

Appendix 1 – LVA & ZTV Methodology

Contributing Factors		Higher	Lower
Sensitivity	Susceptibility to change	The landscape is strongly distinctive with important biophysical, sensory, and associative aspects. There is an absence of landscape detractors which make it highly vulnerable to the type of change which would result from the proposed development.	The landscape lacks any distinctive biophysical, sensory, or associative aspects. It has many detractors and can accommodate the proposed development without undue consequences to landscape character.
	The value of the landscape	The landscape requires protection as a matter of national importance (ONF/L).	The landscape is of low or local importance.
Magnitude of Change	Size or scale	Total loss or addition of key features or elements. Major changes in the key characteristics of the landscape, including significant aesthetic or perceptual elements.	Most key features or elements are retained. Key characteristics of the landscape remain intact with limited aesthetics or perceptual change apparent.
	Geographical extent	Landscape character area scale.	Site scale, immediate setting.
	Duration and reversibility	Permanent. Long term (over 10 years).	Reversible. Short Term (0-5 years).

Table 1: Determining the significance of landscape effects

Contributing Factors		Higher	Lower
Sensitivity	Susceptibility to change	Views from dwellings and recreation areas where attention is typically focussed on the landscape.	Views from places of employment and other places where the focus is typically incidental to its landscape context.
	Value attached to views	Viewpoint is recognised by the community such as identification on tourist maps or in art and literature. High visitor numbers.	Viewpoint is not typically recognised or valued by the community. Infrequent visitor numbers.
Magnitude of Change	Size or scale	Loss or addition of key features in the view. High degree of contrast with existing landscape elements (i.e. in terms of form scale, mass, line, height, colour, and texture). Full view of the proposed development.	Most key features of view retained. Low degree of contrast with existing landscape elements (i.e. in terms of form scale, mass, line, height, colour, and texture). Glimpse / no view of the proposed development.
	Geographical extent	Front on views. Near distance views; Change visible across a wide area.	Oblique views. Long distance views. Small portion of change visible.
	Duration and reversibility	Permanent. Long term (over 15 years).	Transient. Short Term (0-5 years).

Table 2: Determining the significance of visual effects

Nature of effect	Use and Definition
Adverse (negative):	The proposed development would be out of scale with the landscape or at odds with the local pattern and landform which results in a reduction in landscape and visual values
Neutral (benign):	The proposed development would complement (or blend in with) the scale, landform and pattern of the landscape maintaining existing landscape and visual values
Beneficial (positive):	The proposed development would enhance the scale, landform and pattern of the landscape, improving the landscape and visual quality through removal of damage caused by existing land uses or addition of positive features

Table 3: Determining the nature of effects

Effect Rating	Use and Definition
Very High:	Total loss to the characteristics or key attributes of the receiving environment and /or visual context amounting to a complete change of landscape character.
High:	Major change to the characteristics or key attributes of the receiving environment and /or the visual context within which it is seen; and/or a major effect on the perceived amenity derived from it.
Moderate-High:	A moderate - high level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate - high level of effect on the perceived amenity derived from it.
Moderate:	A moderate level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate level of effect on the perceived amenity derived from it.
Moderate -Low:	A moderate - low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have moderate - low level of effect on the perceived amenity derived from it.
Low:	A low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a low effect on the perceived amenity derived from it.
Very Low:	Very low or no modification to key elements/ features/ characteristics of the baseline or available views, i.e. approximating a 'no change' situation.

Table 4: Determining the overall significance of landscape and visual effects

Zone of Theoretical Visibility (ZTV) mapping

Zone of Theoretical Visibility (ZTV) describes the area over which a structure or development can theoretically be seen, based on a Digital Terrain Model (DTM). ZTV mapping is also commonly referred to as a Zone of Visual Influence (ZVI), Visual Envelope Map (VEM), or viewshed map. ZTV outputs are typically presented as a transparent coloured overlay on a topographic base, where the coloured areas indicate locations from which the modelled built form has a theoretical line of sight.

For this project, ZTV mapping was prepared as a desk-based visibility tool to establish the likely extent and distribution of views toward the Auckland Surf Park Community masterplan, and to support a transparent and representative viewpoint selection process. The mapping was prepared to test visibility associated with the

built form across the masterplan, with particular emphasis on the tallest and potentially most visually influential elements, including the hotel adjacent to the surf lagoon (approximately 25 m), data centre development, and other larger format commercial / industrial buildings, as well as the Village Centre apartment buildings (up to a ridge height of approximately +17.85 m).

1. Method and Data

- Software: ArcGIS Pro (Viewshed tool), version 3.5.4.
- Terrain surface: LiDAR-derived digital terrain model (DTM) using a 2024 dataset with 1 m grid resolution.
- Surface assumption: Bare-earth terrain only (i.e., excludes screening from vegetation, buildings, and temporary construction elements). This represents a high visibility scenario rather than actual on-the-ground visibility conditions.
- Observer eye height: 1.7 m (typical standing viewer height).
- Targets modelled: Multiple typology-specific target heights were used (based on the design building heights for principal masterplan typologies), and then combined into a composite ZTV representing the overall envelope of potential visibility across the development.
- Curvature / refraction: Earth curvature and atmospheric refraction were excluded, reflecting the local scale of assessment.

2. How the ZTV was Used

The composite ZTV mapping was used to identify the key public corridors and receptor areas where views were most likely to occur, including:

- Postman Road and adjacent eastern rural properties;
- Dairy Flat Highway corridor;
- Elevated rural ridgelines to the east; and
- More distant, elevated landforms to the west and south-west.

In the Dairy Flat context—characterised by generally shallow lowland topography but with localised elevation changes and a strong pattern of shelterbelts, hedgerows, and intervening built elements—the ZTV provided an efficient way to:

- Identify where visibility is likely and unlikely prior to detailed viewpoint assessment;
- Inform the selection of visual simulation locations;
- Test whether the tallest elements have potential to be visible beyond the immediate site context; and
- Support a structured selection of representative viewpoints for both static viewing locations and sequential road corridor viewing.

3. Limitations

ZTV mapping is a useful input to landscape and visual assessment, but it has important limitations:

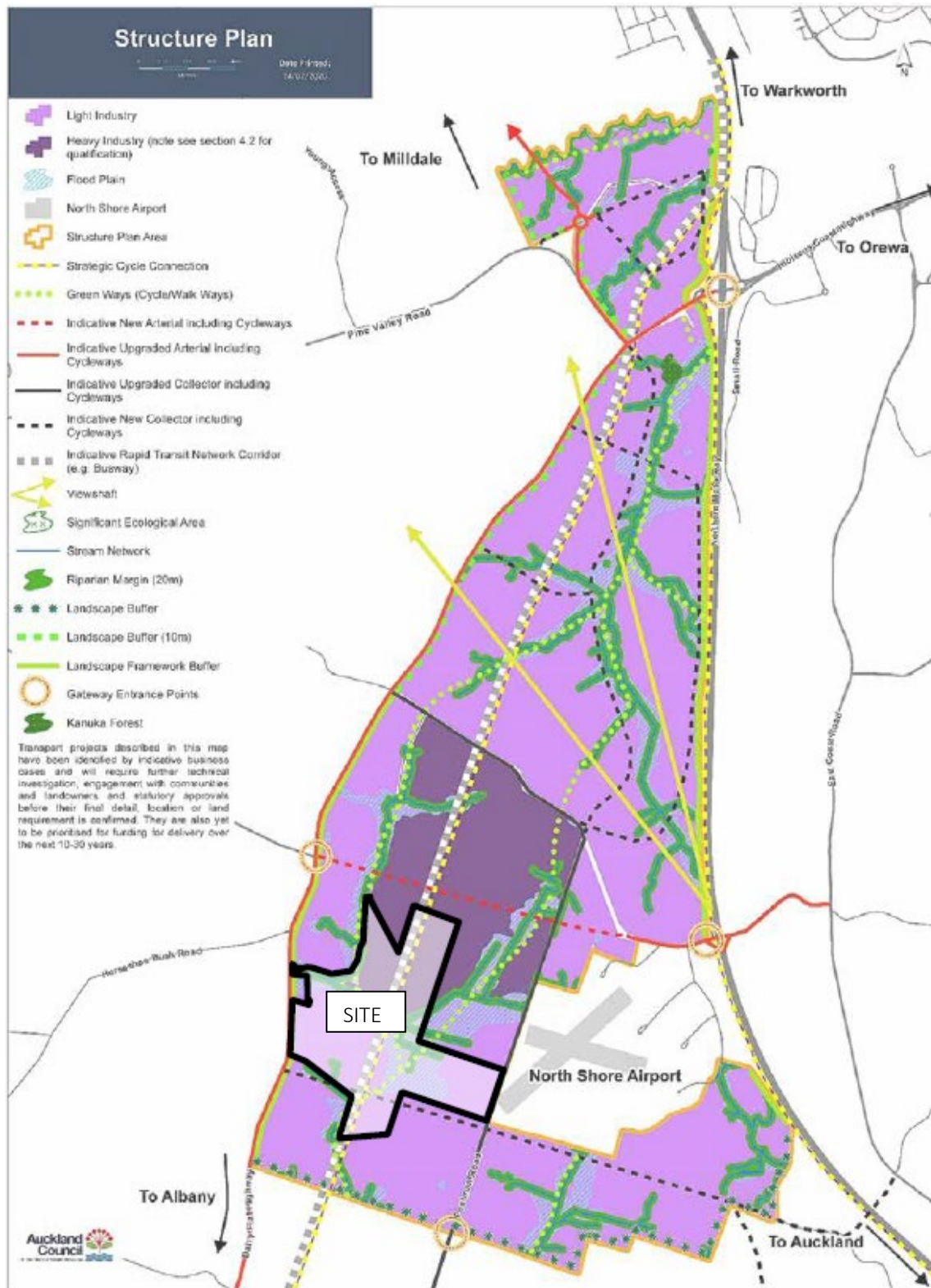
- It represents theoretical line-of-sight only; actual visibility is often reduced or fragmented by shelterbelts, riparian/roadside vegetation, and intervening buildings/operational structures (including existing airport-related built elements along Postman Road).
- It does not capture viewing experience or effects such as view duration, prominence, dominance, contrast, or audience sensitivity; and it does not inherently differentiate Stage 1 versus Stage 2 visibility or the way visibility may change over time.
- It does not account for distance decay (i.e., the reduced perceptual influence of distant elements), even where theoretical visibility exists.

Accordingly, the ZTV was used as an input to the overall visual assessment not as a substitute for field-based judgement. Predicted visibility was ground-truthed through site visits to confirm actual viewing conditions and the perceptual context of views. Fieldwork was undertaken in September 2025 and February 2026 in fine weather with good visibility, when Stage 1 works were well underway, supported by standard lens photography and visual simulations prepared by Warren and Mahoney.

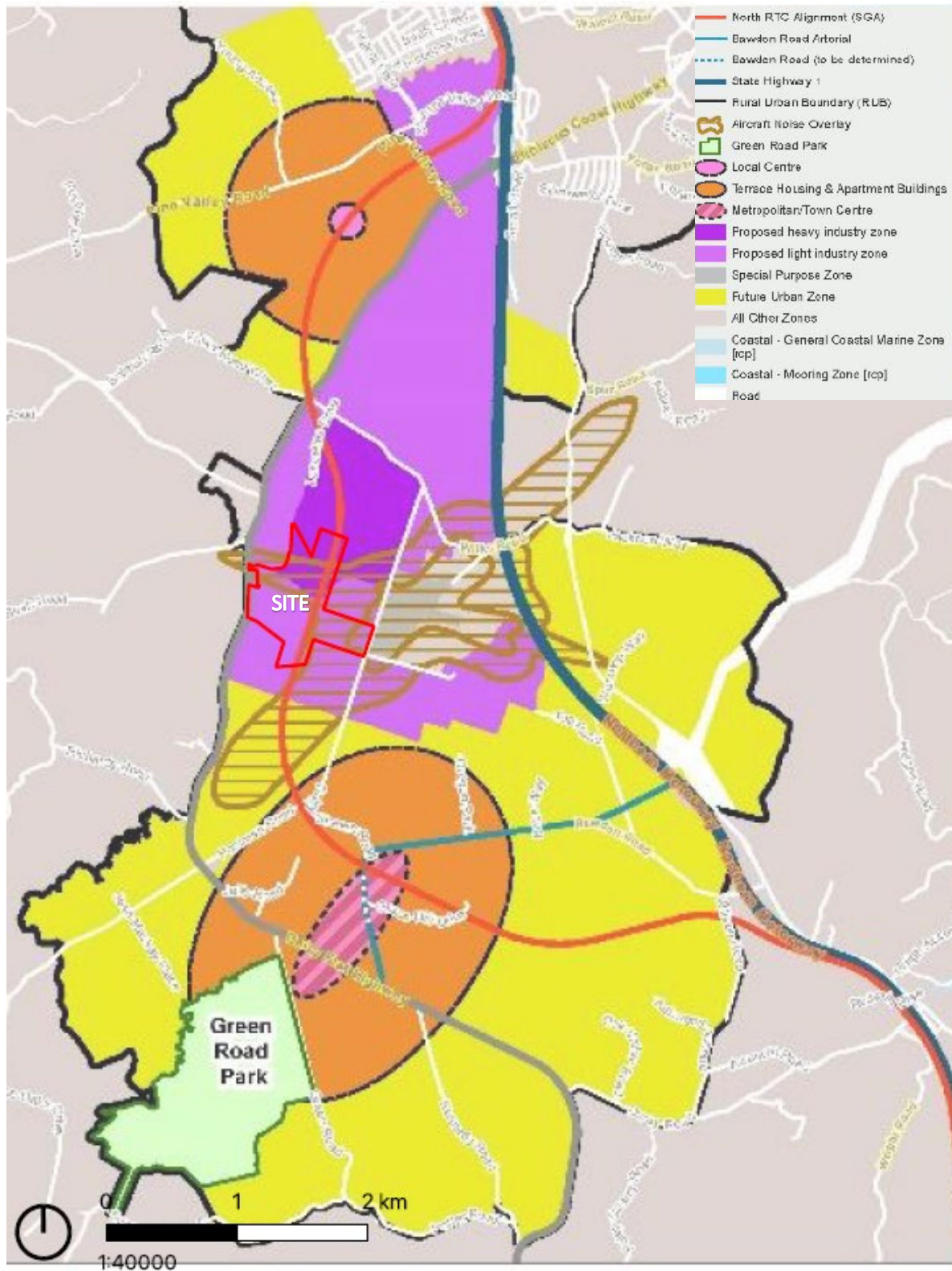
Appendix 2 – Viewing Audience Group Addresses

Viewing Audience Group	Address
Viewing Audience Group 1 – Properties adjacent to the eastern boundary of the Site, surrounding the North Shore Airfield	149, 153, 177, 179, 185, 191, 195, 203, 207, 231, 263, 273, 275, 293 Postman Road; 2, 4, 8, 12, 16, 20, 24, 28, 29, 32, 33, 36, 37, 40, 44, 48 Aileron Rise
Viewing Audience Group 2 – Properties adjacent to the western boundary of the Site, along Dairy Flat Highway and Horseshoe Bush Road	1286, 1306, 1314, 1318, 1326, 1327, 1338, 1351, 1355, 1361, 1373, 1379, 1397 Dairy Flat Highway; 24, 67, 68, 69, 115 Horseshoe Bush Road
Viewing Audience Group 3 – Properties adjacent to the northern boundary of the Site	57, 65 Lascelles Drive and 98, 98A Wilks Road
Viewing Audience Group 4 – Properties along East Coast Road, between Worsnop Way and Jackson Way	1802, 1824, 1826, 1838, 1852, 1862, 1871, 1910 East Coast Road; 252 Wilks Road
Viewing Audience Group 5 – Properties around Kahikatea Flat Road, Selman Road, Wilks Road West, and Dairy Flat Highway	1509 Dairy Flat Highway; 31, 71, 79, 79A Wilks Road West; 77, 87, 100, 117, 120 Kahikatea Flat Road

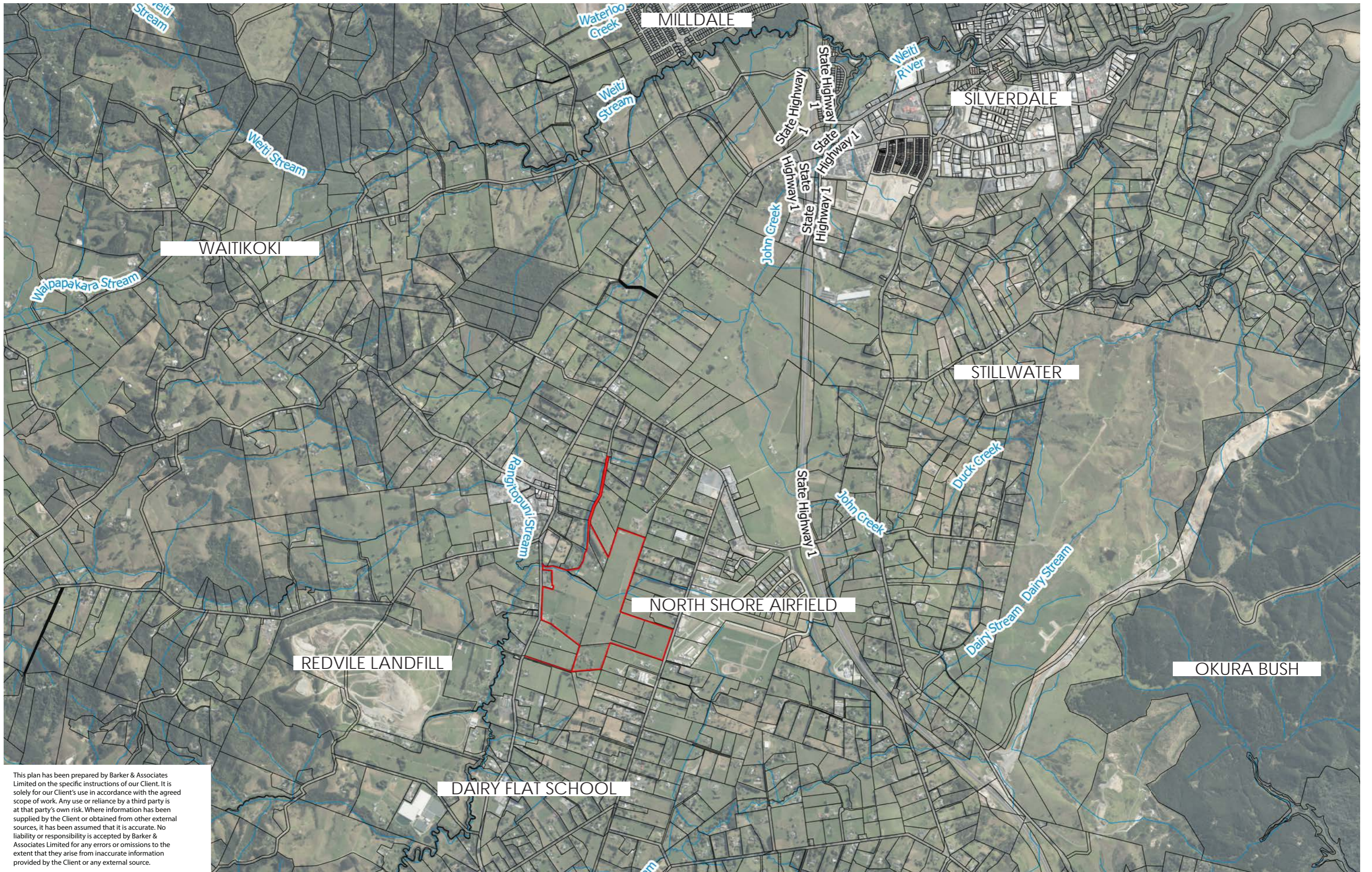
Appendix 3 – Silverdale West Dairy Flat Structure Plan (2020)



Appendix 4 – Draft Spatial Land Use Strategy (2022)



Appendix 5 – Maps and Photographs

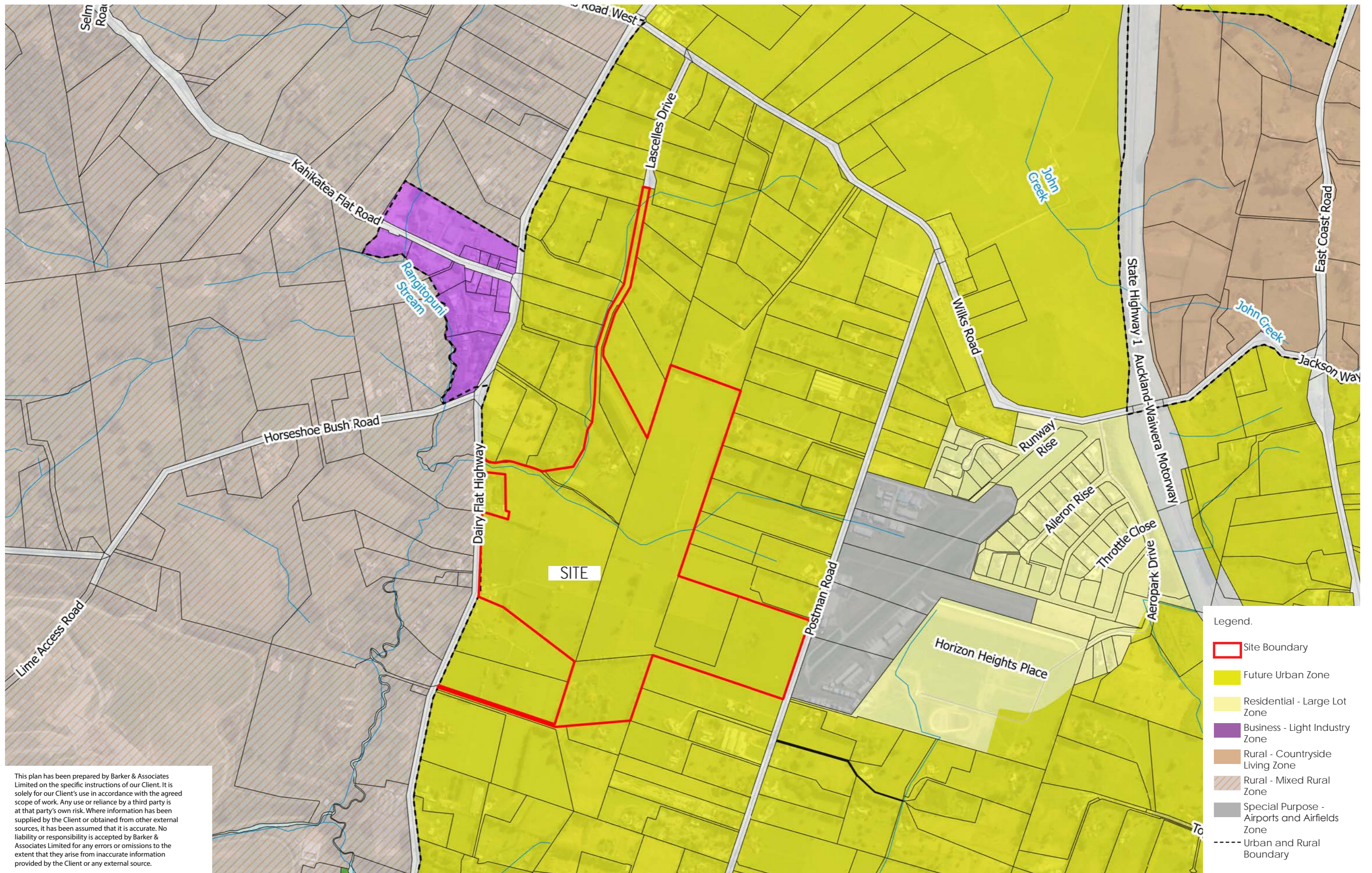


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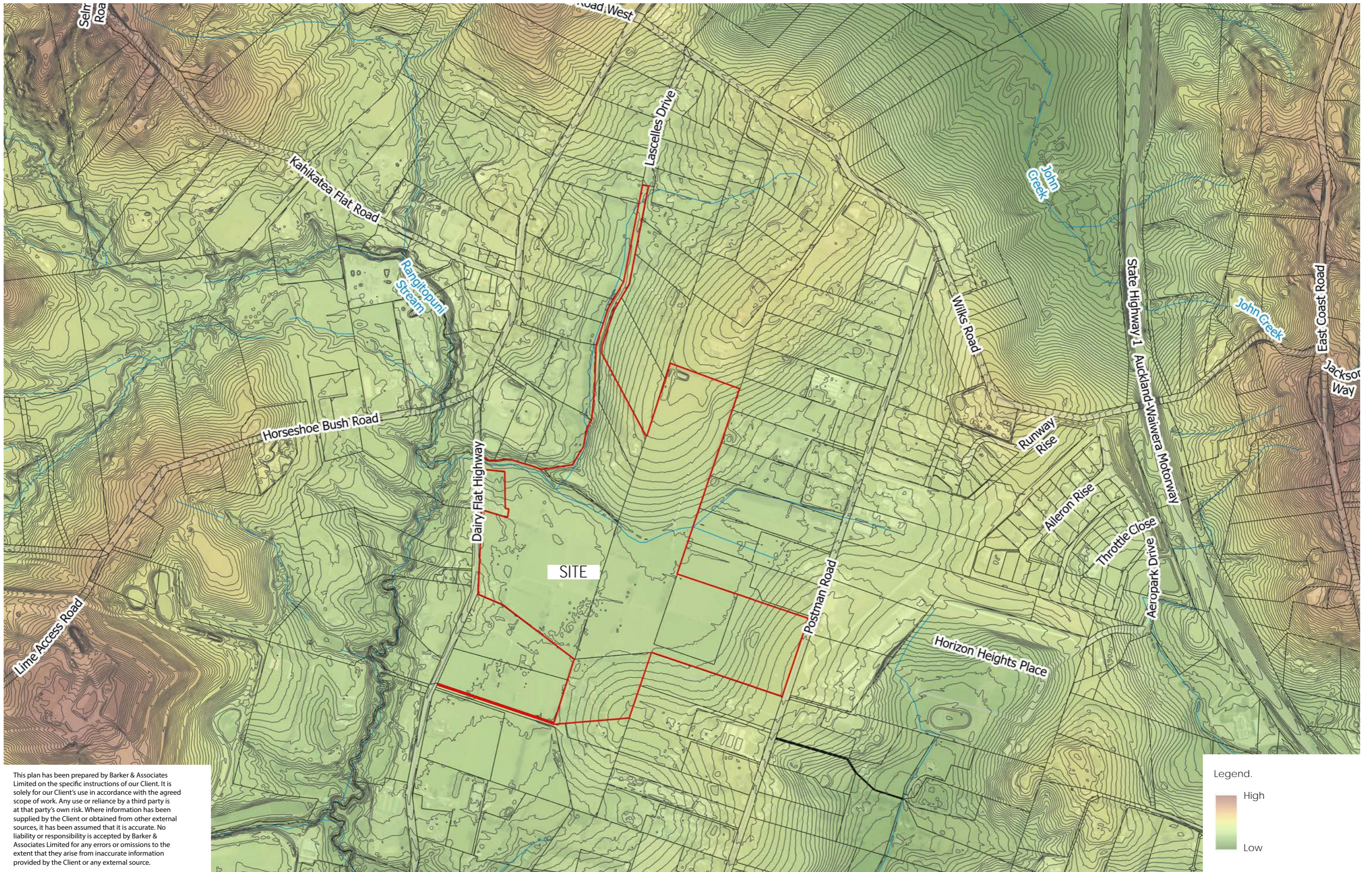


REDEVILE LANDFILL

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Legend.
 High
 Low



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Legend.
 Site Boundary



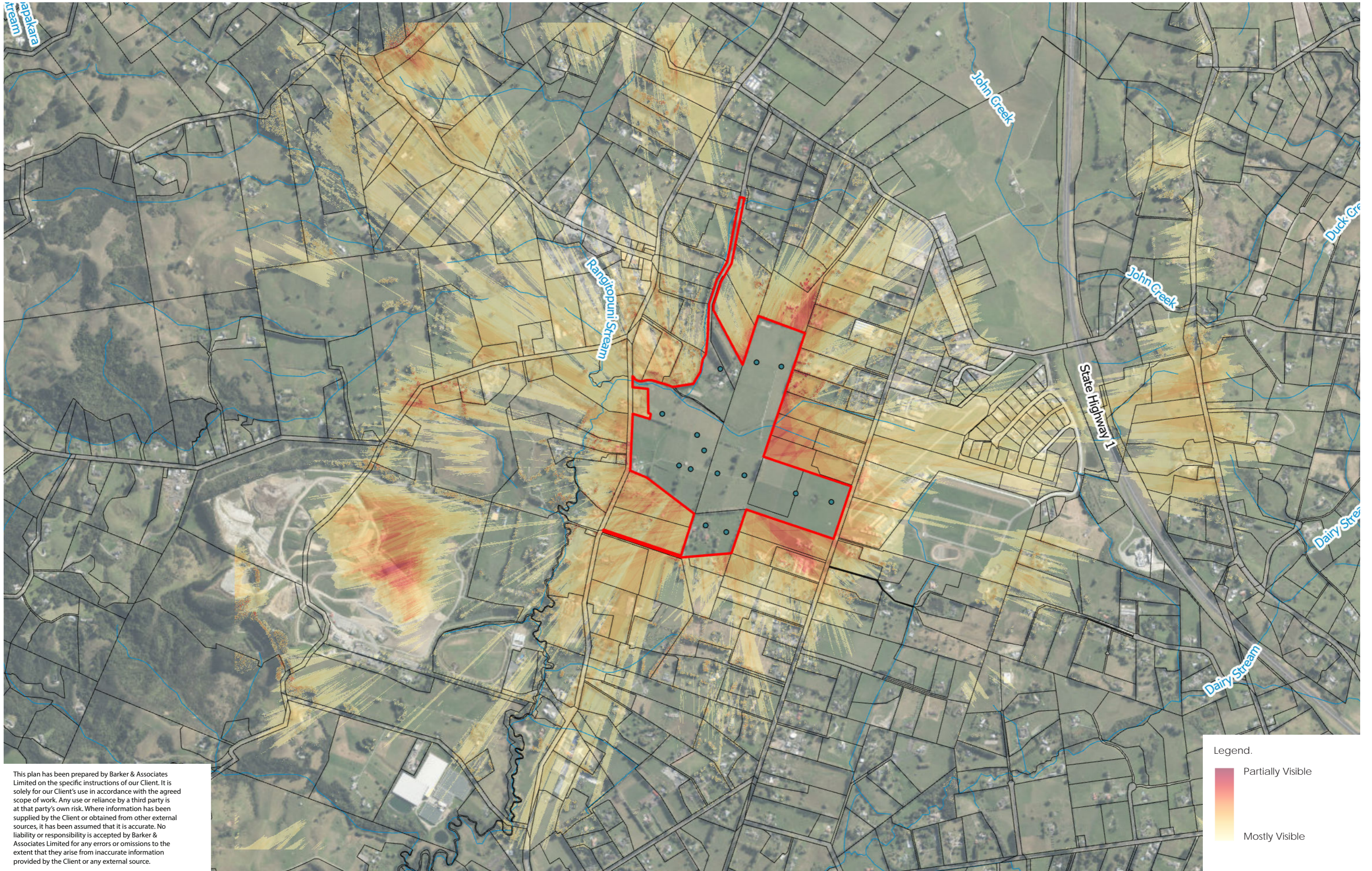
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Legend.
 Site Boundary



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- Legend.
- Site Boundary
 - Stage 2 Boundary

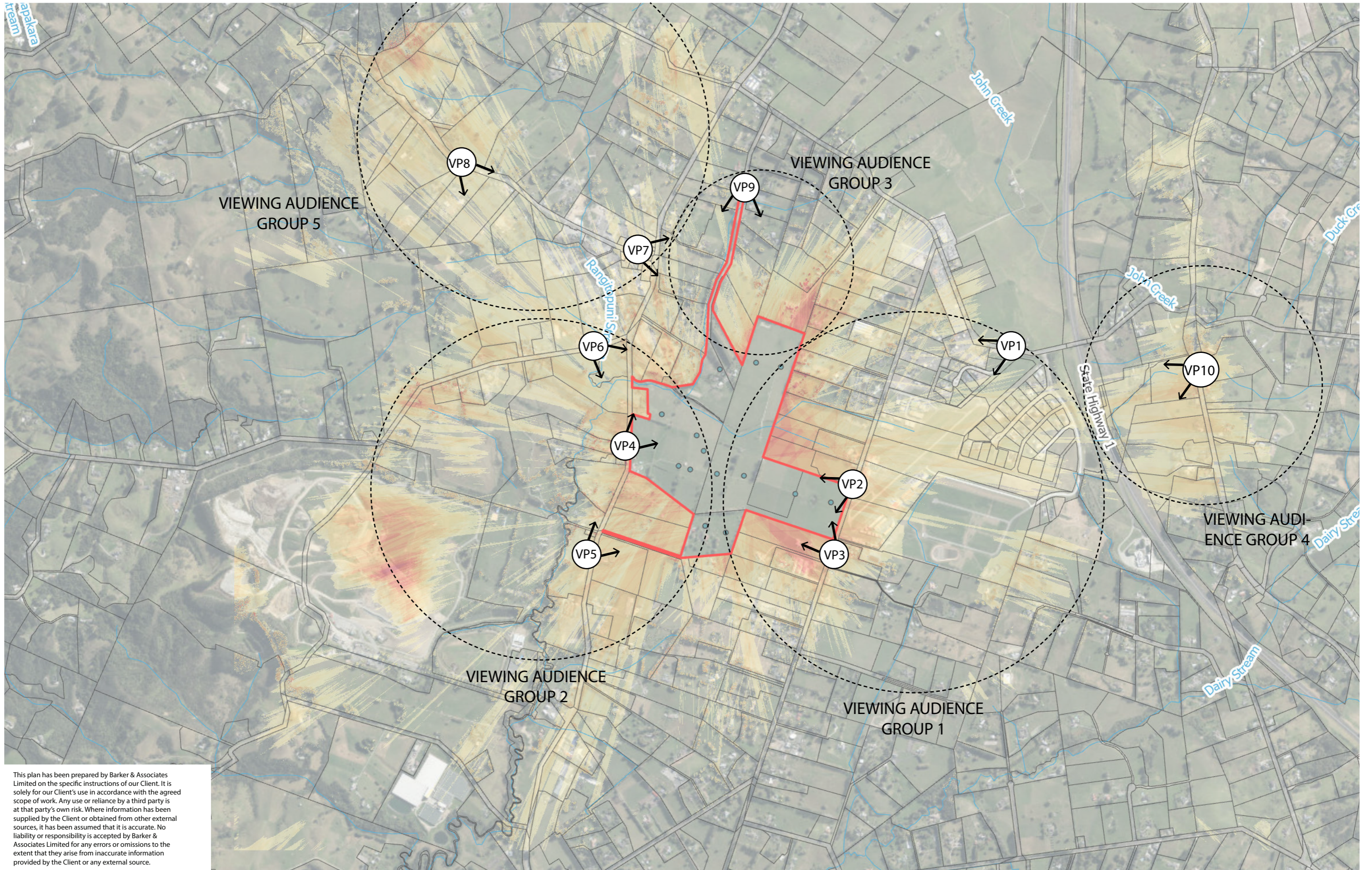


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Legend.

Partially Visible

Mostly Visible



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VP1



VP2



VP3



VP4



VP5



VP6



VP7



VP8



VP9



VP10

Appendix 6 – Visual Simulations

Auckland Surf Park

Visual Simulations

DOCUMENT PURPOSE



DESIGNATION SUPPORTING INFORMATION

The purpose of this document is to illustrate the visual effects of possible development at the Auckland Surf Park site. The supporting information will inform parties of the proposed site through a series of simulated renders and photographs. Selected Viewpoints* depict a concept massing derived from the proposed designation from locations around the site. The selected areas were highlighted as areas of importance and required investigation. A detailed methodology was used to record the viewpoints to allow for high quality and replicable images. Refer to the Appendix for the processes used.

*Viewpoints are locations selected as being those places from where a proposed activity or development may be visible and is likely to result in noticeable effects on the landscape, the view, and potentially the people who experience that view. - BPG 10.2

VIEWPOINT LOCATIONS



VIEW POINT LOCATION RATIONAL

4 Key viewpoints have been selected to illustrate the visual effects of the proposed surf park massing example within the local area. The following pages demonstrate visual effects of the massing example through a series of renders which depict the views of:

- View 1 - Diary Flat Highway South
- View 2B - Diary Flat Highway North
- View 4 - Postman Road
- View 10 - East Coast Road

The proposed views effectively communicate the proposed design in relation to the site and the effects on the surrounding area.

VIEW 1 - VS1 28mm DIARY FLAT HIGHWAY SOUTH



VIEW 1

**VS1 DIARY FLAT HIGHWAY AT THE JUNCTION WITH CONNECT ROAD, LOOKING IN AN EAST DIRECTION.
CAMERA LENS: 28MM
TIME: 10:24AM DATE: 27.06.2023**

PHOTOGRAPH



LOCATION



VIEW 1 - VS1 28mm EXISTING

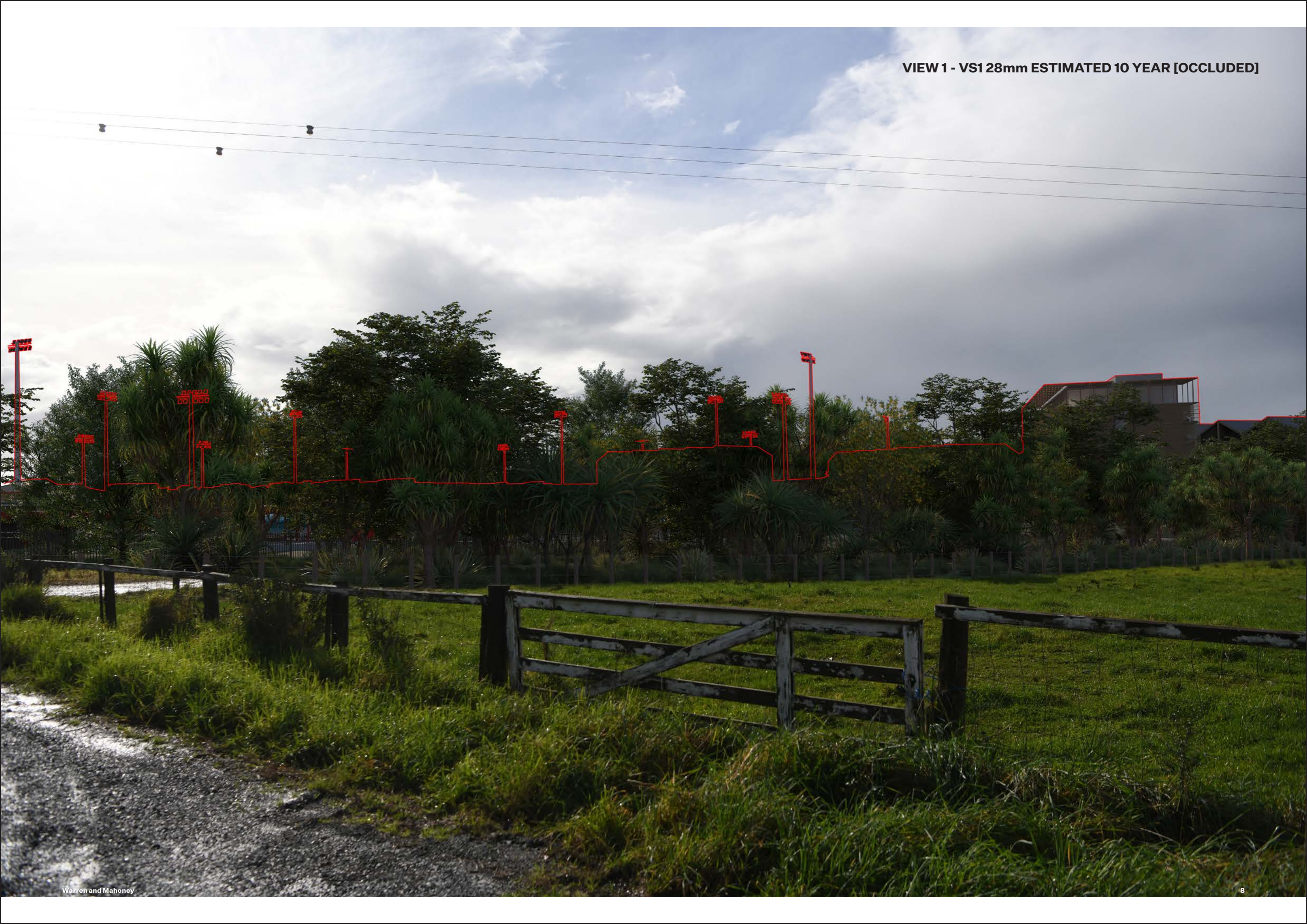


VIEW 1 - VS1 28mm AT COMPLETION



VIEW 1 - VS1 28mm ESTIMATED 10 YEAR





VIEW 1 - VS1 50mm DIARY FLAT HIGHWAY SOUTH



VIEW 1

**VS1 DIARY FLAT HIGHWAY AT THE JUNCTION WITH CONNECT ROAD, LOOKING IN AN EAST DIRECTION.
CAMERA LENS: 50MM
TIME: 10:24AM DATE: 27.06.2023**

PHOTOGRAPH



LOCATION



VIEW 1 - VS1 50mm EXISTING



VIEW 1 - VS1 50mm AT COMPLETION



VIEW 1 - VS1 50mm ESTIMATED 10 YEAR





VIEW 1 - VS2B 28mm DIARY FLAT HIGHWAY NORTH 1



VIEW 2B

**VS2B DIARY FLAT HIGHWAY SOUTH OF NUMBER 1373 , LOOKING
IN AN SOUTH EAST DIRECTION.
CAMERA LENS: 28MM
TIME: 15:33PM DATE: 21.11.2023**

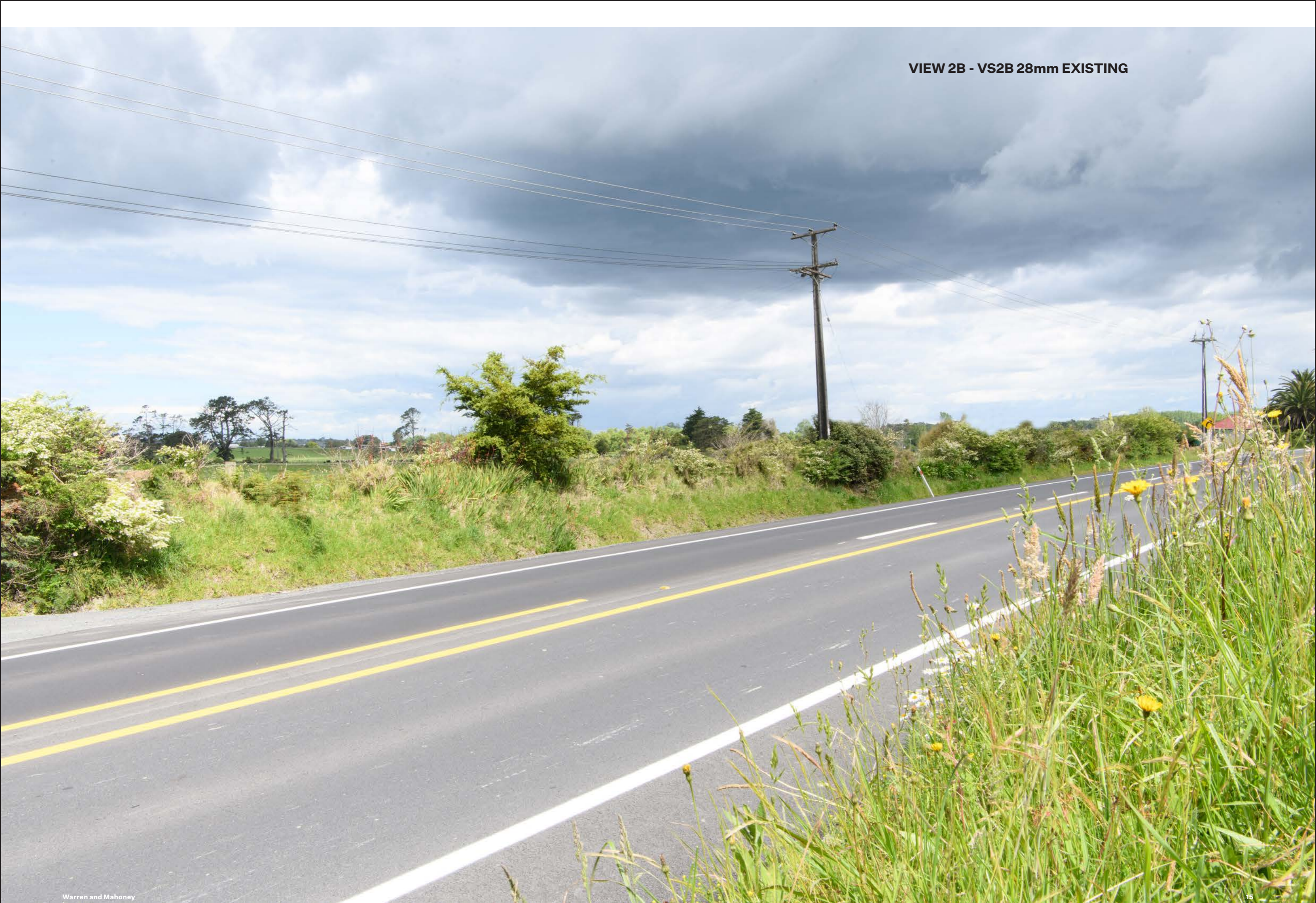
PHOTOGRAPH



LOCATION



VIEW 2B - VS2B 28mm EXISTING



VIEW 2B - VS2B 28mm AT COMPLETION



VIEW 2B - VS2B 28mm ESTIMATED 10 YEAR





VIEW 1 - VS2B 50mm DIARY FLAT HIGHWAY NORTH 1



VIEW 2B

**VS2B DIARY FLAT HIGHWAY SOUTH OF NUMBER 1373 , LOOKING
IN AN SOUTH EAST DIRECTION.
CAMERA LENS: 50MM
TIME: 15:34PM DATE: 21.11.2023**

PHOTOGRAPH



LOCATION



VIEW 2B - VS2B 50mm EXISTING



VIEW 2B - VS2B 50mm AT COMPLETION



VIEW 2B - VS2B 50mm ESTIMATED 10 YEAR



VIEW 2B - VS2B 50mm ESTIMATED 10 YEAR [REDLINE]



VIEW 4 - VS4 28mm POSTMAN ROAD



VIEW 4

**VS4 POSTMAN ROAD AT THE SOUTHERN END OF THE NORTH SHORE AIRPORT RUNWAY, LOOKING IN A WEST DIRECTION.
CAMERA LENS: 28MM
TIME: 11:03AM DATE: 27.06.2023**

PHOTOGRAPH



LOCATION



VIEW 4 - VS4 28mm EXISTING



VIEW 4 - VS4 28mm



VIEW 4 - VS4 28mm [REDLINE]



VIEW 4 - VS4 50mm POSTMAN ROAD



VIEW 4

**VS4 POSTMAN ROAD AT THE SOUTHERN END OF THE NORTH SHORE AIRPORT RUNWAY, LOOKING IN A WEST DIRECTION.
CAMERA LENS: 50MM
TIME: 11:03AM DATE: 27.06.2023**

PHOTOGRAPH



LOCATION



VIEW 4 - VS4 50mm EXISTING



VIEW 4 - VS4 50mm





VIEW 10 - VS10 28mm EAST COAST ROAD



VIEW 10

**VS10 EAST COAST ROAD SOUTH OF WILKS ROAD, LOOKING IN A WEST DIRECTION.
CAMERA LENS: 28MM
TIME: 10:57AM DATE: 26.11.2025**

PHOTOGRAPH



LOCATION



VIEW 10 - VS10 28mm EXISTING



VIEW 10 - VS10 28mm AT COMPLETION



VIEW 10 - VS10 28mm ESTIMATED 10 YEAR



VIEW 10 - VS10 50mm EAST COAST ROAD



VIEW 1

**VS10 EAST COAST ROAD SOUTH OF WILKS ROAD, LOOKING IN A WEST DIRECTION.
CAMERA LENS: 50MM
TIME: 10:58AM DATE: 26.11.2025**

PHOTOGRAPH



LOCATION



VIEW 10 - VS10 50mm EXISTING



VIEW 10 - VS10 50mm AT COMPLETION



VIEW 10 - VS10 50mm ESTIMATED 10 YEAR



APPENDIX

SIMULATION AND PHOTOGRAPHY METHODOLOGY

A DETAILED METHODOLOGY HAS BEEN RECORDED SO THAT EACH OF THE SIMULATED AND PHOTOGRAPHED IMAGES CAN BE RECREATED BY AN OUTSIDE PARTY. THIS ALLOWS EACH IMAGE TO BE REVIEWED FOR ITS ACCURACY AND QUALITY SO THAT THE IMAGES CAN BE USED AS SUPPORTING EVIDENCE OF THE PROPOSED DESIGNATION.

THE BEST PRACTICE GUIDE - VISUAL SIMULATIONS BPG 10.2 WAS REFERRED TO THROUGH THIS PROCESS.

IMAGE LOCATIONS

THE URBAN PLANNER SELECTED THE IMAGE LOCATIONS, MCKENZIE & CO SURVEY TEAM RECORDED ACCURATELY THE POSITIONS, FROM EITHER LOCATIONS THAT HAD ALREADY HAD PHOTOGRAPHY TAKEN OR IN ADVANCE OF PHOTOGRAPHY. THE LOCATIONS WERE THE BEST VIEWPOINTS SUPPLIED BY THE URBAN PLANNER TO BEST INDICATE THE PROPOSED WITHIN THE CURRENT CONTEXT.

THE IMAGE LOCATIONS WERE DERIVED THROUGH CONSULTATION TO CAPTURE LOCATIONS OF IMPORTANCE WHICH REQUIRED INVESTIGATION.

CAMERA LENS

A 28MM AND 50MM CAMERA LENS WAS USED IN THE CREATION OF THE PHOTOGRAPHS AT 45.7MP.

SIMULATED MODEL

GIS DATA AND A 3D MODEL SUPPLIED BY THE ARCHITECTURE TEAM ALONG WITH SURVEY DATA FROM MCKENZIE & CO AND LANDSCAPE ELEMENTS FROM THE LANDSCAPE TEAM WERE RECORDS UTILISED TO GENERATE A 3D MODEL OF THE PROPOSED TO ASSIST IN THE SIMULATION OF IMAGES.

LIGHTING

SIMULATED SHADING HAS BEEN USED WITH THE RENDERED MODEL TO BEST PORTRAY THE TIME OF THE PHOTOGRAPH TO IMPROVE ACCURACY. USING THE TIME, DATE AND LOCATION DATA HIGHLY ACCURATE LIGHTING SIMULATIONS CAN BE PRODUCED. THIS ALLOWS THE IMAGES TO MORE ACCURATELY EMULATE A TRUE SCENARIO.

PRESENTATION OF IMAGES

EACH IMAGE IS PRESENTED ON AN A3 SHEET AT AN A4 SIZE. THIS ALLOWS A READING DISTANCE* OF 380MM TO ILLUSTRATE A TRUE PERSPECTIVE, AS PER THE BPG.

* THE READING DISTANCE IS THE DISTANCE AT WHICH THE PHOTOGRAPH OR SIMULATION CORRECTLY RECONSTRUCTS THE PERSPECTIVE SEEN FROM THE VIEWPOINT LOCATION FROM WHICH THE PHOTOGRAPH WAS TAKEN.
- BPG 10.2

SOFTWARE USED

3DS MAX AND PHOTOSHOP WAS UTILISED TO COMBINE PHOTOGRAPHS AND RENDERED MODELS TO A SINGLE IMAGE. USING A REFERENCE POINT FOR EACH IMAGE THE PHOTOS WERE ALIGNED WITH A LEVEL ACCURACY.

ASSUMPTIONS

IT WAS ASSUMED THAT THE ALL MODELS RECEIVED CONTAINED ACCURATE DATA. IT WAS ASSUMED THAT GIS DATA AND MCKENZIE & CO SURVEY INFORMATION WAS ACCURATE TO GENERATE THE 3D MODELS.

LIMITATIONS

THE MASSING USED IN THE GENERATION OF THE IMAGES IS DERIVED FROM A PRELIMINARY DESIGN STAGE. HEIGHTS, ARRANGEMENT AND MASSING HAVE BEEN THE FOCUS OF THE INVESTIGATION, TRUE TEXTURE, MATERIALITY AND DETAIL ARE DEPICTED IN THE RENDERS. THESE ELEMENTS WOULD AID IN THE INTEGRATION OF THE DESIGN INTO THE LANDSCAPE AND THE IMPACT ON THE SURROUNDING CONTEXT.

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