
Environmental Impact Assessment Report Development at Waterford Airport

Volume 2 – Chapter 14 - Alternatives

Prepared for: Waterford City & County Council in Partnership with Waterford Regional Airport PLC



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14. ALTERNATIVES

14.1 Introduction

It is proposed to construct an extension to the existing runway at Waterford Airport, which will comprise approximately 491m of new runway at the northern end, 363m of new runway on the southern end, widening of the runway for its entire length to 45m in width, widening the taxiway by 8m, extend parking provision by 205 no. spaces and provide additional navigational lighting. Details of full development description is contained in Chapter 2.

This Chapter outlines the main design considerations and alternatives examined during the development of the Scheme including the alternatives considered, and the reasons for the selection of the proposed development.

Article 5 of the 2011 EIA Directive requires:

“An outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects”.

Article 5 of the Directive 2014/52/EU requires:

“A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment”.

14.1.1 Project Background

Waterford Airport is located in Killowen, Co. Waterford, ca. 5.5km to the north east of Tramore and ca. 7.4km to the north west of Dunmore East in Co. Waterford. Waterford Airport is a designated Regional Airport. Regional Airports are currently supported through Exchequer funding. This financial support is administered by the Department of Transport, Tourism and Sport. However, in mid-2016 all scheduled passenger services at the airport were discontinued and since then Waterford Airport has not been eligible under the current Department of Transport, Tourism and Sport capital or operational funding schemes.

The proposed runway development, parking and landside terminal will enhance airport capacity through facilitating landing and take-off of medium sized jet aircraft. The former use of turbo-propeller aircraft is become uneconomic and therefore the proposed development will facilitate the recommencement of passenger services at Waterford Airport. It is anticipated that the airport will achieve approximately 1,120 outbound flights per annum by year five of operations. This is anticipated to consist of medium jet aircraft types such as Boeing 737/800 and Airbus 320. Airport operations will also consist of the ongoing activities including non-schedule flights such as business jets, multi and single-engine general aviation and helicopter operations.

The current runway at Waterford Airport was designed for turbo propeller fifty to eighty seater aircraft. Runway development contemplated in recent years reviewed various options from small regional jets with seating capacities in the region of 100 to 120 seats, up to the medium sized regional jets with seating capacities of approximately 180 – 190 seats, similar to those operated at Kerry and Knock airports.



For the airport to compete in the current marketplace, a move into the mainstream medium sized jet market is required. For this to take place the airport needs to embark on a runway development that is sufficient to meet the operational needs of modern medium sized jets.

The location of a regional road (R685) at the south end of the present runway limits development at this end. Whilst the southern runway extension granted consent in 2014 (Ref. 14/89) is sufficient to cater for smaller aircraft, it cannot cater for medium sized regional aircraft.

The location of high ground and an upgraded main road (R708) at the north end, results in limited development at the north end which would not be sufficient on its own to cater for medium sized jet aircraft.

It is therefore proposed to engage in a combined north / south extension of the current runway pavement, which in total will be sufficient to cater for medium sized jet aircraft.

The proposed development will consist of the following operational changes:

- Alteration of take-off and landing position to extend into the proposed expansion.
- Take-off and landing of jets such as the Boeing 737/800 and Airbus 320.
- Capacity for up to 345,000 passengers per annum by year five of the operational phase.

The approach and take-off will broadly follow a 3-degree flight path which is currently used at the airport.

14.2 'Do-Nothing' Alternative

If the proposed airside and landside development is not constructed any additional economic benefit which could be derived from the project will not be realised. As set out in Chapter 5 of this EIAR Population and Human Health, the proposed development is anticipated to create jobs during the construction phase and support long-term growth in the tourism industry of the South Eastern Region during the operational phase of the extended airport facilities.

In the 'do nothing' scenario Waterford Regional Airport will remain underutilised and will be unable to provide passenger services required for the current and future commercial passenger travel market.

Lastly, the aims and objectives for the extension of the existing runway and facilities, as set out in the Regional Spatial and Economic Strategy for the Southern Region and the Waterford County Development Plan 2011-2017 (as extended) will not be realised.

14.3 Site Selection

14.3.1 Plan-Led Development

The assessment of route alternatives was undertaken in the context of The Environmental Protection Agency document 'Guidelines on the Information to be Contained in Environmental Impact Statements' (EPA, 2002) and draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, (EPA, 2017). These Guidelines state that it is important to acknowledge the existence of difficulties and limitations when considering alternatives.



In August 2017 the EPA published the Draft Revised Guidelines on the Information to be Contained in Environmental Impact Statements. These Guidelines remain in Draft form; however, regard has been given to the advice set out within the Guidelines. The Draft Guidelines state:

“Alternatives may be identified at many levels and stages during the evolution of a project, from project concepts and site locations, through site layouts, technologies or operational plans and on to mitigation and monitoring measures. The alternatives that are typically available for consideration at the earlier stages in the evolution of a project generally represent the greatest potential for avoidance of adverse effects.”

Section 3.4 of the Draft Guidelines is concerned with the Consideration of Alternatives, which states that:

“Higher level alternative may have been addressed during the strategic environmental assessment of strategies or plans. Assessment at that level is likely to have taken account of environmental considerations associated for example with the cumulative impact of the area zoned for industry on a sensitive landscape. Note also that plan-level/higher-level assessments may have set out project level objective or other mitigation that the project and its EIAR should be cognisant of. So, at EIA level this prior assessment of strategic alternatives inform the EIAR”.

Development Plans and Regional Plans provide a strategic framework and policy context for all planning decisions. The Planning and Development Act 2000 (as amended) reinforces the role of the Development Plan as the primary strategic statement on land-use planning at city, town and county levels, and provides a clear defined context for the formulation and content of planning applications.

In the context of hierarchy, many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon.

The 2017 Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) state that:

“Clearly in some instances some of the alternatives described below will not be applicable – e.g. there may be no relevant ‘alternative location’ for the upgrading of an existing road.

Higher level alternatives may already have been addressed during the strategic environmental assessment of relevant strategies or plans. Assessment at that level is likely to have taken account of environmental considerations associated, for example, with the cumulative impact of an area zoned for industry on a sensitive landscape. Note also that plan-level/higher-level assessments may have set out project-level objectives or other mitigation that the project and its EIAR should be cognisant of.”

In the case of the proposed project, the above is applicable. The development has been plan-led based on established Regional and Local Planning Policies, both of which have been subject to the SEA Process. Moreover, this site comprises a range of existing infrastructure and services that would otherwise be underutilised. These policies and objectives which have informed the site selection process are set out in Section 14.3.2 and 14.3.3 hereunder.



14.3.2 Southern Regional Spatial and Economic Strategy (RSES)

The RSES states that all airports have a mandate to promote the development of their region. It is important that regional airports identify opportunities for attracting new business within their niche markets and that long-term viability is identified and supported, in partnership with relevant regional, tourism and industry bodies.

RSES strategy no. 6 aims to optimise the region's high-quality international connectivity through investment and increased capacity in ports and airports. Objective RPO 150 supports the continued exchequer assistance for regional airports under the Regional Airports Program and supports the role of Waterford Airport to develop its potential as a key tourism and business gateway.

The RSES sets out the Draft Waterford Metropolitan Area Strategic Plan (MASP). It is an objective of the MASP to strengthen the role of the Waterford Metropolitan Area as an international location of scale. The MASP views Waterford Airport as an International Gateway to the region. The MASP states that the return of passenger services to Waterford Airport is key to the development of the Metropolitan Area and the major urban centres of the South-East.

Section 8.4 of the Waterford MASP sets out objectives for Waterford Airport. The MASP states the following with regard to the proposed runway extension:

"Investment in a runway extension will enhance the international connectivity potential of Waterford for Business (including multi-national companies involved in export trade), support the development of TUSE Research and Development with international partners and provide for increased tourist traffic. The runway extension of 500m sought by Waterford Airport would significantly increase the capacity of the airport to cater for larger aircraft and more frequent flights."

Waterford MASP Policy Objective 16 states that it is an objective to support the further development of Waterford Airport and, in particular, the development of:

- An extension of the existing runway to accommodate larger aircraft;
- Measures to encourage additional operators offering services from the location; and
- The extension and development of aviation-related industries at the airport.

14.3.3 Waterford County Development Plan 2011-2017 (as extended)

Chapter 7: Infrastructure accounts for the provisioning of high-quality transportation infrastructure across the County. Section 7.11 Waterford Regional Airport identifies that:

"The airport is a key gateway to Ireland's south east and the availability of its convenient and increasingly frequent air services is making a growing contribution to the facilitation of both tourism and business activities in the region."

Objective INF 4 is the relevant policy objective with respect of Waterford Airport:

"To assist the future expansion of services and routes at the Airport, the Council support the lengthening and widening of the runway, subject to compliance with proper planning and sustainable development and in compliance with Article 6 of the Habitats Directive."



Volume II of the Waterford County Development Plan sets out the mapped zoning policies for Waterford Regional Airport, while Appendix 6 of the County Development plan Sets out a Master Plan for the site which provides a blueprint for the future development of the Airport and its environs,

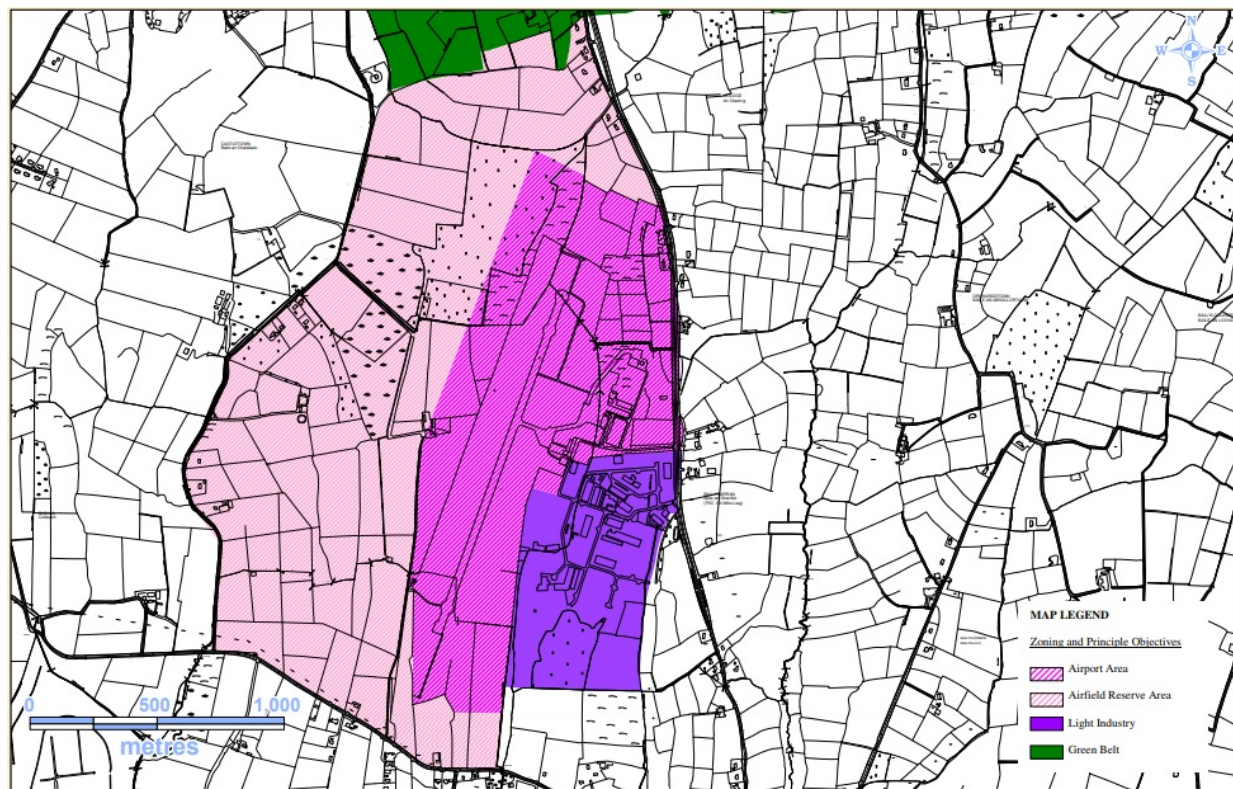


Figure 14-1: Waterford Regional Airport and Business Park Zoning Map, Volume II Waterford County Development Plan 2011-2017

The zoning policies in respect to the above zoning map are as follows:

Airport Area To provide for Airport related activities including passenger terminal buildings and services, airside retail, hotel, airport infrastructure, hangerage, storage, maintenance and ancillary facilities, park & ride, transport depot, training facilities, storage depot, warehouse, offices and light industrial/enterprise units.

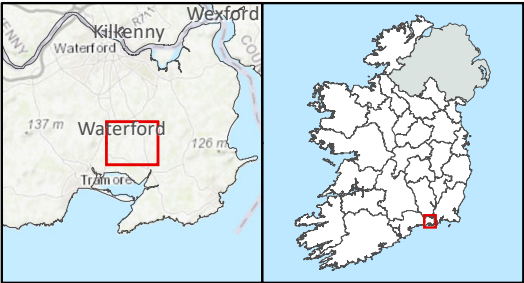
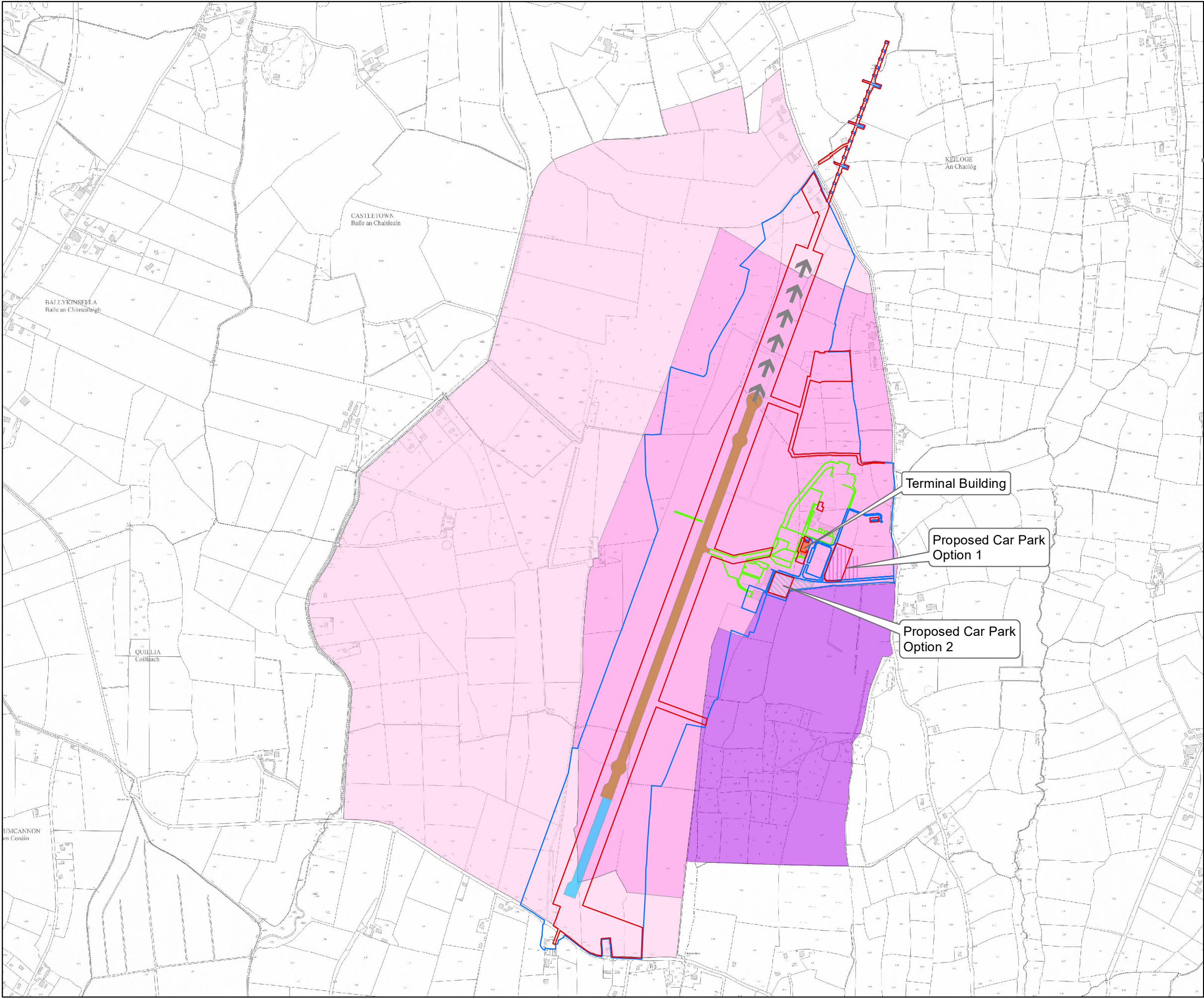
Airfield Reserve Area To allow for the future extension of the runway facilities and to provide for the possible future realignment of the R685 Road. This area should be reserved free from inappropriate development which may prejudice the future expansion of the Airport.

Light Industry To provide for Light Industrial/Enterprise Development.

Strategic Environmental Assessment (SEA) was carried out in parallel with the preparation of the Waterford County Development Plan 2011-2017 (as extended).



The area identified for the proposed development was the *Airport Area* as identified in Figure 14.1 above. Given that a permitted application (Waterford City and County Council Planning Reference: 14/89) is located at the southern section of the zoned *Airport Area*, the northern section was identified as suitable for further runway extension. The context of this site section process is set out in Figure 14.2 overleaf.



- ➔➔ Extension Direction
- Site Boundary

Land under SERA (South East Regional Airport) and Waterford City and Council Ownership

Airside Infrastructure

Landside Infrastructure

Terminal Building

Existing Runway

Permitted South Extension (Ref. 14189)

Airfield Reserve Area

Airport Area

Light Industry
- Car Park Extension and Ancillary Development
- Car Park Option 1

Car Park Option 2

TITLE:		Alternatives	
PROJECT:		Waterford Airport Runway Extension	
FIGURE NO:		14.2	
CLIENT:		Waterford Airport	
SCALE:	1:12500	REVISION:	0
DATE:	13/05/2020	PAGE SIZE:	A3





14.4 Site Layout, Design and Constraints

14.4.1 Introduction

The Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) 2017 prepared by the EPA have been drafted with a view to facilitating compliance with EIA Directive (2014/52/EU).

The Draft EPA Guidelines states that:

“Alternatives may be identified at many levels and stages during the evolution of a project, from project concepts and site locations, through site layouts, technologies or operational plans and on to mitigation and any monitoring measures. Alternatives that are available for consideration at the earlier stages in the evolution of a project often represents the greatest potential for avoidance of adverse effects.”

It should be noted that the amended Directive refers to *“reasonable alternatives...which are relevant to the proposed project and its specific characteristics.”*

The EPA Guidelines sets out the following in relation to Site Layout and Project Design:

Table 14-1: Extract from the Draft Guidelines on Information to be Contained In EIARs 2017, EPA, Figure 3.4 Considerations in an EIAR.

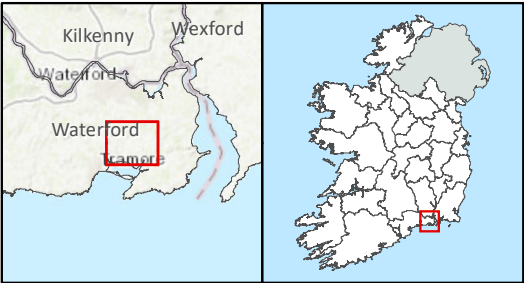
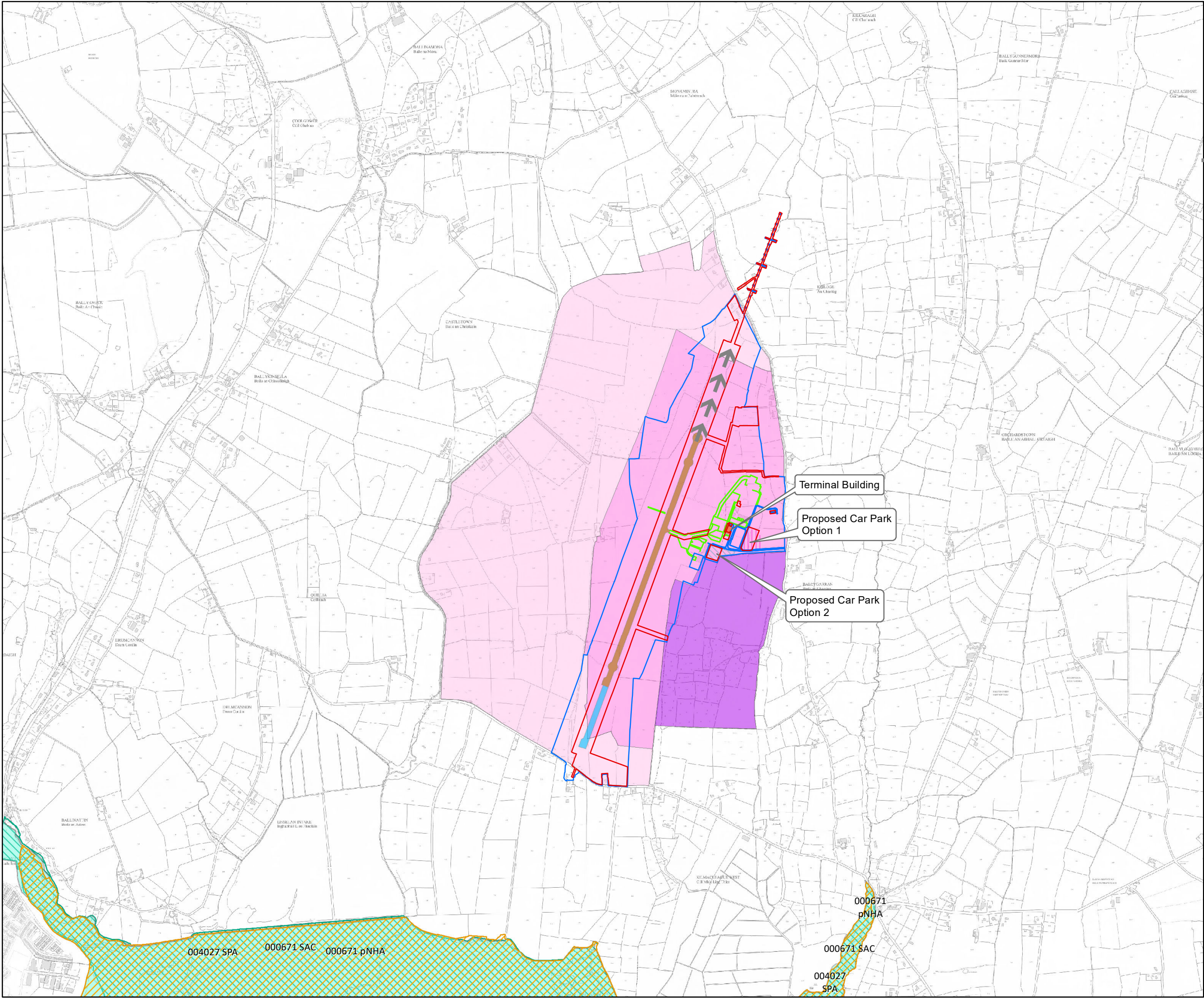
Topic	Environmental Consideration
Is this the Right Site Layout?	Environmental Considerations at this stage would include: <ul style="list-style-type: none"> - Proximity to site sensitivities; - Potential to affect off site environmental assets.
Is this the Right Project Design?	Environmental Considerations at this stage would include: <ul style="list-style-type: none"> - Likely effects during construction; - Likely effects on site features; - Likely effects on neighbours.
Is this the Right Process Design?	Environmental Considerations at this stage would include: <ul style="list-style-type: none"> - Likely emissions to air and water - Likely generations of waste; - Likely effects on traffic.



14.4.2 Site Layout Alternatives

The proposed runway extension is located within lands zoned 'Airport Area' and 'Airport Reserve Area' with proposed navigation lights located on unzoned lands. The zonings set out in the Waterford County Development Plan 2011-2017 (as extended) were subject to Strategic Environmental Assessment.

Figure 14.3 sets out the context of the runway extension within the context environmental assets and designated ecological sites.



→ → Extension Direction

Site Boundary

Land under SERA (South East Regional Airport) and Waterford City and Council Ownership

Airside Infrastructure

Landside Infrastructure

Terminal Building

Existing Runway

Permitted South Extension (Ref. 14189)

Airfield Reserve Area

Airport Area

Light Industry

Special Protection Area

Special Area of Conservation

Proposed Natural Heritage Area

Car Park Extension and Ancillary Development

Car Park Option 1

Car Park Option 2

TITLE:		Alternatives	
PROJECT:		Waterford Airport Runway Extension	
FIGURE NO:		14.3	
CLIENT:		Waterford Airport	
SCALE:	1:20000	REVISION:	0
DATE:	13/05/2020	PAGE SIZE:	A3





The proposed runway extension will increase the number of passengers at the airport to an operation capacity of up to 345,000 passengers per annum by year five of the operational phase. It is anticipated that the airport will achieve approximately 1,120 outbound flights per annum by year five of operations. This increase will lead to demand for additional services at the airport including car parking and terminal infrastructure.

Included overleaf are the two primary alternative site layout options considered in the preparation of this application, both options include an extension to the existing terminal buildings and the provision of additional car parking at Waterford Regional Airport. Drawing P0608-3.01.1 sets out Site Plan Option 1, while drawing P0608-3.02.1 sets out Site Plan Option 2.



IMPORTANT NOTE:
Work to figured dimensions only - do not scale print. All setting out dimensions to be checked and confirmed on site prior to commencement of work. Any inaccuracies should be brought to the attention of the architect. If in doubt - ask!
All construction methods, materials, services and installations to be in accordance with all Irish Building Regulations and codes of practice at the time of construction. All sub-contractors are ultimately responsible for ensuring compliance with the regulations within their own trade.
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NOTES

DATE	REVISIONS TO DRAWING	By

DATE	REVISIONS TO DRAWING	By

STAGE
Outline design



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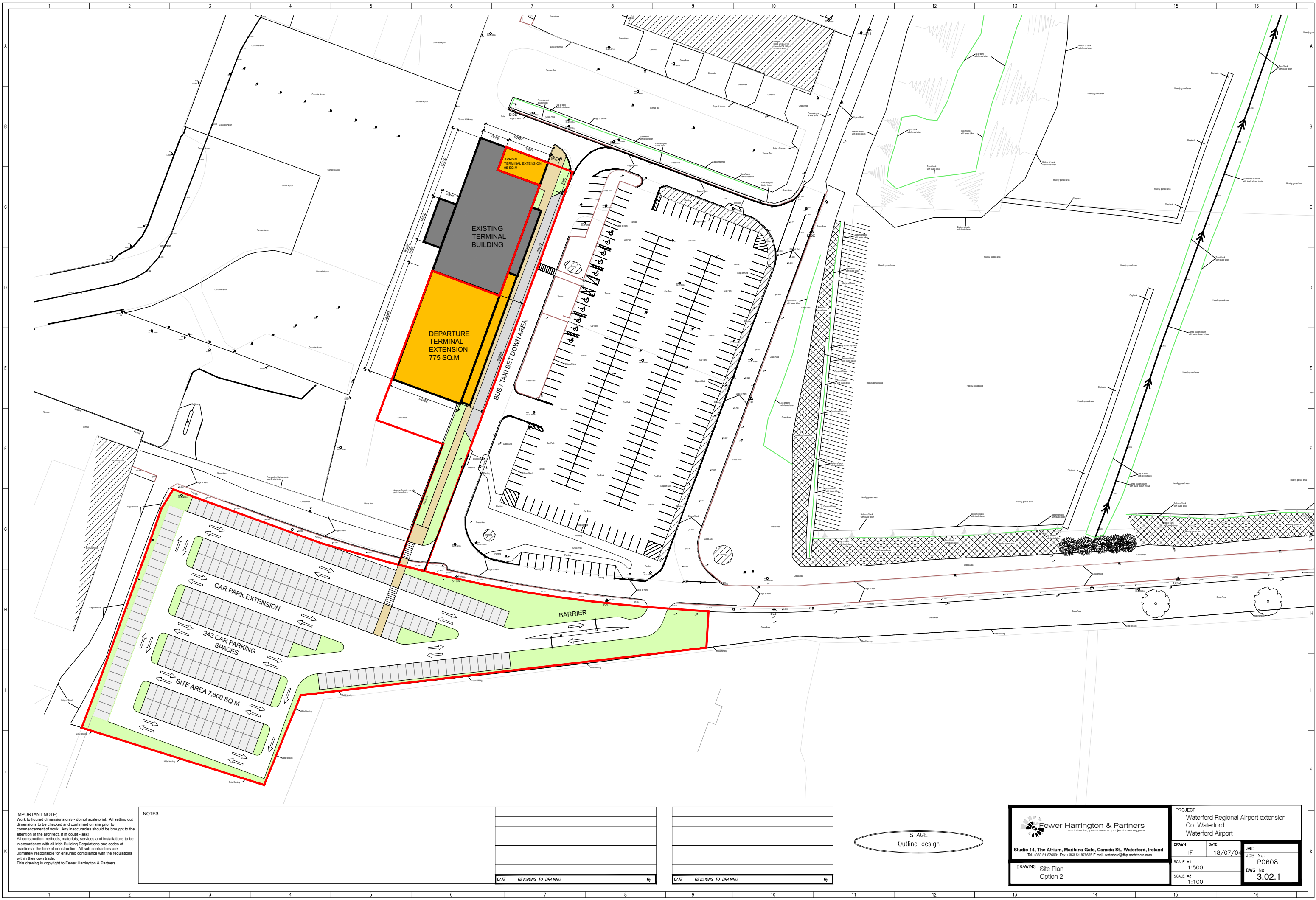
DRAWING Site Plan
Option 1

PROJECT	Waterford Regional Airport extension Co. Waterford Waterford Airport
---------	--

DRAWN	DATE
IF	18/07/04

SCALE A1	1:500
SCALE A3	1:100

KAD:
JOB No.
P0608
DWG No.
3.01.1




IMPORTANT NOTE:
Work to figured dimensions only - do not scale print. All setting out dimensions to be checked and confirmed on site prior to commencement of work. Any inaccuracies should be brought to the attention of the architect. If in doubt - ask!
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STAGE
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PROJECT
Waterford Regional Airport extension
Co. Waterford
Waterford Airport

DRAWN	IF	DATE	18/07/04	CAD:	JOB No.
SCALE A1	1:500				P0608
SCALE A3	1:100				DWG No.
					3.02.1

DRAWING
Site Plan
Option 2



14.4.2.1 Site Plan Option 1

Site Plan Option 1 locates the car parking to the east of the terminal building and provides an additional 205 spaces. To achieve the car parking on this site, it will be necessary to level the existing ground conditions and removal of the grass embankment. The carpark is accessed from the existing airport internal road infrastructure.

A pedestrian path has been indicated which links the terminal building to the car parking. To achieve this new pedestrian pathway it will require 6 no. spaces to be removed from the existing car parking facility and construction of a new 55 metre long path way through the existing car park with Zebra crossing.

Option 1 is the preferred car and terminal site layout option and planning permission is sought for this car park. This is chosen in order to allow reserve of lands closer to the terminal and allow an order expansion of the car parking area. Furthermore, the protected Yellow Wort was identified to be growing on lands in Option 2. Although it would be possible to initiate relocating of this plant to other lands within the airport area, it was considered avoidance of the potential impact should be applied.

14.4.2.2 Site Plan Option 2

Site Plan Option 2 locates the car parking to the south of the terminal building and provides an additional 242 spaces. Pedestrian connection to the car parking can be provide through the existing foot paths and a new zebra crossing is required to be put in place.

This option was not chosen for the final design, as it could limit the development potential of lands adjacent to the terminal and would cause disturbance of the protected plant species, Yellow Wort (see Chapter 12).

14.4.3 Project and Process Design

14.4.3.1 Runway Design

The runway length is determined by requirements to facilitate medium sized jet aircraft landing and take-off, the proposed full length of 2,287 m. is required for this. Design options to achieve this are:

- A. Split the runway extension, as proposed into a north and south extension;
- B. Extend entirely to the south (i.e. an additional 504m) to include the permitted extension of 350m (plan ref. 14/89);
- C. Extend entirely to the north of the runway to provide the additional 854m required; and
- D. Relocate the airport

Option A is the preferred alternative as it would:

- Avoid further encroachment toward the Tramore Backwater SAC, avoid re-alignment of the R685 road and avoid further demolition of private property which would be required as part of Option B.
- Avoid re-alignment of the R708 to accommodate an 854m runway extension to the north and avoid use of unzoned lands at the northern side of the R708 for hardstanding runway installation. This would be required for Option C.



- Relocation of the airport would result in requirement to provide new road infrastructure to serve a relocated airport, together with construction of airport facilities and associated development. Relocation of the airport is considered to give rise to significantly wider environmental impact and is not considered a reasonable alternative.

14.4.3.2 Drainage Design

The drainage design seeks to adapt and enhance the existing drainage system. The provision of enhanced drainage routing on site together with use of gravel layers for ground water percolation is considered to provide a reasonable alternative to provision of a design that fully captures the run-off from the extended runway. This is because of the relatively low levels of additional run-off into the drainage catchments arising from the provision of additional hard surface associated with the 854m of additional runway. A water holding tank for cold weather de-icing of aircraft is also provided as part of the drainage system.

14.4.3.3 Terminal Design

The proposed terminal extension seeks to provide additional passenger management and security facilities. The outline design presented has sought to achieve minimal disturbance to the existing terminal building in a cost effective manner.

The alternative to providing the extension would be a re-design of the entire building, to include demolition of parts of that building. Demolition and reconstruction of the terminal building is not considered to be a reasonable alternative.

A 'do nothing' scenario is not considered a reasonable approach as it would result in under provision of required airport infrastructure necessary to allow safe and efficient passenger movements through the airport and the capacity desired for the return of commercial flights to the airport.

14.5 Conclusion

Alternatives to the proposed project have been considered in respect of alternative locations, design and operations. It is considered that the proposed project associated with the extension of the runway together with associated development including an extension to the airport terminal, provision of additional car parking and modifications to site drainage represents the best option to address future regional air transport requirements at Waterford Regional Airport.

14.6 References

Environmental Protection Agency (August, 2017) Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports, available at:
<https://www.epa.ie/pubs/advice/ea/EPA%20EiAR%20Guidelines.pdf>

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