

SUMMARY STATEMENT OF EMMA SPALDING, TAYLOR PLANNING

Dated: 29 September 2026

- [1] My name is Emma Spalding. I am a Partner at Taylor Planning. I prepared the Section 42A Recommendation Report for the Space Operations (SpaceOps) airspace designation on behalf of Invercargill City Council (ICC). My qualifications and experience are contained in Section 1 of my report.
- [2] This statement provides a summary of my s42A Report and addresses the issues that have arisen during the course of the hearing. I note that this statement was prepared prior to hearing from Ms Christine McMillan, and I will provide any further updates in response to her evidence as necessary.

Section 42A Report

- [3] Section 2 of my report provides background information, including setting out the site history of the SpaceOps site. The satellite ground station was established in 2006, with substantial expansions in 2019 and 2023. SpaceOps obtained requiring authority status on 13 March 2025, and obtained a designation for their existing ground station site earlier this year, which was confirmed by SpaceOps on 25 July 2026. I was also the processing planner for that Notice of Requirement (NOR).
- [4] A description of the site, surrounding environment and the proposal are set out in my report, which I will not repeat here in detail, however, I would highlight that the proposal has been amended throughout the processing of the NOR to refine the scope of the electro magnetic interference (EMI) restriction since the application was first lodged.
- [5] The NOR was publicly notified on 18 April 2026. Nine submissions were received, including one late submission, which I note the Commissioner has accepted in Minute 2. Five submissions were in opposition, and 4 were neutral. Key issues and concerns raised in the submissions related to restrictions on future land use and development, effects on private property rights, land value and investment certainty, whether the NOR had been sufficiently justified, and the adequacy and transparency of the proposed approval mechanism in the conditions.
- [6] Section 5 of the report sets out my assessment of effects on the environment.

Electro Magnetic Interference

- [7] In terms of the EMI restriction, my assessment relied on the input from Mr Sathyendran, an engineer engaged by ICC to review the application and submissions.
- [8] The engineering review found that the NOR application was overly reliant on the existing protections afforded by the ITU Radio Regulations and the RSM decision (which relies on the Radiocommunication Act 1989 and the Radiocommunications Regulations 2001), and had misinterpreted the protections available to it. The engineering review explained that the NOR went beyond the scope of the existing protections and the protection sought by the NOR was significantly greater than the protection actually available through the existing framework. The RSM decision and Radio Regulations do not protect against every source of electromagnetic emission, they only protect against terrestrial radiocommunication services, and only those that came into operation after November 2020. There is no existing protection for incidental EMI created by electrical equipment, background interference, or cumulative interference.
- [9] Following the engineering review, the applicant amended the NOR and conditions to align the proposed EMI restrictions with the RSM provisions.
- [10] Based on the amendments to the application and designation conditions, and the expert advice and further recommended amendments provided by Mr Sathyendran, my report found that the proposed EMI restrictions imposed by the designation now closely align with the RSM protections, and the scope of the restriction has been substantially clarified and narrowed so that it applies only to terrestrial radiocommunication services, rather than all electrical infrastructure or equipment that may generate incidental electromagnetic emissions.
- [11] The EMI restriction would not place further restrictions on surrounding landowners beyond what already exist. The proposal will ensure landowners and plan users are aware of the RSM protections by inserting them into the ICC District Plan as a designation. I considered that the changes to the NOR addressed the concerns of submitters and I concluded that the amended EMI provisions were appropriate, proportionate, and unlikely to impose unreasonable constraints on the use and development of affected land, including both Rural and Industrial Zoned land.

Horizon Mask

- [12] Turning to the horizon mask height restriction, my report concluded that the effects of the height restriction would be acceptable over the affected rural zoned land, as it

would not materially constrain ongoing productive use. However, I considered that the implications for the Industrial 4 Awarua Zone would be significant and would potentially result in a portion of the zone being deemed incapable of reasonable use, in line with the intent of the zone.

- [13] The Industrial 4 zone was established in 2009 to provide for large scale industrial development. Buildings in this zone would require a controlled activity consent, and Rule IND4Z-R11 provides for buildings up to 35m as a permitted activity. For buildings above 35m in height, the activity status is restricted discretionary. In terms of the proposed height restriction proposed by the designation, I note that the horizon mask would place a more stringent height control on part of the Industrial-zoned site than the ICC District Plan currently provides. To comply with the horizon mask, a 35m high building would need to be located approximately 377m from the SpaceOps site. I also note that there is a resource consent lodged for seven wind turbines on the industrial site, which have a proposed maximum height of 200m.
- [14] My report concluded that the height limit imposed by the horizon mask restriction will have potentially significant adverse effects on the future use and development of the Industrial 4 (Awarua) Zone.
- [15] In terms of economic effects, my report recognised that the NOR would result in positive economic effects for SpaceOps, and potential wider economic benefits for Southland, through ongoing investment and employment opportunities. However, these benefits had not been quantified by the applicant and no assessment of potential adverse economic effects for the Industrial 4 Zone was provided. My report concluded that the height restriction proposed would have the potential to significantly reduce development potential of the Industrial 4 (Awarua) Zone by constraining activities which are otherwise anticipated by the ICC District Plan. This will likely undermine investment certainty within land specifically identified for future industrial development. The proposed height restrictions have the potential to materially affect the realisation of that strategic purpose by reducing development flexibility and investment certainty. Future industrial operators may be required to redesign, relocate or forego development opportunities that would otherwise be anticipated within the zone. While the extent of any economic effect had not been quantified, I considered there was potential for reduced development capacity and a corresponding reduction in the economic benefits anticipated from the Industrial 4 Zone.

National Direction, RPS and District Plan Assessment

- [16] My report included assessment of relevant national direction including National Policy Statement for Electricity Networks 2008 (NPS-EN), and the National Policy Statement

for Infrastructure 2025 (NPS-I). I considered that the proposal is consistent with the NPS-I, but to ensure consistency with the NPS-EN, I recommended that the requiring authority gives consideration to a specific exemption for the power network where it is in close proximity to the ground station and would breach the horizon mask, or agree to the undergrounding of any distribution lines where necessary. I note that the applicant has addressed this matter in their draft revised conditions.

- [17] In terms of the RPS, my report assessed the rural and infrastructure objectives and policies relevant to the NOR, and concluded that the proposed designation is generally consistent with the provisions.
- [18] The ICC objectives and policies were also assessed, and I concluded that the NOR was consistent with the infrastructure and rural provisions, but contrary to some of the provisions relating to the Industrial 4 Zone. In particular, Objective IND4Z-O1 and Policy IND4Z-P1, which seek to ensure sufficient land is available for large industrial buildings and activities and Policy IND4Z-P24 relating to reverse sensitivity.

Alternative Sites Routes or Methods and Reasonable Necessity

- [19] My report noted that I was not satisfied that adequate consideration had been given to all alternatives, particularly in relation to the horizon mask and a consideration of directional sensitivities. This was based on the advice of Mr Sathyendran, who noted that whether a particular structure causes obstruction depends on its azimuth, elevation, distance, size and construction, and on the elevation angles and directions the station actually relies on. A uniform envelope applied in all directions does not reflect this, and he advised that he would expect a station supporting polar-orbiting spacecraft to have directional sensitivities rather than uniform ones.
- [20] Related to this, I was not satisfied that the application had demonstrated that extending the horizon mask across the Industrial 4 (Awarua) Zone was reasonably necessary to protect the ongoing operation of the ground station and achieve SpaceOps objectives. The information provided by the applicant indicated that, even without applying the horizon mask to the Industrial 4 Zone, the requiring authority would still achieve a meaningful level of protection for the ground station through the remaining horizon mask controls over the surrounding Rural Zone and through the EMI protections.

Part 2 RMA

- [21] My report included an assessment of the NOR against Part 2 of the RMA.
- [22] I agreed with the applicant that the proposal is consistent with Section 8, and that there are no relevant matters of national importance in Section 6. However in regards to

Section 5 and Section 7, I concluded that imposing the proposed horizon mask on the Industrial 4 Zone is not considered to be wholly consistent with Section 5 or 7(b) of the RMA relating to the efficient use and development of natural and physical resources. The proposed designation would impose significant restrictions on the use and development of the Industrial 4 Zone, and would limit its future development potential. This area of land was specifically zoned to accommodate future industrial development, and I consider that, while it would enable the ground station to operate, the proposed horizon mask would not enable people and communities to provide for their economic wellbeing, and would not sustain the potential of this land resource to meet the reasonably foreseeable needs of future generations.

Conclusion and Recommendation

- [23] My report recommended that the proposed electromagnetic restriction aspect of the NOR is appropriate and should be confirmed, subject to conditions.
- [24] In terms of the horizon mask, I recommended modification of the horizon mask to exclude the Industrial 4 (Awarua) Zone from the horizon mask limitation area.
- [25] I also recommended that the proposed conditions were amended to reflect the modification to the NOR, and to incorporate the recommendations of the engineering review.
- [26] The recommended conditions were set out in Section 8.2 of my report.

Applicant's Revised Conditions

- [27] The applicant has subsequently provided a revised set of conditions. Mr Dunn characterises the revised Condition 2 (Option A) as converting the horizon mask from a prohibition into an "assessment trigger". However, in practical terms, the outcome still depends entirely on SpaceOps granting written approval to any development which would penetrate the horizon mask. If approval is refused, the development cannot proceed. The revised process does improve transparency in terms of setting out information requirements, the matters SpaceOps will consider and the timeframes involved, but the revised approval pathway still ultimately requires SpaceOps approval for development in the Industrial 4 zone to exceed the horizon mask.
- [28] I have heard the Commissioner's comments around the term 'materially compromise' in Condition 2.3, and I share the concerns that this phrasing is overly subjective.

- [29] I heard from Mr McNeill that he agreed there is room for disagreement between experts on what is a material effect or what would materially compromise the ability of the Ground Station to acquire, track or communicate with spacecraft.
- [30] Mr Graham Hulson noted that both a technical assessment and an assessment of the requirements of SpaceOps customers would be required to determine this. I consider that this may be problematic as an applicant may not have access to the SpaceOps customer requirements.
- [31] I note that within the conditions, there is an ability to obtain an independent technical peer review of any written approval decision, however, proposed Condition 2.10 states that SpaceOps must have regard to the conclusions of the peer review, and that the peer review informs but does not replace SpaceOps statutory decision under S176(1)(b). I have concerns that the independent peer review is not binding on SpaceOps and would not necessarily determine the outcome of the approval process.
- [32] I therefore consider that under the revised conditions, the horizon mask continues to operate as a substantive development constraint rather than merely an administrative trigger for assessment.
- [33] Landowners or developers in the Industrial 4 Zone would still face:
- additional technical assessment costs;
 - additional design constraints;
 - an additional approval process outside the normal resource consent framework; and
 - uncertainty as to whether approval will ultimately be granted.
- [34] These were some of the economic and investment certainty concerns identified in submissions and in my s42A Report, and I consider that they remain valid concerns under the revised conditions.
- [35] In terms of potential improvements to the conditions, if the horizon mask over the Industrial 4 zone is confirmed with the applicant's assessment trigger conditions, I would recommend exploring whether amendments can be made to Condition 2.10 to ensure the outcome of the independent peer review is binding.
- [36] In terms of other potential improvements, I note that the engineering experts were unable to provide a set of design parameters or potential interference guidelines for horizon mask penetration, as any penetration would require a careful case by case

analysis. We have also heard from Mr McNeill that one of the key issues is the potential proliferation of tall structures, such as chimneys or wind turbines. One structure may be acceptable (depending on its individual circumstances), but several structures become problematic. As I understood his answers to the Commissioner's questioning, drafting a set of rules or conditions to allow for a limited number of tall structures would be virtually impossible.

[37] Based on the above, I am unable to recommend a more targeted and proportionate set of conditions.

[38] Overall, while the revised conditions introduce a more transparent assessment pathway, they do not remove the fundamental requirement for written approval from SpaceOps. In my opinion the resulting constraints on development flexibility, investment certainty and the anticipated use of the Industrial 4 zone therefore remain substantially unchanged.

Assessment of Alternatives and Reasonable Necessity

[39] My s42A Report noted that I was not satisfied that adequate consideration had been given to all alternatives, particularly in relation to the horizon mask and a consideration of directional sensitivities. I note that the applicant's evidence has provided further information regarding site selection, directional sensitivities and requirements of SpaceOps customers, and I have heard the additional comments from the engineers about these aspects. The applicant has also provided further information regarding the objectives of SpaceOps and the necessity of the designation to achieve their objectives.

[40] I now consider that the assessment of alternatives is adequate and satisfies the requirements of Section 171 of the Act. I also consider the applicant has demonstrated that the designation is reasonably necessary for achieving their objectives.

Key Issue

[41] As we have heard during this hearing, the EMI aspect of the application is to be considered following further engineering input. As such, I put this issue to one side.

[42] The key issue in contention is therefore whether the horizon mask is appropriate over the Industrial 4 Zone.

- [43] In my s42A Report, I accepted the need for horizon protection but considered the effects on the Industrial 4 Zone outweighed the benefits to SpaceOps, and recommended excluding that zone.
- [44] My recommendation to exclude the Industrial 4 Zone remains unchanged, however, I do consider that the issues are more finely balanced than when I prepared the s42A Report. The applicant has now provided more comprehensive assessment regarding consideration of alternatives and the necessity of the designation to their operation, and I accept that this has satisfied the requirements of the Act and can be taken into account by the Commissioner when making a recommendation.
- [45] I place substantial weight on the applicant's assessment that the designation is reasonably necessary and that there are no feasible alternatives. However, I also consider that the adverse effects on the Industrial 4 Zone are significant and will remain largely unmitigated. The question therefore is whether the importance of achieving the requiring authority's objectives outweighs those adverse effects on the Industrial 4 Zone.
- [46] I note that Mr Dunn accepts that there are effects on the Industrial 4 Zone, but considers the revised 'assessment trigger approval pathway' proposed in the amended conditions reduces those effects sufficiently, so that the zone should remain within the horizon mask. I disagree, for the reasons I have outlined above.
- [47] I note that the Stewart Family Asset economic evidence has now attempted to quantify the extent of the economic effects of applying the designation over the Industrial 4 Zone. Following review of the corporate and economic evidence presented, my concerns regarding economic effects and impact on investment certainty remain. Although I note that there have been questions raised regarding the potential overstating of the economic impact, there has been no other economic evidence provided which would provide an alternative assessment. I also acknowledge that the difference between the 'non constrained' and 'constrained' scenarios presented is essentially an absolute worst case scenario and the impacts are unlikely to be this severe.
- [48] Notwithstanding the above, I still consider that a significant portion of the Industrial 4 Zone land will be affected by the horizon mask height restriction, and I also maintain consideration should be given to the effects on the wider landholding, not only the portion of land where 35m high buildings would be constrained. To exceed the 35m

height limit is a restricted discretionary activity, with very limited matters of discretion. In my opinion, a restricted discretionary activity would fall within what could be considered as an anticipated activity in the District Plan. I also agree with the submitter that consideration of objectives and policies is relevant to the consideration of the anticipated environment.

- [49] I also note that the percentages of affected land presented by the applicant (in paragraph 25 of Mr Dunn's summary statement) may not fully reflect the situation of impacts on potentially developable land. The District Plan contains a Concept Plan for development of the Industrial 4 Zone at Appendix 5-6. I have included this Concept Plan at **Appendix A** of this summary statement. The Concept Plan was developed as part of the original plan change to establish the zone (Plan Change 8), and identifies areas where development can take place, and areas where development is restricted (such as where there are existing ecological features on the site, where native planting is required, or where the land is low lying). The rule framework directs that development shall comply with the Concept Plan, or a non-complying activity is required (Rules IND4Z-R6 and R7). A more accurate percentage of affected land may be derived from incorporation of this Concept Plan, as development on large areas of land within the zone is already restricted.
- [50] Importantly, the 4.4ha area where 35m high buildings would be restricted by the horizon mask, is in an area of the site which is illustrated as suitable for Industrial development in the Concept Plan.

Conclusion

- [51] Overall, while the hearing evidence has provided greater clarity regarding the need for horizon protection, the assessment of alternatives, and the necessity of the horizon mask to achieve the requiring authority's objectives, it has not altered my view on the central issue in dispute. While I acknowledge that the issues are now more finely balanced than I considered them to be in my s42A Report, I remain concerned that the proposed conditions do not adequately address the adverse effects on the Industrial 4 Zone. In particular, the revised approval pathway continues to constrain development flexibility, reduce investment certainty, and affect the anticipated use of land intended for future industrial development.
- [52] Having weighed the additional evidence presented, I remain of the view that the adverse effects on the Industrial 4 Zone outweigh the benefits of extending the horizon

mask over that zone. Accordingly I maintain my recommendation that the Industrial 4 (Awarua) Zone be excluded from the horizon mask limitation area.

Other Matters

Heavy Industry

- [53] The Commissioner asked a question regarding the definition of 'Heavy Industry'. I note that the District Plan contains a definition of 'Heavy Industry' as follows:

*Means any industry listed in **APP16 – Appendix 16 Schedule of Heavy Industries**. This includes any ancillary retail sales and/or warehousing activity, any associated maintenance, any public display or tour operations within the land or premises, and associated offices and staff facilities.*

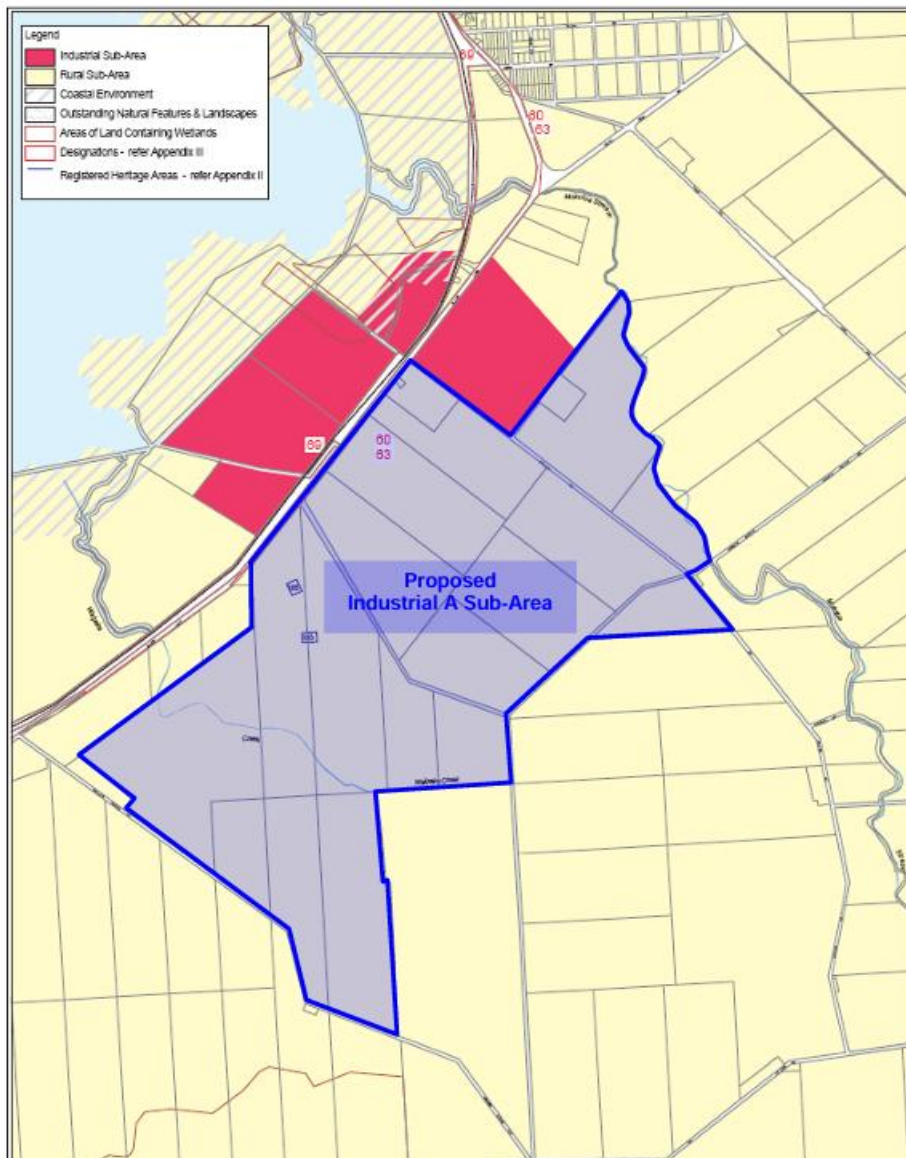
- [54] I have included a copy of APP16 at **Appendix 2** to this summary statement.

Corrections to my Section 42A Report

- [55] My s42A Report referred to the current version of Section 171 of the RMA, however as we have heard from Ms Hill, the RMA was amended by the Resource Management (Consenting and Other Systems Changes) Amendment Act 2025. The NOR was lodged on 31 July 2025. Schedule 12 cl 55 provides that the amendments to s171 apply only to notices of requirement given or issued on or after 21 August 2025. The former version of s 171 therefore applies.
- [56] As such, I have amended the statutory references in my report, as attached in **Appendix C** to this statement.
- [57] These amendments do not change the substance of my assessment or recommendation contained in my s42A Report.

Plan Change 8 Section 32 Report

- [58] I understand that the s32 report for Plan Change 8 has been circulated to all parties. This Plan Change established the Industrial A Sub Area in the District Plan (which was subsequently renamed the Industrial 4 Zone). I wanted to highlight two matters which have come up during the hearing.
- [59] Firstly, the basis for the 35m height limit. I understand that there was an existing Industrial Sub Area adjacent to the (now) Industrial 4 Zone. The existing Industrial Sub Area is shown in red in the image below, taken from the s32 Report for PC8 (page 6). The existing Industrial Sub Area already had a height limit of 35m. The s32 Report does not explicitly state why a 35m height limit for the new zone was selected, but it appears this height limit was simply adopted from the adjacent zone.



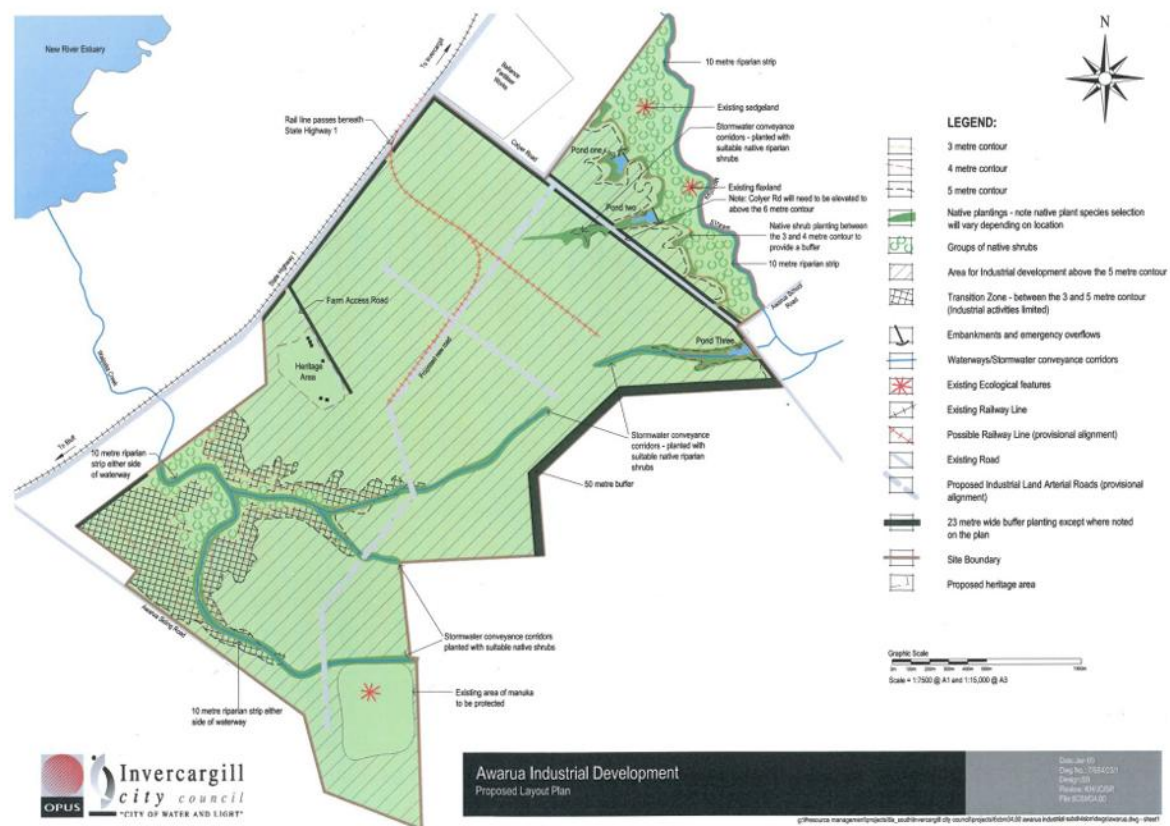
[60] Secondly, the s32 Report provides assessment of the ecological values of the Industrial 4 Zone, at section 4.1 (page 11). The ecological assessment found that most of the site has low ecological value due to past modification, but identified remnant peat bogs, mānuka scrub, and potential habitat for threatened species. I understand that these features were then protected through the Concept Plan for the site (which is attached as Appendix A to this summary).

Em Spalding

Emma Spalding
29 September 2026

APPENDIX A

APP5-6 Concept Plan – Industrial 4 (Awarua) Zone:



APPENDIX B

APP16 APPENDIX 16 – SCHEDULE OF HEAVY INDUSTRIES

Acetylene-gas manufacture	Glass manufacture
Acids manufacture	Glue manufacture
Aerosol packers and manufacture	Gunpowder manufacture
Aggregates processing	Gypsum manufacture
Aluminium alloy manufacture	Hydrochloric acid manufacture
Alkali-waste works	Incinerator works
Ammonia manufacture	Industrial chemicals manufacture
Ammunition manufacture	Iron works and foundry
Animal by-products manufacture	Lacquer manufacture
Asbestos manufacture	Lead works
Asphalt manufacture	Leather tanning
Battery manufacture and recycling	Lime manufacture
Bearing manufacture	Linoleum manufacture
Bisulphide of carbon works	Lucerne dehydration
Boiler makers	Manure (artificial) manufacture
Boiler manufacture	Meat Processing Facility
Boiling down works	Motor vehicle wrecking and crushing
Bone boiling and crushing	Natural gas, oil or petroleum distillation or refining
Briquette manufacture	Oxygen – gas manufacture
Bulk storage of asphalt, tallow, industrial chemicals and scrap metal	Paint, varnish, lacquer etc. manufacture
Candle manufacture	Petroleum based products manufacture
Celluloid works	Plastics manufacture
Cement – packing bag, cleaning works	Pulp and paper manufacture
Cement manufacture	Pyridine works
Chemicals manufacture	Railway workshops
Chlorine works	Rubber goods manufacture
Coke manufacture	Sandblasting
Concrete batching	Sale stock yards (commercial)
Dag crushing	Sewage and septic tank sludge storage and disposal
Dairy processing	Smelting metals (all types)
Detergent manufacture	Soap manufacture
Distillation of coal, wood and bones	Solid waste collection, recycling and disposal facilities
Electroplating and galvanising	Steel works
Explosive manufacture and storage	Stone and mineral crushing
Fat rendering	Sulphur-chloride manufacture
Fellmongering	Sulphur-dioxide manufacture
Fertiliser manufacture, processing, and storage, with the exception of storage included as a permitted activity under Rule 3.7.1	Tallow-melting and refining
Fibreglass manufacture	Tanning and curing of hides and skins
Fibrous plaster manufacture	Tar manufacture, refining, mixing
Fireworks manufacture and storage	Timber treatment
Fire clay products manufacture	Turpentine manufacture
Fish processing	Varnish manufacture
Flax pulping	White lead manufacture
Flock manufacturing	Wood chipping, sawmilling and manufacture of timber products
Fluorine works	Wool scouring
Foundry	Zinc chloride manufacture
Fur curing and tanning	Zinc works

APPENDIX C – AMENDMENTS TO SECTION 42A REPORT

Paragraph 164 — cross-reference only

Final sentence:

This matter is addressed further in the assessment of effects and the evaluation under sections ~~171(1)(b)(i) and 171(1)(b)(ii)~~ 171(1)(b) and 171(1)(c) of the RMA undertaken below.

Heading 6.5

6.5 Alternative Sites, Routes or Methods – Section ~~171(1)(b)(i)~~ 171(1)(b)

Paragraph 174

Section ~~171(1)(b)(i)~~ 171(1)(b) of the RMA requires that when considering a NoR, the territorial authority must, subject to Part 2 of the RMA, consider the effects on the environment of allowing the designation. In doing so, ~~if the requiring authority does not have an interest in the land sufficient for undertaking the work, particular regard must be had to whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work.~~ particular regard must be had to whether adequate consideration has been given to alternative sites, routes or methods of undertaking the work where either the requiring authority does not have an interest in the land sufficient for undertaking the work, or it is likely that the work will have a significant adverse effect on the environment.

Paragraph 175

SpaceOps does not have an interest in all the land subject to the NoR, and therefore consideration of alternatives is necessary. In addition, as discussed in Section 5.6.2 above, I consider that the proposed horizon mask is likely to have significant adverse effects on the future use and development of the Industrial 4 (Awarua) Zone. The requirement to consider alternatives is therefore engaged on both grounds identified in section 171(1)(b).

Note: The additional sentence is consistent with my existing finding that the horizon-mask effects on the Industrial 4 Zone are significant.

Heading 6.6

6.6 Reasonable Necessity for Work and Designation – Section ~~171(1)(b)(ii)~~ 171(1)(c)

Paragraph 186

Section ~~171(1)(b)(ii)~~ 171(1)(c) of the RMA requires that particular regard must be had to whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought. This is a

separate statutory consideration and applies irrespective of whether the requiring authority has a sufficient interest in the land.