Westport Airport

Airfield Relocation Option

Report to Buller District Council

15 November 2023

Mike Haines and Max Evans

TABLE OF CONTENTS

Figures

Tables

1 Introduction

The Buller District Council (BDC) is considering the future of the airport at Westport. The Westport Airport is located 8km to the north-west of Westport near the mouth of the Buller River and also runs parallel with the coastline. Coastal erosion and regular flooding issues mean the current location is not a viable future option.

Westport Airport is a joint venture between the BDC and the Ministry of Transport. The airport is managed and operated by the BDC which oversees the daily operations.

The airport caters for commercial, passenger and recreational operations. It provides for commercial and charter operations, aero-medical evacuations and transfers, and general aviation including training and recreational activities.

Sounds Air operates daily flights between Westport Airport and Wellington using a Pilatus PC-12 aircraft.

BDC has requested an initial high level assessment of possible sites for a new airport to initiate a project to develop more in depth feasibility studies and financial analysis. The airport is an important social, economic and civil defence asset especially due to the remote location of Westport and frequent closures of the associated Buller Gorge.

2 Overview

2.1 Report Scope

Mike Haines Aviation (MHA) has been tasked to complete initial assessment including:

- Site options and alternatives with high level SWOT
- Airport operations e.g., general aviation, air transport, supporting activities
- Aviation system assessment overview: airspace, routes, site constraints
- Site assessment and alternatives
- Aeronautical suitability
- Geographical analysis especially terrain and obstacles

* Current airport is used as a baseline for aeronautical activities

2.2 Current Airport

The current Westport Aerodrome is located at Carters Beach approximately one nautical mile northwest of Westport township. The aerodrome holds a Part 139 Aerodrome Operating Certificate and is unattended, no air traffic service provided.

The current runway has vectors of 04 and 22 with a runway of 1280 metres by 30 metres within a 1400 by 152 metre runway strip. There is a single main taxiway leading to the apron and terminal.

The airfield has runway lighting with runway threshold, end and edge lighting. Turn bay edge lights are provided along with taxiway and apron edge lighting. An abbreviated precision approach path indicator (APAPI) system is in place on the lefthand side of both approaches. An aerodrome beacon is also provided with all lighting pilot activated.

The published circuit patterns consist of a standard left hand circuit for Runway 04 and a non-standard right hand circuit for Runway 22. The right hand circuit would be to keep aircraft away from the Westport township.

A distance measure equipment (DME) and a non-direction beacon (NDB) are provided by Airways New Zealand.

Instrument procedures consist of:

- RNAV (GNSS) Standard Instrument Arrival (STAR) RWY 04 and RWY 22
- NDB Approach RWY 22
- NDB/DME Approach RWY 22
- RNP Approach RWY 04 and RWY 22
- Standard Instrument Departure (SID) RWY 04 and RWY 22
- RNAV (GNSS) Standard Instrument Departure (SID) RWY 04 and RWY 22

The apron area has parking for limited number of aircraft and has Avgas 100 and Jet A1. A grass taxiway at RWY 22 threshold leads to two general aviation hangars.

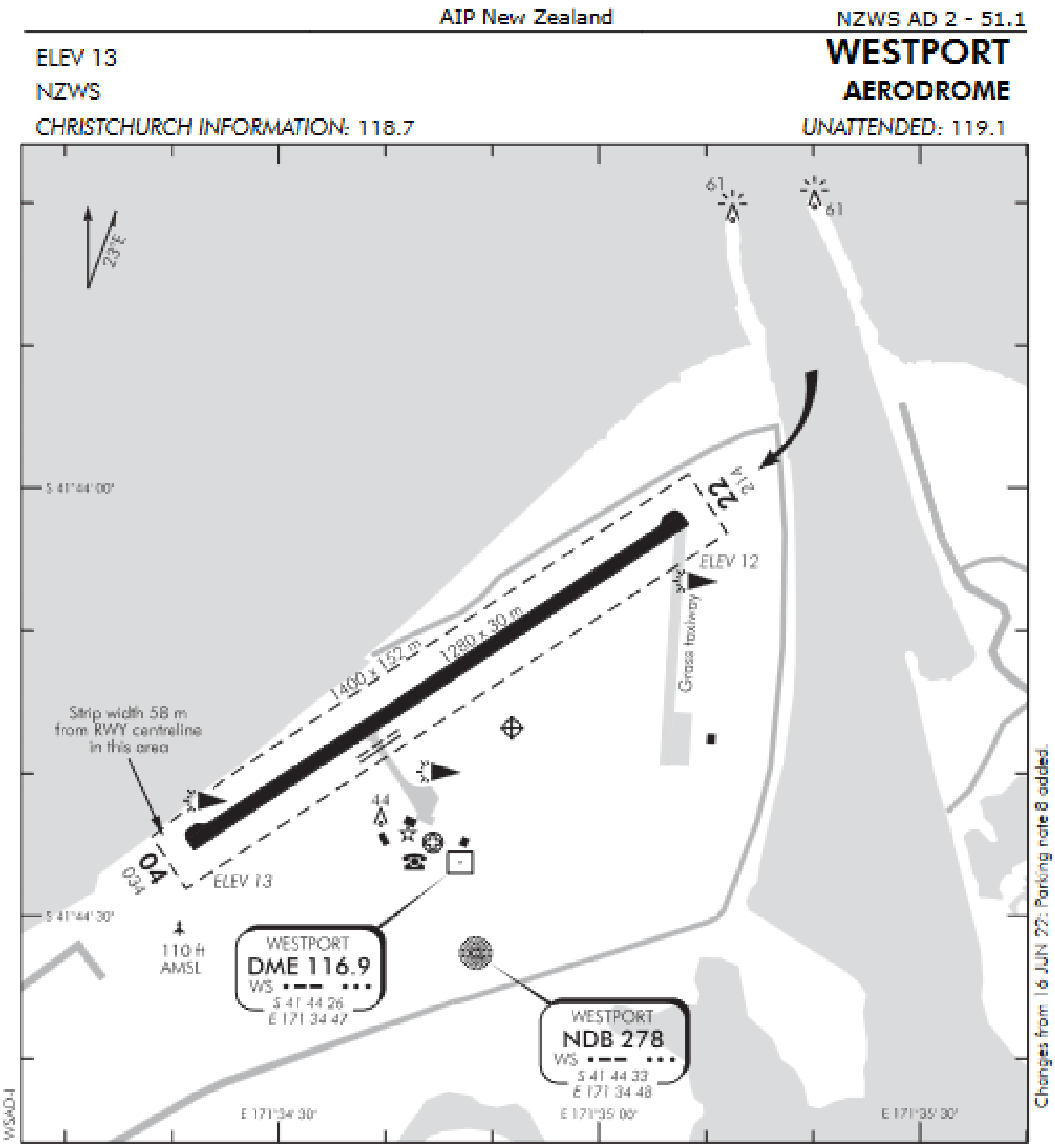


Figure 1 - Current Westport Aerodrome published data

2.3 Operations

Current operations include scheduled daily Sounds Air Pilatus PC12 flights, aeromedical flights, general aviation aircraft, microlights, helicopters and corporate jets. Charter flights of aircraft up to ATR-72 size.

The airfield previously had operations by Air New Zealand using the Beech 1900. The location of Westport means it is used by aircraft transiting the West Coast that require an alternate or a refuelling aerodrome. There are possible future uses by a flight training organisation and increased general aviation activity.

3 Site Options

3.1 Site selection and preliminary planning

- Detailed site assessment and alternatives
- Aeronautical suitability
- Site environmental, social and nature considerations
- Geographical analysis especially terrain and obstacles
- Transportation links to location
- Land ownership and future expansion
- Capital and operating costs estimation
- Aviation system assessment analysis: airspace, routes, site constraints

[redacted]

[redacted]

[redacted]

[redacted]

3.3 Climatic Factors

The current airfield is orientated northeast to southwest and MetService data indicates this is close to the preferred alignment based on weather data from a weather station based on the Aerodrome.

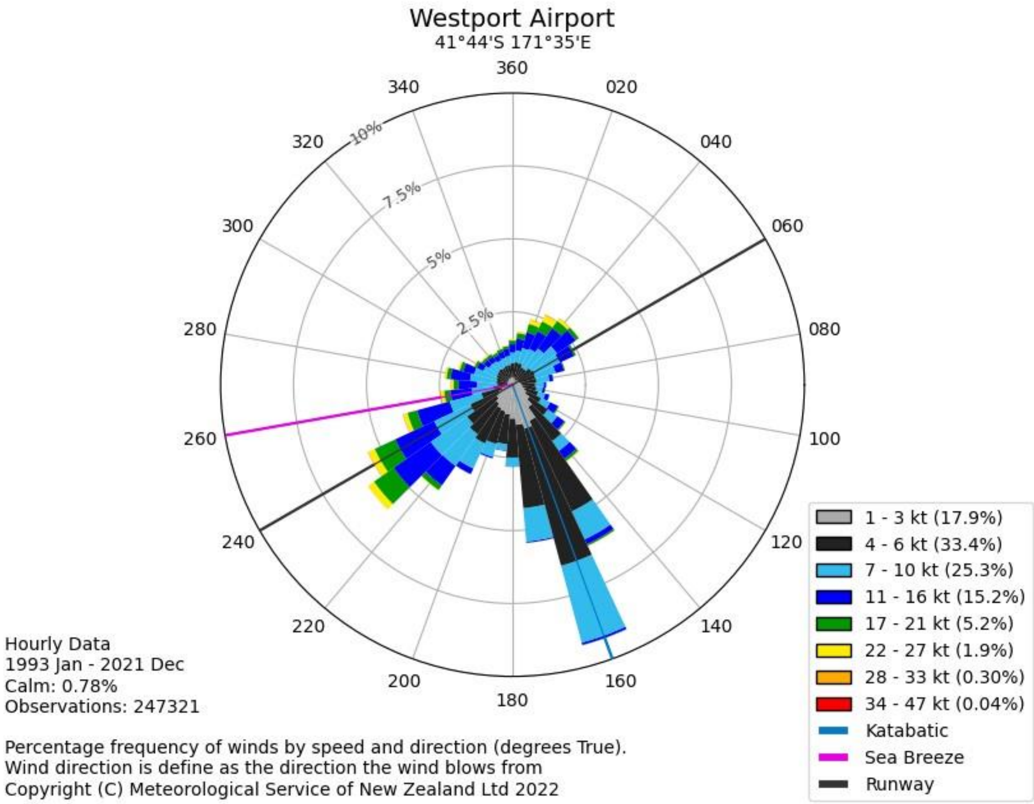


Figure 3 – Westport Airport Weather Rose

The current runway is 240˚ True which seems about 5-10˚ from the centre of the prevailing wind directions. It is noted a Katabatic wind from the southeast is generated from the hills and mountains producing a crosswind generally between 4-10 knots and occasionally 11-16 knots.

It was noted the katabatic wind produces low cloud and poor weather at the base of the hills.

To understand the climatic conditions especially for wind review was made of the National institute of Weather and Atmospheric Research (NIWA) *The Climate and Weather of West Coast*[1] publication. This was published in 2016 and numbers in the tables are calculated from the 1981–2010 normal period (a normal is an average or estimated average over a standard 30-year period).

Specific notes relevant to Westport from the publication are:

> "….northeasterlies and southwesterlies are the predominant wind directions in West Coast, especially for stronger winds, but there are local variants to this general rule.
>
> The direction of a steady sea breeze flow on most coastal areas is southwest, and sea breezes are common near the coasts in summer. Occasionally these penetrate considerable distances up some valleys, adding to the frequency of moderate strength southwesterlies in these areas.
>
> Katabatic winds, which are gravity winds caused by comparatively cold dense air flowing down the river valleys, are most noticeable on winter nights. Such winds are usually of moderate strength but may become stronger under favourable synoptic conditions. Their formation is also enhanced by

[1] The climate and weather of West Coast, 2nd edition, G. R. Macara, NIWA Science and Technology Series, Number 72, ISSN 1173-0382. 2016.

snow-covered high ground due to the radiative properties of a snow surface which becomes substantially colder at night than the free air at a similar level." (Page 13)

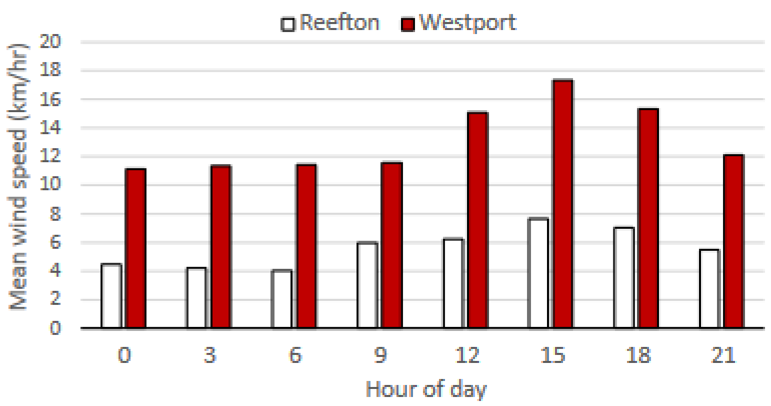
Table 1 on page 14 of the publication shows the mean monthly and annual wind speed (km/hr[2]) for Westport.

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Westport	13.8	12.8	12.4	12.2	12.5	13.2	12.9	12.9	14.9	16.0	15.6	14.7	13.7
Greymouth	13.5	11.1	12.0	13.4	13.6	14.5	14.7	12.7	14.0	14.5	13.7	12.7	13.4
Hokitika	11.7	10.5	10.3	9.8	9.9	10.1	9.6	10.2	11.7	13.2	12.9	12.2	11.0
Haast	9.2	8.4	8.9	9.5	10.7	11.1	11.6	10.7	11.0	11.8	11.2	10.1	10.3
Franz Josef	8.5	7.8	7.4	7.4	7.2	7.3	7.2	7.3	8.3	8.5	8.4	8.4	7.8
Reefton	6.6	5.8	5.4	4.8	4.4	4.1	3.9	5.0	6.0	6.5	6.6	6.5	5.4

Table 2 on page 14 shows seasonal distribution and frequency (mean number of days) of strong winds (daily mean wind speed > 30 km/hr or 16 knots) from all available data.

Location	Summer		Autumn		Winter		Spring		Annual Frequency
	Distribution	Frequency	Distribution	Frequency	Distribution	Frequency	Distribution	Frequency	
Greymouth	18%	5	26%	8	30%	9	26%	8	31
Haast	16%	4	27%	7	29%	8	28%	7	26
Westport	19%	4	21%	4	27%	5	33%	6	19
Hokitika	24%	2	21%	2	20%	2	34%	4	10
Reefton	32%	3	24%	2	11%	1	32%	3	8
Franz Josef	22%	1	23%	1	34%	1	21%	1	3

Diurnal variation in wind speed is well-marked, with highest wind speeds occurring mid-afternoon before decreasing overnight. This is because heating of the land surface is most intense during the day, and stronger winds aloft are brought down to ground level by turbulent mixing. Cooling at night generally restores a lighter wind regime. The following figure visually highlights the typical diurnal variation of wind speed observed throughout West Coast including Westport.



Gusty winds are relatively infrequent throughout most lowland West Coast locations, occurring more frequently in the mountain ranges and exposed coastal locations. Westport experiences an average of 41 days per year with wind gusts exceeding 61 km/hr or 33 knots.

Wellington had 198 days per year with wind gusts exceeding 61 km/hr and 52 days with wind gusts exceeding 94 km/hr.

[2] 1 kilometre per hour equals 0.54 of a knot.

Location	Days with gusts >61 km/hr	Days with gusts >94 km/hr
Franz Josef	17	0.7
Greymouth	46	0.9
Hokitika	29	0.7
Reefton	0.4	0
Westport	41	2

* The Pilatus PC-12 has a maximum cross wind component of 30 knots.

3.4 Runway Orientation

The Civil Aviation Authority of New Zealand publishes guidance material on aerodrome design requirements as in this case would be based on Advisory Circular AC139-6[3] *Aerodrome Design Requirements: All Aeroplanes Conducting Air Transport Operations. All Aeroplanes above 5700 kg MCTOW*.

Section 3.1 Runways — Orientation and number notes many factors affect the determination of the orientation, siting and number of runways and strips. One important factor is the usability factor, as determined by the wind distribution, which is specified below.

The number and orientation of runways at an aerodrome should be such that the usability factor of an aerodrome is not less than 95% for the aeroplanes that the aerodrome is intended to serve.

Cross-wind factor

The AC 139-6 notes the alignment of a runway should be such that, taking into account the type of aircraft envisaged, the disruption due to cross-wind will be at a minimum. The following cross-wind components are to be used in determining the usability factor of a runway.

- 37 km/hr (20 kt) in the case of aeroplanes whose reference field length is 1500 m or over. When poor runway braking action owing to insufficient longitudinal coefficient of friction is experienced with some frequency, a cross-wind component not exceeding 24 km/hr (13 kt) should be assumed.
- 24 km/hr (13 kt) in the case of aeroplanes whose reference field length is 1200 m or up to but not including 1500 m
- 19 km/hr (10 kt) in the case of aeroplanes whose reference field length is less than 1200m.

Additional information is:

The cross-wind components specified above refer to the mean at any time and not to peak value of gusts. The figures also relate primarily to operations on dry runways. In certain circumstances, having regard to the type of aircraft and services envisaged, the wet surface operational limitations of lesser cross-wind values applicable to the aircraft may require to be applied.

The selection of data to be used for the calculation of the usability factor should be based on reliable wind distribution statistics that extend over as long a period as possible, preferably of not less than 5 years. The observations used should be made at least eight times daily and spaced at equal intervals of time.

Summary

Based on the information above the current Westport runway configuration is appropriate and the cross wind speeds at Westport are not excessive. Therefore, any new location should have the runway orientated similar to the current runway.

[3] CAA AC139.6 Revision 6 24 November 2021 - https://www.aviation.govt.nz/assets/rules/advisory-circulars/ac139-6.pdf

[redacted]

[redacted]

The terrain must be suitable for a runway and associated facilities to be constructed. The runway should have minimal slopes, be of sufficient strength and be adequate in terms of runway length to meet the operational requirements of the aeroplanes for which the runway is intended to serve.

A runway must be included in a strip. The runway strip is an important safety design feature of an aerodrome. The runway strip will vary in dimensions depending on whether the runway is a non-instrument, non-precision instrument or a precision approach runway type.

From the edges and ends of the runway strip a set of obstacle free surfaces are placed in the airspace above and adjacent to the aerodrome to provide a level of safety for aircraft while manoeuvring at low altitude in the vicinity of the aerodrome. These surfaces should be free of obstacles and terrain.

The current aerodrome is an instrument approach runway with a 150 metre wide runway strip and the runway is designed to Code 3 to provide for aircraft with an Aeroplane reference field length of 1200 m up to but not including 1800 .

Additional to the obstacle limitation surfaces (OLS), an instrument flight procedure, both arrival and departure, has specific requirements in regard to obstacles and terrain further out from the aerodrome environment.

Initial assessment is there is little terrain to be of concern. The Visual Navigation Chart for Buller identifies four terrain heights circled in orange below.

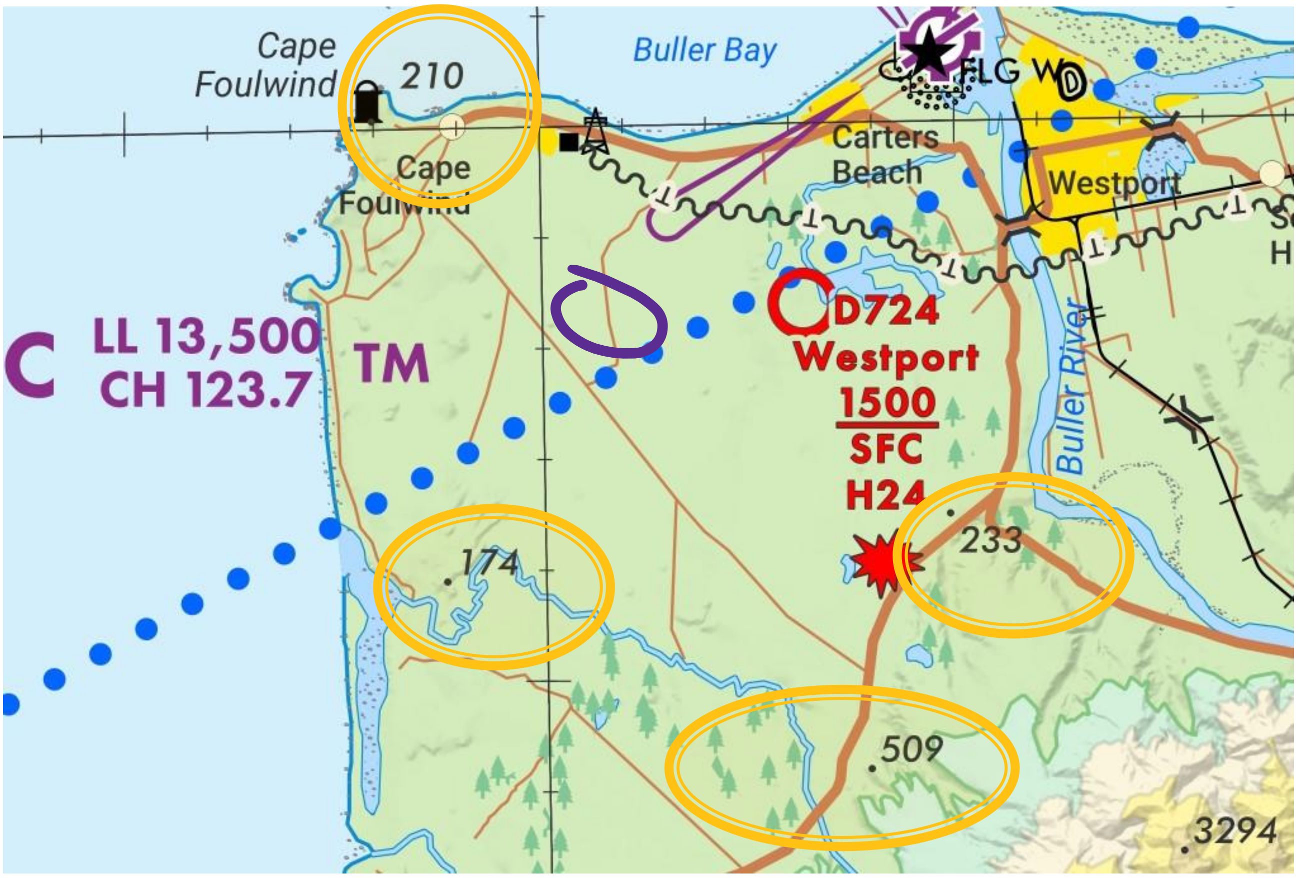


Figure 6 – Visual Navigation Chart terrain spot heights

3.6 Airspace

Appendix A is the visual navigation chart for the Buller area. The airspace around Westport is uncontrolled up to 13,5000 feet meaning there is no air traffic control of this area. Aircraft operate by providing their own separation from other aircraft based on visual sighting and radio calls.

* All heights are above mean sea level – AMSL.

Around Westport Aerodrome is a mandatory broadcast zone (MBZ), B773, from the surface to 3,000 feet. In this area pilots must make radio calls:

(i) at entry

(ii) when joining the aerodrome traffic circuit

(iii) before entering a runway for take-off

(iv) at least every 5 minutes

The pilot must maintain a listening watch on the radio frequency and activate, if equipped, the aircraft's landing lights or anti-collision lights.

There is also transponder mandatory airspace in the MBZ from 1,500 to 3,000 feet. A transponder transmits information on aircraft code assigned to that aircraft, the aircraft position and the aircraft height. This information is used in two ways:

1. Air traffic control use the transponder information to track flights, confirm aircraft position, assist separation of aircraft and for terrain/aircraft conflict alerting.
2. Airborne Collision Avoidance System (ACAS) are aircraft systems that receive the other aircraft transponder information and can provide traffic location information and, in certain aircraft, conflict alerts for collision avoidance.

There are several danger areas[4] in the Buller area:

D724 – Westport: Surface to 1,500 ft. Explosive magazine.

D716 – Denniston: Surface to 5,000 ft. Civil blasting.

D720 – Stockton: Surface to 5,000 ft. Civil blasting.

D719 – Mackley: Surface to 5,000 ft. Military activities including RPAS.

As per CAR Part 91 a pilot must not operate an aircraft within a danger area unless that pilot has determined that the activity associated with the danger area will not affect the safety of the aircraft.

Only D724 may be an issue for a new aerodrome although a pilot may determine it will not affect flight safety. It was noted this facility may be moved.

The airspace in the Buller area is not complex and apart from the danger areas contains no other specific special use airspace. The controlled airspace starts at 13,500 feet so no specific issues with air traffic control area evident.

There are instrument routes to Westport from Christchurch, Nelson and Hokitika as per the instrument charts in Appendix B. There are a few high level routes over the Buller area but in general these are high level routes.

The airspace is not busy and the instrument routes very simple with minimal traffic volumes at low level to Westport or using Westport as an interim navigation point.

[4] Information from the New Zealand Air Navigation Register https://www.aip.net.nz/assets/AIP/Air-Navigation-Register/1-Permanent-Airspace/1_10_NZANR_Part_71_Danger_Areas_D.pdf

3.7 Aerodrome design

Aerodrome Design Aircraft

From the onsite visit and discussion, the BDC would like to retain the current aerodrome physical characteristics and runway length. Scheduled aeroplane operations would probably remain similar to current but with the largest possible aircraft being an ATR72.

The length of the existing runway is 1280 m, which is suitable for the current operations of Sounds Air using the Pilatus PC 12.

Possible future operations conducted by Air New Zealand or Air Chathams may occur using the current regional fleet of the ATR 72–600 and the Dash 8 Q300 from Air New Zealand, and the ATR 72-500 and SAAB 340 by Air Chathams.

The C130 Hercules operated by the RNZAF has also been included to determine if the current runway length would be suitable.

The characteristics of the aircraft are detailed in the Table 1 below:

Table 1 – Aerodrome design aircraft characteristics

Aircraft	ARFL (m)	Code Number	Code Letter	Wingspan (m)	Vapp (kt)	Runway width (m)	Taxiway width (m)
Pilatus PC 12	810	2	B	16.30	87	23	10.5
Q300	1060	2	C	27.40	107	30	15
ATR 72-600	1333	3	C	27.05	113	30	15
ATR 72-500	1200	3	C	27.05	105	30	15
SAAB 340	1300	3	B	21.4	113	30	10.5
C130 Hercules	1100	2	D	40.4	130	30	15

All aircraft listed above would be able to use the current runway with a length of 1280 m, albeit with a possible minor weight restriction for the ATR 72-600 of Air New Zealand. The information listed above is, however, taken from a generic list of aircraft provided by the International Civil Aviation Organisation (ICAO) and may not necessarily reflect the performance criteria of the actual aircraft in use by the airlines.

Although the C130 is shown as a Code 2D aircraft based on its wingspan, it is intended to operate from short narrow runways and would not require a Code D compliant aerodrome if operating during a civil emergency.

The present length of 1280 m is therefore considered suitable for the types of aircraft that are currently operating on reginal routes throughout New Zealand. It may be beneficial to increase the length slightly to 1400 m for additional long-term flexibility in aircraft types.

Based on the above aircraft characteristics, the Aerodrome Reference Code is established as Code 3C

The current runway has an instrument approach procedure and so is classified as an Instrument Approach, Non-precision approach runway. It is felt that this category of runway will remain for the proposed facility.

Based on a Code 3C non-precision approach runway, the physical characteristics and OLS requirements are set out in the following table.

Table 2 - Aerodrome reference code[5]

Code Element 1		Code Element 2		
Code Number	Aeroplane reference field length	Code Letter	Wingspan	Outer main gear wheel span
3	1200 m up to but not including 1800 m	C	24 m up to but not including 36 m	6 m up to but not including 9 m

Table 3 – Initial Aerodrome Design Criteria

Item	Dimension	Rule
Runway Width	30 metres	AC139-6 Section 3.1.9
Runway Length	1280 – 1400 metres	
Runway Strip Width	150 metres	Part 139 Appendix C.2.2
Runway Strip Ends	60 metres	Part 139 Appendix C.2.1
Runway End Safety Area	90-240 metres	Part 139 Appendix A.1[6]
Taxiway Width	15 metres	AC139-6 Section 3.9.6

Base Aerodrome Facilities

- Precision Approach Path Indicator System
- Airfield Lighting for non-precision approach runway
- Runway provided with turn pads at either end
- Taxiway leading from centre of runway to apron area
- Apron area for 2-3 aircraft
- Sufficient separation from runway to apron to allow for future Code C parallel taxiway
- Aircraft refuelling facilities for fixed wing and rotor wing aircraft

Using this base design Appendix C shows a possible layout compliant to CAR Part 139 design criteria. The proposed aerodrome would require an area approximately 2000 m x 400 m or 80 Hectares.

Obstacle Limitation Surfaces

CAR Part 139 Appendix C — Obstacle Restriction and Removal, requires obstacle limitation surfaces to be established for a runway including:

(1) conical surface; and

(2) inner horizontal surface; and

(3) approach surface; and

(4) transitional surfaces.

---

[5] Note that ICAO upon which the aerodrome requirements are based have removed the outer main gear wheel span from the aerodrome reference code assessment.

[6] As a new build aerodrome the maximum length of 240 m would probably be required by CAA unless and Aeronautical Study is undertaken.

OLS of an aerodrome are defined surfaces in the airspace above and adjacent to the aerodrome. These surfaces are necessary to enable aircraft to maintain a satisfactory level of safety while manoeuvring at low altitude in the vicinity of the aerodrome. These surfaces should be free of obstacles and subject to control such as the establishment of zones, where the erection of buildings, masts and so on, are prohibited.

The obstacle limitation surfaces for a code 3C would be in accordance with CAA AC139-6 Section 4 as below.

Table 4 – Obstacle limitation surface dimensions

Approach surface	
Length of inner edge	150 m
Splay	1:6.6 (15%)
Length	15 000 m
Slope	1:40 (2.5%)
Take-off Surface	
Length of inner edge	150 m
Splay	1:8 (12.5%)
Final width	1200 m
Slope	1:50 (2%)
Transitional side surface	
Slope	1:7 (14.3%)
Inner Horizontal	
Height above aerodrome	45 m
Locus from strip edge	4000 m
Conical Surface	
Slope	1:20 (5%) upwards from edge of Inner Horizontal
Final height above aerodrome	150 m

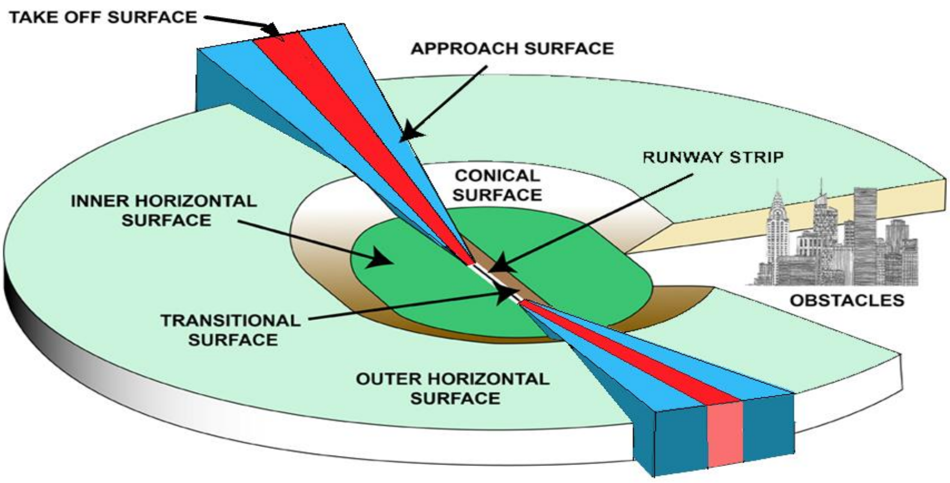


Figure 7 – OLS Schematic

Appendix D shows the indicative full obstacle surface layout for a possible aerodrome.

Instrument procedure analysis would also need to be undertaken but based on the OLS the design criteria for instrument approaches should be able to be achieved.

3.8 Circuit Pattern

The standard aerodrome circuit pattern is left hand and as noted the current aerodrome has a right hand pattern. For a proposed new aerodrome the design should be based on a standard left hand circuit unless a right hand circuit is required.

For a right hand circuit application and determination of a right hand circuit is done by the Director of Civil Aviation under CAR Part 93.

The Director may issue a determination for a right-hand aerodrome traffic circuit to be published for a runway at an aerodrome that is published in the AIPNZ if the Director considers that in the interest of aviation safety or security, a standard left-hand aerodrome traffic circuit is not practicable.

3.9 Environmental

Apart from the normal noise areas required for an aerodrome no specific noise sensitive or environmental aspects were noted.

[redacted]

A specific environmental assessment would need to be completed and a wildlife hazard assessment.

[redacted]

[redacted]

[redacted]

MIKE HAINES AVIATION LTD

5 Conclusion

Based on the onsite visit and the information provided by BDC an alternative location for Westport Aerodrome is feasible.[redacted]

High level assessment of a possible site and the associated obstacle limitation surfaces does support a Code 3 aerodrome and the location also has good transportation links.

Table 5 – Key initial assessment

Climatic	Generally acceptable runway orientations based on the prevailing weather conditions.
	No specific climatic issues regarding low cloud or fog.
Terrain	No specific terrain issues and initial OLS assessment clear of obstacles.
	Extensive earthworks will be needed for levelling of aircraft movement areas.
Airspace	Aircraft flight paths and procedures could be designed for the runway
	The airspace is not busy with no low level instrument routes and is mainly uncontrolled. The airspace is not complex.
	Danger Area close to the proposed site but may be moved. Other Danger areas will have no immediate impact.
Runway	The current runway length could be constructed with compliant slopes, runway strip and runway end safety areas.
	The alignment would remain as per the current runway which is best for prevailing wind.
	A longer runway to accommodate ATR-72 aircraft could be constructed.
Aircraft Operations	Aircraft climb gradients and approach slopes would be standard.
	Instrument procedures should be able to be designed with no specific limitations due to terrain or obstacles.
	Aircraft performance and engine-out requirements should be standard.
	Standard left hand and non-standard right hand aerodrome circuits would be possible.
Environmental	No specific noise sensitive areas outside the standard aerodrome noise zones.
	No identified specific environmental constraints.

6 Recommendations

As per previous advice there are four phases to the Westport Aerodrome Relocation as below. Phase One is completed and some elements of Phase Two in this report.

A decision is required to progress the remainder of Phase 2. This would include an environmental assessment and the earthworks required.

Recommend this report is reviewed and approval provided to complete Phase Two areas and commence with Phase Three under a full programme. Possible workstreams under the programme are included as Appendix E.

Phase One: Feasibility Study - COMPLETE

- Assessment of operational, financial and environmental information
- Site options and alternatives with high level SWOT
- Transportation links to location
- Land ownership and future expansion
- Airport operations e.g. general aviation, air transport, supporting activities
- Aviation system assessment overview: airspace, routes, site constraints
- Use current airport as baseline

Phase Two: Site selection and preliminary planning -

- [redacted]
- Capital and operating costs estimation
- [redacted]
- Site environmental, social and nature considerations
- Geographical analysis especially terrain and obstacles
- [redacted]
- Capital and operating costs estimation
- [redacted]

Some of these areas have been completed at a high level as highlighted. Financial assessments are for BDC to undertake. An environmental and social assessment will be required.

Phase Three: Facility and infrastructure planning

- Airport Master Plan
- Airport infrastructure, layout and physical characteristics design
- Airport facilities and operational requirements e.g. security, passenger terminals
- Aircraft infrastructure design
- Aeronautical suitability
- Geographical analysis especially terrain and obstacles
- Detailed Aviation system assessment: Communications, Navigational, Surveillance (CNS), Air Traffic Management (ATM)
- Environmental Considerations including water, energy, waste, emissions, noise, visual amenity
- Regulatory assessment
- Airport support facilities e.g. engineering, fuel, car parking

This phase should begin when all Phase Two areas are completed and approval for detailed planning is given.

Phase Four: Construction

- Specific conditions
- Construction programme

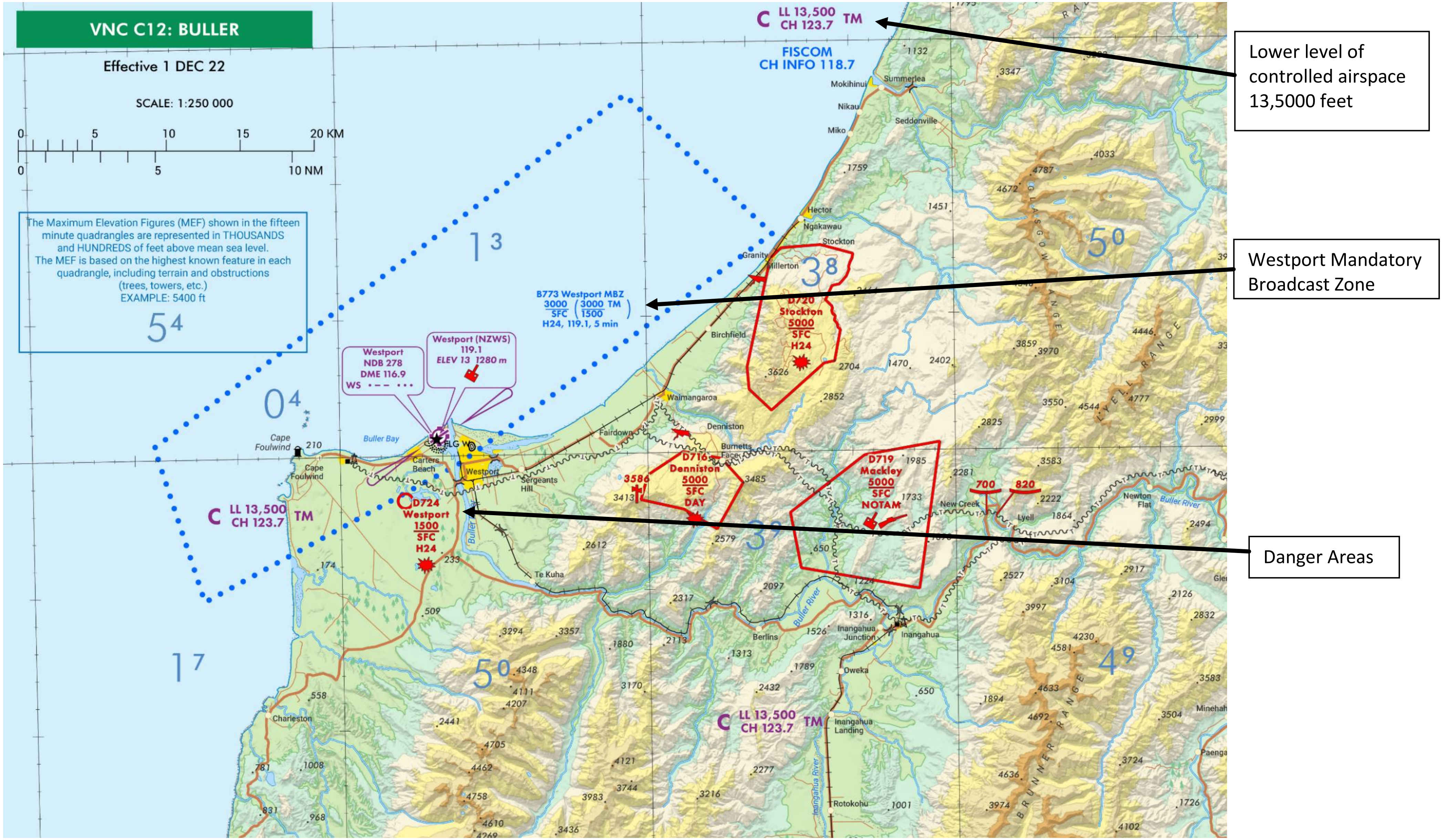
This is the future project phase.

Mike Haines – Aviation Consultant

Max Evans - Aviation Consultant

15 November 2023

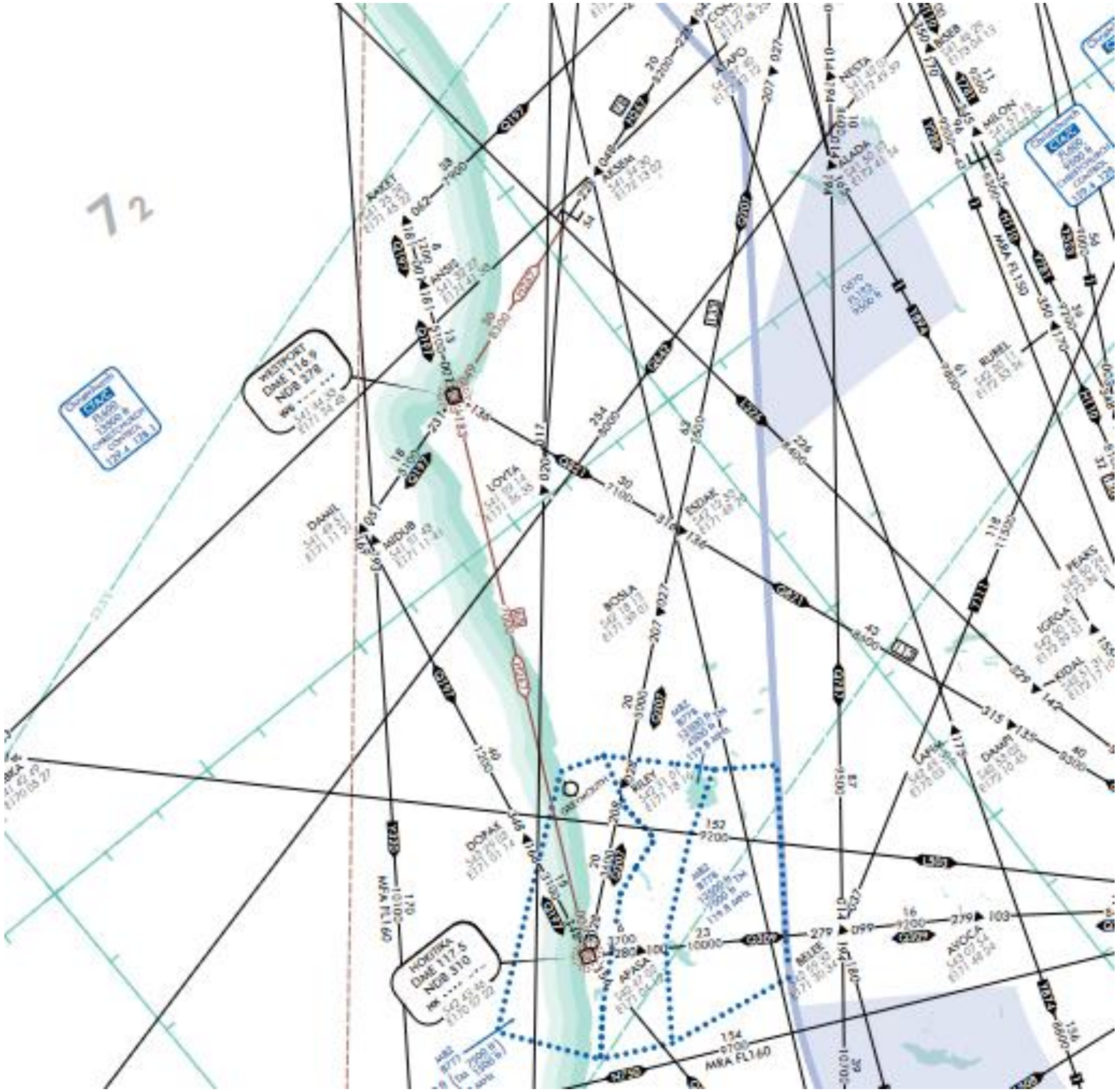
Appendix A - Westport Area Airspace



Appendix B – Instrument Routes

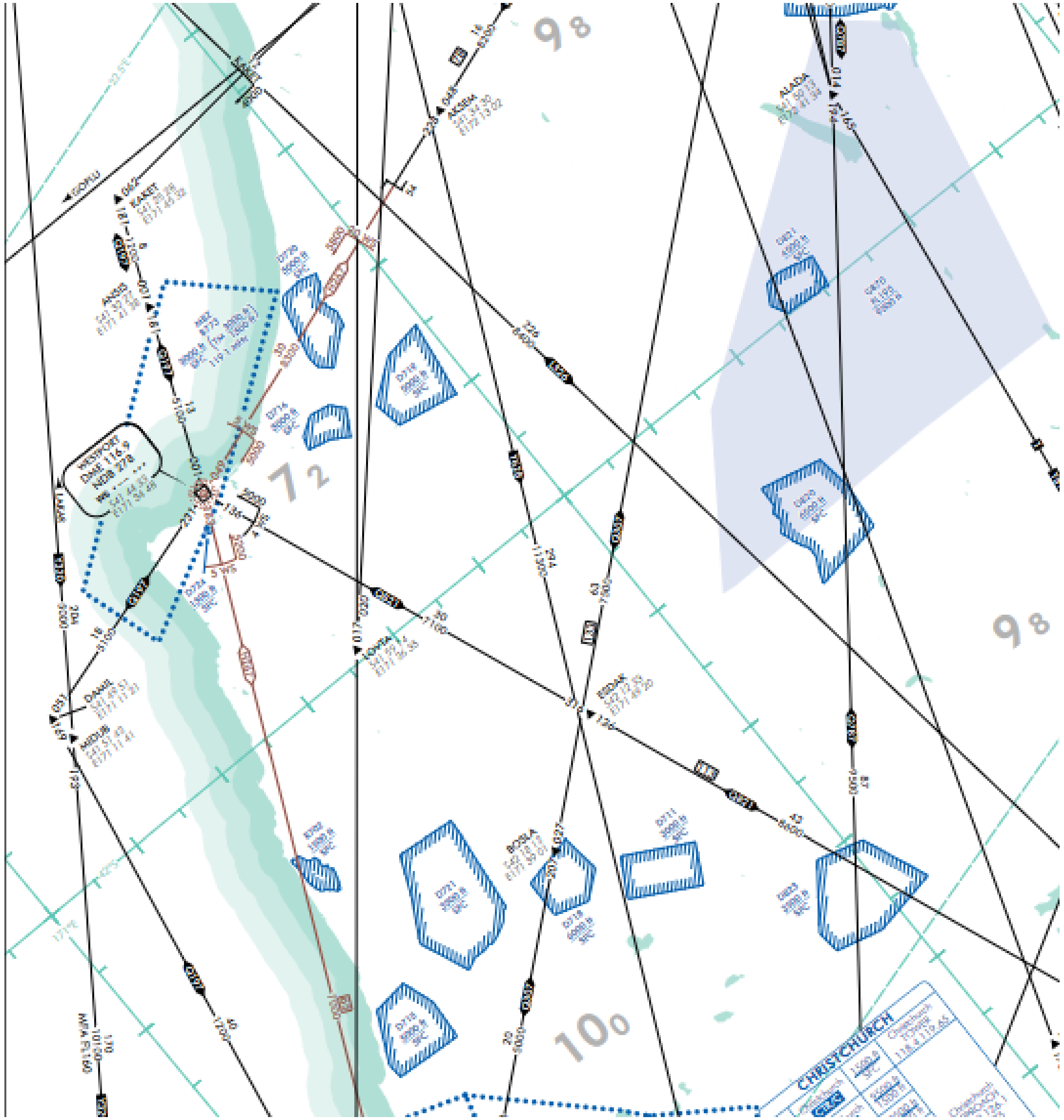
National Enroute Chart

Several high level routes above Westport well above the aerodrome in the controlled airspace.



South Enroute Chart

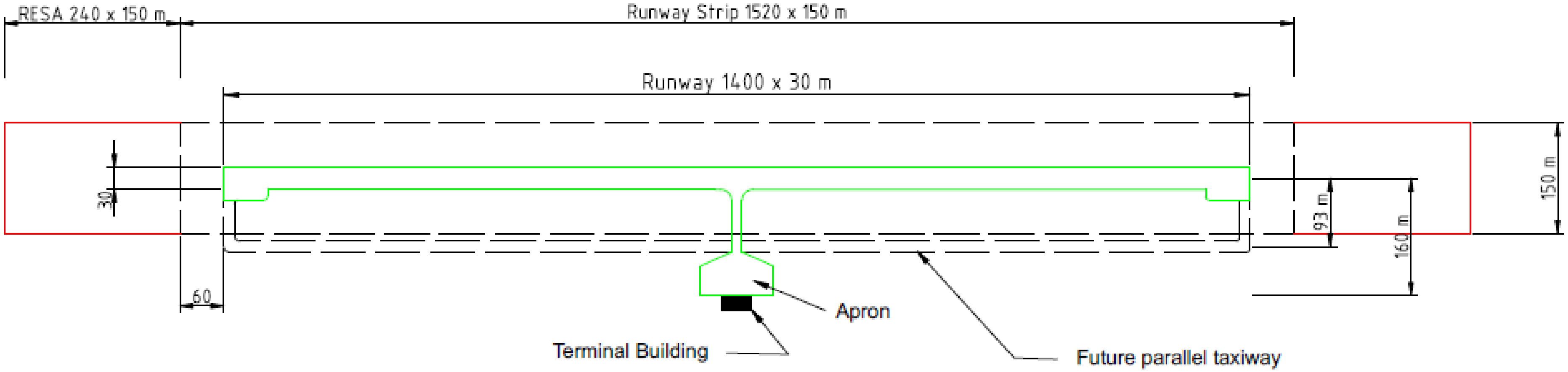
A few instrument routes to the Westport NDB including Christchurch, Nelson and Hokitika.



Upper South Island Area Chart

Shows arrival and departure procedures for Westport including Christchurch, Nelson and Hokitika.

Appendix C – Proposed Aerodrome Layout



Total land area approximately
2000 x 400 m (80 hectares).

[redacted]

Appendix E – Programme Workstreams

Engagement	Feasibility	Airport Operations	Regulatory	Environmental	Planning and Design	Transportation
Community and Iwi	Social, economic and environmental	Airspace and flight tracks	Environmental Study	Land use	Airport Development Strategy	Regional transport requirements
Aviation (Industry)	Aviation demand	Aeronautical safeguarding	CAA Certification	Energy and emissions	Site Infrastructure Requirements	Surface Access Strategy
Non-Aviation (Industry)	Financial and Business Case	Meteorological study	Buller District Council requirements	Carbon considerations	Airport Master Planning	Planning and design
Government	Economic assessment	Aircraft Noise	Ministry of Transport	Water quality and use considerations	Land Use Plan and Zoning	
Civil Aviation Authority	Commercial planning	Aircraft emissions	Local Government	Waste control and management	Site Planning and Design	
Interested parties		Aircraft operations and types			Site Preparation	