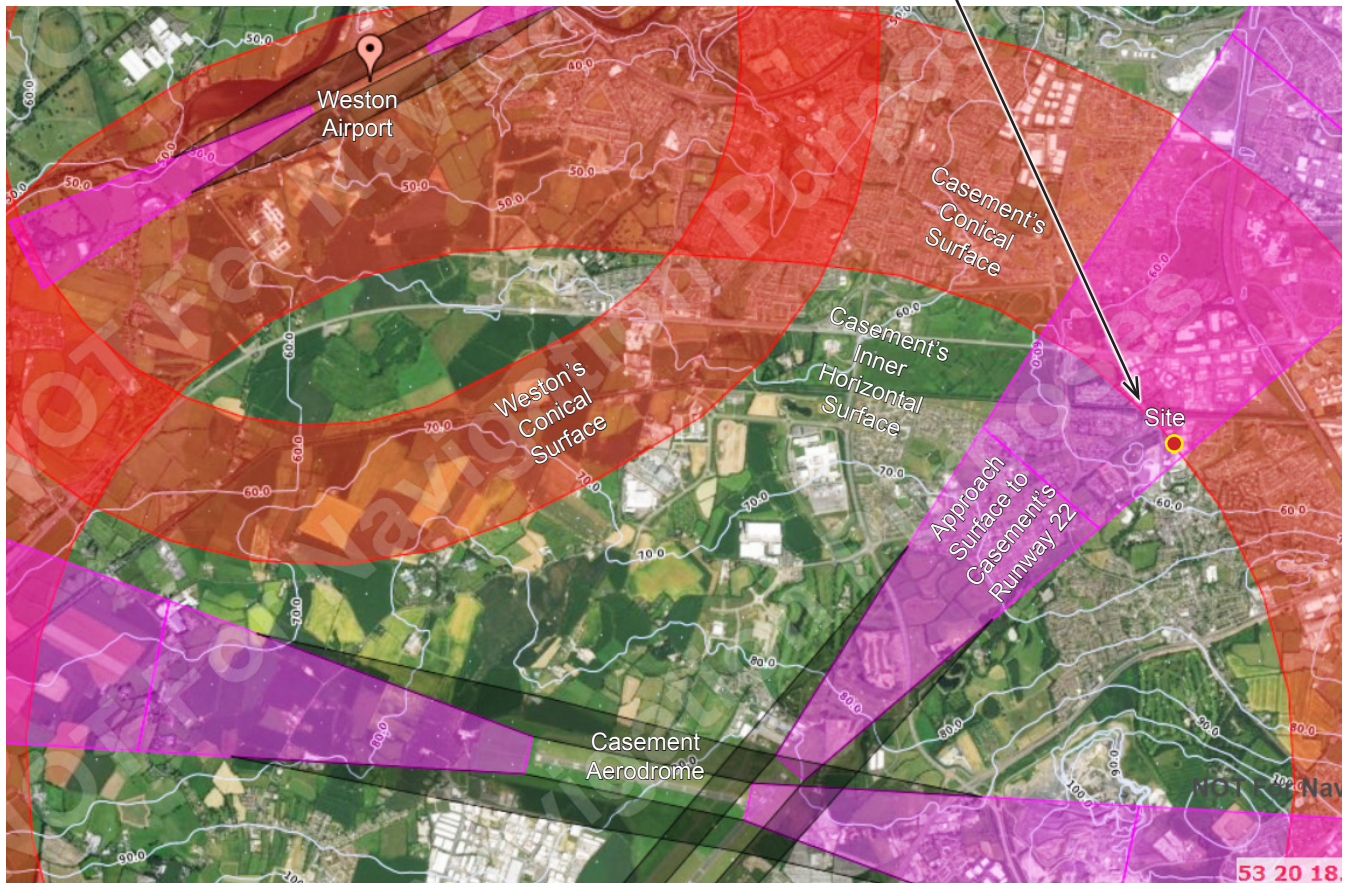
- 4.1 Below, to approximate scale 1:1,000, is a Site & Roof Plan of the proposed mixed-use LRD to east of Ninth Lock Road, which provides a total of 415 no. residential units and 1 no. childcare facility. The residential units are a mixture of apartments and own-door houses and will range in height from 2-8 storeys.

[In this diagram, darker blue shading indicates higher roof elements.]



5. “Obstacle Limitation Surfaces” in the Vicinity of the Site

- 5.1 The I.C.A.O. “Obstacle Limitation Surfaces” for Casement Aerodrome and for Weston Airport are indicated in the drawing below (featuring Irish Aviation Authority “Asset” data), on which the Elmfield site’s location is indicated by a red+yellow dot.



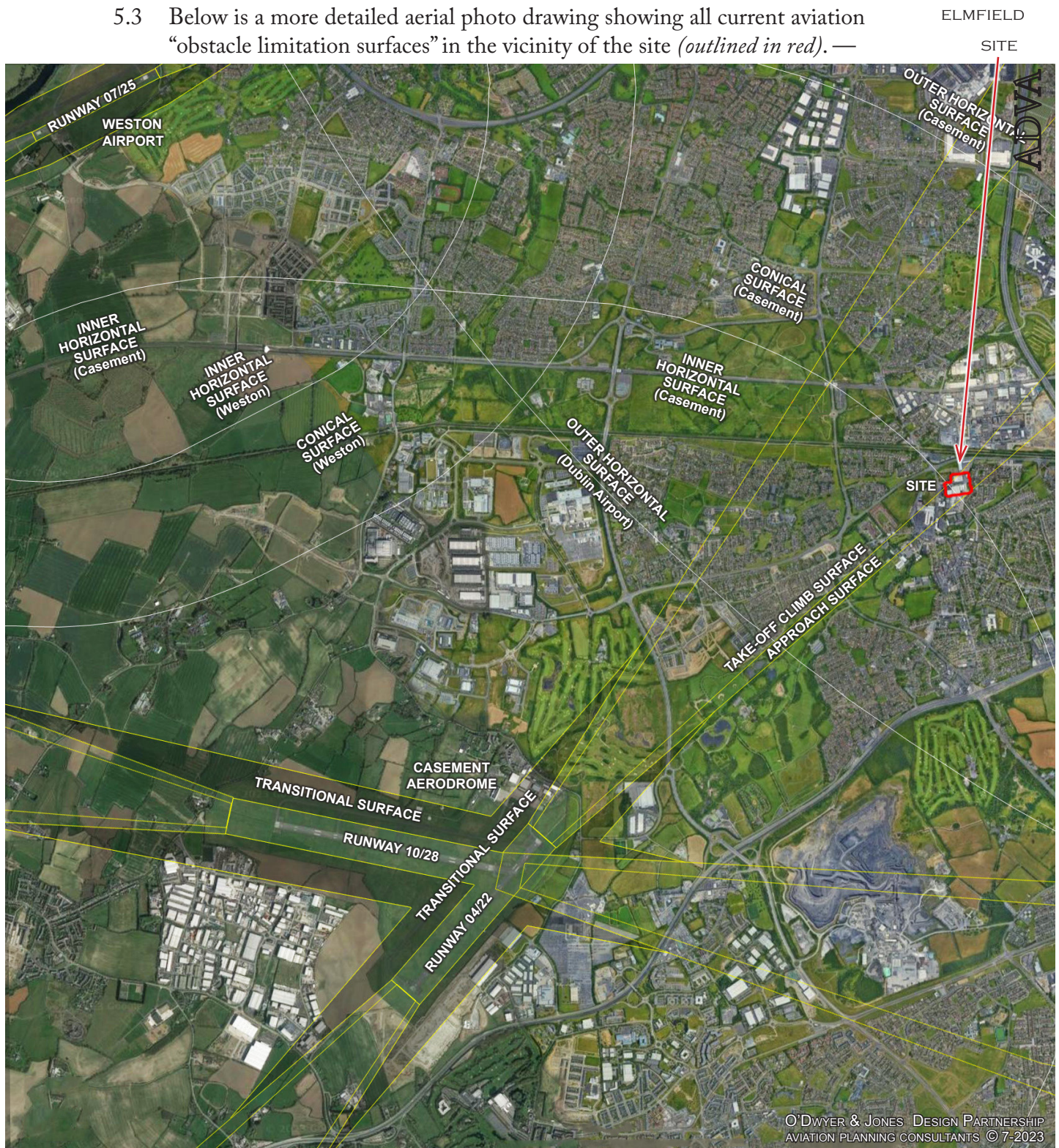
It can be seen from the diagram above that the site – at 3.92 km from Casement’s Runway 22 Threshold – lies between Casement’s “Inner Horizontal Surface” and “Conical Surface”, and also under the “Approach Surface” to Casement’s Runway 22. and partly under the “Take-off Climb Surface” from Casement’s Runway 04.

However the site – at 6.61 km from Weston’s Runway 25 Threshold – lies well outside all of Weston’s “obstacle limitation surfaces” which currently extend to 3.6 km from Weston’s Runway 07/25.

- 5.2 A more detailed drawing of the “obstacle limitation surfaces” above the Elmfield site, superimposed on an aerial photograph, is provided on the following page 11, in which it can be seen that the site – in addition to lying under four of Casement Aerodrome’s “Surfaces” – also lies under the “Outer Horizontal Surface” of Dublin Airport (which extends to 15km from Dublin Airport).

A further Aerial View, plus a Longitudinal Section through the site and the various aviation “Obstacle Limitation Surfaces”, is shown in Section 7 on page 14 following.

5.3 Below is a more detailed aerial photo drawing showing all current aviation “obstacle limitation surfaces” in the vicinity of the site (*outlined in red*). —



It can be seen above (i) that part of the site lies under **Casement’s “Inner Horizontal Surface”**; (ii) that the other part of the site lies under its **“Conical Surface”**; (iii) that all of it lies under the **“Approach Surface”** to Casement’s Runway 22; (iv) that part of it also lies under the **“Take-off Climb Surface”** from Casement’s Runway 04; and (v) that all of the site also lies under **Dublin Airport’s “Outer Horizontal Surface”**. These are assessed in Section 6 following, and a *Longitudinal Section through these Surfaces* is shown in Section 7 on page 14 >>.

6. Assessments in Relation to the “Obstacle Limitation Surfaces” above the Site

6.1 Re Weston Airport:

The site lies well outside all of Weston’s “obstacle limitation surfaces”, and Weston Airport is therefore unaffected by the development.

6.2 Re Dublin Airport;

Dublin Airport’s “Outer Horizontal Surface” lies above all of the site. However this “surface” is at **212m OD**, and, as the highest point of the proposed development is at 81m OD (more than **131m** lower), there is no possibility that the development will affect Dublin Airport or its “Outer Horizontal Surface.”

6.3 Re Casement Aerodrome:

The nearest corner of the Elmfield site is at **3,920** metres from the Threshold of Casement’s Runway 22, and (*as shown on the drawings on the previous two pages*) it lies simultaneously under the “**Approach Surface**” to Runway 22, the “**Take-off Climb Surface**” from Runway 04, and the Aerodrome’s “**Inner Horizontal Surface**” and its “Conical Surface”. The elevations of these Surfaces are calculated in paras. 6.4-6.6 below.

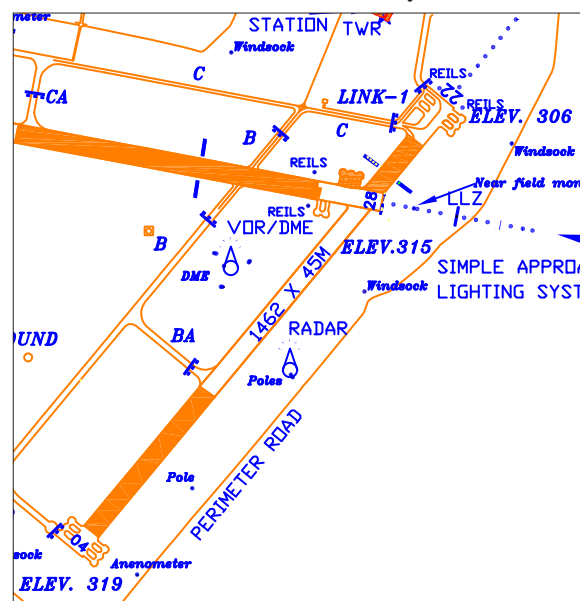
The elevations of any Approach and Take-off Climb Surfaces are calculated in relation to a site’s location vis-à-vis the extended centreline of the relevant runway: the data at Elmfield is that the site is at **630m** laterally from the centreline of Runway(s) 04/22, and opposite a point at **3870m** from Thr22 along that centreline.

Calculated as follows: $(3920)^2 \text{ minus } (630)^2 = (3870)^2$

6.4. Calculations in regard to the Approach Surface to Casement Runway 22

The relevant runway threshold (22) is stated on the current Aerodrome Chart [*>*] to be at 306ft AMSL elevation, i.e. at **93.3m OD**, which is also the elevation of the Inner Edge of the Approach Surface commencing at **60m** from that runway threshold.

By deducting 60m from the 3,870m (listed above at 6.3) it is established that the nearest corner of the site lies at **3,810m** from the inner edge of the Approach Surface to Casement’s Runway 22 (as measured along the extended centreline of Runway 22).



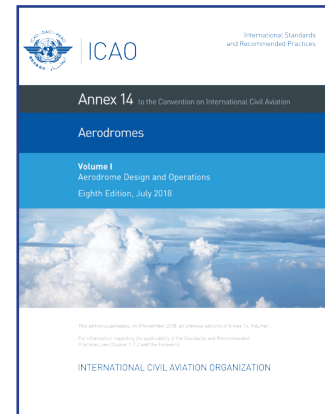
[6.4 Continued]

The slopes of the **Approach Surface to Runway 22** (per ICAO *Annex 14* for a Code 3 instrument runway >>) are: 2% for the first 3,000 metres and 2.5% for the next 3,600m.

Thus, at the nearest corner of the site (at **3810m** from the Surface's Inner Edge) the Approach Surface to Rwy 22 lies at **173.6m OD***, and therefore lies **118.6 metres** above the 55m OD ground elevation, and at **68.9m** above the highest proposed roof element (which is at **81m OD**).

* calculated as follows —

$$(3000 \times 2\%) + (810 \times 2.5\%) + 93.3m \text{ OD} = 60 + 20.3 + 93.3m = 173.6m \text{ OD}$$



6.5 Calculations in regard to the Take-off Climb Surface from Casement Runway 04:

The **Take-off Climb Surface** from Runway 04 also commences at 60m from the 22 Threshold. Per ICAO definitions, the Take-off Climb Surface from Runway 04 rises constantly at 2% from 93.3m OD, and will therefore be at **169.5m OD**** above the site's nearest corner, i.e. at **114m** above ground level on the site, and **88.5m** above the highest proposed roof element (on Block 01 at **81m OD**).

** calculated as follows —

$$3810 \times 2\% + 93.3m \text{ OD} = 76.2m + 93.3m = 169.5m \text{ OD}$$

In addition, I.C.A.O. includes a provision (in paragraph 3.8.1.1 of its *Annex 4 – 'Aeronautical Charts'*) that any obstacle projecting above a **1.2% slope in the take-off flight path area** be considered a significant obstacle, and should be shown on Aeronautical Charts. We therefore include an additional calculation in relation to a 1.2% slope, which lies at **139m OD***** above the nearest corner of the site, and therefore at **58m** above the highest point of the proposed development.

*** calculated as follows —

$$3810 \times 1.2\% + 93.3m \text{ OD} = 45.7 + 93.3m = 139m \text{ OD}$$

6.6 Calculations in regard to Casement's Inner Horizontal and Conical Surfaces:

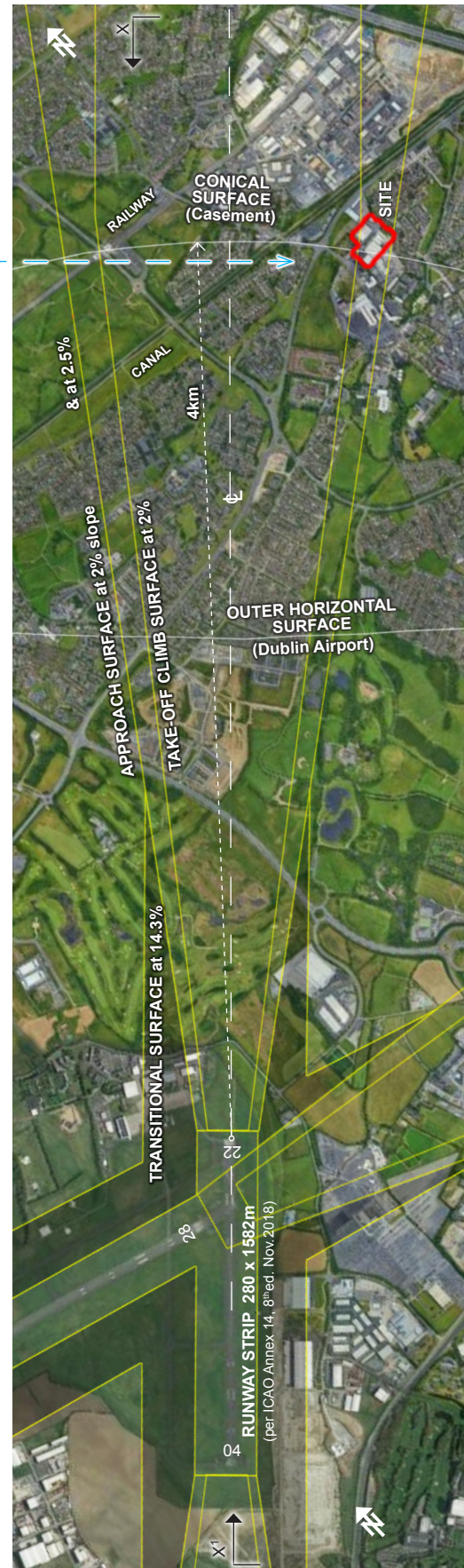
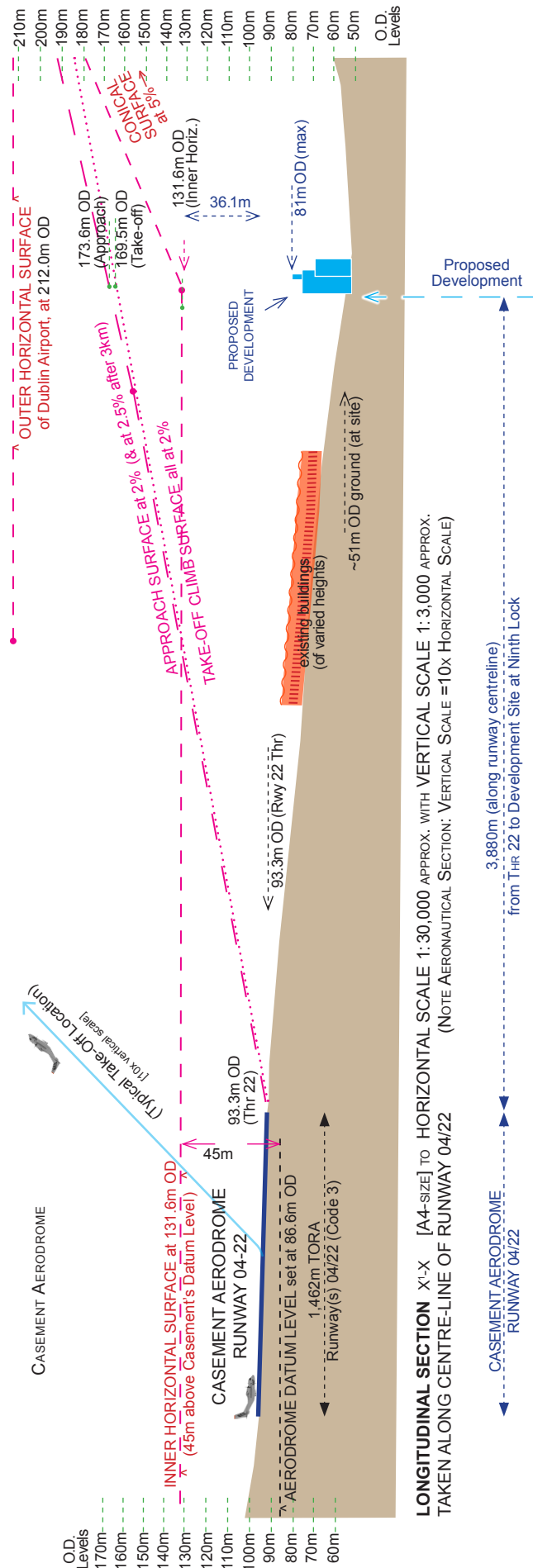
Casement's **Inner Horizontal Surface** (extending to 4km from all runways, and at 45m above the aerodrome's chosen datum) lies at **131.6 metres OD**. It is therefore the lowest of the Casement "Surfaces" above the site, at **80.6m** above ground level, and at **50.6m** above the highest element of the proposed development.

Above the part of the site that lies under it (at 4–4.15 km from Thr22) the Conical Surface will rise by 5% from 131.6m to 139.1m OD

6.7 It is therefore confirmed that **none of Casement's "Obstacle Limitation Surfaces" will be infringed by the proposed development at Elmfield**, and that the lowest "surface" above the site is Casement's Inner Horizontal Surface at 131.6m OD.

7. Longitudinal Section Diagram

[A4-SIZE] 1:30,000 HORIZONTAL SCALE
1:3,000 VERTICAL SCALE



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AERIAL PHOTO MAP
PLAN SCALE [A4-SIZE] 1:30,000 APPROX.
SITE OUTLINE: — OBSTACLE LIMITATION SURFACES: —

8. Other Aviation Considerations

- 8.1 Solar/Solar/PV panels are proposed on the roofs of the residential blocks, at Elmfield **as indicated**.

The site lies within the “Baldonnell Solar Safeguarding Zone”, which extends to 5km from Casement Aerodrome (as set out in S.I. 492 of 2022), but lies outside the “Weston Solar Safeguarding Zone”, which extends to 3km from Weston Airport. Consequently, the proposed panels will be the subject of a Glint & Glare Study in relation to Casement Aerodrome’s flight paths and control tower.

However, Glint and Glare problems in relation to these panels would seem unlikely, as the panels would be at considerable distance from the aerodrome (at about 4.5km from the aerodrome’s reference point) and any views of them from Casement Aerodrome’s control tower appear to be blocked by Hangar No. 1 at the aerodrome itself.

8.2 External Lighting:

Being at 320m from the centreline of Approach and Take-off Climb Surfaces to and from Casement Runway(s) 04/22, it is recommended that external lighting on the site should be of the cut-off type (i.e. showing no light above the horizontal).

The buildings are not in a location, or of a height, which would require the placing of aircraft warning lights on their highest points (unless requested by the IAA).

8.3 Cranes on Site During Construction:

It is likely that a number of tower cranes, of up to 70m in height above ground level, may be used in the construction of the development. These could extend to 129m OD or thereabouts, i.e. to ~30m above the highest roof element of the development. However, as the lowest “Obstacle Limitation Surface” which lies above the proposed buildings – Casement Aerodrome’s “Inner Horizontal Surface” – is at 131.6m (72m+ above ground level on the site), these cranes will not interfere with, or project above, any of Casement Aerodrome’s “Obstacle Limitation Surfaces” (or above the “1.2% slope”).

In any event it will be necessary [under S.I. 215 of 2005 – *Irish Aviation Authority (Obstacles to Aircraft in Flight) Order*] for prior notification of the use of any crane/s to be submitted, at least 30 days in advance, to the Irish Aviation Authority, to Weston Airport, and to Casement Aerodrome, who may need to issue any necessary notices to pilots. Advance notification in regard to cranes is proposed to be given to Air Corps Air Traffic Services by email to airspaceandobstacles@defenceforces.ie and/or by telephone to 01-4037681 at Casement Aerodrome.

8.4 Bird Strike Hazard Aspects:

The site is at 5-6km from Weston, and at 3-4km from Casement Aerodrome, and ~0.3km from the nearest flight path, and is not likely to give rise to any bird strike hazard. Three small ponds (required for SuDS purposes) are located in a particularly well-trafficked location at the entrance to the site, where they are unlikely to attract birds.

During construction, building-site management will ensure control of all debris on site, in particular any food waste; and management of trenches, topsoil removal, and earth-moving in general, will ensure that debris or earth will not remain exposed as attractants to gulls or other birds, and that any flooded or exposed areas will be covered. The guidance provided in the IAA’s recent document “*Bird and Wildlife Strike Management at Aerodromes*” will be observed [>].



9. SUMMARY

9.1 The Development in Relation to Casement's "Obstacle Limitation Surfaces":

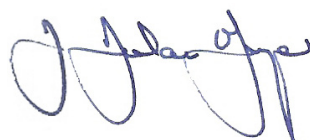
The development site lies under four of Casement Aerodrome's "Obstacle Limitation Surfaces", the lowest of which is Casement's "Inner Horizontal Surface" at 131.6m OD. However, the site is low-lying in relation to the Aerodrome, and the highest proposed element – a roof at 81m OD – is lower than either of Casement's runways, and more than 49m lower than Casement's "Inner Horizontal Surface". **It is confirmed that no part of the proposed development will breach any of Casement Aerodrome's "Obstacle Limitation Surfaces."**

9.2 Other Aviation Considerations

- (i) The site also lies under Dublin Airport's "Outer Horizontal Surface", but as this Surface is at 212m OD (more than 116m above the highest proposed element) it will not be affected in any way by the proposed development.
- (ii) The site lies outside all of Weston Airport's "Obstacle Limitation Surfaces" and the development will not affect Weston Airport.
- (iii) Care will be taken to ensure that features on the site will not give rise to increased bird strike hazard.
- (iv) Cranes on site during construction will not extend above any "Obstacle Limitation Surface". In any event it will be necessary for 30 days' advance notice of any proposed cranes to be given to the IAA, to Casement, and to Weston.

9.3 Overall:

We consider that the proposed development at Elmfield, Clondalkin, complies fully with all aviation and aeronautical requirements affecting its location.



J. Declan O'Dwyer B.Arch MBA RIBA
19th December 2025
O'Dwyer & Jones Design Partnership
Aviation Planning Consultants

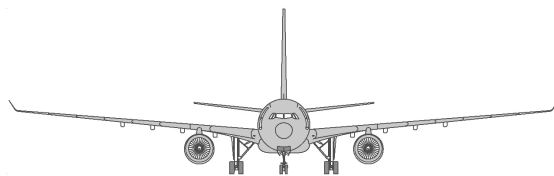
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Addendum to Aeronautical Assessment

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Company Registration No: 474793 | Vat No: 9718370P

Planning Department
South Dublin County Council,
County Hall Tallaght,
Dublin 24,
D24 A3XC.

25th August 2026

RE: Addendum to Aeronautical Assessment - Planning Application for a Large-Scale Residential Development consisting of 408 no. units on lands at the Securispeed Logistics site Elmfield Industrial Estate, Ninth Lock Road, Clondalkin, Dublin 22.

Applicant: Thornmeadow Developments Limited.

Dear Sir/Madam,

O'Dwyer & Jones Design Partnership were engaged to prepare an Aeronautical Assessment Report in support of the LRD application by Thornmeadow Developments Limited, at the Securispeed Logistics site Elmfield Industrial Estate, Ninth Lock Road, Clondalkin, Dublin 22. This assessment was carried out by O'Dwyer & Jones Design Partnership, and they awaited the final results of the Glint and Glare Assessment in order to add the conclusion from the Glint and Glare Assessment into Section 8.1 of their report. Unfortunately, the Principal of that company passed away prior to finalisation of the planning application and the company ceased trading as a result.

Therefore, this addendum seeks to complete Section 8.1 of the Aeronautical Assessment.

8.1 Other Aviation Considerations

Solar/Solar/PV panels are proposed on the roofs of the residential blocks, at Elmfield as indicated.



The site lies within the “Baldonnell Solar Safeguarding Zone”, which extends to 5km from Casement Aerodrome (as set out in S.I. 492 of 2022), but lies outside the “Weston Solar Safeguarding Zone”, which extends to 3km from Weston Airport. Consequently, the proposed panels will be the subject of a Glint & Glare Study in relation to Casement Aerodrome’s flight paths and control tower.

However, Glint and Glare problems in relation to these panels would seem unlikely, as the panels would be at considerable distance from the aerodrome (at about 4.5km from the aerodrome’s reference point) and any views of them from Casement Aerodrome’s control tower appear to be blocked by Hangar No. 1 at the aerodrome itself.

The Overall Conclusion on page 12 of the Glint and Glare Study is as follows:

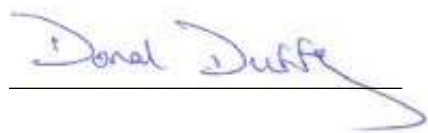
“The SGHAT results indicate that the proposed solar PV panels on the roofs of the proposed buildings at Ninth Lock, Clondalkin, Dublin 22, resulted in a 'Pass' in respect of the flightpaths at Casement Aerodrome. However, the SGHAT results show that the proposed development resulted in a 'Fail' due to a potential for reflectance from some of the panels at the ATCT at Casement Aerodrome. A follow up Visibility Analysis, utilising Digital Surface Model (DSM) data, determined that there will be no visibility of the proposed panels from

the ATCT. As such, there will be no potential for glint or glare to occur at Casement Aerodrome ATCT".

Taking into account the findings and conclusions of the Macroworks Glint & Glare analysis, it is proposed that these solar/PV panels will be installed subject to the following additional assurance: In the event that Air Corps ATC personnel or Pilots experience unwanted glare from any of these panels (which are at more than 3km from Casement Aerodrome) it is agreed that the developer will immediately remove all affected panels, or will adjust them to the satisfaction of the Air Corps.

We trust that the proposed development complies fully with all aviation and aeronautical requirements affecting its location.

Yours sincerely,

A handwritten signature in blue ink, reading "Donal Duffy", is written over a horizontal line. The signature is stylized with a long, sweeping underline that extends to the right.

Donal Duffy MIPI

Director

For and on behalf of DOWNEY