

visual integration report

RESIDENTIAL SUBDIVISION

WAKEFIELD ASHURST

NORTH WALLARAH PENINSULA - NORTHERN SECTOR, CENTRAL PRECINCT

Lots 2, 3, 5 & 8 DP 1240365

Part Lots 1,4, 6 & 7 DP 1240365



residential subdivision

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site details:
North Wallarah Peninsula,
Northern Sector,
Central Precinct
Lots 2, 3, 5 & 8 DP 1240365
Part Lots 1,4, 6 & 7 DP 1240365

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executive summary

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1 Executive Summary

1. Wakefield Ashurst is proposing a 262 lot subdivision on 74.6ha of land within the North Wallarah Peninsula. The proposal includes subdivision and associated works including clearing and bulk earthworks as well as: targeted remediation; stability works; new public roads; new community title road; bushfire management; stormwater drainage; utilities; revegetation and landscaping. 54.4ha of the site has been identified as previously disturbed by past activities including large sections of highly disturbed former landfill; clay extraction pits; open cut mine; quarry and other disturbed areas.

2. A visual impact assessment is required to be undertaken in accordance with the *Lake Macquarie Scenic Management Guidelines 2013* as part of a DA application. This is due to the proposal being a subdivision (in any one with 10 or more lots proposed) and which will result in a substantial loss of native tree cover (land parcels of one hectare or greater). Additionally, the subject site is located in a visually prominent area – vegetated ridgelines and approximately 150m either side of ridge crest.

3. The subject site is zoned General Residential (R1).

4. The local visual character of the site is mainly defined as vegetated ridgelines and hillsides; however, former mining operations has resulted in some highly disturbed areas and significant scaring.

5. The subject site is located within the Northern Sector of the North Wallarah Peninsula area plan and is bisected by the Old Pacific Highway. The site is located across two landscape setting units:

- The Wallarah Landscape Setting Unit with a nominated Scenic Quality Rating of "High" and a Viewing Level of "Level 2, level 1 – highway viewshed". It also occurs within the Scenic Management Zone 7 (coastal edge, low settlement)
- The Point Morisset Landscape Setting Unit with a nominated Scenic Quality Rating of "High" and a Viewing Level of "Level 3 – Low". It also occurs within the Scenic Management Zone 2 (lake surround, limited settlement).

6. The site is visible to varying degrees from significant natural features including the Wangi South Peninsula, the Lake Entrance Breakwall and Swansea Lake Head.

7. Previous studies of the site and surrounding area documented within the *Local Environment Study, North Wallarah Peninsula Master Plan* and *Visual Integration Plan* have identified sections of the site suitable for development and assessed their suitability, including visual suitability. Development Type Two (DT2) and Development Type Four (DT4) are applicable to the site. The VIMP noted that "due to the already disturbed nature of the Northern Sector, it can visually accommodate a high-density hilltop village".

8. A visual impact assessment was undertaken by Terras Landscape Architects between April 2018 and August 2019 and conducted in accordance with the SMG. A viewpoint analysis was also undertaken which identified a number of key locations where the proposed development would be visible. This is documented in a series of Viewpoint Data Sheets which include photomontages of the proposed development. This was undertaken in association with site modelling with ADW Johnson to identify sensitive parts of the site enabling plan adjustments to improve the visual absorption of the proposed development into its surroundings.

9. The subject site is located along the ridgeline in a visually prominent area. The ridgeline is well vegetated however former mining operations have resulted in some highly disturbed areas and significant scaring. Due to the topography, surrounding ridgelines, distance to the site and existing vegetation, visual access to the site is limited. A review of the visual catchment of the proposed development site showed that views of the site were limited. Generally the Viewpoints assessed occurred some distance away from the site with the exception of Viewpoint 11. This meant that the proposed development was seen at a distance and within a broad visual context. From all views excepting Viewpoint 9, the view is not pristine and residential development of Caves Beach and Swansea is seen on the lower slopes on approach to the site.

10. It was determined that the greatest visual impact was from the northern section of the site and likely to be experienced by people travelling south along the Pacific Highway towards Swansea, recreational users of the Swansea channel edges and boat enthusiasts operating within the Channel.

11. It was concluded that the majority of the proposed development met with the objectives of the SMG. It was noted that in a few instances the tops of some houses would be visible close to the ridgeline. This condition will be partially mitigated by canopy reestablishment on the northern slopes. Building materials and the built form would be subject to controls so as to improve visual absorption and lessen

initial impacts.

12. Of concern was the impact of the development to parts of the lower ridge (and excluding Mawsons Lookout). This was thoroughly investigated using computer modelling revealing that the development could be viewed from Viewpoints 2 - 8, 9 and 11. There is some concern about the development being seen close to the ridges however the proposed extent of canopy re-establishment works will help to mitigate this concern.

13. It is acknowledged that the proposed development will be visible from select locations due to its siting on a ridgeline generally for viewing distances greater than 3km. Proposed canopy re-establishment works when combined with street tree planting located within the road reserve and retained vegetation on the northern slopes will benefit the level of absorption of the proposal. Once the future residential development is established, the cumulative effect of additional boundary landscaping, layout and form and materials and colours is likely to result in a low - moderate overall visual impact.

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Figure 1.1: Site Location (Source: Nearmap, 15.07.2019)

introduction

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2 Introduction

2.1 preamble

Terras Landscape Architects [TLA] has been engaged by Wakefield Ashurst to undertake a Visual Integration Report [VIR] for a proposed residential subdivision located in the Northern Sector of the North Wallarah Peninsula. The peninsula is located immediately south of Swansea (approximately 20km south of Newcastle) and is bounded by the Tasman Sea to the east, Lake Macquarie to the west and small settlements including Catherine Hill Bay to the south. It is bisected by the Pacific Highway, which generally follows a north-south orientated ridge (Central Ridgeline).

The proposed development is permissible with the consent of Lake Macquarie City Council (LMCC) as the subject site is zoned R1 (General Residential) under the LMCC Local Environment Plan (LMCC 2014) [LEP].

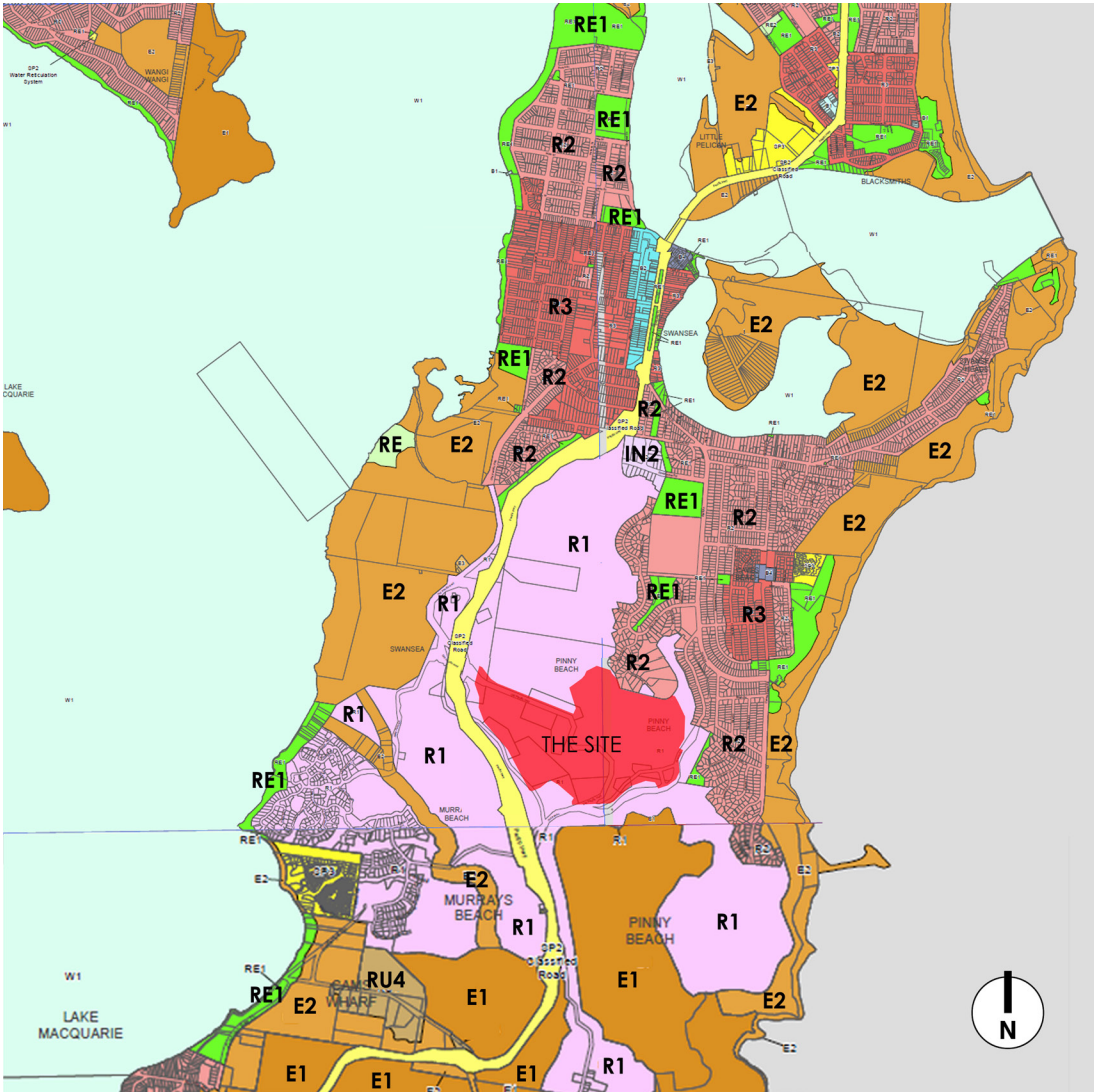


Figure 2.1: LMCC Zoning Plan - LMCC LEP

The subject site is located within the Northern Sector, to the east of the Pacific Highway. Scenic Drive defines the southern and eastern site boundaries. It encompasses Mawsons Lookout Reserve and forms in part the backdrop to the Caves Beach urban area. It consists of 76.4 hectares and comprises the majority of land identified as the Northern Sector, Central Precinct and includes:

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Old Pacific Highway (subject to road closure and new road allocations).

73% of the site has been identified as heavily disturbed by past industrial activities which included clay extraction, landfill, open cut mining and quarrying (refer Appendix 12). The north eastern lower slopes, with the existing Caves Beach urban edge and a narrow area adjoining the western watercourse remain undisturbed.

Where applicable this VIR shall comply with the basic requirements of the *Lake Macquarie Scenic Management Guidelines*, (LMCC 2013) [SMG]. Other documents referenced when preparing this VIR include:

- *Development Control Plan (LMCC 2014) [DCP]*, specifically *Part 12 - North Wallarah Peninsula Area Plan (NWPAP)*. It should be noted that this area plan controls and requires building design guidelines to be provided with the subdivision DA (for future integration into the Area Plan)
- *North Wallarah Peninsula Project Conservation and Land Use Management Plan (LMCC 2000) [CLUMP]*.
- *The North Wallarah Masterplan - Visual Integration Management Plan (LMCC 2003) [VIMP]*. As this report was completed in 2003, some terminology used in the SMG (formerly *Scenic Quality Guidelines*) has been superseded. Where relevant, the superseded terminology shall continue to be used in this report for consistency.

2.2 terminology

The below meanings for the following terms shall apply to this report:

- The **proposal** is that activity which has the potential to produce a visual impact either during the works or as a result of it. In this case it refers to the vegetation removal, bulk earthworks and construction associated with the proposed subdivision of the Central Precinct. Consideration has also been given to future building works that are likely to occur as significant.
- The **subject site** (referred to also as The Site) is defined as the land area directly affected by the proposal within defined boundaries (Central Precinct).
- The **study area** consists of the subject site plus the immediate surrounding land potentially affected by the proposal during its construction and operation phase.
- The **study locality** is the area of land within the regional visual catchments whereby the proposal can be readily recognised. It includes the subject site, plus the land and roads that are within the visual catchment and potentially affected by the proposal. Generally this is confined to a six-kilometre radius beyond which individual buildings are difficult to discern especially amongst other development where contrasts are low. Further, visual sensitivity generally declines significantly beyond this range due to the broad viewing range that can be had from vantage points. For this study the locality has been limited to the visual catchments that have distances less than 6 kilometres, as views beyond this are restricted by the topography and development that bounds the site and adjoining viewpoints. The study locality pertaining to this site includes Lake Macquarie, Pinnys Beach, Pulbah Island, Swansea, Blacksmiths, Caves Beach and the Pacific Ocean to the east.

2.3 objectives

The objectives of this report are as follows:

- To identify and describe the existing visual/landscape environment and to evaluate its current qualities.
- To determine the likely impacts the proposed development will have on the visual/landscape quality of the area and to determine compliance with the SMG.
- To document the process undertaken to determine the potential visual impact of the proposal.
- To assess the extent of impact if applicable.
- To propose methods, where possible, to further reduce the visual impact of the proposed development or methods to increase the existing scenic quality.

2.4 methodology

The methodology applied to this study involves systematically evaluating the visual environment pertaining to the site and using value judgements based on community responses to scenery as outlined in Appendix A (Visual Quality Assessment Table).

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existing visual environment

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The methodology also incorporates the requirements of the SMG with reference to Landscape Setting Units, Scenic Management Objectives and Zones & Guidelines particularly when assessing likely visual impacts.

Further, it assesses and develops the findings contained within the *North Wallarah Masterplan - Visual Integration Management Plan* (VIMP) and the Local Environment Study (LES)

The assessment was undertaken in the following stages:

- A description of the existing visual environment.
- The undertaking of a viewpoint analysis to identify sites likely to be affected by development of the site. Viewpoints are chosen that represent those locations where impacts will affect significant groups within the population (e.g. major roads, community halls, settlements etc.) and as noted in the SMG otherwise referred to as Landscape Settings and Significant Natural Features.
- An assessment of the possible visual impacts using computer modelling and ground truthing

The purpose of the above methodology is to reduce the amount of subjectivity entering into the impact assessment and to provide sufficient data to allow for third party verification of results as well as compliance with the requirements of the SMG and VIMP.

Following a preliminary desktop analysis, a visual assessment was undertaken from vantage points surrounding the site within the pre-determined visual catchment area (refer Figure 3.1 site location).

Fieldwork was undertaken in April 2018, followed by 3D modelling undertaken by ADW Johnson to represent and inform assessment of the suitability of the proposed site layout, building density, design levels and building heights. The modelling outcomes resulted in several subsequent reconfigurations of the site design with the aim of achieving the most suitable outcome.

Refer to Appendix B and J for a more detailed explanation of the methodology, computer modelling assessment and examples of assessment outputs.

3 Existing Visual Environment

3.1 local area character

The North Wallarah Peninsula is bounded by two major water bodies to the east and west: those being the Pacific Ocean and Lake Macquarie. Swansea and Caves Beach urban developments adjoin the northern boundary and the villages of Catherine Hill Bay and Cams Wharf occurs at the southern extents. The peninsula is divided into three sectors: the Lake Sector, Coastal Sector and the Northern Sector, in which the subject site is located (refer Figure 1.1).

The Northern Sector extends along a ridge to areas that overlook Black Neds Bay and Swansea to the north and Scenic Drive to the south. It is bounded by the Pacific Highway to the west and the Caves Beach community to the north and east. The area is described as an undulating landform which creates opportunities for sweeping panoramic views that stretch from the coast across the peninsula to Lake Macquarie and the surrounding region. The eastern escarpment and ridge tops, including the excavated northern rock face of Mawsons Lookout, are visible from surrounding areas as far away as Blacksmiths.

Although the site itself is not classified as a visually significant natural landscape feature within the SMG due to its elevated location, it is visible from several areas that are identified as such. These include the Wangi South Peninsula(1), the Lake Entrance Breakwall(3) and Swansea Lake Head(2) (refer Figure 3.1). According to the SMG, the site is considered as having a high visibility as it occurs on a "Visually Prominent Area", that being "vegetated main ridgelines and approximately 150m either side of ridge apex" (Ridgeline J). (appendix D - Elevation analysis). As such it is considered likely to be sensitive to visual change and subject to further assessment as to the degree of impact.

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existing visual environment

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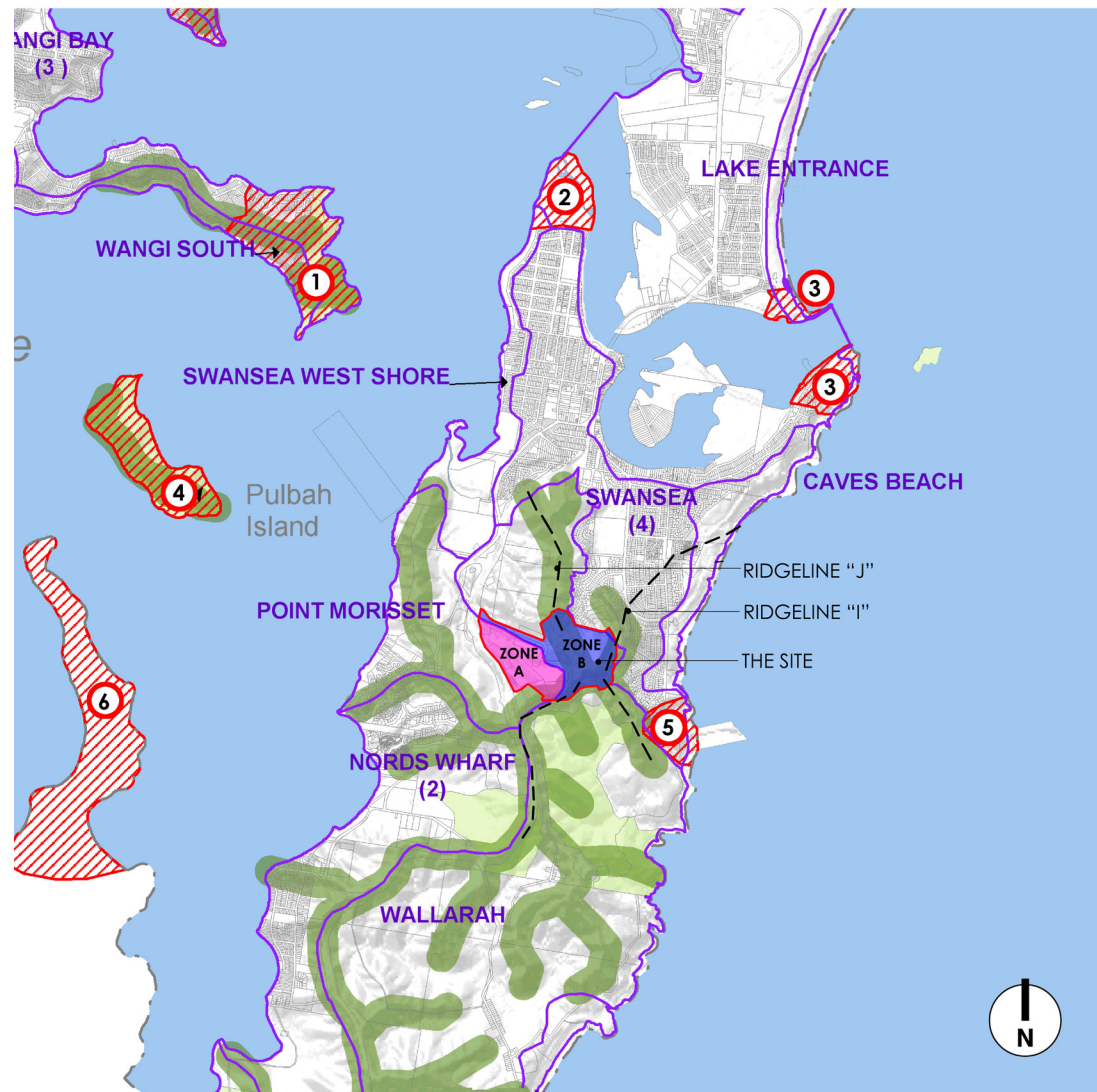


Figure 3.1: Landscape Setting and Scenic Management Zone - LMCC SQG
Significant Natural Landscape Features (shown as red hatch)

The landscape character of the Northern Sector is dominated by significant scarring resulting from extensive reshaping associated with: construction and maintenance of the now dis-used Old Pacific Highway; its general history of extractive industries; and, land fill operations. Open cut mining has resulted in a sheer cliff face of approximately 20m high below Mawsons Lookout, with waste material forming hummocks and mounds in the general vicinity with the northern edge being identified with high slope stability risk from land form being pushed over the edge and down the slope. Subsequent natural revegetation has occurred creating a broad vegetation cover, albeit of limited species diversity. The naturalness of the hillsides and ridges (even though disturbed below the canopy) have been identified as significant features within the area.

The SMG identifies four main landscape types that comprise the structure of Lake Macquarie: The Lake; Coast; Ridges and Hillsides; and, Hinterland. The most applicable guidelines relating to the subject site include those within the Ridges and Hillsides category. These encircle the lake and form a dominant visual backdrop to views across and around the lake.

3.2 site character

Within the Northern Sector the subject site relates to the majority of land which shall be referred to as the Central Precinct for this report and upon finalisation of the NWPAP. It is located approximately 3km south of the Swansea township, to the east of the Pacific Highway and straddles the Old Pacific Highway along the central ridgeline separating Murrays Beach and Caves Beach. The former Lake Macquarie Scenic Quality Guidelines (LMCC) [SQG] and subsequent VIMP (EDAW 2003), refers to this as Significant

“Ridgeline J” which shall continue in this report for consistency. This is described as a main vegetated ridgeline which forms part of the vegetated backdrop which is integral to the visual environment of the land and surrounds. The second Significant Ridgeline influencing the visual amenity of the area is “Ridgeline I”, which runs from Swansea Heads to Caves Beach (refer Figure 3.1).

The Central Precinct lies on the main ridgeline dividing Lake Macquarie from Caves Beach, east of the Old Pacific Highway. It sits on the ridge below Mawsons Lookout and falls steeply to Caves Beach to the east. This area contains large sections of highly disturbed areas due to its former use as an open cut coal mine. Undulating topography with re-establishment of a tree cover over a large portion of the disturbed areas combined with remnant vegetation on the eastern ridges, combine to create an amalgamated, broad vegetation cover.

Where unaffected by previous industry, pockets of native vegetation occur along the north eastern site boundary and to a lesser degree within the western section. This occurs partly within a riparian corridor which runs from the southern centre to the north west. Site vegetation predominately consists of a mix of Spotted Gum, Ironbark and Smooth-Barked Apple Forest and occurs within the valleys, slopes and ridgelines. Much of this remnant and regrowth vegetation has also been negatively impacted by clearing, regular burning and weed infestation.

The site is irregular in shape and occupies 74.6 hectares. It is devoid of structures. Further to the previous site descriptions, there is a network of gravel tracks crisscrossing the site which are currently used by the NSW Rural Fire Service (RFS) and local dirt bike enthusiasts.

Access to the site is via a four-way roundabout off ramp from the Pacific Highway which also services the established Murrays Beach residential development. Views of the site from west of the highway are restricted due to the undulating topography of the surrounding area and the existing forest vegetation.

Mawsons Lookout and adjacent topography, including Ridgeline I and J, (Figure 3.2 and Appendix D) obscure views into the site from the south, east and west, limiting the likely visual impact of the proposed development from these aspects. Mawsons Lookout Reserve is located within the south eastern site boundary and is recognised as a prominent viewing location within the region by providing panoramic views of the surrounding area, bush walking opportunities, sightseeing and picnicking. However it is currently a degraded community asset, due to lack of maintenance and high levels of vandalism.

The subject site is divided by the Old Pacific Highway, which also defines two different Scenic Management Zones as identified in the SMG. For ease of identification within this report, these two zones shall be referred to as Zone A and Zone B. Zone A occurs to the west of the Old Pacific Highway and is located within Scenic Management Zone 2 - Point Morisset. Zone B occurs to the east of the Old Pacific Highway and lies within Scenic Management Zone 7 - Wallarah (refer Figure 3.1). A High Scenic Quality Rating applies to both zones.

The majority of Zone A is not visible from surrounding areas due to its depressed topography which manifests as a riparian corridor along its lowest contours. A steep forested hillside encroaches Zone B and terminates at Ridgeline J and provides a strong visual backdrop from Lake Macquarie.

Although the proposed residential development will be in contrast to the existing undeveloped surrounding environment, the VIMP identifies the former quarry area as being visually suitable for accommodating a hilltop village community (Development Type 4) due to the already highly disturbed nature of this area. The proposal shall require extensive site earthworks and will result in complete removal of existing vegetation to the earthworks extents. This shall be replaced by residential development and canopy re-establishment planting to the boundaries of the developed areas. Lower density larger lots (Development Types 2) are permissible and proposed for the northern slopes thereby reducing the extent of canopy tree removal in this area. Refer Fig 5.2 - 5.5 for extent of development type zones.

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site character images

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Figure 3.2 - View north towards Swansea from Mawsons Lookout



Figure 3.3 - View west from Mawsons Lookout towards Lake Macquarie



Figure 3.4- View north along easement adjoining the site



Figure 3.5 - View south along the Pacific Highway

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the proposal

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5 The proposal

The proposal seeks an approval for a staged residential subdivision with DA 1 consisting of 262 lots and including a 15 lot community title subdivision. A village centre lot, a public reserve lot, drainage reserves for stormwater management (including swales, a detention basin and riparian corridor) also form part of the DA 1 plan (refer figure 4.1).

Residual lots intended for future development along the southern boundary interface shall undergo some early bulk earthworks and vegetation clearing, but subdivision layouts are subject to separate future development approvals. These future lots with estimated building heights shall form part of this assessment.

New public and community title roads shall provide connection to the approved Coastal Sector (Pinny Beach) located further south and new internal pathway networks shall also be included within the site. The proposal also includes works within the unformed road reserve between Lots 5 and 7 and to parts of Scenic Drive.

As the majority of the site comprises highly disturbed areas, major bulk earthworks are required in order to achieve the approved zoning and masterplan outcomes. Associated works also include clearing and selective vegetation remediation, targeted stabilisation and erosion control works. Revegetation and landscaping works shall be undertaken with prioritised consideration to bushfire management requirements (refer appendix 10 - Vegetation Management Plan).

The subdivision design and layout has been subject to several amendments as computer modelling identified areas that could present an undesirable outcome. This process is outlined in Appendix B.

Anticipated visual impact issues relating to the proposal include the following:

- An increase in the density of housing within a relatively undeveloped area.
- The potential to increase the visible building mass when viewed in context with the existing built environment.
- The potential temporary visual impacts associated with the construction of internal road infrastructure
- The potential visual impact on scenic features within the locality, such as background vegetated ridgelines.

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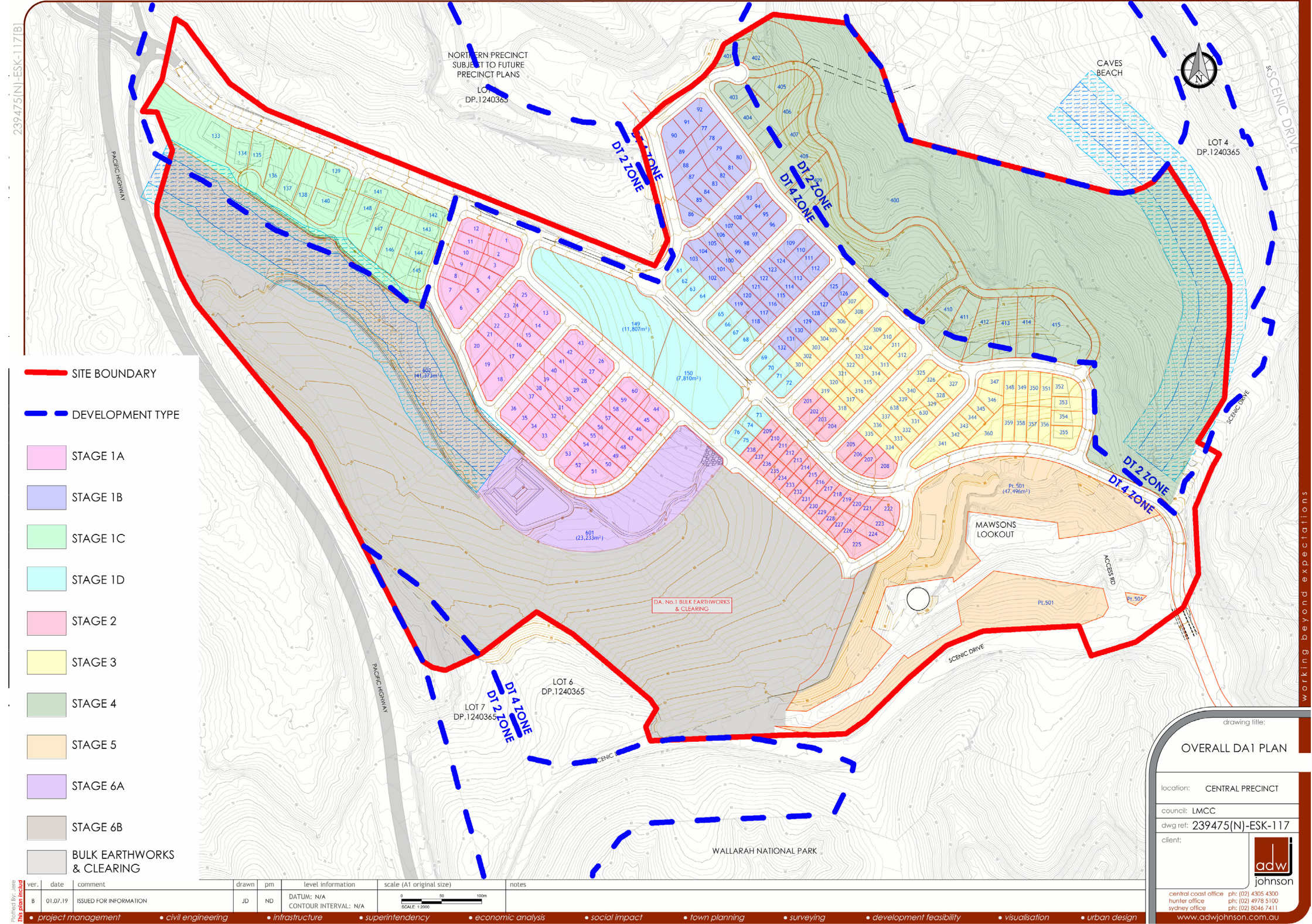


Figure 4.1- Proposed development Plan (Source:ADW Johnson Dwg.)

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6 visual intergration

5.1 site visibility

The North Wallarah Peninsula Project - Local Environmental Study (LES) identified site specific visibility categories, which in some instances are more applicable than those noted in the SMG. Therefore, although the SMG forms the base reference for the body of this assessment, consideration shall be given to the LES categories where appropriate. The categories are presented in Table 9.1 and graphically in Figure 9.1 showing the subject site context.

situation	viewer category	viewing context	viewing period	viewer numbers	viewer distance	visibility rating
1. Pacific Highway	Motorists	Moving vehicles (tourist and commuters)	4 minutes (@ 80km/hr)	H	0-1km	H
2. Lake Macquarie	Recreational lake users	Boats (moving and stationary)	Variable	Mod	0-8km	L
3. Urban Development & open space along Lake Macquarie	Residents & Visitors (Diamond Drill Point, Morisset Peninsula, Wangi Wangi)	Views from houses, open space and moving vehicles	Variable, depending on resident orientation and period spent in open space	Mod	2-8km	M
4. Urban Development Caves Beach / Swansea	Residents and visitors	Views from houses and open spaces including Caves Beach and moving vehicles	Variable, depending on resident orientation and period spent in open space	Mod	0-3km	H
5. Offshore of Caves Beach and Pinny Beach	Recreation boat users	Views from boats	Variable depending on period of recreation activity	Low	0-10km	L
6. Proposed coastal walk	North and south bound walkers	Recreational	Approx. 30-45 minutes, depending upon walking speed	Low	0-1km	M

Table 9.1: Visibility Categories (Source: Woodward Clyde, 1999)

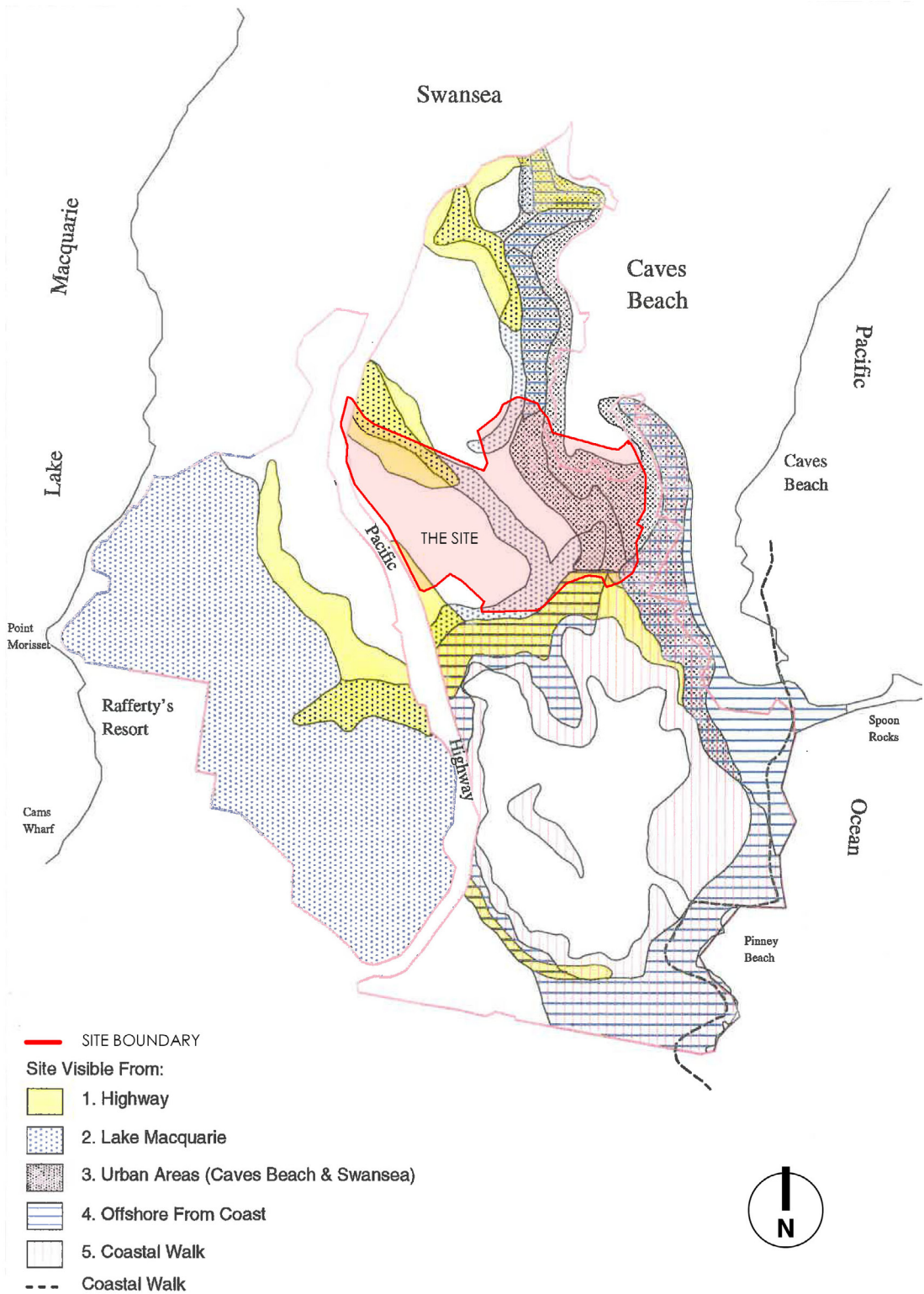


Figure 5.1: Site Visibility (Source: Woodward Clyde, 1999)

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development type visual suitability

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5.2 development type visual suitability

The LES (AGC Woodward-Clyde Pty Ltd, 1999) identifies four development types as potentially being suitable for the Wallarah Peninsula and of those four, two are applicable to the subject site. The boundary of each type is indicated in Figure 5.1 and the criteria relevant to this assessment for each development type are:

Development Type 2 (DT2)

- *Clusters of development lots planned as a transition between DT3 and DT4 and the larger, low density lots of DT1.*
- *Designated building envelope identified for each lot, to take account of bushfire protection requirements.*
- *Generally larger lots (up to 1 hectare) with substantial unbuilt areas.*
- *Selective canopy removal within the building envelope.*
- *No cut or fill to be undertaken on natural slopes greater than 10% other than as required for access.*
- *Individual building footprints less than 750 sq. m.*

Development Type 4 (DT4)

- *Urban village settlement, with diverse urban forms including terraces, small cottages, large homes, traditional suburban residential development, attached housing, apartments, neighborhood centre and retail / tourist uses.*
 - *Landscaping using indigenous species to enhance natural vegetation retained in road reserves and public open space particularly along drainage lines.*
- (Woodward-Clyde 1999, Section 5.1 Introduction)

The following suitability levels were subsequently assigned to the different development types in the LES:

Visual Suitability Level 1 (VS 1)

- *Generally suitable provided standard planning controls are implemented to ensure scenic quality is not significantly reduced. (Woodward-Clyde 1999, Section 5.3 Visual/Scenic Resources)*
- *Require only standard planning controls to be implemented and are addressed by the site and regional integration strategies detailed in the VIMP.*

Visual Suitability Level 2 (VS 2)

- *Mostly suitable provided special planning, design and management provisions are implemented to ensure scenic quality is not significantly reduced. (Woodward-Clyde 1999, Section 5.3 Visual/Scenic Resources)*
- *Requires special planning provisions as detailed in the VIMP and may be accompanied by detailed analysis such as visual simulations and cross sections.*

Visual Suitability Level 3 (VS 3)

- *Generally unsuitable except for very site specific situations where special planning, design and management provisions would need to be implemented to ensure scenic quality is not significantly reduced. (Woodward-Clyde 1999, Section 5.3 Visual/Scenic Resources)*
- *Requires very site specific special provisions that are responsive to the overall visual integration objectives for the site.*
- *Management strategies are more prescriptive than those of Level 2 and in addition to the strategies listed in the VIMP, require diagrams and cross-sections to evaluate appropriate set-backs and height requirements and axonometric drawings illustrating the relationship between the built form characteristics, vegetation retention and views. (EDAW, 2003, p 52).*

Figures 5.2 and 5.3 indicate the proposed development types in context with their visual suitability levels as defined in the LES. Where the location of these development types resulted in Level 2 or 3 suitability, they were further assessed in the VIMP, based upon visibility and visual absorption capacity. The resulting precinct subunits are graphically presented in Figure 5.4 and contribute to the discussion of findings.

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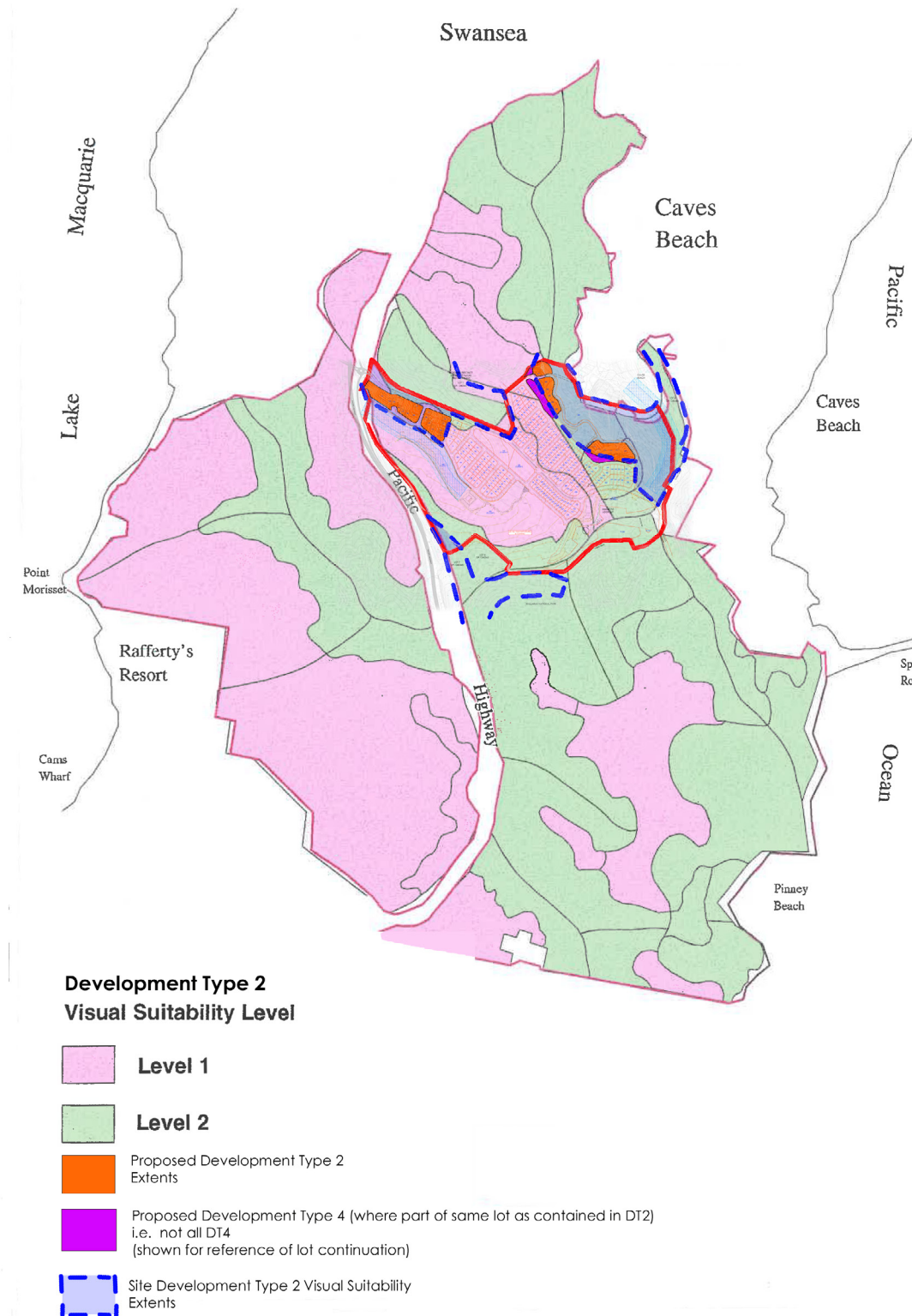


Figure 5.2: Development Type 2 Visual Suitability (Base Plan: VMP, Figure 5.3, page 53)

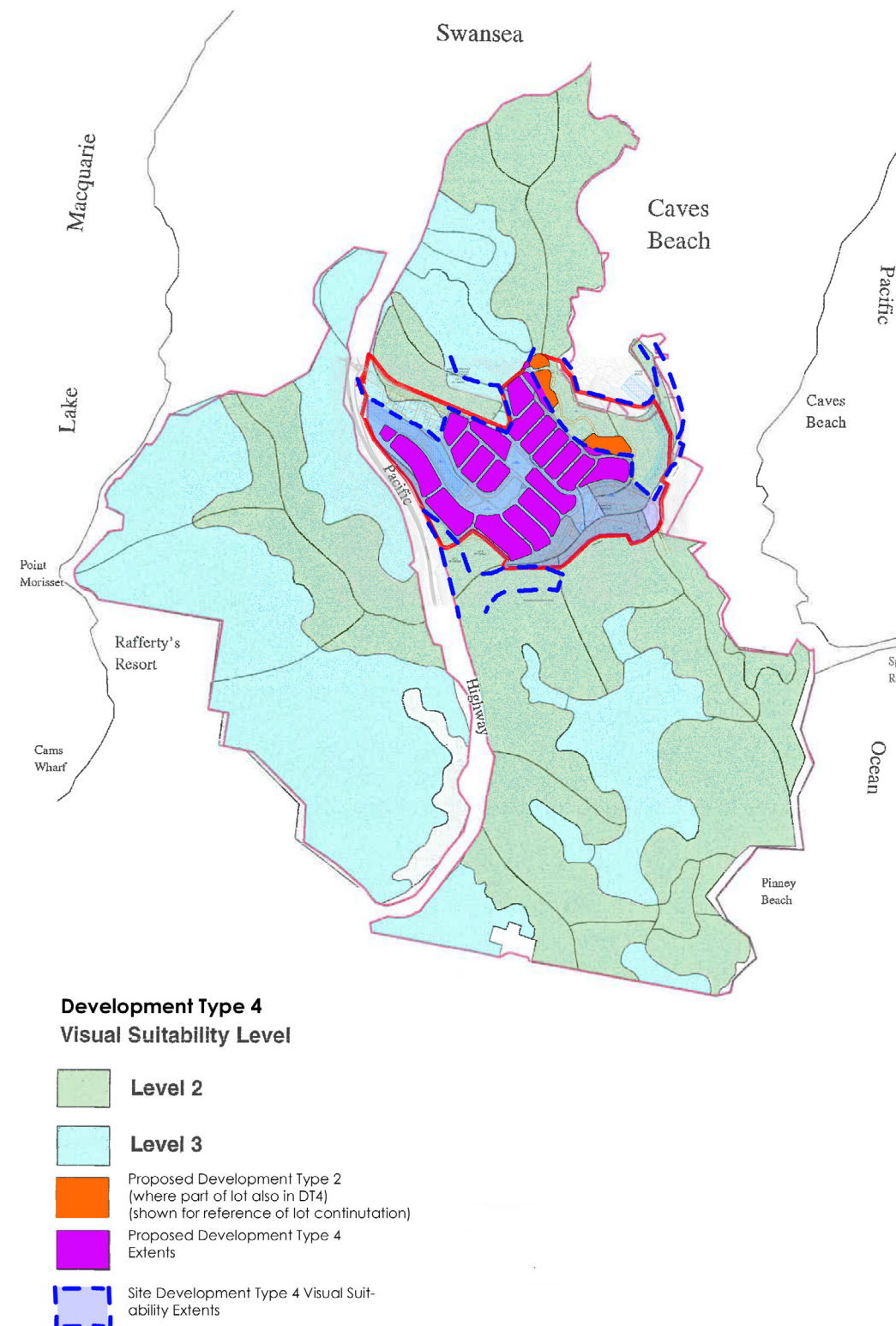


Figure 5.3: Development Type 4 Visual Suitability (Base Plan: VMP, Figure 5.3, page 53)

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client:
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by:
KH / KM
date:
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job number:
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development type discussion

visual integration report

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5.3 development type discussion

The VIMP reconfirms the LES suitability mapping using site visibility and visual absorption capacity and identifies visual integration strategies to maintain visual character. The VIMP identifies visual management strategies for the Northern Sector consisting of :

- General Sector Strategies
- Additional strategies to mitigate
- Regional Strategies

Five subunits occur across the site as identified in the VIMP. Nsa and Nsg relate to the lots with larger envelopes (Stage 4 and Stage 1C, refer to Figure 5.5). It is proposed that the Murrays Beach controls will apply to these (Part 3 of NWP Area Plan). For the remaining sections of the site covered by subunits Nsm, Nsc and Nsh, the NWP draft guidelines are proposed (Part 5.3 - Northern Sector - Central Precinct).

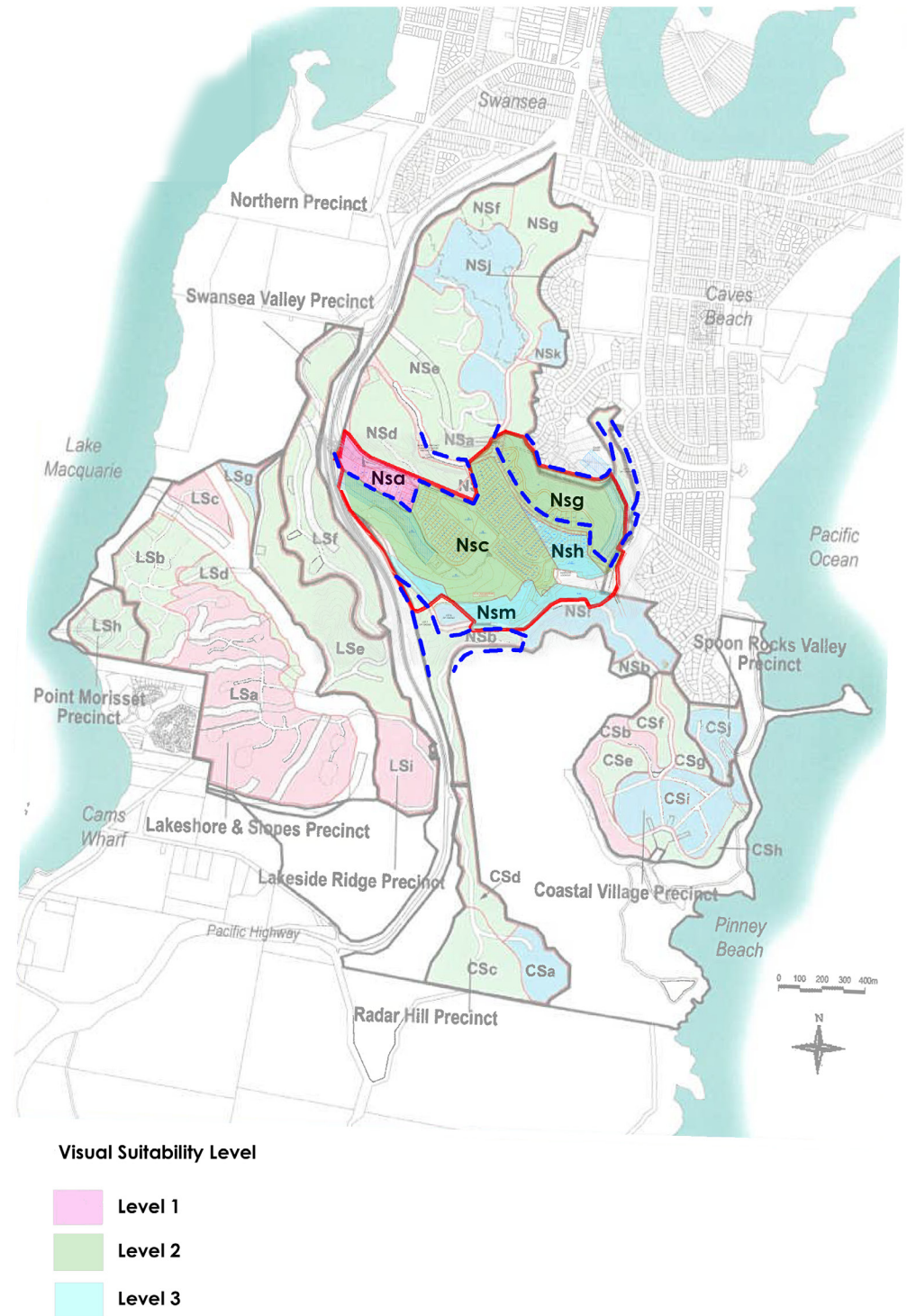


Figure 5.4: Visual Suitability Subunit Map for allocated development types for Masterplan approved Development Land Use Plan(EDAW 2003) (Base Plan: VIMP, Figure 5.5, page 56)

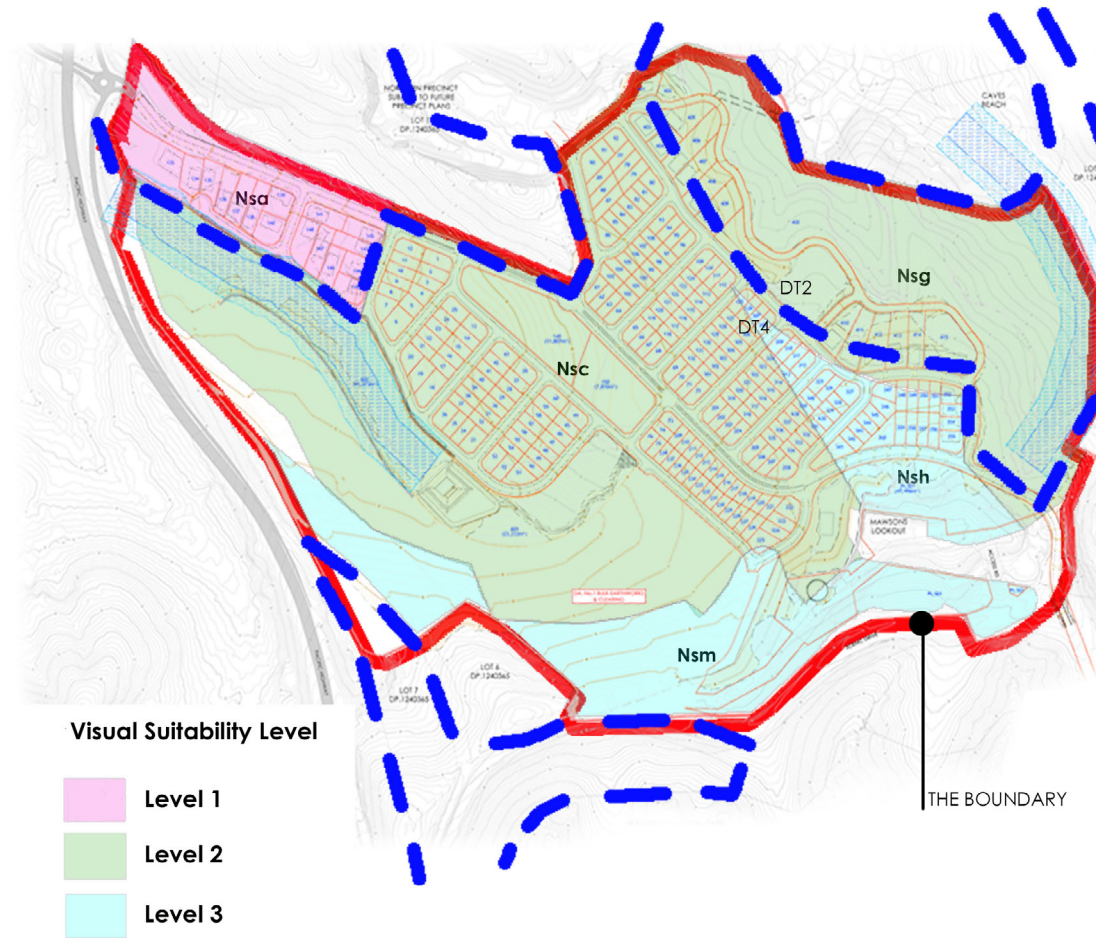


Figure 5.5: Visual Suitability Subunit Map Detail with proposal overlaid(Base Plan: VIMP, Figure 5.4, page 55)

Development Type 2 (DT2)

Two subunits occur within the site being Nsa and Nsg.

Sub unit (Nsa) is located in the north western corner of the subject site (comprising of Lots 133 - 148) and is considered as having Level 1 Visual Suitability (VS) when assessed for DT2. These are considered to be the most suitable type for that location and as such only require the implementation of standard planning controls in order to achieve appropriate visual integration.

Larger lot sizes are proposed within this subunit to ensure minimal clearing of vegetation and allowing for managed vegetation areas external to proposed building envelopes(Refer Appendix 10 Vegetation Management Plan), to ensure adequate screening of the proposed development from viewpoint 11, the Pacific Highway. Building heights are limited to 8.5m.

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The Murrays Beach controls apply to this subunit. These controls relate to colours, materials, roof form, articulation and fencing. There is a specific additional exclusion in colours of lighter shades of white and near white. The VIMP does not provide specific controls for Level 1 suitability types; however, points to Chapter 4 objectives and strategies to be applied to ensure the overall scenic quality of these areas remains intact.

Subunit Nsg occupies the north eastern slopes of the development. Larger lot sizes have been proposed to this subunit to enable canopy re-establishment to the northern edge. These lots have a Level 2 Visual Suitability rating. The proposed building footprint of Lots 402, 404- 409 occur along the northern internal road frontage. Extensive modelling indicated that these lots were impacting on the dominance of the vegetated ridge line and so were reduced in height to 5.5m.

Lots 401,403,404, 406-415 occur fully or partially within the DT4 (higher density) zone however the development controls for DT2 have been extended to the road edge . The VIMP states that visual simulations (such as modelling) and cross-sections are required to ensure suitable visual integration occurs. These objectives have been met and are presented in the viewpoint analysis sheets which indicate that the proposal shall be sufficiently visually integrated with the surrounding environment (appendix 11).

Visual integration shall be readily achieved by considered design of tiered retaining walls and canopy re-establishment of native canopy species(Refer Appendix 10 Vegetation Management Plan). Further, these lots occur within Stage 4 of the proposed development, allowing sufficient lead time for vegetation establishment prior to the undertaking of building works. Similar to subunit Nsa, the Murrays Beach building controls apply to this subunit.

Development Type 4 (DT4)

The majority of the proposed development (Nsm, Nsh, Nsc) consists of DT4 within Level 2 and 3 Visual Suitability.

When evaluated for DT4 in the VIMP, the majority of lots are considered as having Level 2 VS. However Lots within subunit Nsh (Quarry Floor) are identified as Level 3 VS in the DLUP mapping. It is proposed to retain existing vegetation on the northern slopes of Mawsons lookout with a portion of the lower slopes proposed to be re vegetated. Building heights within this subunit have been limited to 8.5m (ref appendix 8 building height plan) to ensure the proposed development does not broach the ridgeline. The CLUMP states the objectives of this area are "to allow development on the portion of the site that has been extensively disturbed by open cut mining and quarrying while protecting scenic resource values and avoiding environmental impacts on adjoining areas."

Specific controls for the subunits are detailed in Section 5.5 of the VIMP. Please refer to Appendix 11 (Visual Integration Table) for a breakdown of the integration strategies proposed within the VIMP and how these have been addressed within the development of the plan. The DA includes proposed building guidelines for the DT4 subunits.

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viewpoint selection

visual integration report

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7 viewpoint selection

(Refer to separate worksheets, Appendix 13).

This section of the scenic assessment considers the likely impact that the proposed development may have on the local environment. This is done by identifying and selecting particular sites, referred to as viewpoints, conducting inspections and determining what part of the development will be visible from those viewpoints and the visual impact of that development proposal. The evaluation is based on the criteria detailed in the appendices of this report as well as assessment criteria contained within the *LMCC Scenic Management Guidelines* (LMCC, 2013), (Appendix 1 - scenic management guidelines).

A desktop study was undertaken to determine the visibility of the site from regional influences identified within the North Wallarah Peninsula Masterplan (NWMP) including Lake Macquarie, the Pacific Highway, Pacific Ocean and surrounding urban development. Fieldwork was then undertaken to confirm identified viewpoints.

The viewpoints, were selected on the basis of where the development would appear to be most prominent either based on degree of exposure, levels of contrast or the number of people likely to be affected.

The images were taken using a SLR digital camera with an equivalent focal length of 50mm. The images were then stitched into a number of photo panoramas to put the site in context with the surrounding area. The attached landscape format viewpoint worksheets provide analysis data and an impact assessment

The selected viewpoints are as follows:

1. Caves Coastal Bar and Bungalows - typical of bar patrons and users of the adjacent park.
2. Reids Playground Reserve Breakwall - typical of boat enthusiasts using the channel and also recreational users of the channel edge.
3. Blacksmiths Boat Ramp - typical of ramp users and also motorists travelling south towards Swansea.
4. Swansea Bridge entry, Pacific Highway - typical of motorists travelling south towards Swansea.
5. Lake Entrance, Blacksmiths Breakwall.
6. Old Swansea Boat ramp - typical for Swansea channel users and recreational users of the cycleway.
7. Pelican Foreshore Park - typical of Swansea channel users.
8. Pinny Beach - limited access by 4WD.
9. Wangi Point Holiday Park - typical of recreational boat users on Lake Macquarie and those staying at Wangi Holiday Park.
10. Coastal, Off Caves Beach - typical of recreational boat users.
11. Old Pacific Highway overpass - typical of motorists travelling south along the Pacific Highway.

The following diagram shows the location of all viewpoints inspected during early fieldwork. Arising from this work, key viewpoints were identified that were then assessed in greater detail using computer modelling and additional ground truthing.

The following section provides a detailed analysis from each of the 11 viewpoints selected. For each viewpoint the following has been provided:

- site photo with associated evaluation criteria table and description of view
- enlarged photo for clarity
- site modeling provided by ADW Johnson.
- a viewpoint assessment

For sensitive views identified 2, 3 and 7 photomontages have also been provided within the sequence. For these viewpoints that demonstrated to be particularly sensitive, i.e. Viewpoints 2, 3 and 7; photomontages have been prepared to further demonstrate the proposed impact. These photomontages were prepared with the assistance of ADWJ and its modelling of the proposed development.

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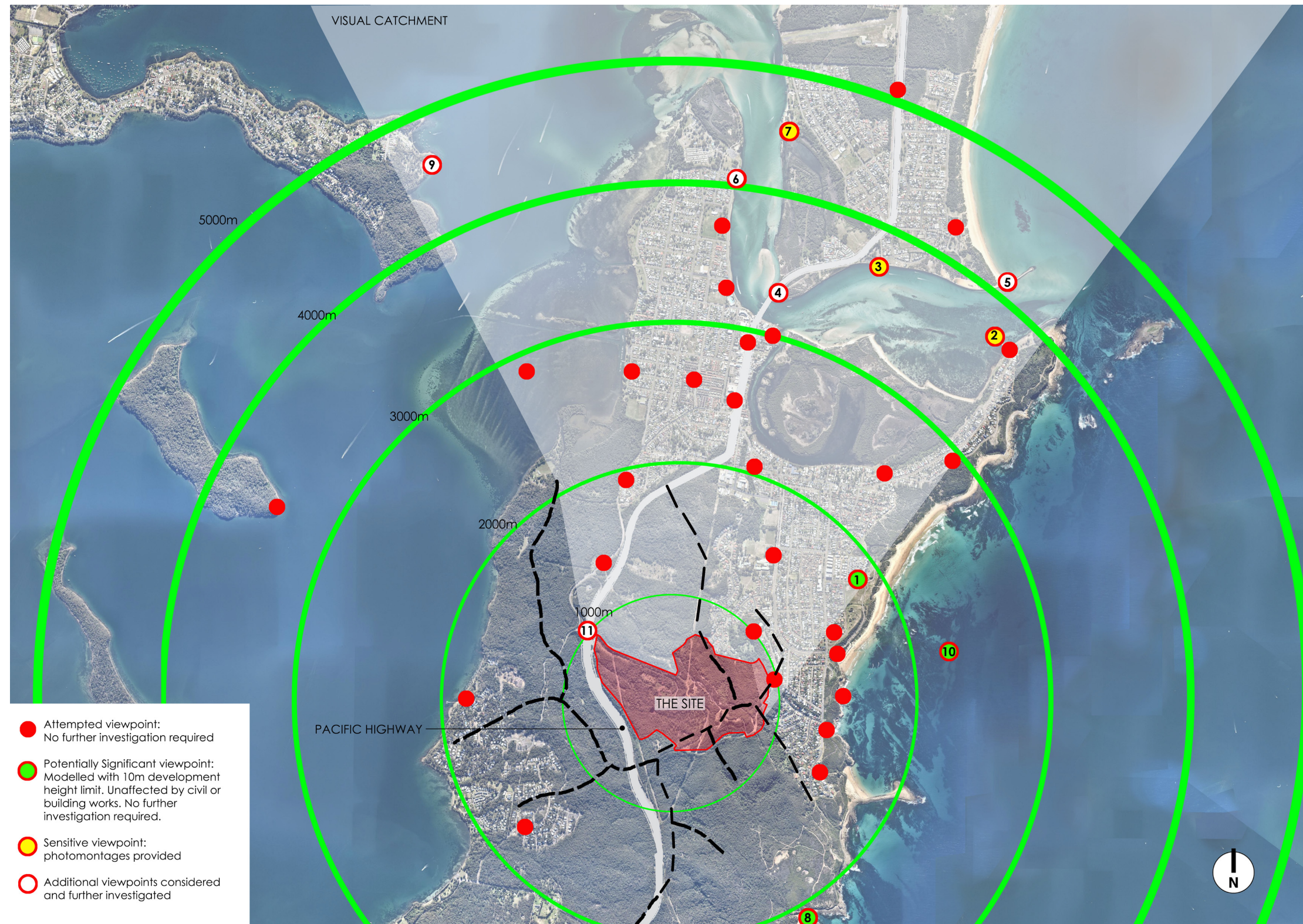
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viewpoint selection

visual integration report

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Figure 6.1 Viewpoint locations

viewpoint 1

visual integration report

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Viewpoint location



Enlarged view of site



VIEWPOINT LOCATION
Caves Coastal Bar and Bungalows
Mawson Close, Caves Beach

COMMENTS
Viewpoint is approximately 1.7km from site.
“Ridgeline 1” obstructs views to the majority of the site from this location.
Existing residential houses on the hillside appear to breach the ridgeline in the foreground. Viewers affected would mainly be recreational users of the nearby facilities.

EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

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viewpoint 1 - model
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site details:
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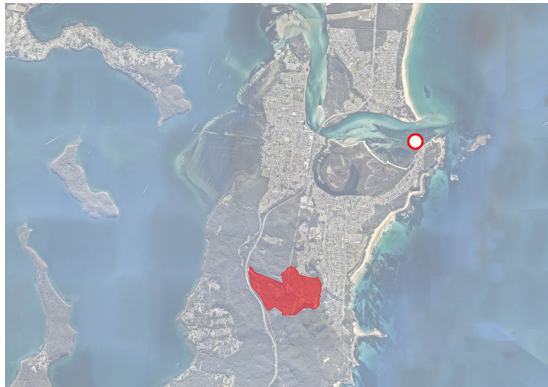
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CONCLUSION

Viewer access is high due to the viewing duration and viewer numbers. Visual sensitivity is considered high as it shall be viewed from a tourist and passive recreation area. The model indicates that none of the built form shall be visible from this location, so the visual effect is low. The proposal will sit within its landscape setting and will not be visible from this viewpoint. There is existing residential development located across the hillside and buildings, street trees and vehicles within the foreground restrict viewer access to the site. The ridgeline is not breached and vegetation on Mawsons Lookout continues along the skyline. Despite these factors, the high visual sensitivity rating results in a moderate visual impact when referencing Table 8.4 (Visual Impacts Table), but the modelling indicates that in reality it will be low.

viewpoint 2

visual integration report



Viewpoint location



Enlarged view of site



VIEWPOINT LOCATION
Reids Playground Reserve Breakwall
Lambton Parade, Swansea Heads

COMMENTS
Distance to the centre of the site from this location is 3.8km.
View towards the site from the end of the breakwall.
This is the typical view experienced by marine vessels entering the channel and fishers on the western side of the breakwall.
Views incorporate vegetated hillsides extending down to the waters edge, with limited views of Caves Beach residential fabric. Swansea Heads urban fabric is dominant in the foreground.

EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

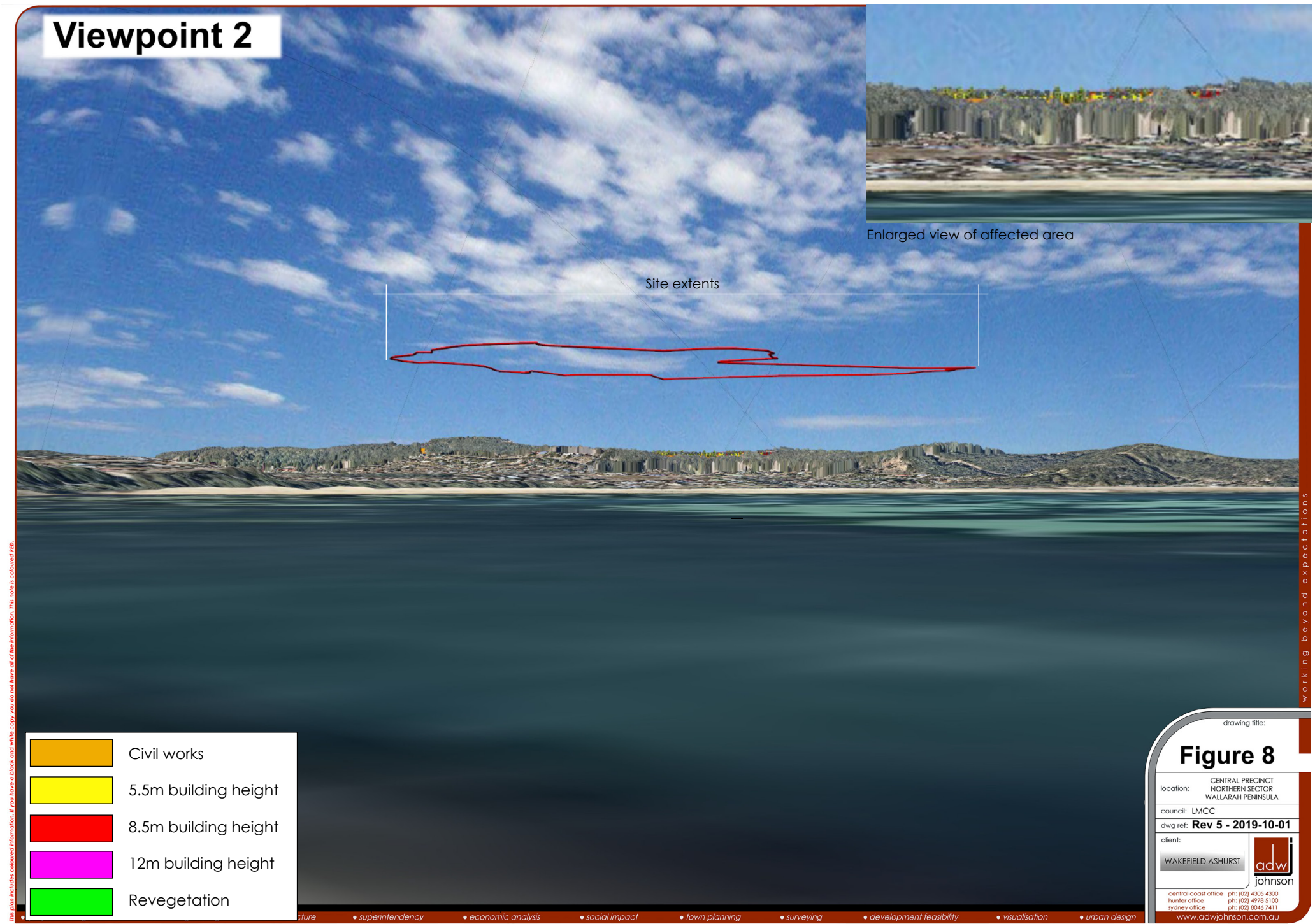
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viewpoint 2 - model

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CONCLUSION

Viewer numbers are variable (low - high), depending upon seasonal variations. When using high viewer numbers as a worst case scenario (for marine vessels during peak summer periods), viewer access is still considered to be low, due to the very short viewing duration and long viewer distance. Viewer access is also partially limited by the distance to the site and topography. The same low viewer access result applies to low viewer numbers for long viewing duration (breakwall fishers). Visual sensitivity is considered high as it shall be viewed from a tourist and passive recreation area less than 6km away.

Some northern sections of the proposed development (around Lot 80) shall be visible from this location (at 13m high canopy re-establishment modelling for ten years), due to the higher natural elevation of these lots. However the viewer distance combined with visual integration strategies (materials and colour palette), will ensure a moderate visual impact. This is estimated to occur beyond 10 years after the canopy re-establishment works having been completed at which time the development will be screened from view.

viewpoint 2 - photomontage
visual integration report

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site details:
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COMMENTS

This photomontage shows how the proposed development will appear after ten years following the completion of the canopy re-establishment works. A different colour green has been used to distinguish where the new canopy will occur, although in reality the colour should blend in with existing vegetation as it is proposed to use similar species to those occurring on the site. It is considered there will be minimal loss to the visual quality of Swansea Channel due to integration measures proposed and the viewing proximity.



viewpoint 3

visual integration report



Viewpoint location



Enlarged view of site



VIEWPOINT LOCATION
Blacksmiths Boat Ramp
Ungala Road, Blacksmiths

COMMENTS
Distance to the centre of the site from this location is 3.8km.
View towards the site from Blacksmiths Boat Ramp.
General view for marine vessels on the channel and those using the boat ramp, however viewing duration will be low.
Existing residential development is visible on the eastern hillsides below the site from this location, which reduces the visual contrast of the proposal.

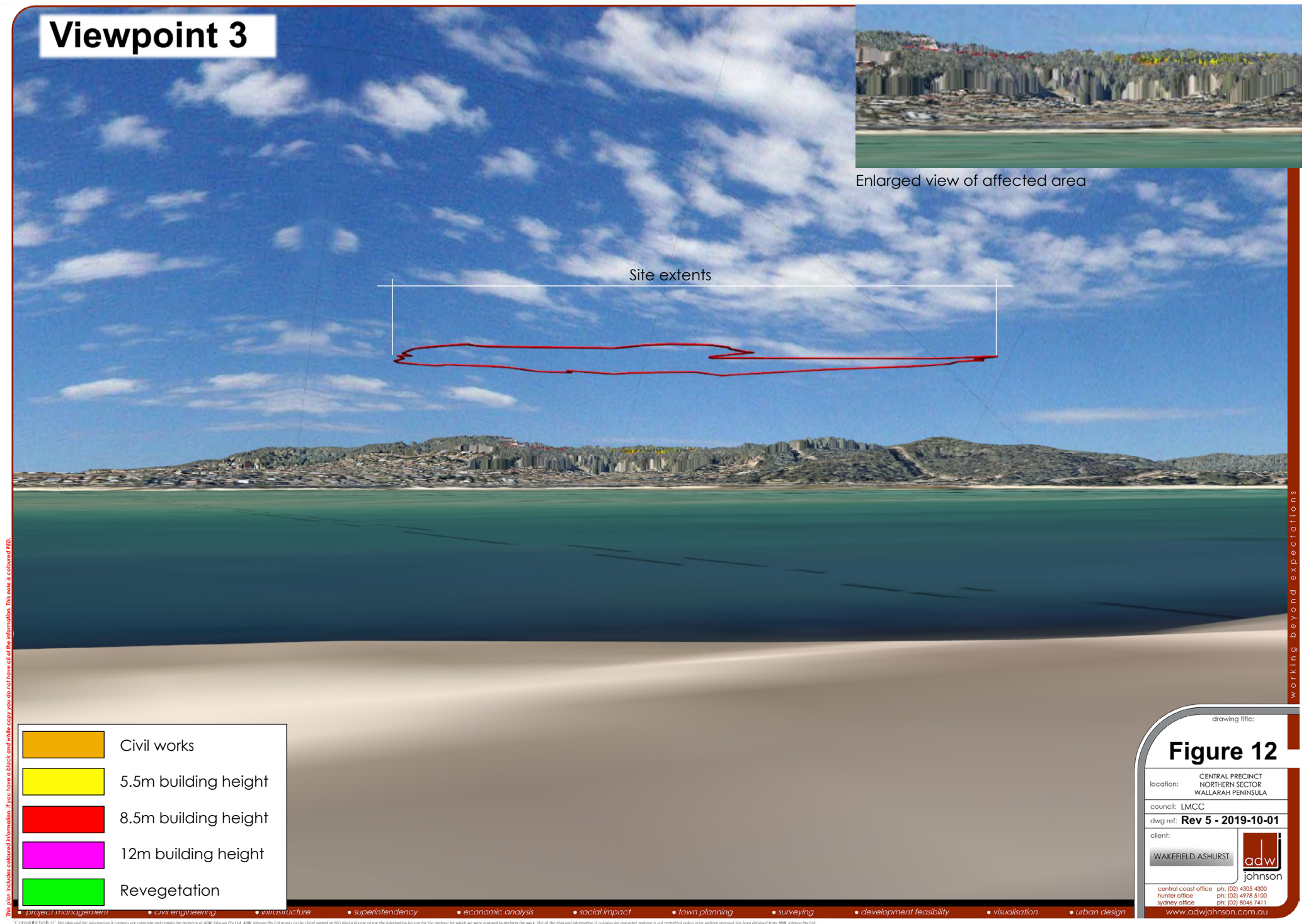
EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

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viewpoint 3 - model visual integration report

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CONCLUSIONS

Viewer access is considered high as this view is typical of people using the boat ramp but also motorists travelling south along the Pacific Highway towards Swansea. It is anticipated that exposure time will be limited due to activities focussed around the boat ramp. As this viewpoint is located within a tourist and passive recreation area, visual sensitivity is rated as high. From this location the proposed development shall be viewed in context with the existing foreground development. Whilst the cumulative effect of evolving development is acknowledged, it should be noted that the existing view is not pristine. It is estimated that the visual effect of the proposal shall be low. This rating, combined with a high visual sensitivity has resulted in an anticipated moderate visual impact.

Northern sections of 5.5m high buildings (Lots 405 - 409) and some 8.5m high (Lots 410 - 415) shall be initially visible, however the model indicates that this effect shall be reduced over time when the proposed canopy re-establishment planting to the northern slopes will help to further mitigate the visual impact from this viewpoint. For the interim, visual integration shall be achieved via building materials and colour palette selection.

viewpoint 3 - photomontage

visual integration report

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COMMENTS

This photomontage shows how the proposed development will appear after ten years following the completion of the revegetation works. A different colour green has been used to distinguish where the new canopy re-establishment will occur, although in reality the colour should blend in with existing vegetation as it is proposed to use similar species to those occurring on the site. It is considered there will be minimal loss to the visual quality of Swansea Channel due to integration measures proposed.

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viewpoint 4

visual integration report

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Viewpoint location



Enlarged view of site



VIEWPOINT LOCATION

Swansea Bridge entry
Pacific Highway, Swansea

COMMENTS

Distance to the centre of the site from this location is 3.2km.
View towards the site as viewed by south bound traffic on the Pacific Highway. At times the traffic can be slow-moving and stopped due to peak time congestion and the bridge opening periodically.
Southbound cyclists on the cycleway and fishers will also be exposed to this view for varying durations.
The immediate foreground is dominated by infrastructure and buildings to the water's edge.

EVALUATION CRITERIA					
location of site		foreground		middleground	background
viewer position		inferior		neutral	superior
viewer access		low		moderate	high
visual sensitivity		low		moderate	high
visual effect		low		moderate	high
visual impact		low		moderate	high

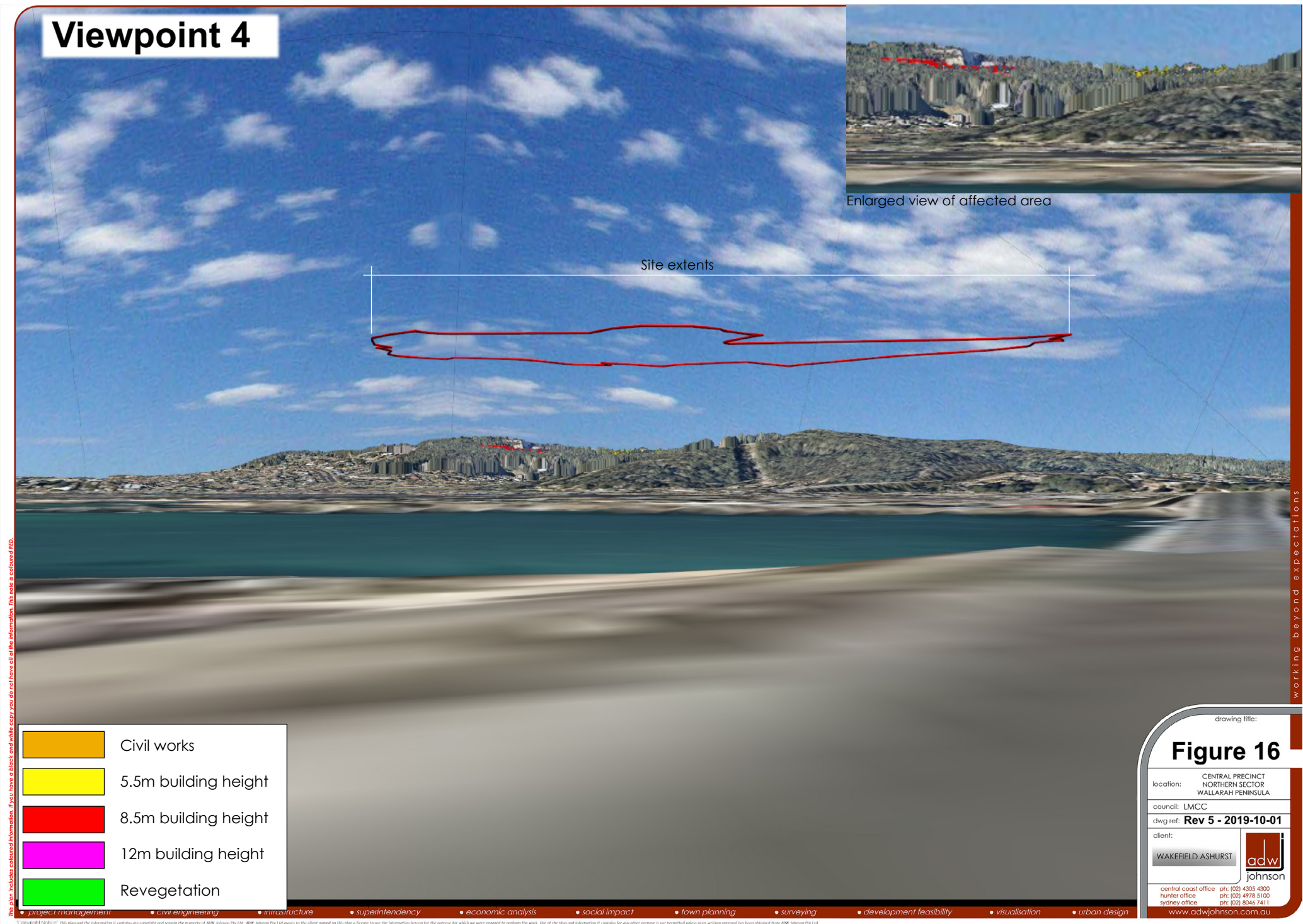
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viewpoint 4 - model visual integration report

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CONCLUSIONS

Viewer access is semi-restricted due to foreground power lines and infrastructure related to the highway and Swansea township. Despite high viewer numbers along a busy connecting road, 18,000 vehicles south bound on the Pacific Highway at South Belmont on any day, [RMS 2019], viewer access is rated as low due to the long distance and very short (< 10 minutes) viewing time. Visual sensitivity is considered moderate as it is located along a major travel corridor and is further than 1km from the site. It is anticipated that small sections of the 5.5m high buildings may breach the ridgeline vegetation, however the model demonstrates that proposed canopy re-establishment works shall filter views to this built form within 10 years (as a conservative estimate).

The 8.5m high buildings at the foot of Mawsons Lookout (Lots 356 - 360) shall be visible. The proposed development will not breach the ridgeline and those sections that are visible from this location shall be well below the existing vegetation line on Mawsons Lookout. There will likely be a low visual effect from this location as it will be viewed as a slight continuation of the existing hillside development and the use of recessive material and colour palettes will further assist with visual integration.

viewpoint 5

visual integration report

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Viewpoint location



Enlarged view of site



VIEWPOINT LOCATION
Lake Entrance
Blacksmiths Breakwall

COMMENTS
Distance to the centre of the site from this location is 4.1 km.
Viewers from this location shall be marine vessels on the channel, walkers, fishers and the general public using Grannies Pool. Recreational pool users are likely to have long observation periods, resulting in high viewer access and visual sensitivity.
Existing residences forming part of the Caves Beach residential fabric are visible on the hillside below the ridgeline which shall somewhat contribute to a reduction in visual contrast of the proposal.

EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

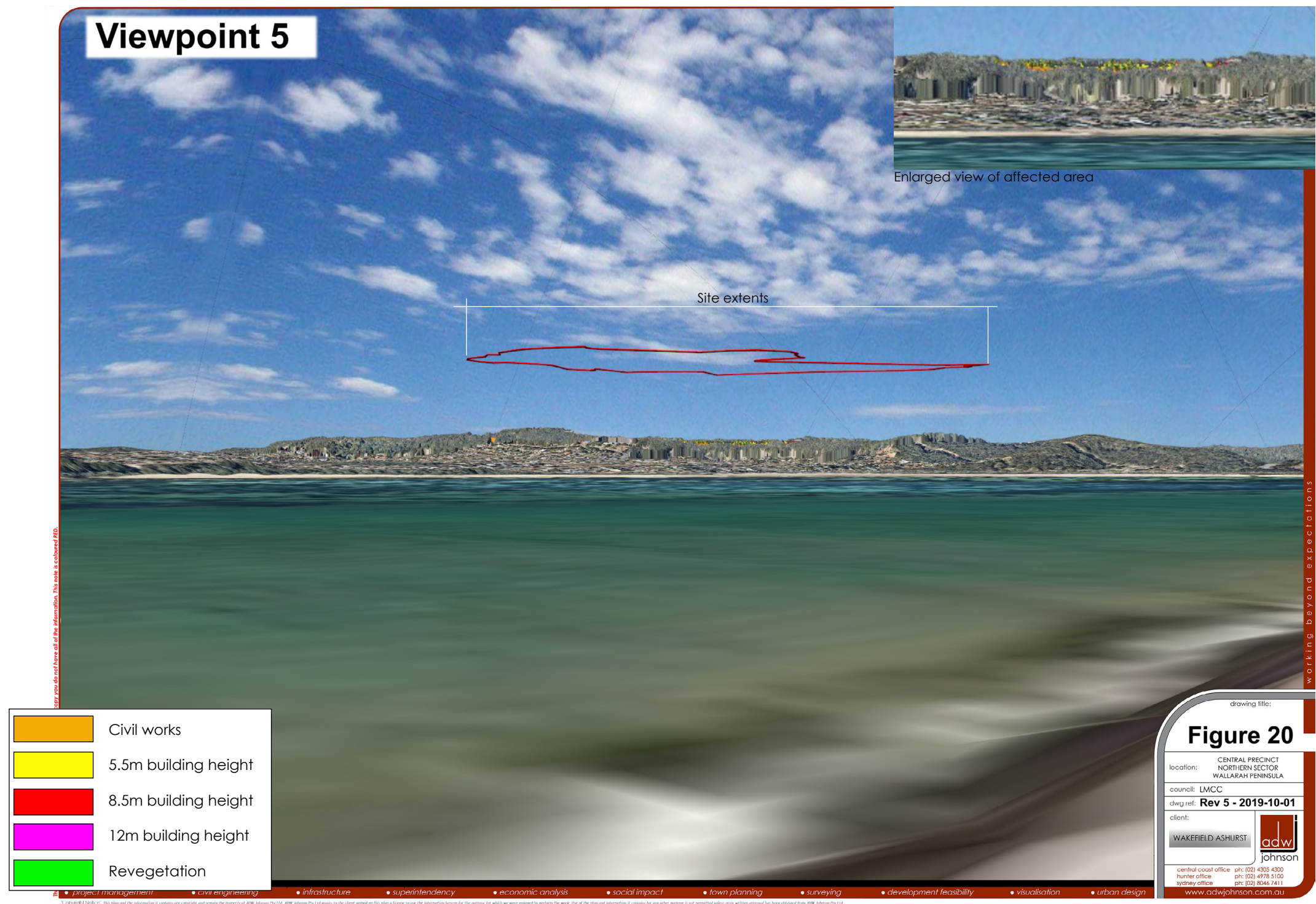
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viewpoint 5 - model visual integration report

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CONCLUSIONS

Despite this viewpoint having a potentially long viewing duration (at Grannies Pool) and potentially high viewer numbers during peak summer periods, viewer access is rated low due to the distance from the site. A high visual sensitivity rating applies to this viewpoint as it is for tourist or passive recreation within 6km of the site. Some portions of the 5.5m high buildings (Lots 93-96, 109-112, 125-126 and 307-308) shall be initially visible prior to the establishment of canopy trees. It is anticipated that the upper edges of these buildings and rear of Lot 80 (8.5m building height) shall remain visible after 10 years as demonstrated with the assumed 13m high canopy reestablishment filtering views through to the built form. Considering the proposal shall be viewed in context with the existing built environment, coupled with visual integration measures results in an estimated low visual effect. Despite this, the high visual sensitivity

rating results in a moderate visual impact when referencing Table 8.4 (Visual Impacts Table).

viewpoint 6

visual integration report

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Viewpoint location



Enlarged view of site



VIEWPOINT LOCATION
Old Swansea Boat ramp
Channel Street, Swansea

COMMENTS
Distance to the centre of the site from this location is 4.1km.
This view is typical for Swansea Channel users travelling south and recreational users of the cycleway. Unobstructed views are afforded south along the waterway to the site, however viewer distance is significant.
Electrical power line easement cutting is visually prominent from this location.
The proposed development will not breach the skyline when viewed from this location and existing vegetation to Mawsons Lookout continues above the visible portion of the built form.

EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

site details:
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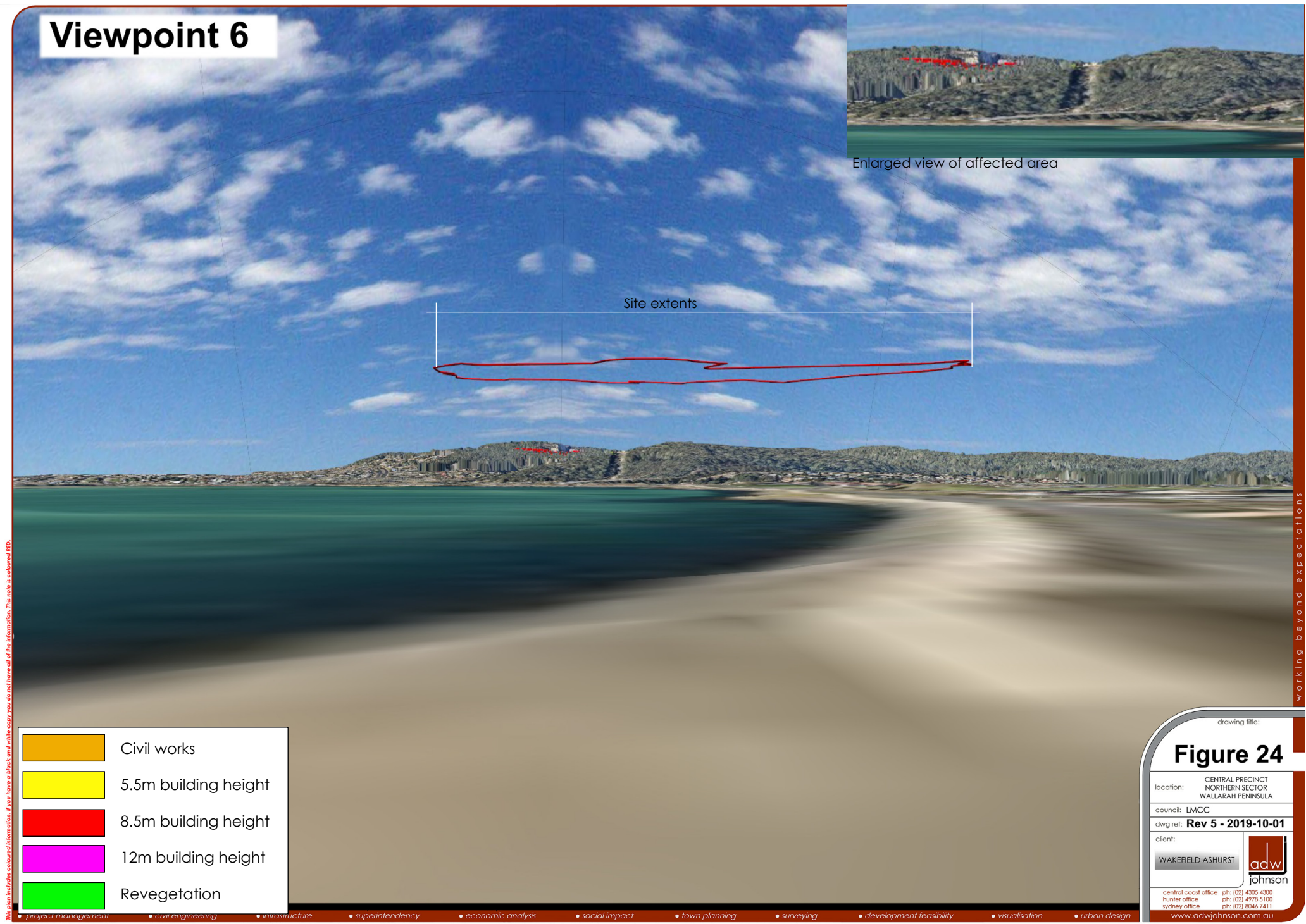
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CONCLUSIONS

View typical of Lake Macquarie with town fabric offset with vegetated ridgeline. Viewer numbers and duration are likely to fluctuate due to seasonal variations, however even when using the higher ratings the estimated viewer access is considered to be low. Visual sensitivity is high due to viewers being those using the waterway and adjacent paths for recreation. The 8.5m high buildings at the foot of Mawsons Lookout (Lots 356 - 360) shall be visible. The proposed development will not breach the ridgeline and those sections that are visible from this location shall be well below the existing vegetation line on Mawsons Lookout. There will likely be a low visual effect from this location as it will be viewed as a slight continuation of the existing hillside development and the use of recessive material and colour palettes will further assist with visual integration. The proposal seeks to relocate a section of the existing overhead power line which presents the

opportunity for additional canopy tree planting within part of the existing cleared easement. Despite the above comments, the proposal having an anticipated low visual effect and being a significant distance from the site, according to the EDAW Visual Impacts Table, the proposal may have a moderate visual impact due to its high visual sensitivity rating.

viewpoint 7

visual integration report



Viewpoint location



Enlarged view of site



VIEWPOINT LOCATION
Pelican Foreshore Park
Lakeview Parade, Pelican

COMMENTS
Distance to the centre of the site from this location is 4.6km.
View is looking south across Swansea Channel with unobstructed views towards the site.
Although this area is used for passive recreation, it should be noted that views are generally screened for park users and they need to venture to the water's edge to obtain clear views to the site.
The scars created by previous land use below Mawsons Lookout and the electricity easement are quite visible from this location.

EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

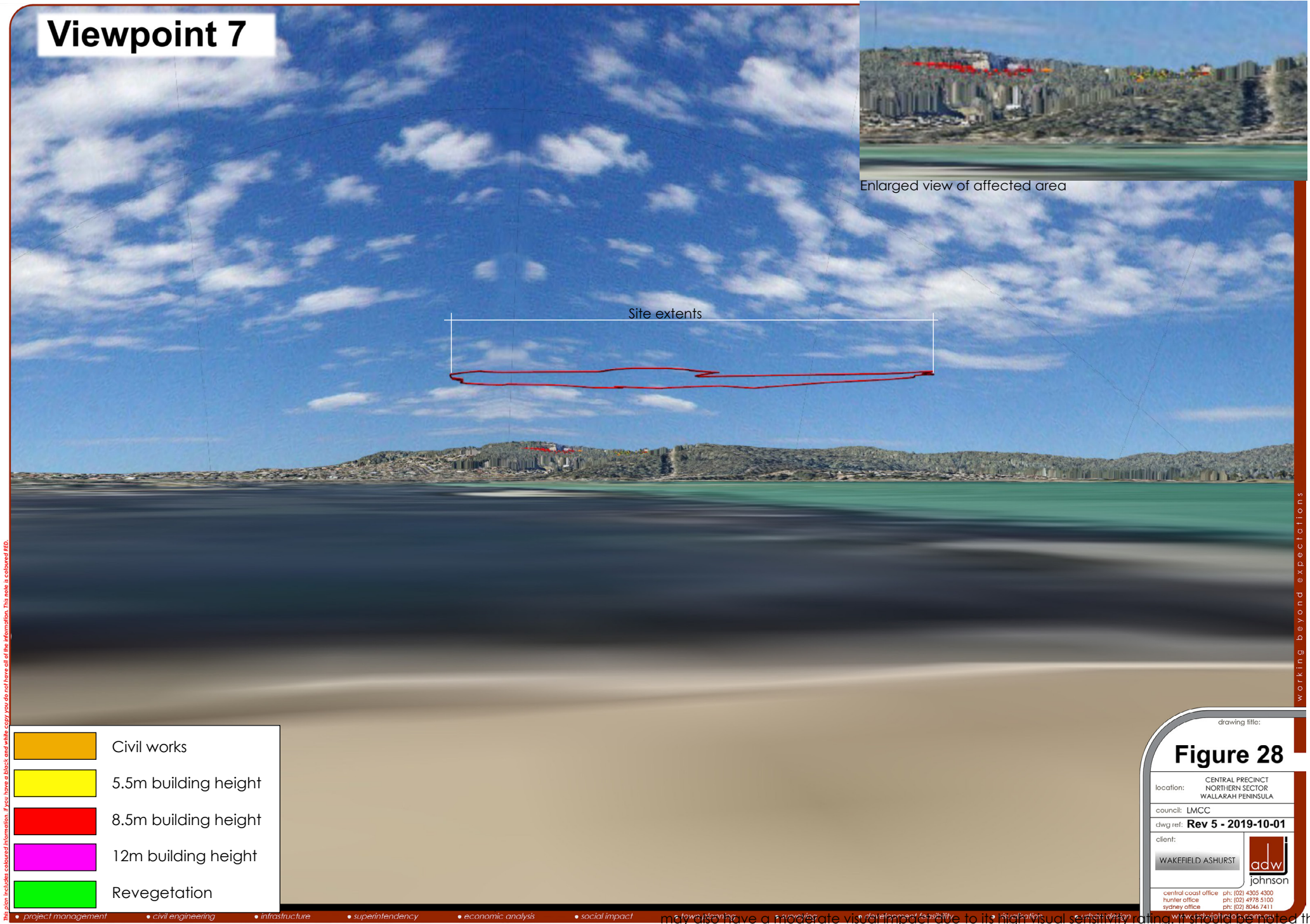
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Part Lots 1,4, 6 & 7 DP 1240365

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viewpoint 7 - model

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CONCLUSIONS

As a result of a low viewer number rating, a long viewing distance and short viewing duration (for those venturing out to the water's edge), viewer access is considered to be low from this location. Visual sensitivity is high as the site shall be visible to park users and marine vessels on the channel. The top of some (< 10) 5.5m high buildings located on the northern interface and less than ten 8.5m high buildings below Maswons Lookout shall be initially visible. An estimate of 13m high tree growth within 10 years of canopy re-establishment shall screen the built form by approximately 20%. The visual effect is anticipated to be low for the same reasons outlined in Viewpoint 6. Similarly as with the findings for Viewpoint 6, despite having an anticipated low visual effect, the proposal

may also have a moderate visual impact due to its high visual sensitivity, being noted that this will be primarily experienced by those accessing the channel via boat.

viewpoint 7 - photomontage
visual integration report

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COMMENTS

This photomontage shows how the proposed development will appear after ten years following the completion of the canopy re-establishment works. A different colour green has been used to distinguish where the new revegetation will occur, although in reality the colour should blend in with existing vegetation as it is proposed to use similar species to those occurring on the site. It is considered there will be minimal reduction in the visual quality of Lake Macquarie due to integration measures proposed.

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viewpoint 8
visual integration report

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VIEWPOINT LOCATION
Pinny Beach

COMMENTS
Distance to the centre of the site from this location is 2.1km.
View northwest to the site from Pinny Beach.
No site photo available due to very limited access via 4WD vehicle, however this viewpoint has been included due to it being listed as a Significant Natural Feature in the SMG.

CONCLUSION
Visual access from this location is low due to the very limited access.
The model indicates that Mawsons Lookout completely obstructs views into the site from this location. Despite being located within a high visual sensitivity category. There will be no visual impact from this location as the site can not be see.

EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

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Viewpoint location



VIEWPOINT LOCATION
Wangi Point Holiday Park
Off Watkins Road, Wangi Point

COMMENTS
Distance to the centre of the site from this location is 4.7km.
South east view from Wangi Point Holiday Park. The quantity of viewer numbers could be quite high during summer and peak holiday periods.
This is also a typical view for recreational boat users on Lake Macquarie.
The Swansea township is visible to the left of the image and vegetated hillsides extend up to the site of the proposal. The lack of visible development from this side of the lake increases the visual sensitivity as new development has the potential to contrast greatly with the with the existing vegetation if not handled properly.

EVALUATION CRITERIA						
location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

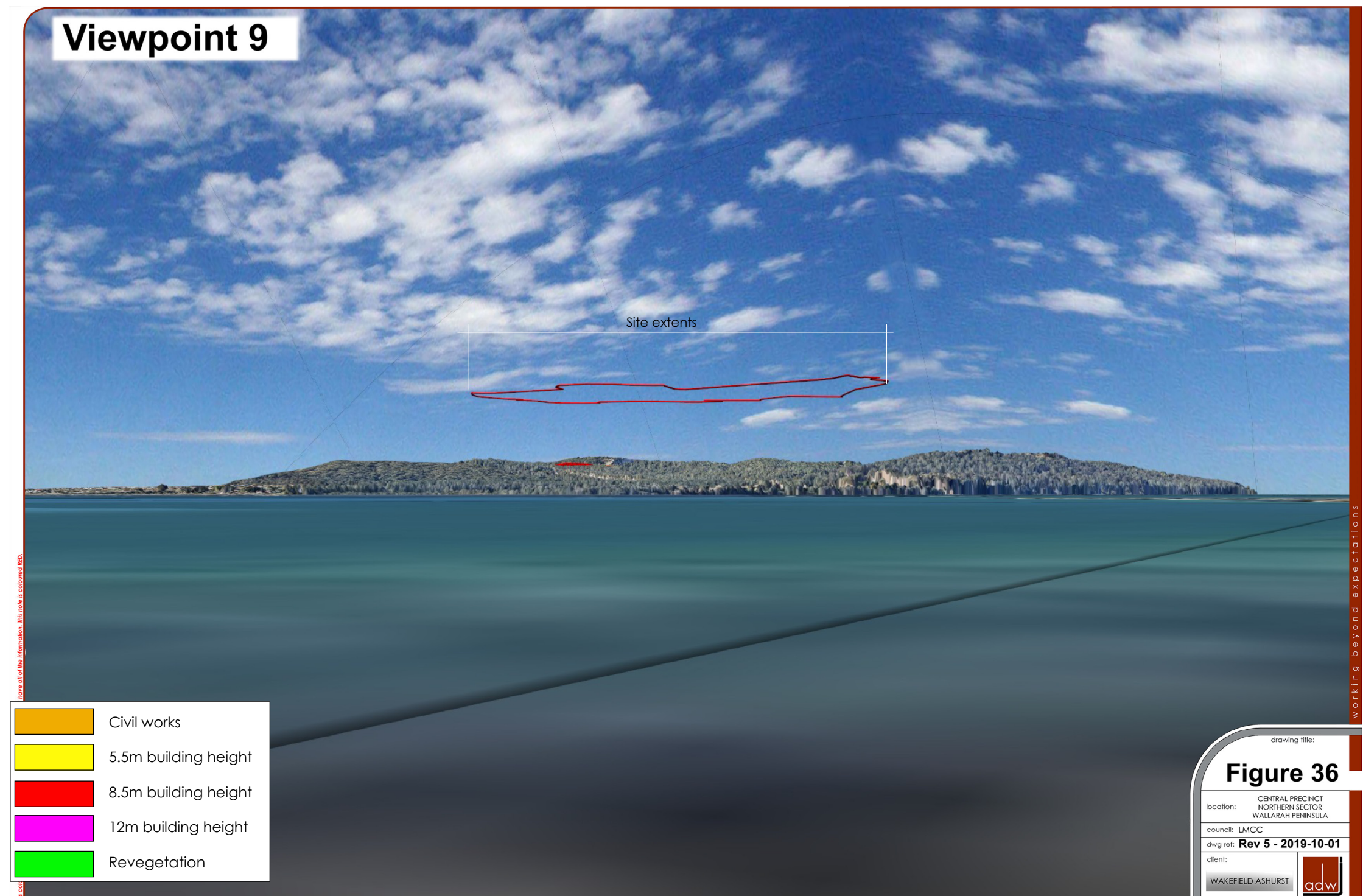
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viewpoint 9 - model

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CONCLUSIONS

During peak summer and holiday periods viewer access is rated as moderate due to the potential high viewer numbers and viewing duration. This is reduced to low during off peak periods although long viewing periods still apply.

A high visual sensitivity rating is the result of this viewpoint being located in a tourist and passive recreation area.

The modelling indicates that the top of some (less than ten) 8.5m high buildings will be visible but they are all located well below the ridgeline. Existing vegetation on Mawsons Lookout extends along the ridgeline above the proposed development and shall be supplemented as part of this proposal. It should be noted that the red massing shown in the model represents the complete building footprint with no visual integration of colours and materials. With considered building material selection, colours and form it is

anticipated that there will be a low visual effect.

Despite the comments noted above, the proposal having an anticipated low visual effect and being a significant distance from the site, according to Table 8.4 (Visual Impacts Table) the proposal may have a moderate visual impact due to its high visual sensitivity rating from this location.

viewpoint 10

visual integration report

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VIEWPOINT LOCATION

Coastal - Off Caves Beach

COMMENTS

Distance to the centre of the site from this location is 2.5km.
View to the site from an offshore coastal location. This is a typical view from marine vessels travelling along the coastline, however it is likely that they will be observing further out from the coast.

CONCLUSION

Visual access is low due to the low viewer numbers and short viewing duration.
The model indicates that none of the proposed buildings shall be visible from this location therefore there is no visual impact

EVALUATION CRITERIA

location of site		foreground		middleground		background
viewer position		inferior		neutral		superior
viewer access		low		moderate		high
visual sensitivity		low		moderate		high
visual effect		low		moderate		high
visual impact		low		moderate		high

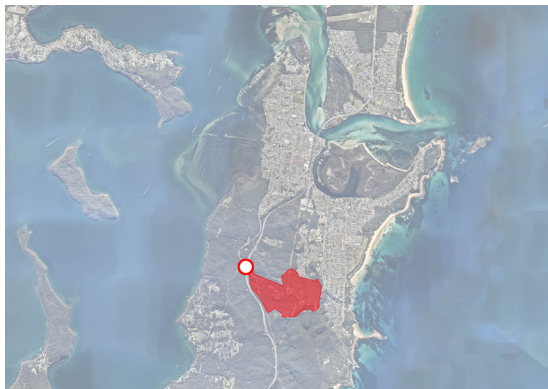
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viewpoint 11

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Viewpoint location



VIEWPOINT LOCATION
Old Pacific Highway Overpass
Pacific Highway, Murrys Beach

COMMENTS
Distance to the centre of the site from this location is 900m and 200m to the first residence. View south eastwards from traffic lane along Pacific Highway. Viewer numbers calculated at more than 10, 000 southbound vehicles per day on any day(RMS 2019). Roadside vegetation and topography obstruct views on the approach and immediately after passing this viewpoint. Viewer exposure is limited due to it being a narrow corridor sight line and its location on a main highway affording only fleeting glimpses.

EVALUATION CRITERIA					
location of site		foreground		middleground	background
viewer position		inferior		neutral	superior
viewer access		low		moderate	high
visual sensitivity		low		moderate	high
visual effect		low		moderate	high
visual impact		low		moderate	high

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viewpoint 11 - model

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CONCLUSIONS

The high viewer numbers (approximately 10,000 southbound vehicles per day, travelling at 90-100kmph) and very short viewer distance results in a high viewer access rating.
Visual sensitivity is moderate due to its foreground location on a major travel corridor.
The visual effect is low due to the existing vegetation in the foreground screening the proposal from this view. This view is highly reliant on existing vegetation and the topography of the existing road reserve and the existing vegetation in Lot 133. The visual impact is low due to not being able to see the proposed development from this location other than the access road which aligns with the existing road layout. It will be important to protect the existing vegetation on the northwestern corner of Lot 133 to ensure that adequate screening is maintained.

impact assessment

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8 impact assessment

This section considers the general impact the proposal may have on the local visual environment and identifies those areas where the visual impact may potentially be the most significant. This was done by undertaking a surrounding site inspection and broadly scoping the study area to identify where the proposed development would likely to be visible and appear to be most prominent. Visual effect may be either based on the degree of exposure or the number of people likely to be affected.

Viewer access to the site is restricted due to the topography, surrounding ridgelines and existing vegetation. Modelling of the development from Viewpoints 1,8 and 12 demonstrated the inability to see the site from these locations. From Viewpoint 10, only the proposed revegetation was able to be seen.

Viewer access to the site is primarily from the north, north east and north west, as demonstrated in the elevation analysis diagram (Appendix 5) and beyond 3km view distance, excluding from Viewpoint 11. From this viewpoint, the viewing time is extremely low and only the section of the site visible will be the newly formed access road which will be an upgrade of the old Pacific Highway. Viewpoint 11 is heavily reliant on existing vegetation and topography with the road reserve and the existing vegetation to the north western corner(Lot 133) to screen the development behind.

Initial modelling to identify sensitive parts of the site informed the layout of the masterplan, in particular at the interface of the DT2/DT4 to the northern edge and the ability to retain sections of vegetation to screen the development behind.

Viewpoint 3 is typical of users accessing the boat ramp but most significantly motorists travelling south along the Pacific Highway.

Viewpoint 4 is typical of motorists travelling south along the Pacific Highway when approaching the Swansea Bridge. Due to the urban fabric of Swansea in the foreground dominated by infrastructure and buildings to the water's edge viewer access is semi restricted and the development would be read as an extension of the this fabric.

Viewpoints 5 and 2 are typical of people travelling west into Swansea Channel, walkers, fishers and general public using Grannies Pool and fishers on the breakwall. The Lake Entrance and Breakwall are identified as Significant Natural Landscape Features (LMCC SQG, 2013).

Viewpoints 6 and 7 are typical for Swansea Channel users travelling south and recreational users of the channel edge.

Viewpoint 9 is typical of recreational boat users on Lake Macquarie. A high visual sensitivity rating is the result of this viewpoint being located in a tourist and passive recreation area. Modelling indicated that a small section of the 8.5m high houses will be visible from this viewpoint however they are located well below the physical ridgeline. Existing vegetation on Mawsons Lookout extends along the ridgeline above. The proposal may have a moderate visual impact due to its high visual sensitivity rating from this location.

Viewpoints identified as having the greatest visual impact were from Viewpoint 2, 3 and 7. Photomontages have been prepared from these locations to further assess the visual absorption capacity of the site.

The visual sensitivity of viewpoint 2 is considered high as it shall be viewed from a tourist and passive recreation area less than 6km away. Views are across the channel to the ridgeline with urban fabric of Caves Beach visible in the mid ground and some sections reaching up the slope towards the ridge. Some northern sections of the proposed development around Lot 80 are visible from this location at conservative estimates of 7m high revegetation modelling. In this section (where ridgeline/vegetation provides no additional visual background for the small middle "saddle section") the development broaches the ridgeline, however the view distance combined with visual integration strategies (materials and colour palette) will ensure a moderate visual impact. Further visual absorption will be achieved as canopy re-establishment reaches 13m in height (and provides a new vegetation ridgeline reference that built form will sit near and below). Also visible from this viewpoint is the road providing access to the eastern side of Mawsons Lookout. However the vegetation clearance for the road does not broach the skyline and due to the distance to the site the road will blend into the surrounding landscape by nature of its colour. Additionally its disturbance to the hillside will be minimal in contrast to the easement visible to the west.

From Viewpoint 3 the proposed development shall be viewed in context with the existing foreground development. Whilst the cumulative effect of the evolving development is acknowledged, it should be noted that the view is not pristine. Northern sections of 5.5m high buildings (lots 402,405-409) and some 8.5m high lots (Lots 410 – 415) shall be visible however the model indicated that this effect shall be reduced over time with the proposed canopy re-establishment works providing a reduction in the visual

impact of the built form on the hillside. For the interim, visual integration shall be achieved via building materials and colour palette selection. The visible sections of the development generally sit below the ridgeline from this viewpoint.

From Viewpoint 7 the site is seen along the channel on the ridgeline behind Swansea. The scar to Mawsons Lookout and the easement to the west are readily visible from this view as are the residential houses of Caves Beach on the lower slopes north of the site. Building works at 8.5m height can be seen below Mawsons lookout however do not broach the ridgeline and furthermore, sit below the physical ridgeline. Further to the west the top of some 5.5m high buildings located on the northern interface shall be visible. The modelled re-established canopy of 13m high tree growth within 10years will screen the built form by approximately 20%. As identified in Viewpoint 2 the intent is for this canopy to provide a vegetated ridgeline that the built form will sit below. The proposed canopy re-establishment will also reduce the visibility of the existing scar that has resulted from previous extractive industries. It is assumed that the visual impact will likely be low - moderate.

Canopy re-establishment works are seen as integral to visual absorption of the development into the landscape. The initial impact of clearing will result in a loss of vegetation some of which will be replaced with the canopy re-establishment works. Calculations used for this report assume a 13m canopy cover after 10years (refer Appendix 9). It is estimated the approximate canopy height of tree species on site is currently around 18m and additional modelling has been used to demonstrate the site will be partially screened from Viewpoints 2, 3, & 7 when the revegetation reaches a height of 13m.

The SMG requests that the built form does not extend above the physical ridgeline for both Zones A and B. This is not specifically captured in the VIMP, which places more emphasis on the protection and enhancement of ridgeline vegetation "ensure views of the tree canopy dominate the ridgelines and slopes" (EDAW, 2003).

The integration and absorption of the proposed development will be low-moderate assuming building height, form and colours are controlled. Canopy re-establishment works to the northern slopes will further assist in the visual absorption of the proposed development from the viewpoints identified with the exception of viewpoint 9(where the existing ridge and vegetation of Mawsons Lookout extends well above the future built form).

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conclusions and recommendations

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9 conclusions and recommendations

The subject site is located along the ridgeline in a visually prominent area. The ridgeline is well vegetated however former mining operations have resulted in some highly disturbed areas and significant scarring.

Due to the topography, surrounding ridgelines, distance to the site and existing vegetation, visual access to the site is limited. A review of the visual catchment of the proposed development site showed that views of the site were limited. Generally the Viewpoints assessed occurred some distance away from the site with the exception of Viewpoint 11. This meant that the proposed development was seen at a distance and within a broad visual context. From all views excepting Viewpoint 9, the view is not pristine and residential development of Caves Beach and Swansea is seen on the lower slopes on approach to the site.

Of concern was the impact of the development to parts of the ridge. This was thoroughly investigated using computer modelling revealing that the development could be views from Viewpoints 2 - 8 and 9. There is some concern about the development being seen close to the ridges. Proposed canopy re-establishment works in association with controls over building heights, colours and forms will improve the visual absorption of the proposal into the surrounding hillside.

Recommendations:

- Building heights, colours and form (prevent dense massing) as documented within the draft NWP Guidelines and Murrys Beach Controls to be implemented specific to the site as discussed in section 5 Visual Integration.
- Importance of professionally installed and maintained canopy re-establishment works. This should be supported by a VMP addressing the first 10 years which would include KPI's for 1, 2, 5 and 10 years with commitment in resource to achieve canopy outcomes this integration report has assessed against. i.e. do remediation works early and commence canopy re-establishment in initial stage works so the trees have the opportunity to establish before dwelling construction on lots immediately adjoining commences.
- Revegetation should be augmented with street trees making selections from trees that will reach a minimum height of 12m(particularly the road adjoining stage 4). This will mean proper planning of streets to protect infrastructure and to allow the growing of taller than normal street trees.
- Retention and protection of existing vegetation in the north east of lot 133.

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The following abbreviations have been used throughout this report:
TLA (Terras Landscape Architects)
LMCC (Lake Macquarie City Council)
CLUMP (
LES (Local Environment Study)
WPVASOC(
SQP (
VIMP (
LMCC DCP(Lake Macquarie City Council Development Control Plan)
LEP (Local Environment Plan)
SMG (Scenic Management Guidelines)
SQG (Scenic Quality Guidelines)
NWPMP (North Wallarah Peninsular Master Plan)

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appendix 1 - scenic management guidelines

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- Lake Macquarie City Council Scenic Management Guidelines (LMCC, 2013).

origins and objectives

The SMG are founded on six key objectives:

- Protect vegetated ridgelines and upper slopes.
- Retain green breaks between urban areas.
- Protect important natural landscape features.
- Ensure the built environment does not dominate natural landscape qualities in non-urban areas. New development to achieve a balance between the character of both the built and natural environment
- Protect and enhance attractive views from highly visible viewpoints.

The following methodology was used for preparing the VIA:

Step 1	Identify the Landscape Setting Unit for the Site.
Step 2	Refer to the Landscape Settings and Significant Natural Landscape Features Map.
Step 3	Refer to Visual Assessment Criteria (Appendix C) for identifying places with potentially High or Moderate visibility.
Step 4	Identify the Scenic Management Zone for the site.
Step 5	Refer to the Scenic Management Zone Guidelines.
Step 6	Prepare the Visual Impact Assessment (including a description of the site; a description of the proposal; an assessment of the proposal against the objectives and strategies of the guidelines; suggestions for amelioration if negative impacts are assessed and graphic evidence to illustrate the proposal).
Step 7	Describe the level of impact.

Table 7.1: Assessment Methodology

results

as relating to the proposed development

Zone A	
Landscape Setting	Point Morisset
Scenic Quality Rating	High
Viewing Level	Level 3
Scenic Management Zone	2 - Lake surround, limited settlement
Scenic Management Zone Guidelines	Consider the following: <ul style="list-style-type: none">Retain existing ridgeline vegetation which provides a dominant backdrop to views from the lake.Identify opportunities to rehabilitate any degraded areas.On ridgelines retain the visual integrity and tree canopy massing, limit tree clearing to ensure no net loss of tree canopy.Buildings and structures do not extend above the physical tree line on ridgelines.Hillside development is required to be partially screened (75 - 85%) by suitable vegetation within five years.

Table 7.2: Zone A Results

Zone B	
Landscape Setting	Wollarah
Scenic Quality Rating	High
Viewing Level	Level 2, Level 1 - Highway view shed
Scenic Management Zone	Zone 7 - Coastal edge, low settlement
Scenic Management Zone Guidelines	Consider the following: <ul style="list-style-type: none">Views from the coastal edge should remain undisturbed.Development is sited and designed to reduce impact on the coastal edge, coastal headlands, forested hillsides and rideglines.Development should contribute to the rehabilitation of degraded areas and result in no net loss of vegetation.Low scale buildings with recessive colours and non-reflective surfaces.Limit development on ridgelines and coastal headlands to ensure it does not extend above the physical ridgeline (not tree line).

Table 7.3: Zone B Results

Whilst the SMG requests that the built form does not extend above the physical ridgeline for both zones A and B, this is not specifically captured in the VIMP, which places more emphasis on the protection and enhancement of ridgeline vegetation ("ensure views of the tree canopy dominate the ridgelines and slopes" (EDAW, 2003).

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appendix 2 - visual assessment principles

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visual quality

Visual quality of an area is essentially an assessment of how viewers may respond to designated scenery. Scenes of high visual quality are those that are valued by a community for the enjoyment and improved amenity that they can create. Conversely, scenes of low visual quality are of little scenic value to the community with a preference that they be changed and improved, often through the introduction of landscape treatments (e.g. screen planting).

As visual quality relates to aesthetics, its assessment is largely subjective. There is evidence to suggest that certain landscapes are continually preferred over others with preferences related to the presence or absence of certain elements.

The rating of visual quality of this study has been based on the following generally accepted conclusions arising from scientific research (DOP, 1988).

- Visual quality increases as relative relief and topographic ruggedness increases.
- Visual quality increases as vegetation pattern variations increase.
- Visual quality increases due to the presence of natural and/or agricultural landscapes.
- Visual quality increases owing to the presence of waterforms (without becoming common) and related to water quality and associated activity.
- Visual quality increases with increases in land use compatibility.

Appendix A contains a Visual Quality Assessment Table which contains a more detailed breakdown of the above elements and their impact on visual quality.

viewer access

This considers the relative number and type of viewers, the viewer distance, the viewing duration and view context. The rationale is that if the number of people who would potentially see portions of the proposal is low then the visual impact would be low, compared to when a large number of people would have the same view.

Where applicable, an estimate of viewer numbers was obtained from the Roads and Maritime Services Traffic Volume Viewer.

viewer access assessment criteria	
criteria	definition
viewer numbers	
very low	< 50 people per day
low	50 - 149 people per day
moderate	150 - 199 people per day
high	> 200 people per day
viewer distance	
very short	< 1 km
short	1 - 2 km
medium	2 - 3 km
long	3 - 6 km
distant	> 6 km
viewing duration	
very short	< 10 minutes
short	10 - 30 minutes
moderate	30 - 120 minutes
long	> 2 hours

Table 8.1: Viewer Access Assessment Criteria

An indicative viewer access rating is provided in the following table. This rating is also considered against other factors, such as visual sensitivity and visual effect.

viewer access matrix												
distance	very short			short			medium			long & distant		
period of view	VS	S	M/L	VS	S	M/L	VS	S	M/L	VS	S	M/L
very low viewer numbers	L	M	H	L	M	M	L	L	M	L	L	L
moderate viewer numbers	M	H	H	M	M	H	L	M	M	L	L	L
high viewer numbers	H	H	H	M	H	H	M	M	H	L	L	M

Table 8.2: Viewer Access Matrix

visual sensitivity

Another aspect affecting visual assessments is visual sensitivity. This is the estimate of the significance that a change will have on a landscape and to those viewing it. For example, a significant change that is not frequently seen may result in a low visual sensitivity although its impact on a landscape may be high.

Its assessment is based on a number of variables such as the number of people affected, viewer location including distance from the source, viewer position (i.e. inferior, neutral, superior), the surrounding land use and degree of change. Generally the following principles apply:

- Visual sensitivity decreases as the viewer distance increases.
- Visual sensitivity decreases as the viewing time decreases.
- Visual sensitivity is related to viewer activity (e.g.: a person viewing an affected site whilst engaged in recreational activities will be more strongly affected by change than someone passing a scene when travelling in a car to a desired destination).

The following table is a guide to visual sensitivity based on the above criteria (EDAW, 2000). It describes general ratings, however, consideration also must be given to particular conditions that may modify the results for particular sites.

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by:
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visual assessment principles

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visual sensitivity table			
distance zones			
existing land use	foreground (0 - 1km)	middleground (1 - 6km)	background (> 6km)
Residential: Rural or urban	High Sensitivity	High Sensitivity	Moderate Sensitivity
Tourist or Passive Recreation	High Sensitivity	High Sensitivity	Moderate Sensitivity
Major Travel Corridors	Moderate Sensitivity	Moderate Sensitivity	Low Sensitivity
Tourist Roads	High Sensitivity	Moderate Sensitivity	Low Sensitivity
Minor Roads	Moderate Sensitivity	Low Sensitivity	Low Sensitivity
Agricultural Areas	Moderate Sensitivity	Low Sensitivity	Low Sensitivity
Industrial Areas	Low Sensitivity	Low Sensitivity	Low Sensitivity

Table 8.3: Visual Sensitivity Table (Source: EDAW, 2000)

visual effect

Visual effect is the interaction between a proposal and the existing visual environment. It is often expressed as the level of visual contrast of the proposal against its setting or background in which it is viewed. This is particularly important should any proposed develop extend above the skyline unless, once again, there are particular circumstances that may influence viewer perception and/or visual impact.

low visual effect occurs when a proposal blends in with its existing viewed landscape due to a high level of integration of one or several of the following: form, shape, pattern, line, texture or colour. It can also result from the use of effective screening often using a combination of landform and landscaping.

moderate visual effect results where a proposal noticeably contrasts with its viewed landscape, however, there has been some degree of integration (e.g. good siting principles employed, retention of significant existing vegetation, provision of screen landscaping, careful colour selection and/or appropriately scaled development.)

high visual effect results when a proposal presents itself with high visual contrast to its viewed landscape with little or no integration and/or screening.

The following table illustrates how visual effect and visual sensitivity levels combine to produce varying degrees of visual impact.

visual impacts table				
visual effects levels				
Visual Impact Sensitivity Levels		High	Moderate	Low
	High	High Impact	High Impact	Moderate Impact
	Moderate	High Impact	Moderate Impact	Low Impact
	Low	Moderate Impact	Low Impact	Low Impact

Table 8.4: Visual Impacts Table (Source: EDAW, 2000)

It should be noted that a high visual impact does not necessarily equate with a reduction in scenic quality, and the degree of visual impact has to be understood and assessed in relation to both the existing scenic quality of an area and the design merits of the proposal itself. For example, a well-designed proposal with a high visual impact may help to improve the visual environment of an area with low scenic quality.

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	Low	Medium	High
RELIEF / LANDFORM Diversity & Contrast	Flat terrain dominant. Ridgelines not often seen.	Undulating terrain dominant. Little contrast or ruggedness. Ridgelines prominent in only half or less of landscape unit.	High hills in foreground and middleground. Presence of cliffs, rocks and other geological features. High relief (e.g.: steep slopes rising from water or plain). Ridgelines prominent in most of landscape unit.
VEGETATION Diversity & Contrast	One or two vegetation types present in foreground. Uniformity along skyline.	Patterning in only one or two areas. 3 or 4 vegetation types in foreground. Few emergent or feature trees.	High degree of patterning in vegetation. 4 or more distinct vegetation types. Emergent trees prominent and distinctive to region. Stands of specimen or accent vegetation (e.g.: palms, pines, etc).
NATURALNESS	Dominance of development within many parts of a landscape unit.	Some evidence of development, but not dominant. Traditional built character. Development in background and / or partially concealed.	Absence of development or minimal disturbance within landscape unit. Presence of parkland or other open space including beach, lakeside, etc.

	Low	Medium	High
WATER Presence, Extent & Character	Little or no view of water. Water in background without prominence. Presence of polluted water or stagnant water.	Moderate extent of water. Presence of calm water. No islands, channels meandering water. Intermittent streams, lakes, rivers, etc.	Dominance of water in foreground and middleground. Presence of flowing water, turbulence and permanent water. Intricate shapes and river edges.
DEVELOPMENT Form & Identity	Presence of commercial and industrial structures. Presence of large scale development (e.g.: mining, infrastructure, etc). Newer residential development prominent.	Presence of established residential development. Small scale industrial etc in middleground. Presence of sports and recreation facilities.	Presence of rural structures (e.g.: farm buildings, fences, etc). Heritage buildings and other structures apparent. Isolated domestic scale structures.
CULTURAL	No evidence present. Area free of cultural landmarks. Presence of new development.	Presence of established, well landscaped development, esp in middleground and background.	Presence of established, maintained landscapes (e.g.: farmlands, forests, gardens, etc), old towns and buildings etc.

Table 14.1: Visual Quality Assessment Table
(Source: After Clouston & Brouwer, 1995 and Williamson, 1978)

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appendix 3 -methodology

visual integration report

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DETAILED METHODOLOGY

Due to the nature of this visual integration report being intended to be a tool to guide the development of the site plan and associated controls the report and the plan have been developed simultaneously. The methodology is documented below to demonstrate the interactive nature of the approach.

- An initial desktop study was undertaken to explore possible areas from which the site could be seen. This was undertaken using Near map and running section lines (Appendix C) to get an insight into the topography of the site and surrounding area.
- An initial briefing with ADW and the client and an on site visit was undertaken in March 2019 to the top of Mawson's Lookout and surrounding accessible area. It was noted that it was hard to determine our location or see from any vantage point other than the look out due to the height of the surrounding vegetation. After visiting the site, local streets were visited within Caves Beach, Swansea and surrounding areas to get a feel for the visibility of the site from the surrounds. The water tower could be used as a reference to identify the site from the north east.
- A desktop study was then undertaken using Sixmaps, elevation analysis to reveal ridgelines (Appendix D) this helped to identify key view corridors for further exploration. At this stage consideration was also given to significant natural landscape features identified within the SQGL (Figure 3.2). As part of initial investigations, a review of the North Wallarah Master Plan, Local Environment Study and the North Wallarah Peninsular Project Conservation and land use management plan (CLUMP) was undertaken to get an appreciation of the site and previous studies underpinning the development of the site.
- A site visit was undertaken to explore potential viewer access to the site, taking photos from potential viewpoints and ground truthing. This resulted in an initial viewpoint locations map to further explore through modelling and viewsheds with 11 potential sites identified (Figure 9.2).
- Viewpoints 4,5,6 and 9 were identified as key viewsheds and modelling was undertaken with ADW Johnson to gain an understanding of the sensitivities of the site from these locations. This was based on an early site layout extent and modelled to appreciate the areas of the site which would be visible from each of the identified viewpoints (Appendix F Viewsheds). These viewsheds were then overlaid to create a viewsheds combined diagram. This gave us an understanding of the areas of sensitivity within the site which included the area beneath Mawson's lookout to the north and North of the D2/D4 line). These sensitivities were assessed against the proposed earthworks for the site to identify the possibility of preserving sections of vegetation north of the DT4 line allowing the retained vegetation to provide a buffer to development within the DT4 area
 - o Assumptions:
 - o 10m building height
- At this stage Terras provided a sketch section to demonstrate the sensitivity of the northern edge and how that affects development further within the site (Appendix G). Discussions begun to inform the future development in relation to minimising works if possible by further exploring with geotechnical engineers and potential areas for canopy replacement along with protection of the lower slopes to achieve a vegetation buffer to assist visual absorption for future development beyond Assumptions:
 - o Building height 8.5m
 - o Existing vegetation 15m (Calculated guess on site)
- ADW proceeded with developing the plan based on sensitivities identified in earlier stages outlined above.
- The plan was developed and incorporated into the model with proposed lot heights. A workshop was held in the ADW office using the modelling to assess the sections of the site which would be seen from certain viewpoints and identifying potential issues. This was based on worst case scenario by extruding the full lot, not individual buildings (or for DT2, the designated envelopes) as shown by extents on the building height plan (Figure I)
Assumptions:
 - o 12m, 8.5m and 5.5m building heights
 - o 7m revegetation in 10 years
 - o Base contours via LIDAR
 - o Based tree layer via LIDAR
 - o Finished design surface as per concept engineering plans ADWJ
 - o Viewpoints as per Terras, with model view 1.5m from ground
 - o Aerial image draped onto Lidar and tree surface therefore no buildings or depth perceptionAdjustments were able to be made to the masterplan in terms of heights of buildings particularly in relation to the DT2/DT4 edge and surrounding area

- o Lots 405 – 409 reduced to single story (5.5m) with adjusted envelopes.
 - o Lots 93-96,109-112,125-126,307-308 reduced to single story (5.5m)
 - ADW undertook further works developing the site plan
 - Modelling of the site plan was done from the 11 viewpoints (Appendix H). Terras systematically reviewed these and provided further comment on concerns which generally related to breaches to the ridgeline and final adjustments were made where practical including:
 - 5.5 m height to lot 402
 - Adjustment to civil concept forward of Lots 406-409 for revegetation and its canopy to have a greater ability to visually absorb the future built form on Lots 406/407
 - Visibility of lots 356-360 was noted as exposed in VP 4, 6 7 &9 however well below ridgeline and vegetated backdrop of the lookoutConcerns were raised where the ridgeline was breached, in particular from VP2. This was then modelled showing 12m canopy height with the resulting image demonstrating that when this height is reached the development will not be visible as breaking the ridgeline.
 - Photomontage locations were agreed based on the following:
 - Viewpoint 2 and 5 were similar and typical of those utilising the break wall either side of the channel however during the modelling exercise 2 was identified as being more exposed therefore this was selected
 - Viewpoints 6 and 7 were similar and typical of channel users, in this case 7 was selected
 - Viewpoint 3 is typical of vehicles travelling south towards Swansea therefore having high exposure across the channel towards the ridge. Viewpoint 4 was also considered however due the urban fabric within the foreground it was not included.
 - Viewpoint 9 was not included due to its distance to the site and viewer access
- To achieve the photomontages, Terras overlaid the model provided by ADW onto the photo then cut out smaller sections where the building facades were visible based broadly on the size of buildings visible in the foreground and also filled in the revegetation as per the model as indicated by the lighter green. The proposed colour palette colours were used.
- Following initial modelling and development of photomontages bushfire advice was received which restricted the extent of the canopy re-establishment works to the northern boundary. This included the inability to clump trees with a requirement of non interconnecting canopies. Advice was sort from Trees Imact to ensure the best possible outcome given the new constraints(refer to appendix 9) . Advice was given concerning species, the establishment program and 10 year predicted outcomes. The revised expected height of 13m in 10 years reflected in the modelling with Individual trees placed on the site in locations to ensure the greatest visual absorption. The viewpoints were reviewed with photomontages revised to reflect the proposal based on the bushfire constraints.
 - Finally, the report was developed based on the above methodology and outcomes.

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appendix 4 -sections

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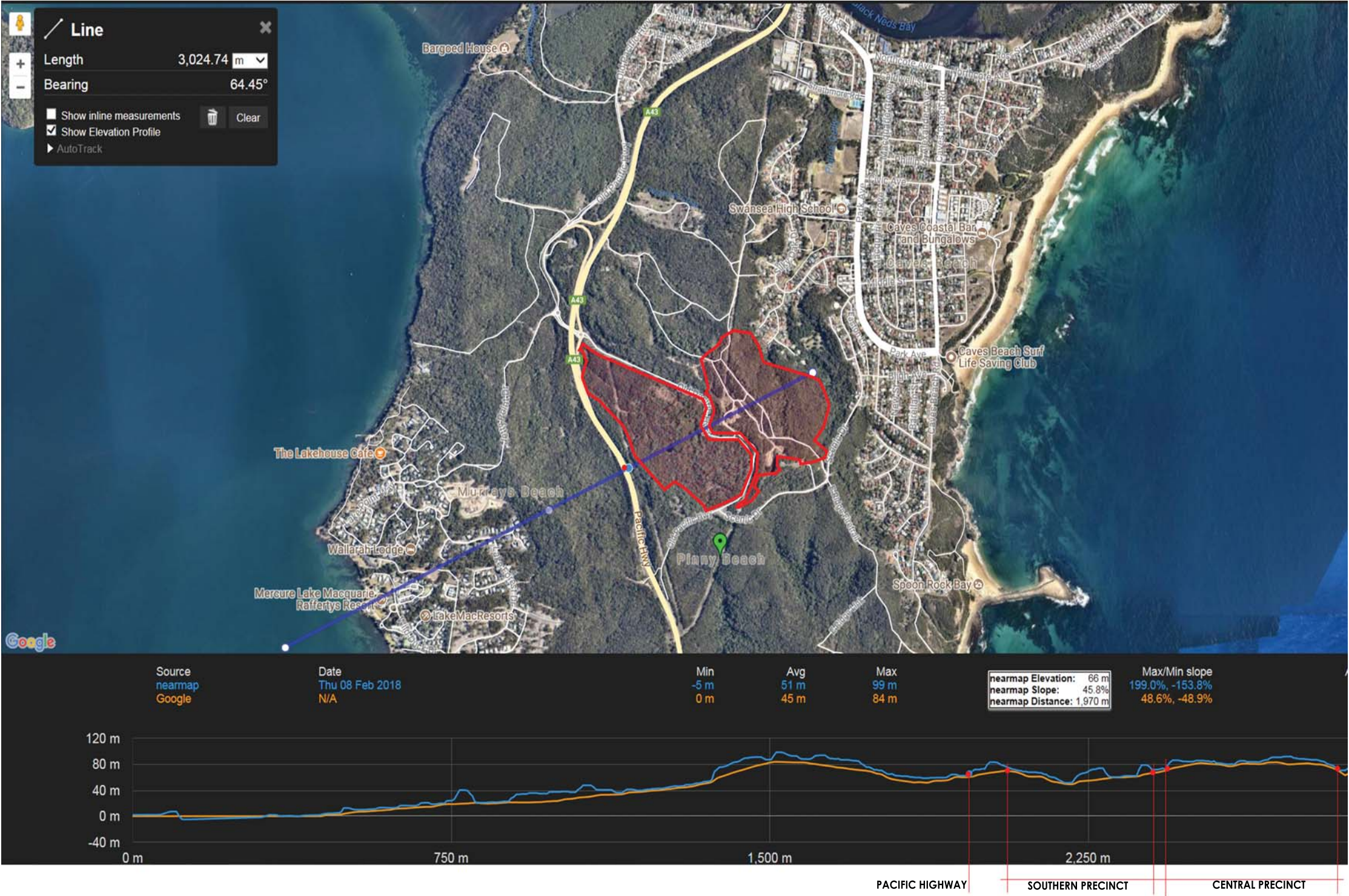
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An initial desktop study was undertaken to explore possible areas from which the site could be seen. This was undertaken using Near map and running section lines to get an insight into the topography of the site and surrounding area. The following resulting diagrams enabled us to eliminate initial areas of interest and identify those which required further investigation.

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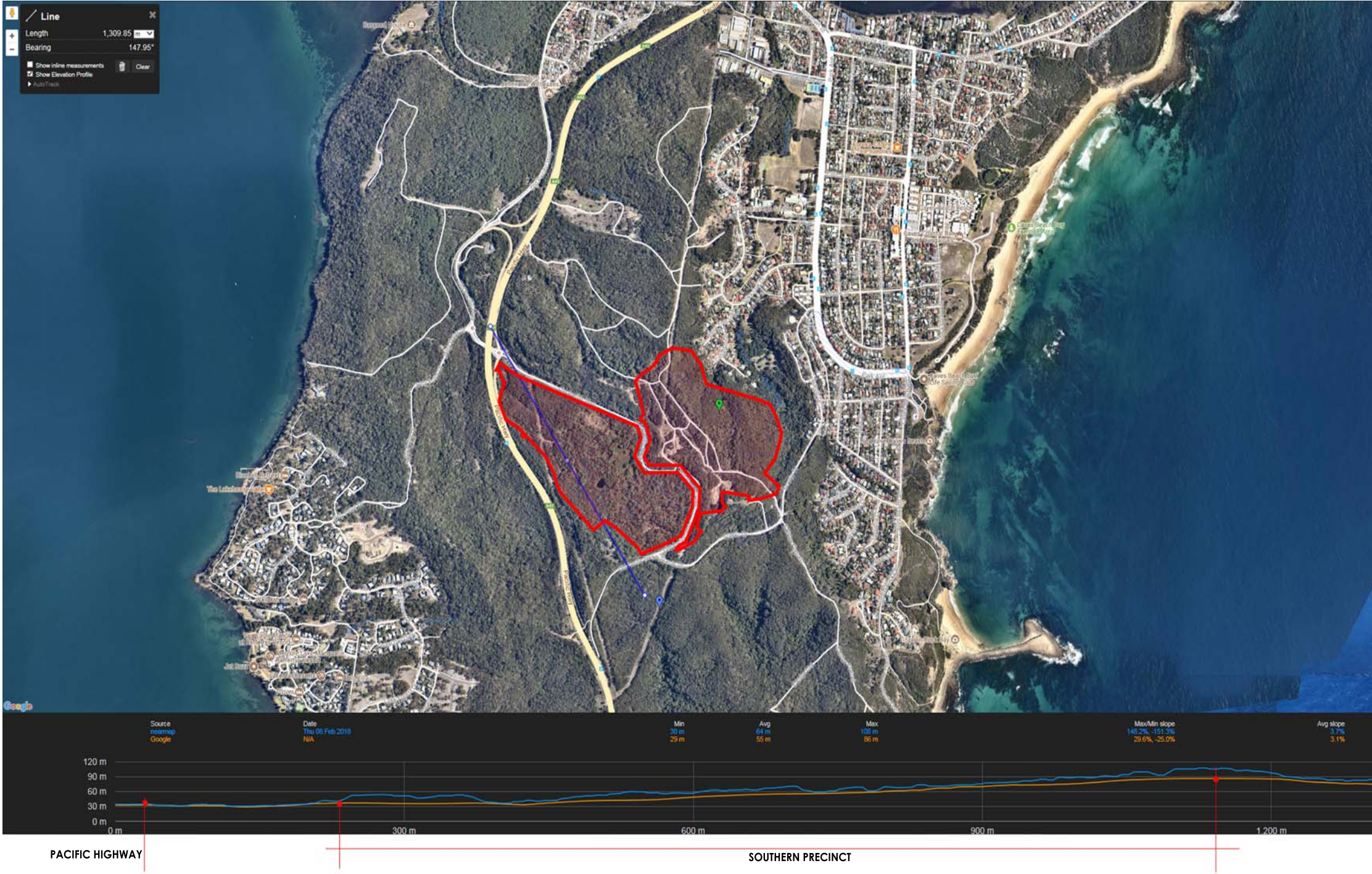
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1A - THE LAKE



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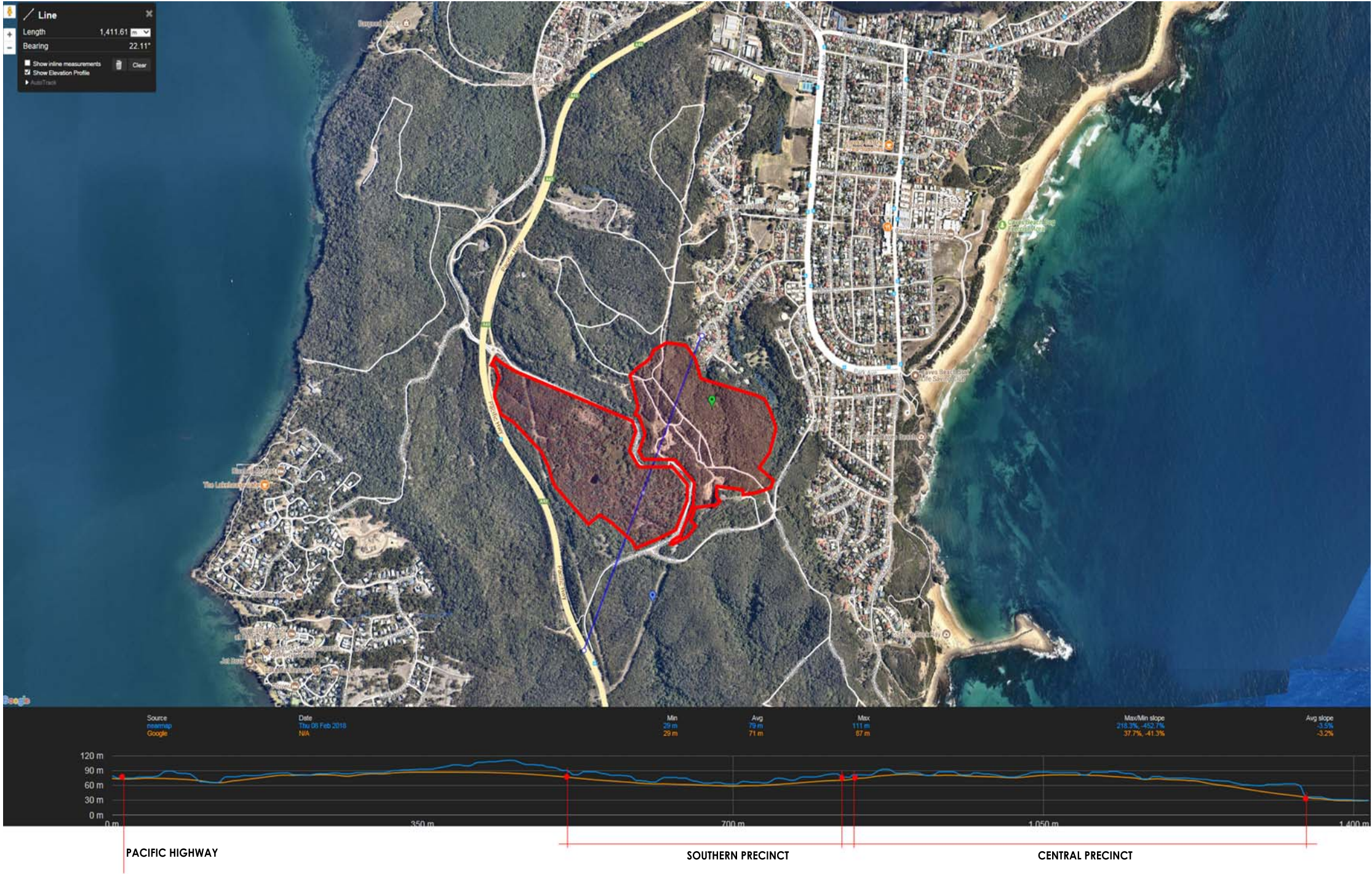
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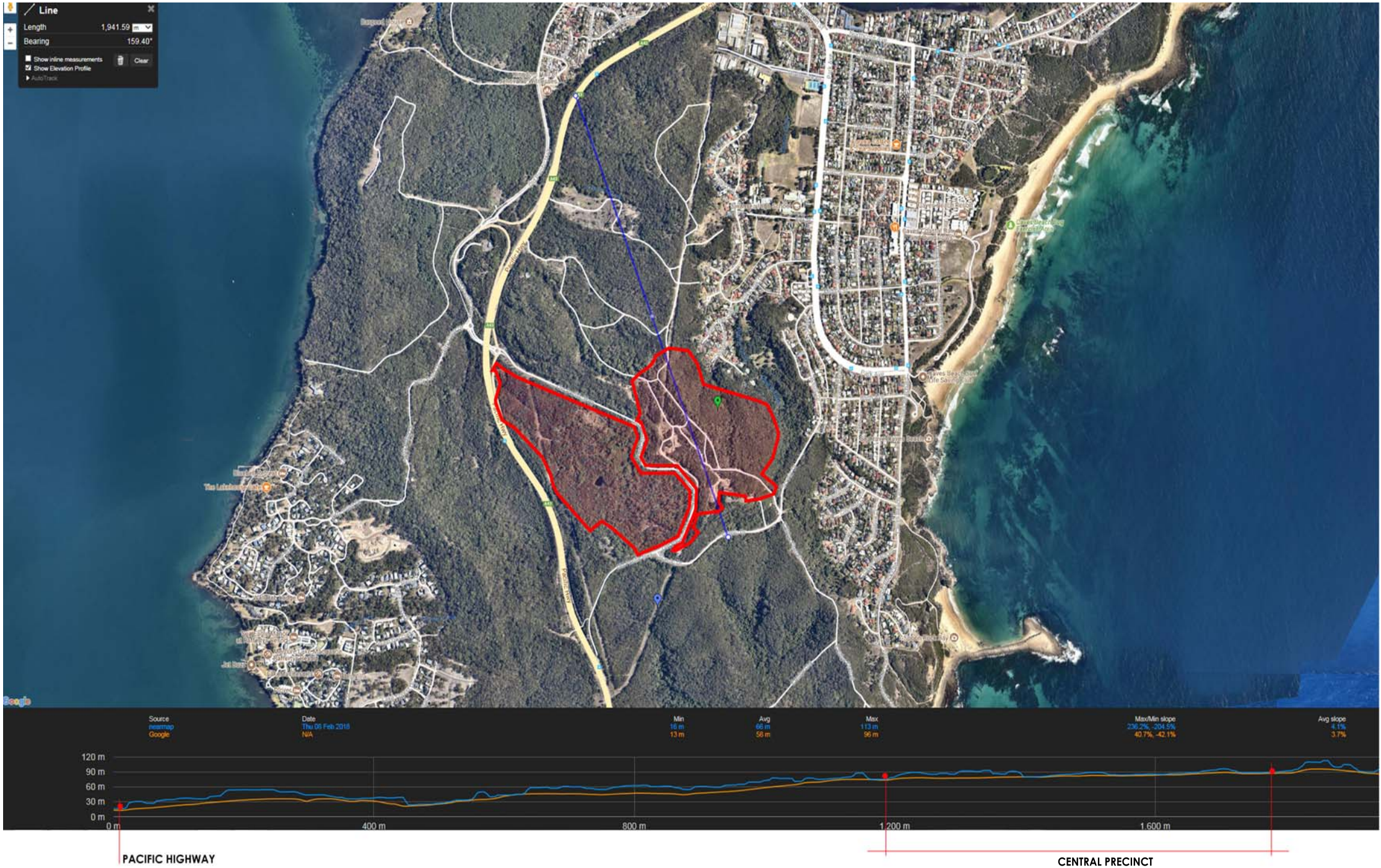
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sections

visual integration report

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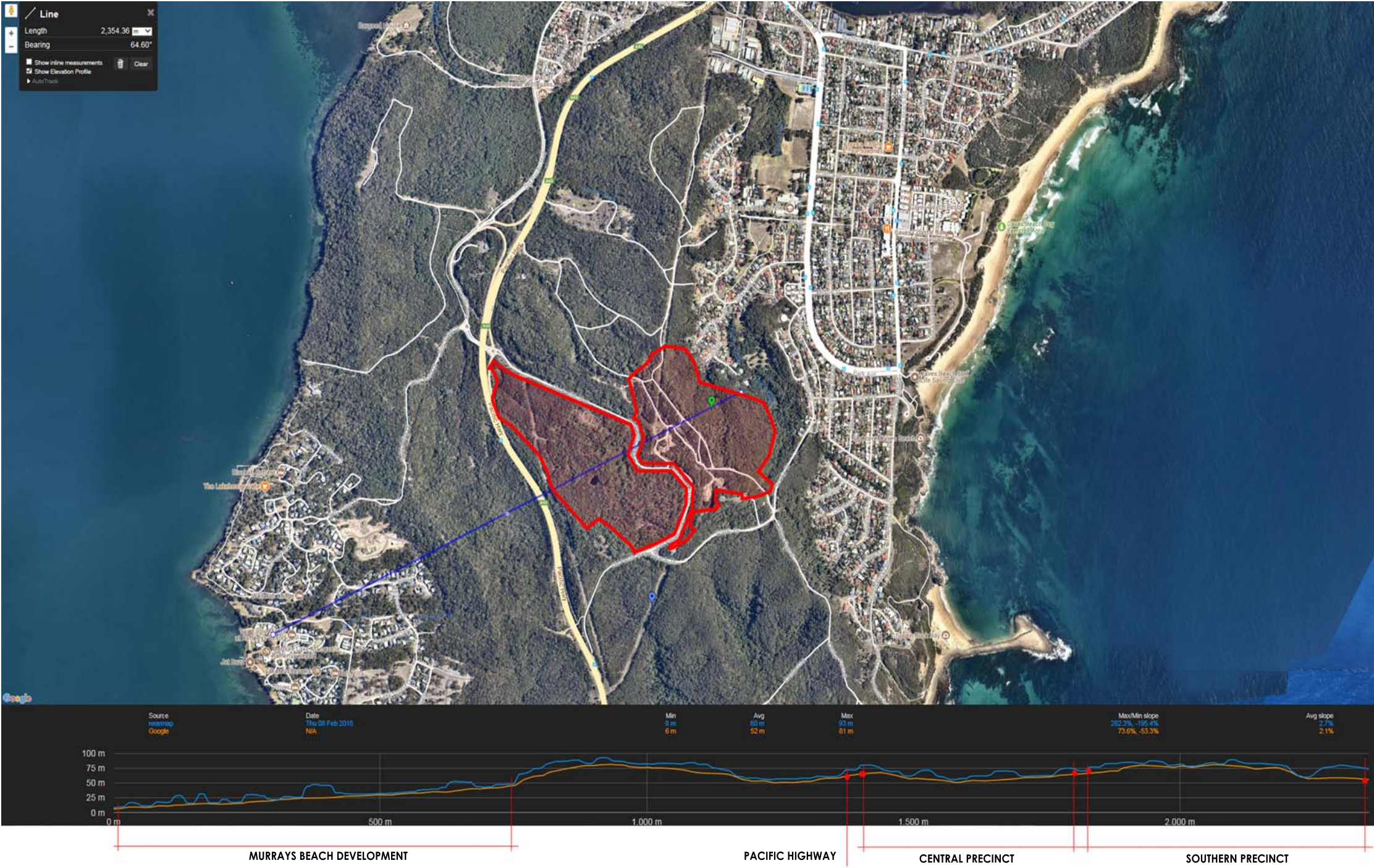


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2D - THE HIGHWAY





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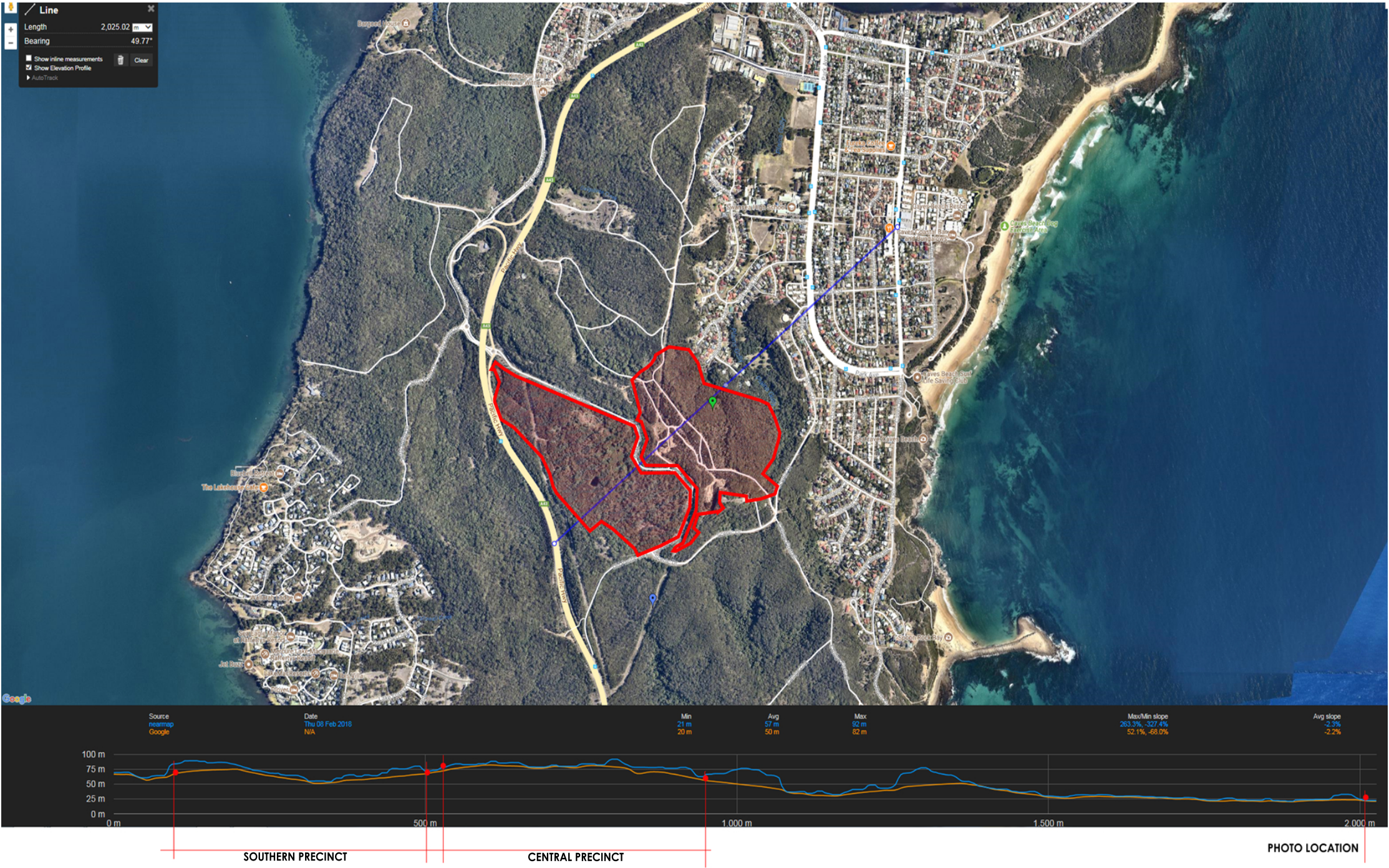
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3 - URBAN AROUND THE LAKE

sections

visual integration report

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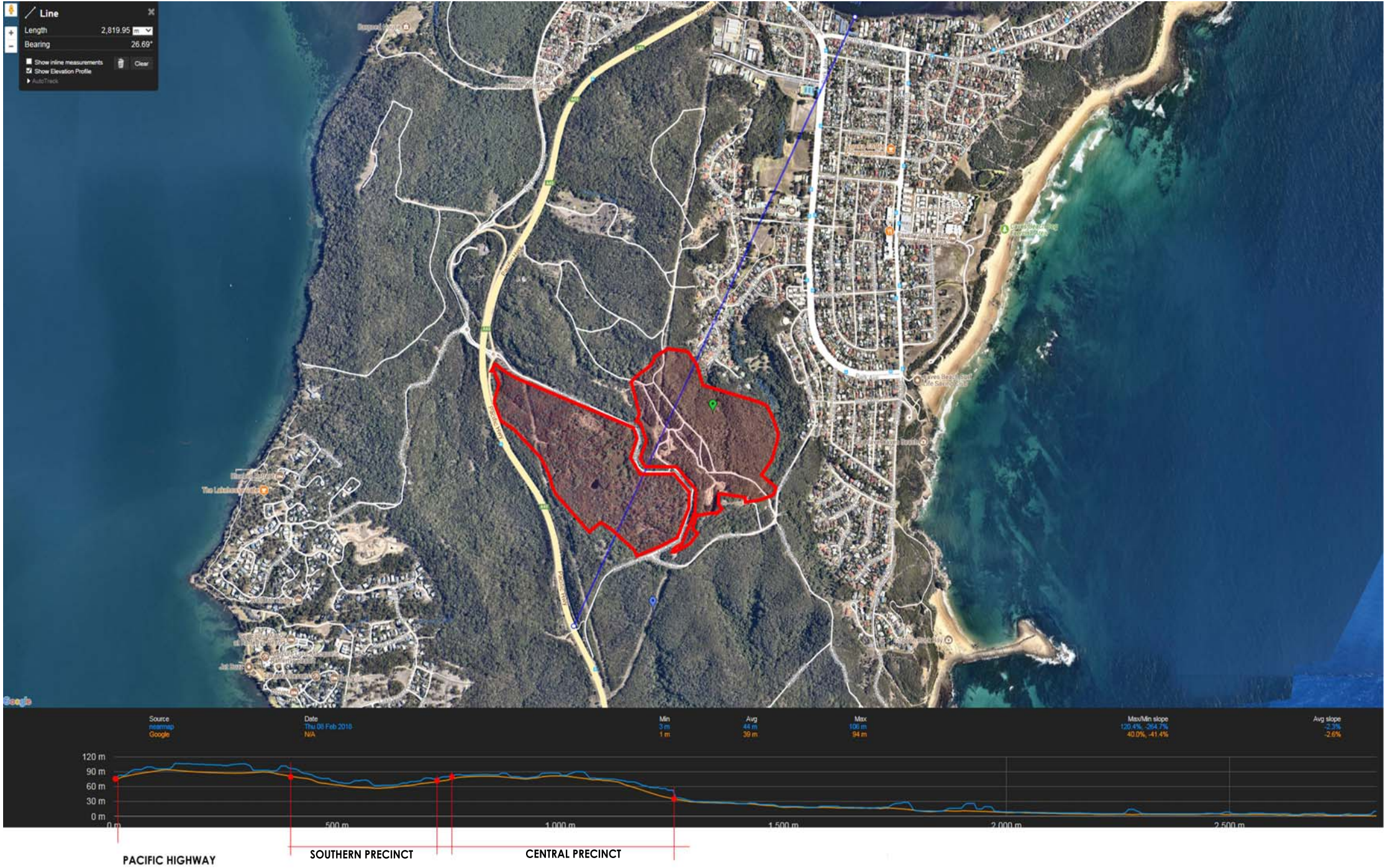


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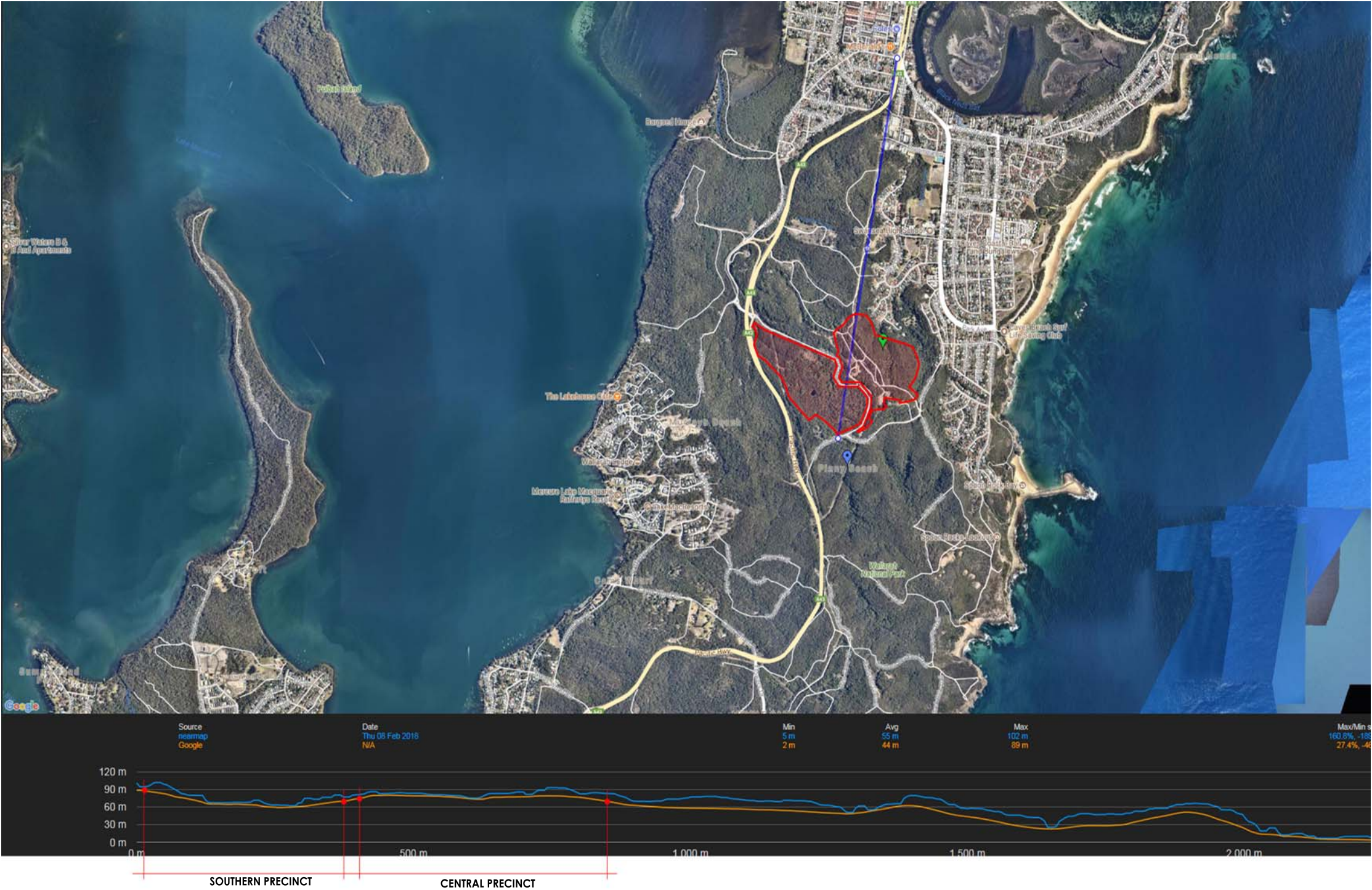
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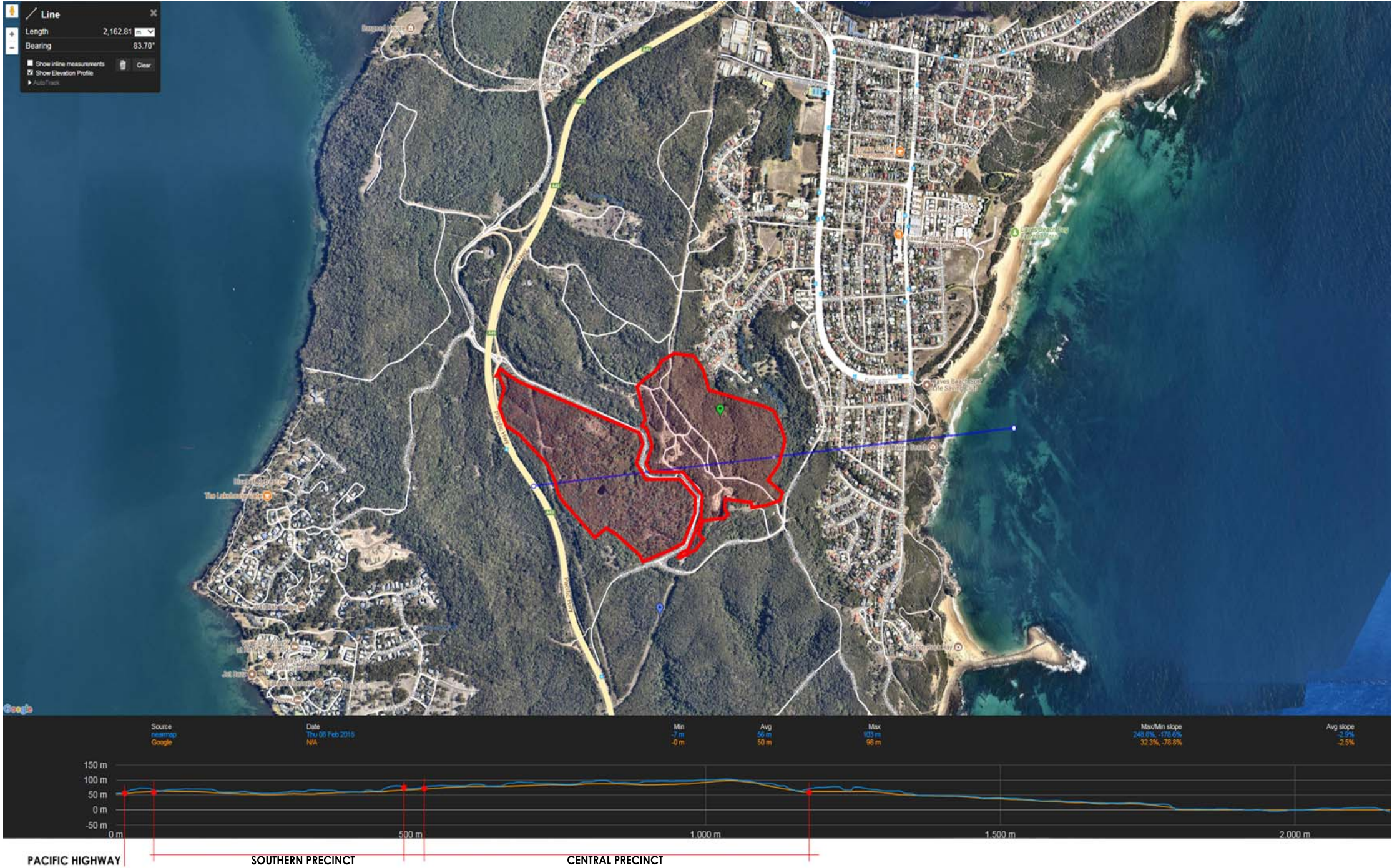
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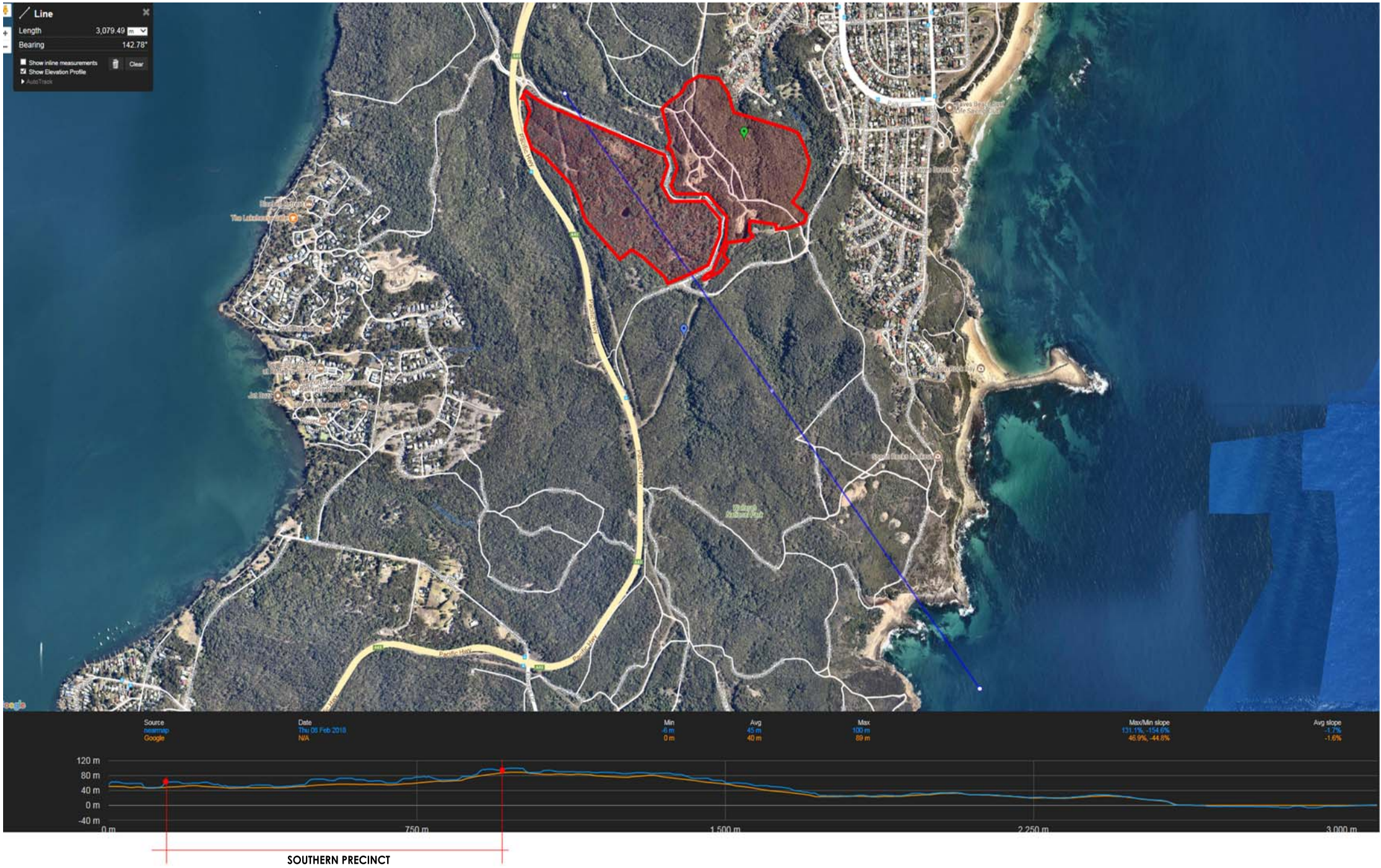
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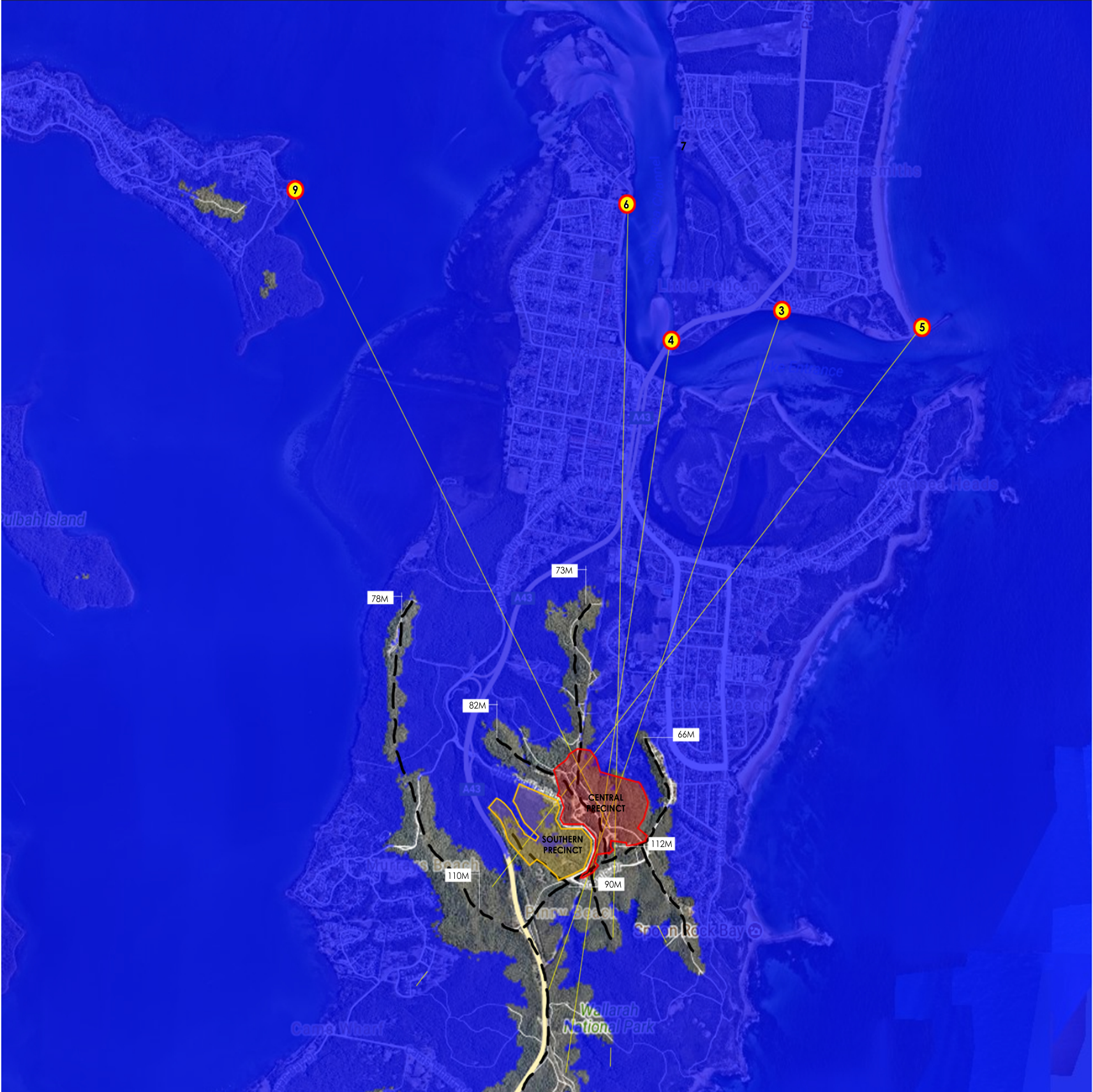
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5B - OFFSHORE PINNY BEACH

appendix 5 - elevation analysis

visual integration report

1. Flooding diagram - a means of graphically portraying significant topography above a designated level ("flood" level) to determine which parts of the site may be visually accessible



NOTE: FLOODING LEVEL SET AT 65M

CENTRAL SECTOR SLOPING GENERALLY SOUTH EAST TO NORTHWEST
APPROXIMATELY 90M - 67M

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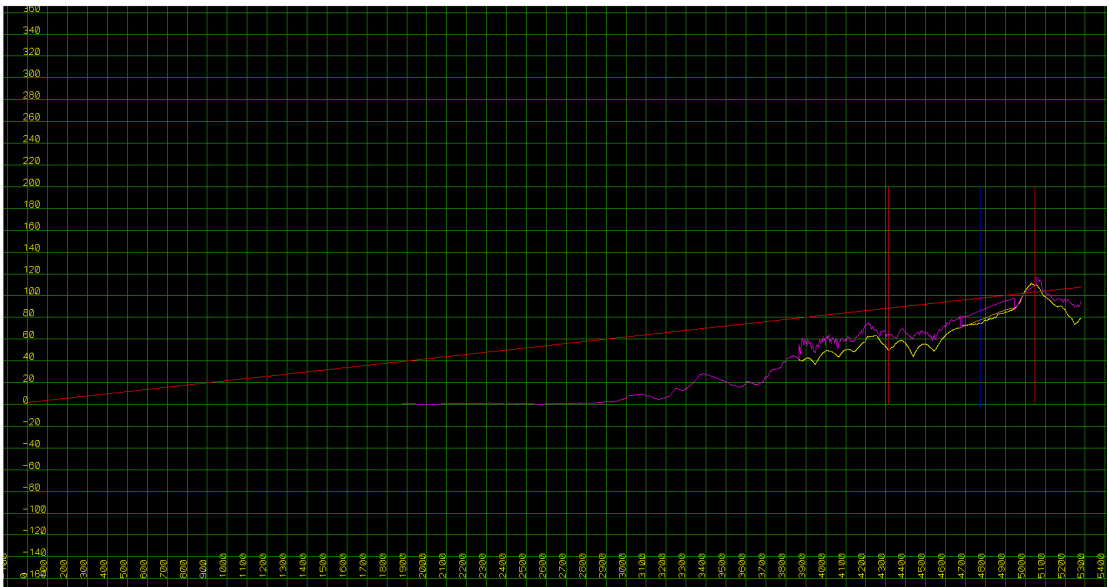
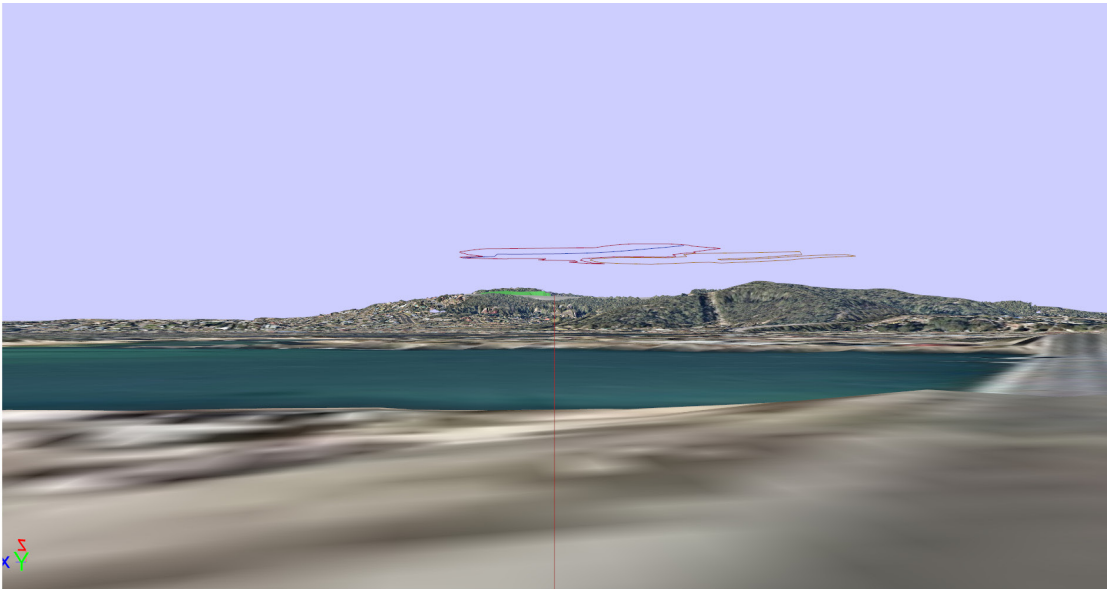
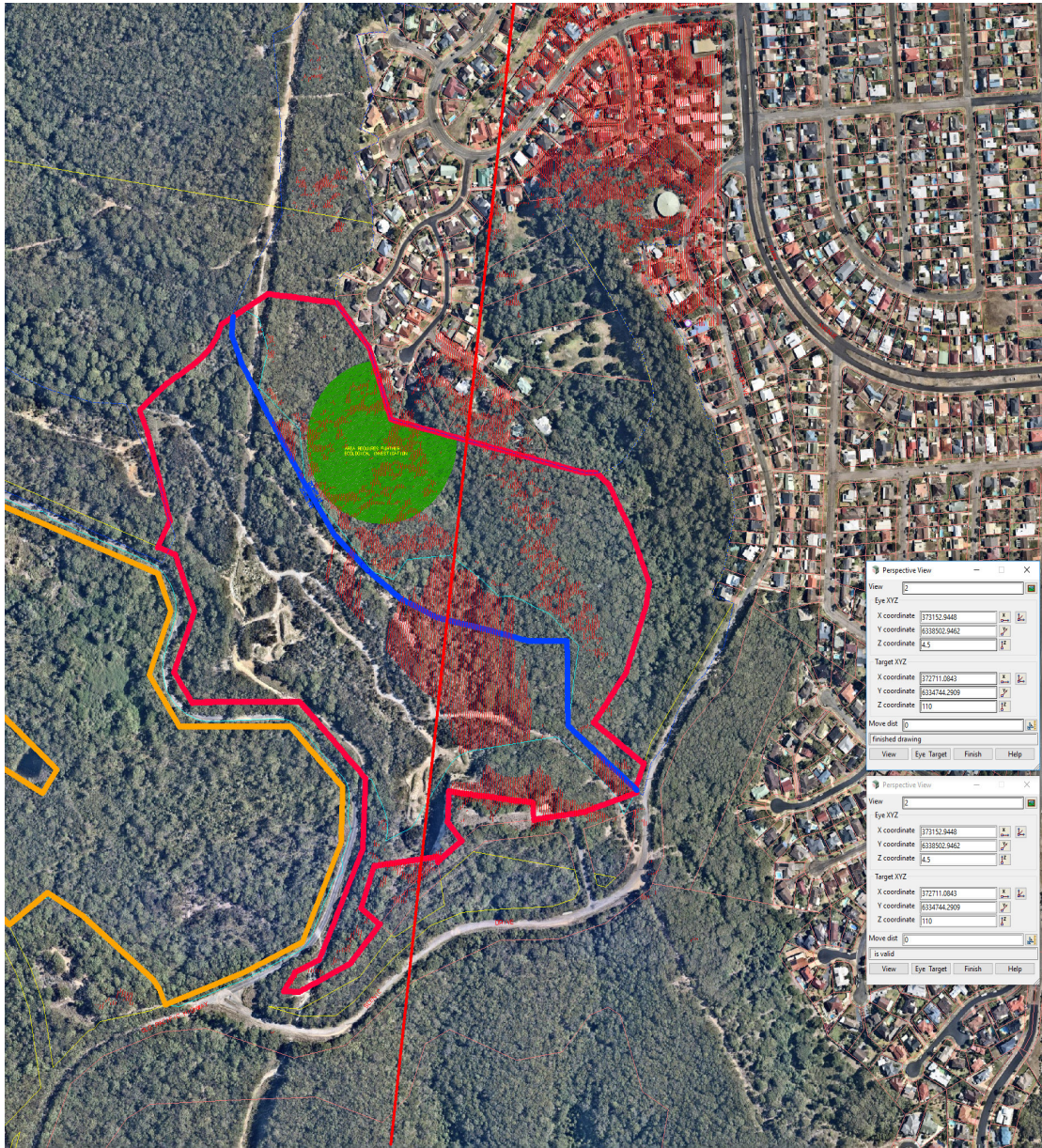
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SIGNIFICANT
VIEWPOINT CONTEXT

appendix 6 -viewshed 4

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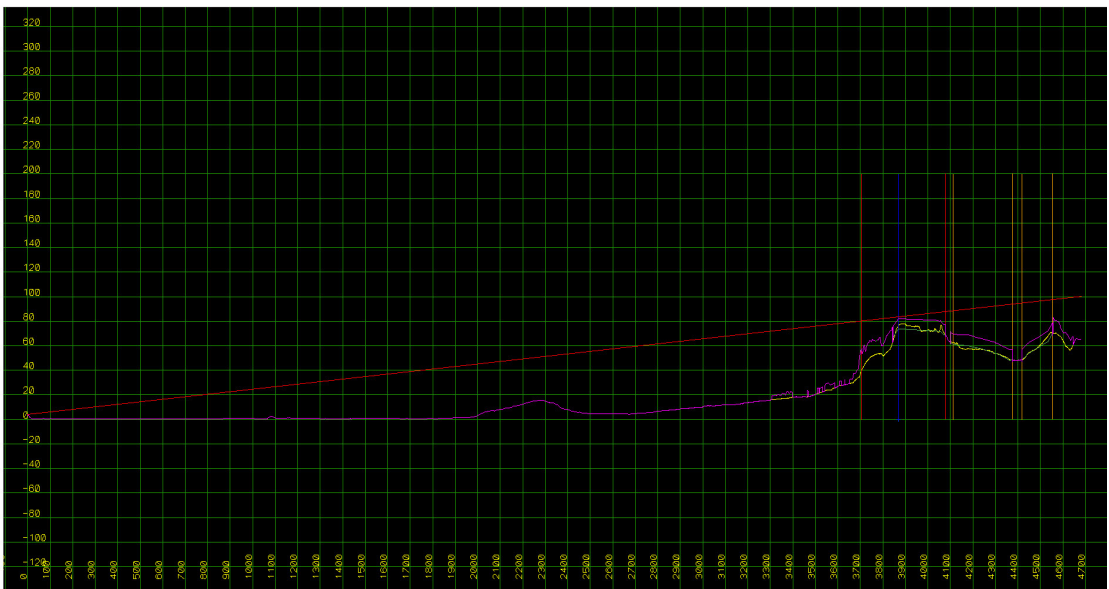
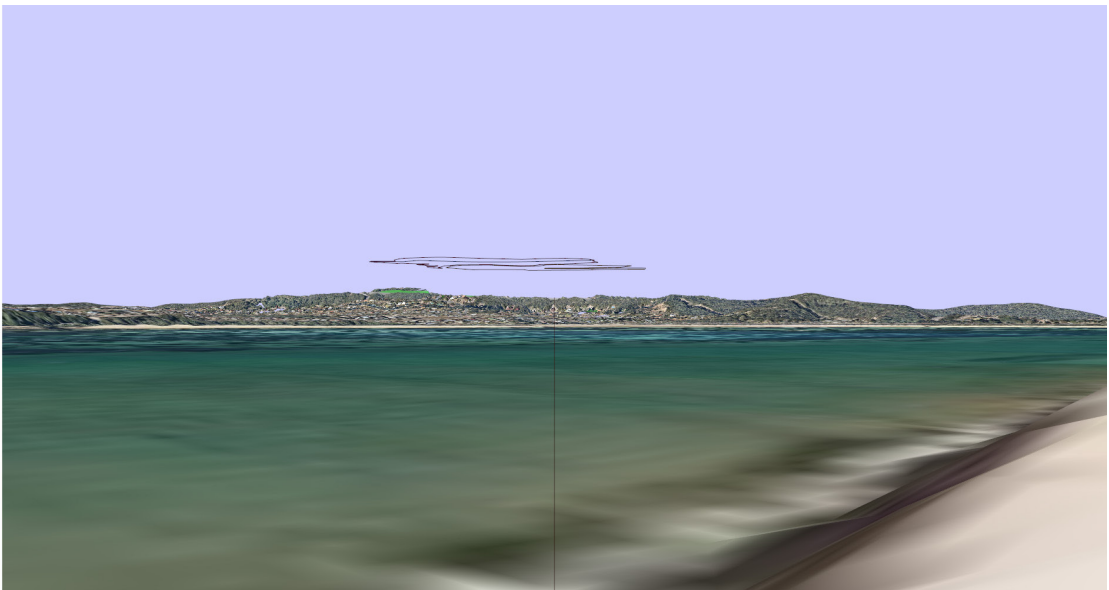
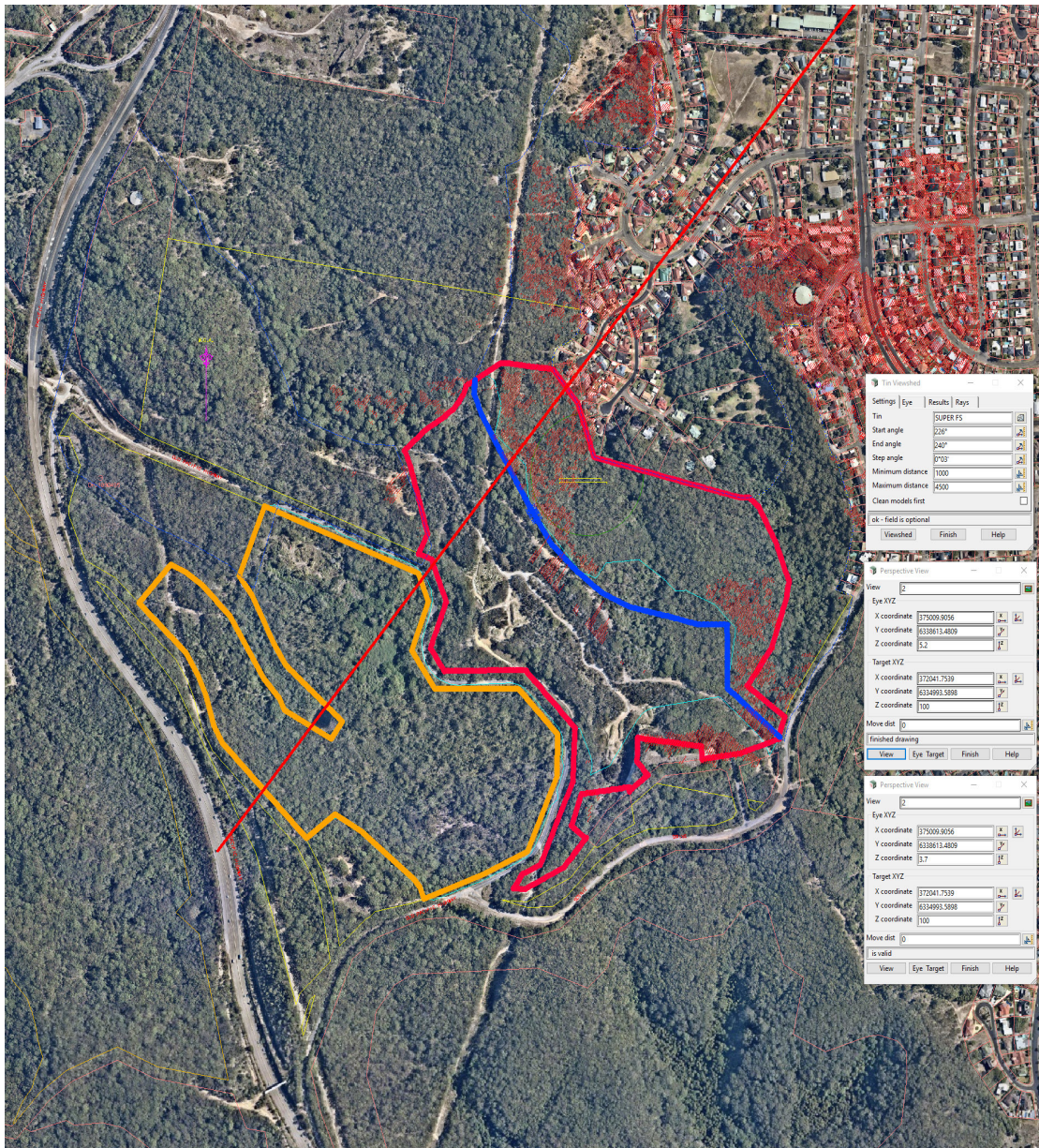
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COMMENTS:
Lower slopes beyond the Zone R1 Proposed for larger lots are sensitive from this viewpoint. The Visible section of the site is contained to a central portion of the Central Precinct below Mawsons Lookout. As noted the proposal does not extend above the treelined ridge from this viewpoint. The Southern Precinct not visible from this location. With appropriate integration measures such as colours, textures and form there will be limited visual effect from this location.

viewshed 5

visual integration report

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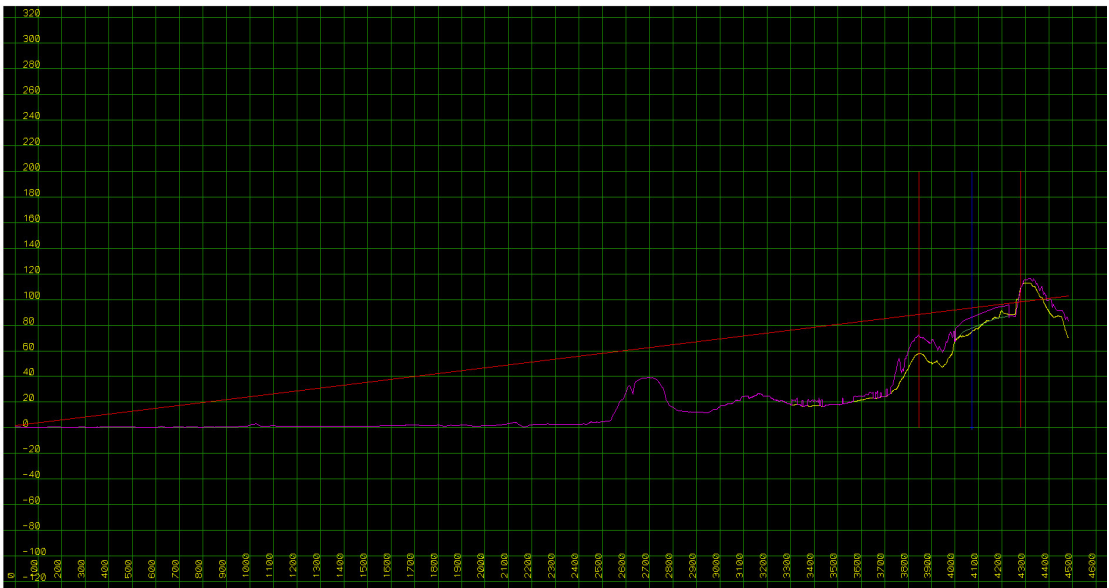
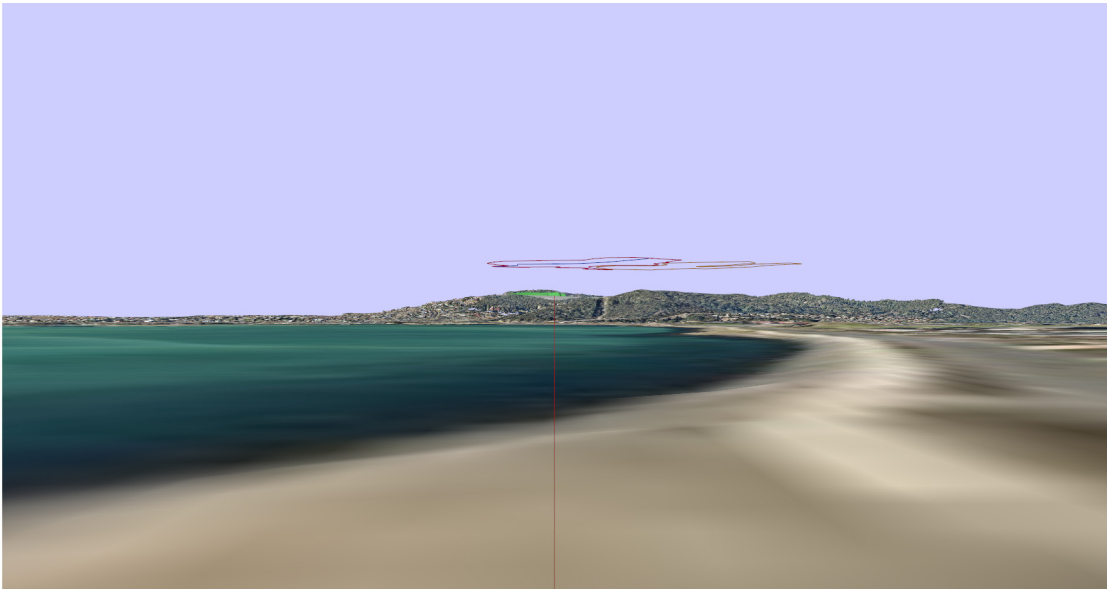
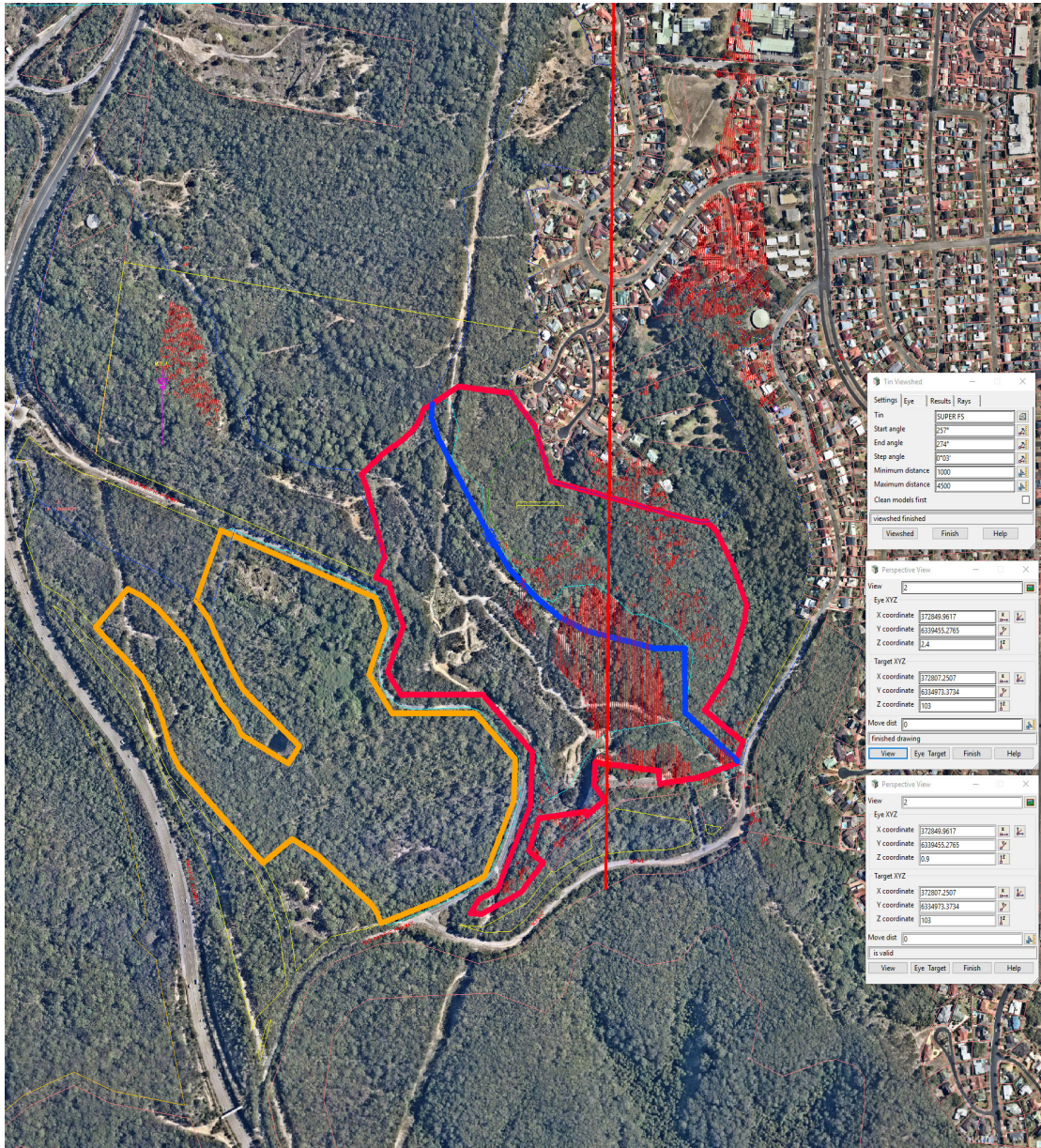
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COMMENTS:
Lower slopes beyond the Zone R1 Proposed for larger lots are sensitive from this viewpoint, particularly the northern section of the Central Precinct. The central section of the Central Precinct visible in other viewsheds is not a factor from this viewpoint location. As noted the proposal does not extend above the treelined ridge from this viewpoint. The Southern Precinct not visible from this location. With appropriate integration measures such as colours, textures and form there will be limited visual effect from this location.

viewshed 6
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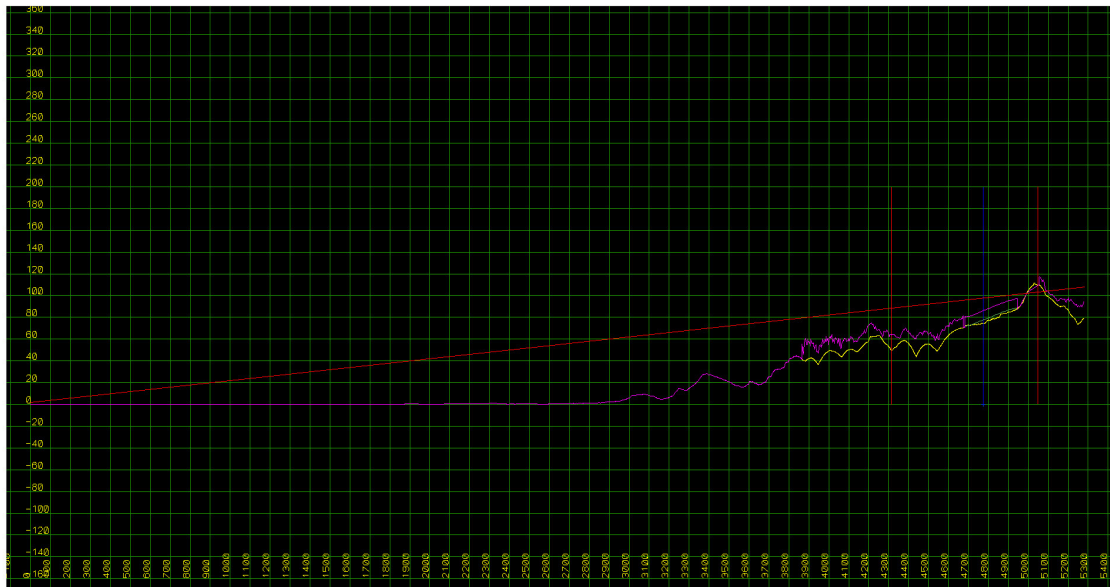
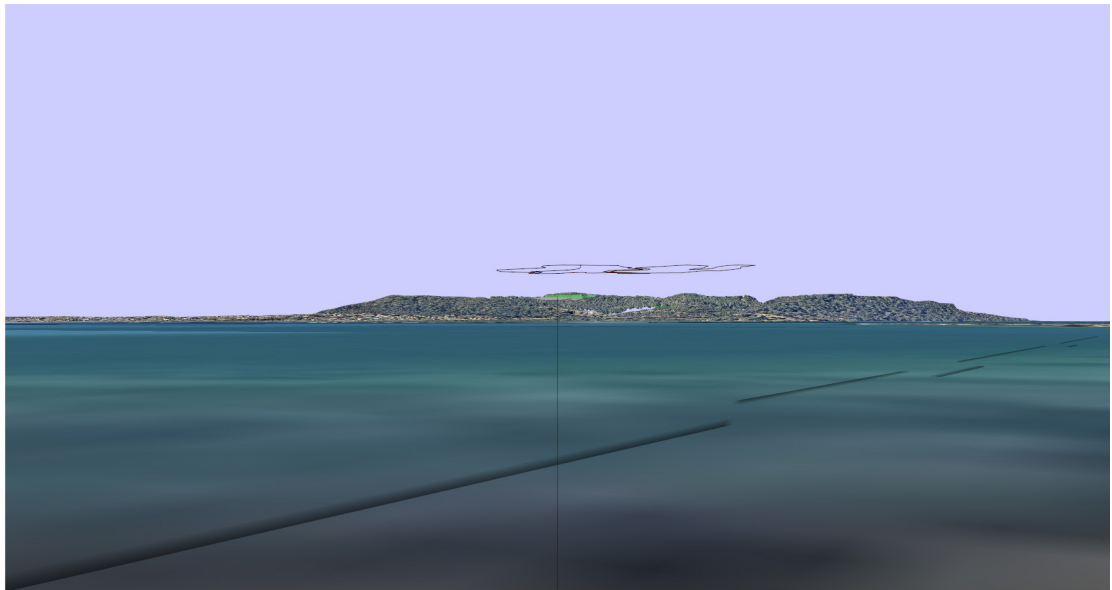
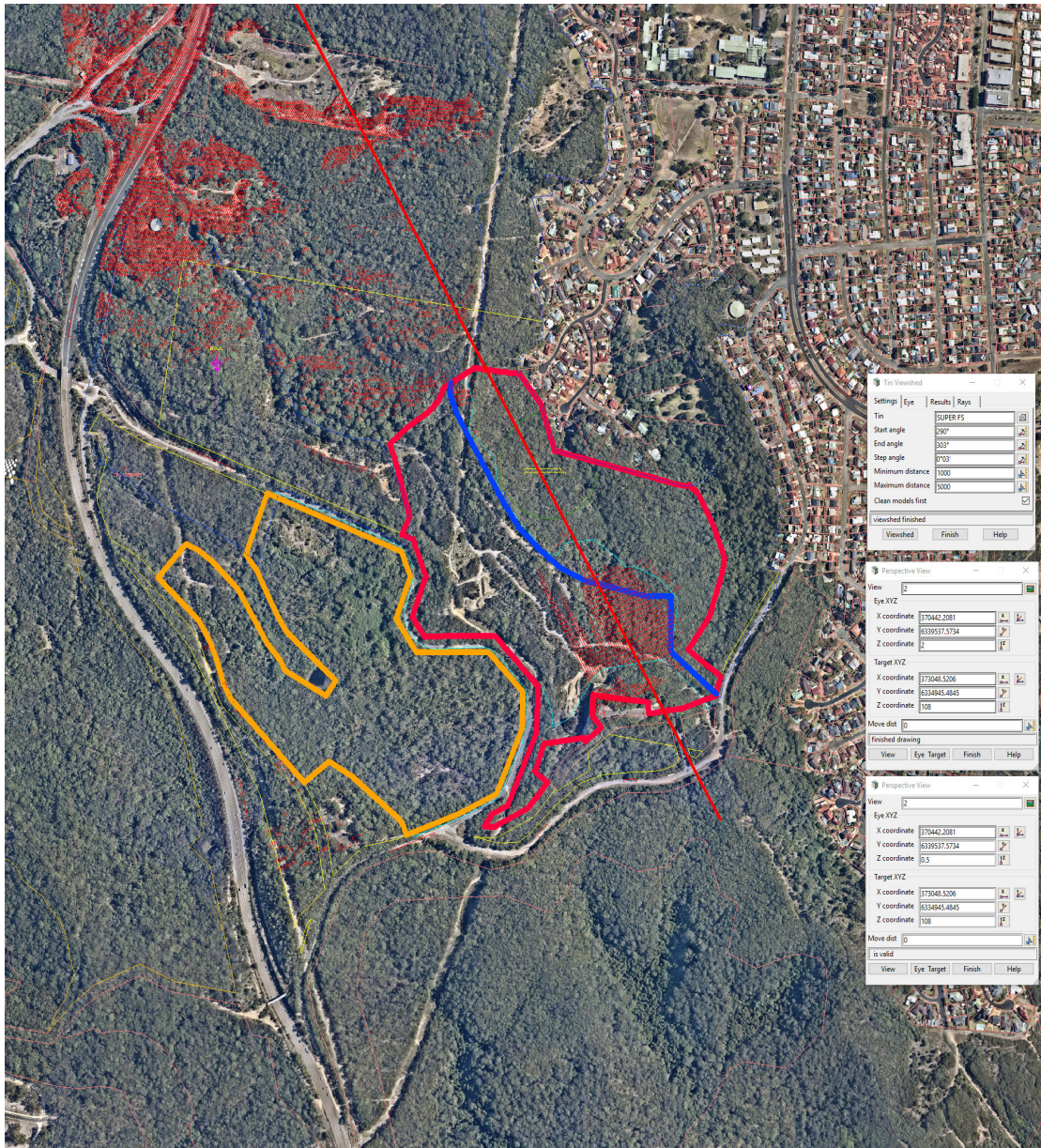
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COMMENTS:
Lower slopes beyond the Zone R1 Proposed for larger lots are sensitive from this viewpoint however less so than from Viewpoint 4. The Visible section of the site is contained to a central portion of the Central Precinct below Mawsons Lookout. As noted the proposal does not extend above the treelined ridge from this viewpoint. The Southern Precinct not visible from this location. With appropriate integration measures such as colours, textures and form there will be limited visual effect from this location.

viewshed 9

visual integration report

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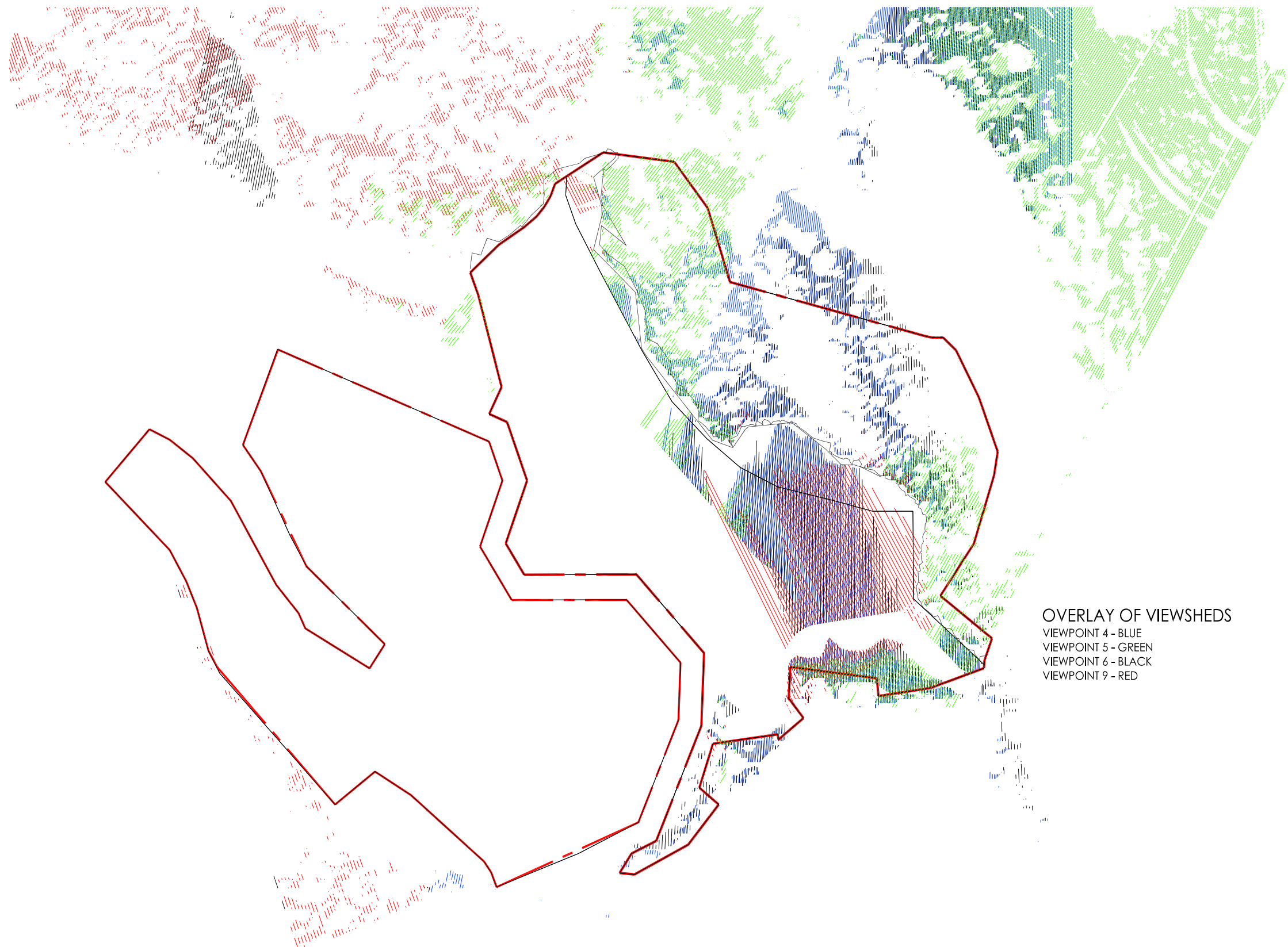
Lower slopes beyond the Zone R1 Proposed for larger lots are not sensitive from this viewpoint excepting the section which lies within the proposed earthworks footprint. The Visible section of the site is contained to a central portion of the Central Precinct below Mawsons Lookout. As noted the proposal does not extend above the treelined ridge from this viewpoint. The Southern Precinct not visible from this location. With appropriate integration measures such as colours, textures and form there will be limited visual effect from this location.

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combined viewshed visual integration report

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OVERLAY OF VIEWSHEDS

VIEWPOINT 4 - BLUE
VIEWPOINT 5 - GREEN
VIEWPOINT 6 - BLACK
VIEWPOINT 9 - RED

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Central Precinct
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Part Lots 1,4, 6 & 7 DP 1240365

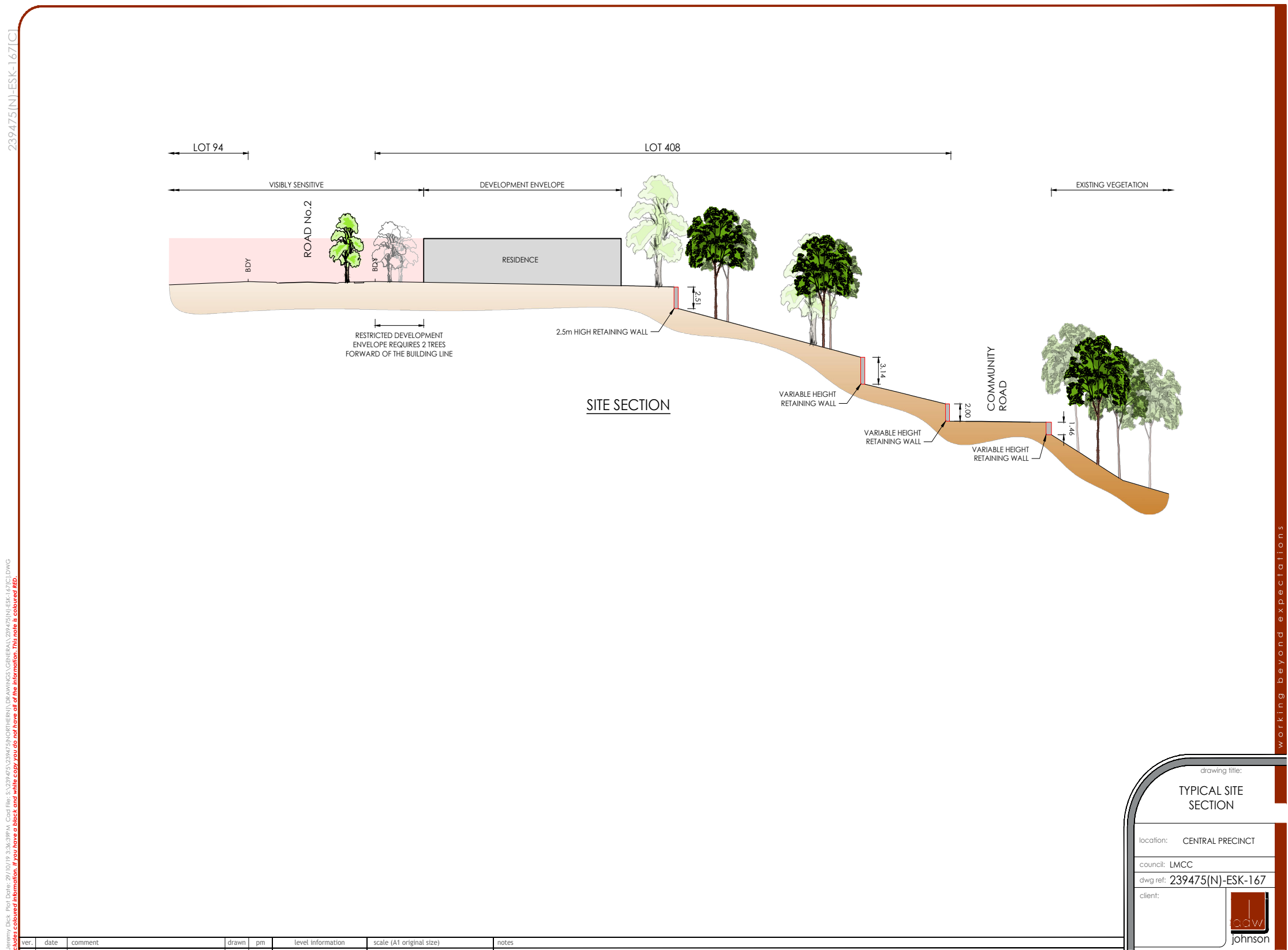
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by:
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job number:
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scale:
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revision:
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The northern/eastern slopes proposed for larger lots (Zone U1) are sensitive to viewpoints 4 & 6.
The southern precinct is not visible from any of these view sheds. Central section of the the Central Precinct is most sensitive to all views.

appendix 7 -typical section of northern edge

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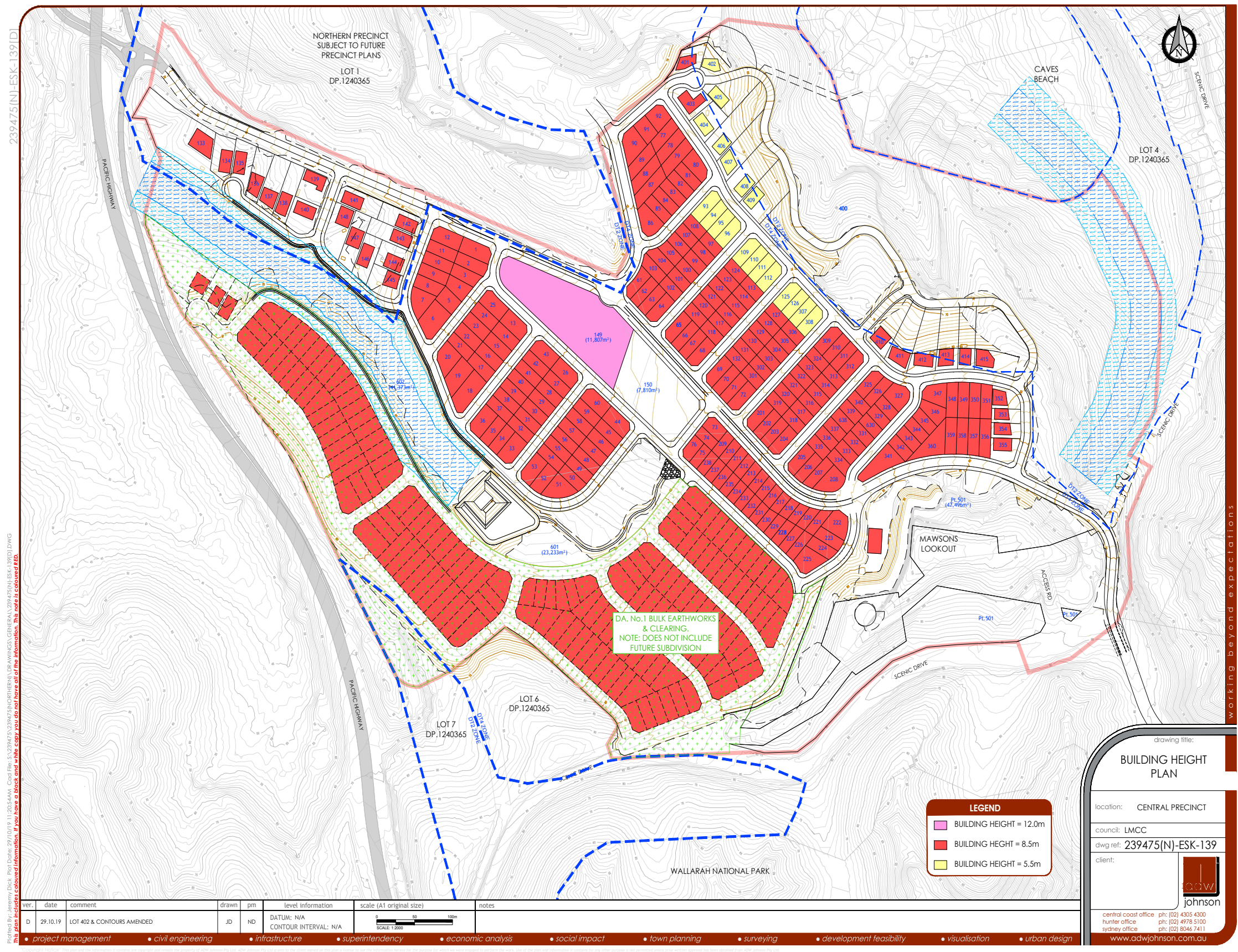
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appendix 8 - ADW Johnson building height plan

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Tree Canopy Re-establishment Strategy

Northern Sector- Central Precinct - Stage 4

Objective: To create significant tree height and canopy cover within a 5-10 year period by planting the following trees; grown to very high standards, supplied in very large sizes (minimum 400L), then planted and maintained to equally high standards, through an extended establishment period.

Indicative Height/Calliper/Clear Stem/Spread for trees in nominal container sizes where the Size Index is theoretically ideal under AS 2303 (Dimensions shown below apply to trees at the time of supply/planting)

Container Volume (L)	Size Index for 50 th Percentile	Rootball dimensions Diameter (mm) x Height (mm)	Indicative dimensions			
			Height (m) above the top of the potting mix	Calliper (mm) 300mm from the top of the potting mix	Clear stem (mm)	Spread (m)
200	193	650 x 550	3.5	55	900	1.8
300	272	600 x 600	4.2	65	1100	2.2
400	347	900 x 600	4.6	75	1300	2.4
600	490	1100 x 600	5.2	95	1450	2.8
800	626	1300 x 600	5.7	110	1600	3.2
1000	756	1500 x 600	6.0	125	1800	3.3
1200	883	1600 x 600	6.3	140	1800	3.5
1500	1067	1750 x 600	6.6	160	1800	3.8

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Trees to be planted as follows:

Angophora costata (46)

The Sydney Red Gum has been chosen for its form, vigour, colour and low foliage density (this will allow it to create an open screen in a relatively short period of time) and the fact that it is endemic and fits seamlessly into the surrounding landscape.

Flindersia australis (11-15)

Crows Ash has been chosen for its form, foliage density and the fact that it is an Australian Native tree. The dense domed crowns of the Crow Ash will provide dense screening to specific elements of the project from the surrounding countryside. In addition to those nominated in lots and community area, this species will also be used for adjoining street tree planting (these are not subject to the details of this memo).

Optional - Ficus obliqua (2-3)

The Small Leafed Fig could be selected in lieu of 2-3 Crows Ash. It has muted green foliage and is endemic to NSW coastal areas north from Narooma. If selected, these Figs would need to be located in an area well away from structures where they can provide important dense screening, to significant project elements, without standing out from the surrounding bush.

The number and placement of trees has been designed such that the resultant canopy projection will meet the required visual objectives whilst fitting within RFS requirements.

1. Timeframe

Anticipated installation date is early 2022, associated within initial stage 1 works.

The establishment programme is intended to be intensive through to the 3rd Winter post planting. (This is done because root growth occurs predominantly in the autumn.) The initial establishment programme is to be then followed by a “watch and water, as needed” programme for the following 2 x growing seasons.

Note: Establishment is generally considered to be complete after 2 x successive Autumns.)

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Canopy re-establishment strategy

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Height growth of the *Angophora costata* is estimated to be approx. 1.2m-1.5m per year while increase in the height of the *Flindersia australis* is estimated to be approx. 0.6m-0.8m per year.

Note: Annual increase in height will start to decrease after, say, year 5.
Crown projection will vary from species to species. However, expect the spread of the trees to be approx. 50%-60% of tree height for the early years post planting then more like 60%-70% of tree height by years 8-10.

For example:

- a. A 500L *Angophora costata* approx. 5.5m tall at planting would be expected to be approx: 11.5m tall x 5.5m spread at year 5 then more like 16m tall x 9.5m spread at year 10;
- b. A 500L *Flindersia australis* approx. 5m tall at planting would be expected to be approx.: 8.5m tall x 4.5m spread at year 5 then more like 12m tall x 7.5m spread at year 10.

2. Plant Procurement

High quality stock is a critical ingredient of success. All stock supplied is to conform with AS 2303:2018. And, as the intention is to create a visual screen in the shortest possible time it is intended to plant large specimens.

Given options available; using existing production stock, and projected increases in sizes between now and early 2022, intended tree sizes, as at planting, are as follows:

Angophora costata – A mix of 800L, 600L and 400L stock

Note: It is intended to plant the Angophora in a mix of sizes so as to be able to create a more varied, natural-looking planting and result in a more natural skyline.

Flindersia australis – 400L/500L stock

Ficus obliqua (if selected) – 1200L/1500L stock

It is intended to secure the trees required, under a grow-on tree supply contract, as soon as approval has been gained.

Final sizes will be a function of growth rates between now and early 2022.

3. Site preparation

The existing site soil (spoil) is to be tested by a soil scientist and will be managed, during earthworks, in accordance with their recommendations.

Once the batters have been formed a layer of the available material best suited to tree growth will be added as the upper section of the fill profile. This layer will be approx. 600mm – 1000mm deep and be placed, ameliorated and gently compacted, again, in accordance with the soil scientist's recommendations.

Note: In the event that providing a layer of uncompacted sits soil across the entire area of the terraces may result in stability issues, uncompacted "zones" shall be created around each tree that are a minimum of 600mm deep and have a minimum surface area of 10 x the surface area of the rootball of the planted tree.

e.g. A 600L tree with a rootball approx. 1100mm across and a surface area of approx. 0.95 square metres would require a minimum uncompacted area of, say, 4m x 2.5m. (The shape of the uncompacted area can be adapted to suit the planting location.)

4. Installation and irrigation

Trees are to be root-pruned and balled and burlapped by the supplier prior to shipment.

Planting holes are to be prepared as follows:

- a. Where needed, miniature soil bunds are to be created at each planting site so that the top of each rootball and the soil immediately around the rootball remains level with the topside of the hole once the tree has been planted.
- b. Holes dug approx. 2 x the diameter of the rootball to a depth equal to the depth of the rootball – on the high side of the hole.
- c. Sides of each hole laid-back at no more than 45 degrees
- d. Trees to be placed (craned) into place such that the north point marked on the rootball faces north, the root-crown is level with the high-side of the planting hole, the media beneath the rootball

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Canopy re-establishment strategy

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has been compacted (so the tree cannot subside) and the trunk is vertical.

- e. Trees are then backfilled with approved site soil with slow release fertilisers incorporated into the backfill in accordance with the supplier's recommendations.
- f. Trees are to then be watered-in such that the rootball and soil immediately around the rootball are soaked.
- g. The area immediately around each tree is to then be mulched in accordance with the grower's recommendations.
- h. An irrigation system to be added and turned-on immediately. This system to be constructed as a "Double Spiral" system using in-line drippers whereby the inner system ("System A") sits on top of the rootball and the outer system ("System B") sits on the adjacent soil in an area around the rootball that is as wide as the diameter of the planted rootball. (i.e. the irrigated area is 3 x the diameter of the planted rootball.)
- i. This system is to be used as follows:
 - i. In the first instance, System B is turned off and System A is operated 3-4 x a week at a rate designed to wet the rootball thoroughly. (Generally around 15% of the rootball volume per application.) This is likely to apply to the first 3-6 months, depending upon the season the trees are planted and the size of the tree – at planting.
 - ii. Once initial establishment has occurred system B is also turned on and irrigation frequency reduced to 1-2 x a week at a rate designed to wet the irrigated zone well. This is likely to apply to the next 3-6 months, again depending upon the season the trees are planted and the size of the tree – at planting.
 - iii. Once establishment is further advanced, System A is to be turned-off and System B applied 1-2 x a fortnight at a rate designed to wet the irrigated zone thoroughly. This 3rd stage of watering will be maintained through to the end of the third growing season.

- iv. This irrigation system is to then be left in place for a further 2 x seasons so that, in the event of very hot/dry conditions, the trees can be thoroughly watered occasionally.

Note: Fine tuning of the irrigation programme applied will be in accordance with the grower's recommendations.

5. Establishment/Maintenance/Monitoring

Having planted very high quality stock well and operating an efficient watering system further works needed are reduced to:

- a. Keeping the area immediately around each tree free from weeds.
- b. Maintaining any mulch layer recommended by the grower.
- c. Ensuring that the irrigation system remains intact and is functioning in accordance with the planned irrigation programme.
- d. Checking that soil moisture levels are appropriate and modifying the irrigation programme if needed.
- e. Constantly checking the health and vigour of the trees and liaising with the grower about how to deal with any issues that may arise.

These works are to be carried out very regularly for the first growing season (weekly), regularly throughout the second and third growing season (fortnightly through the growing season and monthly during the winter months) then periodically (monthly) for the following 2 years.

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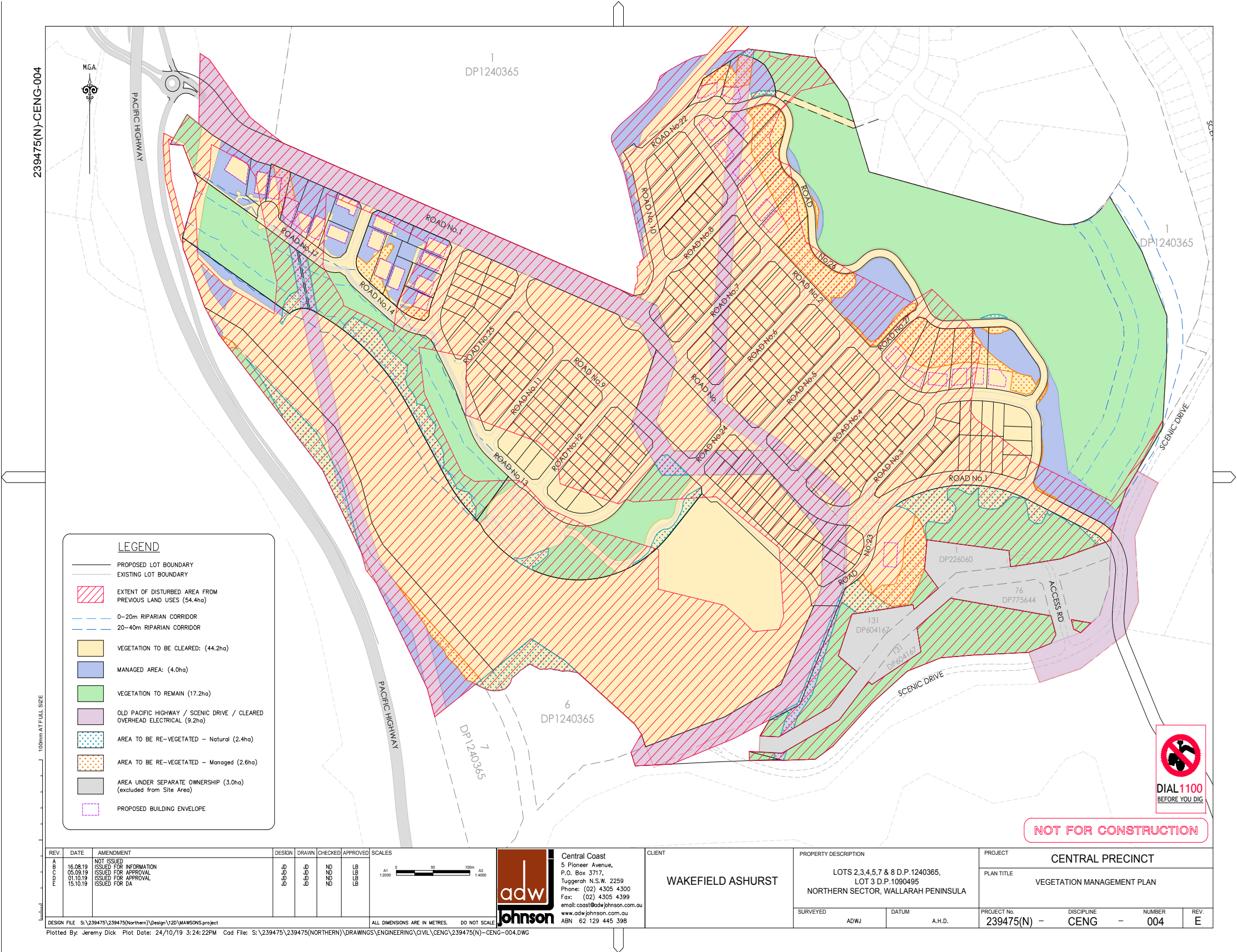
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appendix 10 -adw vegetation management

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appendix 11 -visual integration table

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	Nsa (DT2)	Nsg (DT2 and edge DT4 to road edge)	Nsc (DT4)	Nsh (DT4)	Nsm (DT4)
Regional Integration Strategies (ref pg 46 VIMP)					
Dominance of natural landscape	<p>The proposed site control guidelines include suggested building materials and colours suitable for the subdivision. Murrays Beach controls will apply to this area.</p> <p>Parts of this subunit occupy land previously cleared for construction access and ancillary works (Refer Appendix 12 Geotechnical Constraints)</p> <p>Large lot sizes will ensure retention of vegetation to be managed (ref Appendix 10 Vegetation Management Plan).</p>	<p>A section of vegetation in the northeastern portion of the site has been retained as a buffer between the new development and the existing urban areas to the east and north as can be seen on the VMP (ref appendix 10 Vegetation Management Plan). In addition there are portions of managed vegetation along the northern edge of the proposed development. Canopy re-establishment works within this unit will also help screen built form from northern aspects.</p> <p>The Murrays Beach controls will apply to this subunit. These controls relate to colours materials, roof form, articulation and fencing. There is a specific additional exclusion in colours of lighter shades of white and near white which have been selected to minimise visual impact of development from regional viewpoints.</p>	<p>The site has been highly disturbed. A large portion of this unit sits across Former Clay and Gravel Mine areas, Previously Cleared areas, Former Swansea Landfill area and Old Swansea Open Cut mine Area (ref Appendix 12 Geotechnical Constraints). Additional to this is the old Pacific Highway route.</p> <p>The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints.</p>	<p>This unit sits across the old Swansea Open Cut Mine area and has been previously cleared for Construction access and ancillary works.</p> <p>The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints.</p>	<p>This subunit sits across land previously cleared for construction access and ancillary works and former clay and gravel mine areas.</p> <p>The NWP draft guidelines are proposed for this area. This includes a colour palette, site, materials and built form. This section of the site will only be subject to bulk earthworks and clearing during DA No.1 with the future subdivision occurring within a subsequent DA. Proposed building heights for the future subdivision to this area shall be no greater than 8.5m (Refer Appendix 8 Building Height Plan).</p>
Retention of natural landscapes	<p>This section of the site is the least previously disturbed with larger lots proposed and managed areas identified (refer appendix 10 Vegetation Management Plan) to ensure retention of existing vegetation.</p>	<p>Disturbed areas along the northern escarpment are proposed for canopy re-establishment (Refer Appendix 10 Vegetation Management Plan).</p>	<p>Large areas of this subunit are previously disturbed being former Swansea landfill area, former clay and gravel mine and old Swansea open cut mine area (Refer to Appendix 12 Geotechnical Constraints).</p>	<p>It is proposed to retain existing vegetation on the northern slopes of Mawsons lookout with a portion of the lower slopes proposed to be re-vegetated (Refer Appendix 10 Vegetation Management Plan).</p>	<p>Vegetation to remain surrounding Mawsons lookout with clearing proposed to the west for residential development (Refer Appendix 10 Vegetation Management Plan).</p>
Protection of natural character ridgelines	<p>Development height within this subunit is restricted to 8.5m. (ref appendix 8 Building Height Plan) and the subunit sits well below the ridgeline</p>	<p>Building heights have been limited for lots 402,404-409 and 93-96, 109-112, 125-126,307-308 to 5.5m to avoid visual impact on the ridgelines along with canopy re-establishment. (ref Appendix 8 Building Height Plan) Other lots within this subunit are limited to 8.5m.</p>	<p>Building heights have been limited for lots 93-96, 109-112 and 125,126,307 and 308 to 5.5m to avoid visual impact on the ridgelines. The subunit has maximum 8.5m building height excepting an area located centrally along the northern boundary of the subunit with a 12m height limit (this is not visible to any viewpoints and sits below ridgeline), refer appendix 8 Building Height Plan.</p>	<p>Building heights within this subunit have been limited to 8.5m (ref appendix 8 building height plan) to ensure proposed development does not broach the ridgeline.</p>	<p>Building heights within this subunit have been limited to 8.5m to avoid the visual impact on the ridgelines (ref appendix 8 building height plan).</p>
Protection of the natural character of Ridgeline "i" and "j"	n/a	<p>Building height of lots 93-96, 109-112, 125-126,307-308 have been limited to 5.5m to avoid visual impact on ridgelines (Refer Appendix 8 Building Height Plan)</p>	<p>Building height of lots 93-96, 109-112 and 125,126,307,308 have been limited to 5.5m to avoid visual impact on ridgelines (Refer Appendix 8 Building Height Plan)</p>	<p>Building heights have been limited to 8.5m to avoid visual impact on ridgelines (Refer Appendix 8 Building Height Plan)</p>	<p>Building heights have been limited to 8.5m to avoid visual impact on the ridgeline excepting an area to the (Refer Appendix 8 Building Height Plan)</p>

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	Nsa (DT2)	Nsg (DT2 and edge DT4 to road edge)	Nsc (DT4)	Nsh (DT4)	Nsm (DT4)
Pacific Highway viewshed management	This subunit will be heavily reliant of retention of vegetation within the north-west corner of Lot 133 to provide screening to the proposed development from the Pacific Highway (ref Viewpoint 11). Motorists will have limited viewing time.	n/a	n/a	n/a	n/a
Lake Macquarie Viewshed management	n/a	n/a	Proposed development will be seen from lake however building heights have been proposed as 8.5m maximum to ensure development does not broach the ridgeline. The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints.	Proposed development will be seen from lake however building heights have been proposed as 8.5m maximum to ensure development does not broach the ridgeline. (refer Appendix 8 Building Height Plan) The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints.	n/a
Offshore viewshed management	n/a	n/a	n/a	n/a	n/a
Coastal Walk Viewshed management	n/a	n/a	n/a	n/a	n/a
Urban areas viewshed management	n/a	Canopy re-establishment proposed for the northern edge will help with visual absorption. Vegetation to the base of Mawsons Lookout and north of the proposed development is to be retained. (refer Appendix 10 Vegetation Management Plan)	Canopy re-establishment proposed for the northern edge will help with visual absorption. Vegetation to the base of Mawsons Lookout and north of the proposed development is to be retained. (refer Appendix 10 Vegetation Management Plan)	Canopy re-establishment proposed for the northern edge will help with visual absorption. Vegetation to the base of Mawsons Lookout and north of the proposed development is to be retained. (refer Appendix 10 Vegetation Management Plan)	n/a
Sector Integration Strategies (Northern Sector- ref pp 45 VIMP)					
Village Massing and Densities	Larger lot sizes within this subunit ensure minimal clearing of vegetation and allowing for managed vegetation areas(Refer Appendix 10 Vegetation Management Plan). Building heights are limited to 8.5m	Larger lots are proposed along the northern edge of the proposed development allowing for canopy re-establishment areas (refer Appendix 10 Vegetation Management Plan) Building heights along this northern and eastern edge have been limited to 8.5m with some reduced to 5.5m where modeling highlighted the need to ensure views of the tree canopy (and re-establishment) dominate the ridgeline and slopes. (Refer Appendix 8 Building Height Plan)	Heights within this subunit are generally limited to 8.5m to ensure views of the tree canopy dominate the ridgeline. Lots along the north eastern edge were reduced to 5.5m where modelling indicated their impact on the ridgeline from selected viewpoints (refer Appendix 8 Building Height Plan).	Heights within this subunit have been limited to 8.5m to ensure vegetation and Mawsons Lookout dominate the ridgeline(refer Appendix 8 Building Height Plan).	n/a
Layouts and form	Roads align to natural road contours where possible to avoid creating open corridors, noting the development area is being re-engineered. The layout of the development has been sited to fit within the bounds of previously cleared land as much as possible in order to minimise further disturbance to the natural vegetation.(Refer Appendix 12 Geotechnical Constraints). The Vegetation Management Plan prepared by ADW Johnson indicates the extent of existing disturbed areas and the Site Plan shows that the majority of DT4 shall be located within this area.				

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	Nsa (DT2)	Nsg (DT2 and edge DT4 to road edge)	Nsc (DT4)	Nsh (DT4)	Nsm (DT4)
Material, textures and colour	The Murrays Beach controls will apply to this subunit. These controls relate to colours materials, roof form, articulation and fencing. There is a specific additional exclusion in colours of lighter shades of white and near white which have been selected to minimise visual impact of development from regional viewpoints. These include recessive and non reflective finishes and the avoidance of primary colours.	The Murrays Beach controls will apply to this subunit. These controls relate to colours materials, roof form, articulation and fencing. There is a specific additional exclusion in colours of lighter shades of white and near white which have been selected to minimise visual impact of development from regional viewpoints. These include recessive and non reflective finishes and the avoidance of primary colours.	The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints. These include recessive and non reflective finishes and the avoidance of primary colours.	The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints. These include recessive and non reflective finishes and the avoidance of primary colours.	The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints. These include recessive and non reflective finishes and the avoidance of primary colours.
Vegetation management	Larger lots provided within this subunit allow for managed vegetation areas which will help to screen the proposed development from along the Pacific Highway, viewpoint 11 (ref Appendix 10 Vegetation Management Plan). Protection of natural vegetation to north west corner of 133 and within the road reserve surrounding the entry roundabout are key to screening views into the development.	Vegetation buffer north of the proposed development will help to screen the development from the adjacent Caves Beach community (ref Appendix 10 Vegetation Management Plan)	It has been recommended that natural vegetation be planted in street verges, pedestrian paths and shared ways to minimise visual impact of access corridors. Vegetation along the riparian corridor is proposed to be retained (ref Appendix 10 Vegetation Management Plan). The vegetation buffer to the west of the subunit adjoining the Pacific Highway will provide a buffer screening views of the development from the Pacific Highway.	Natural vegetation has been retained to the base of Mawsons lookout with additional planting proposed as areas to be revegetation (ref Appendix 10 Vegetation Management Plan)	Vegetation surrounding Mawsons lookout is proposed to be retained (refer Appendix 10 Vegetation Management Plan)
Level 1 Suitability Areas					
VIMP guideline ref	Pg 105				
Massing and density Layout and form Materials and textures Vegetation management Comments	The VIMP is not required to provide special or site specific planning provisions in order to achieve visual integration of the development proposed by the DLUP in Suitability Level 1 areas, however the objectives and strategies of Chapter 4 will be applied to ensure that the overall scenic quality of these areas remains intact	n/a	n/a	n/a	n/a
Level 2 Suitability Areas					
VIMP guideline ref		pg 107	pg 107	n/a	pg 125

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	Nsa (DT2)	Nsg (DT2 and edge DT4 to road edge)	Nsc (DT4)	Nsh (DT4)	Nsm (DT4)
Massing and density Layout and form Materials and Textures vegetation management Comments	n/a	<p>The Murrays Beach controls will apply to this subunit. These controls relate to colours materials, roof form, articulation and fencing. There is a specific additional exclusion in colours of lighter shades of white and near white.</p> <p>Computer modelling of the site during the planning stages has allowed for sensitive design, making adjustments to the master plan and building heights visually to absorb within re-established canopy. Larger lot residences have been scattered along the northern edge of the proposed development associated with the dividing line between DT2/ DT4 development. Additionally canopy re-establishment is proposed on the northern slopes. (Refer Appendix 10 Vegetation Management Plan)</p> <p>Building heights in this area have been kept to a maximum height of 8.5m retaining the dominance of the vegetated ridge behind.</p>	<p>The NWP draft guidelines are proposed for this area. This includes a colour palette, site coverage control, materials and landscaping.</p> <p>Computer modelling indicated that this section of the site is generally not visible from northern viewpoints. Lateral roads are proposed, but are set back within the site.</p> <p>The main entry road generally follows the Old Pacific Highway.</p> <p>An area adjacent to the riparian corridor is proposed to be revegetation.</p>	n/a	<p>The suitability of this unit was reassessed in the VIMP resulting in Development type 4 being reduced from a level 3 to a level 2 suitability.</p> <p>The NWP draft guidelines are proposed for this area. This includes a colour palette, site coverage control, materials, built form and landscaping. This section of the site will only be subject to bulk earthworks and clearing during DA No.1 with the future subdivision occurring within a subsequent DA. Proposed building heights for the future subdivision to this area shall be no greater than 8.5m.</p>
Level 3 Suitability Areas					
VIMP guideline ref				pg 115	
Massing and density Layout and form Material Texture/colour Vegetation Management	n/a	n/a	n/a	<p>This smaller subunit occurs north of the Mawsons lookout. As can be seen from the Vegetation Management Plan (Appendix 10) vegetation is proposed to be retained to the northern aspect of the lookout with revegetation occurring on the lower slopes where required.</p> <p>The NWP draft guidelines are proposed for this area. This includes a colour palette, material and built form controls which will help to minimise the visual impact of the development from regional viewpoints. These include recessive and non reflective finishes and the avoidance of primary colours.</p>	n/a

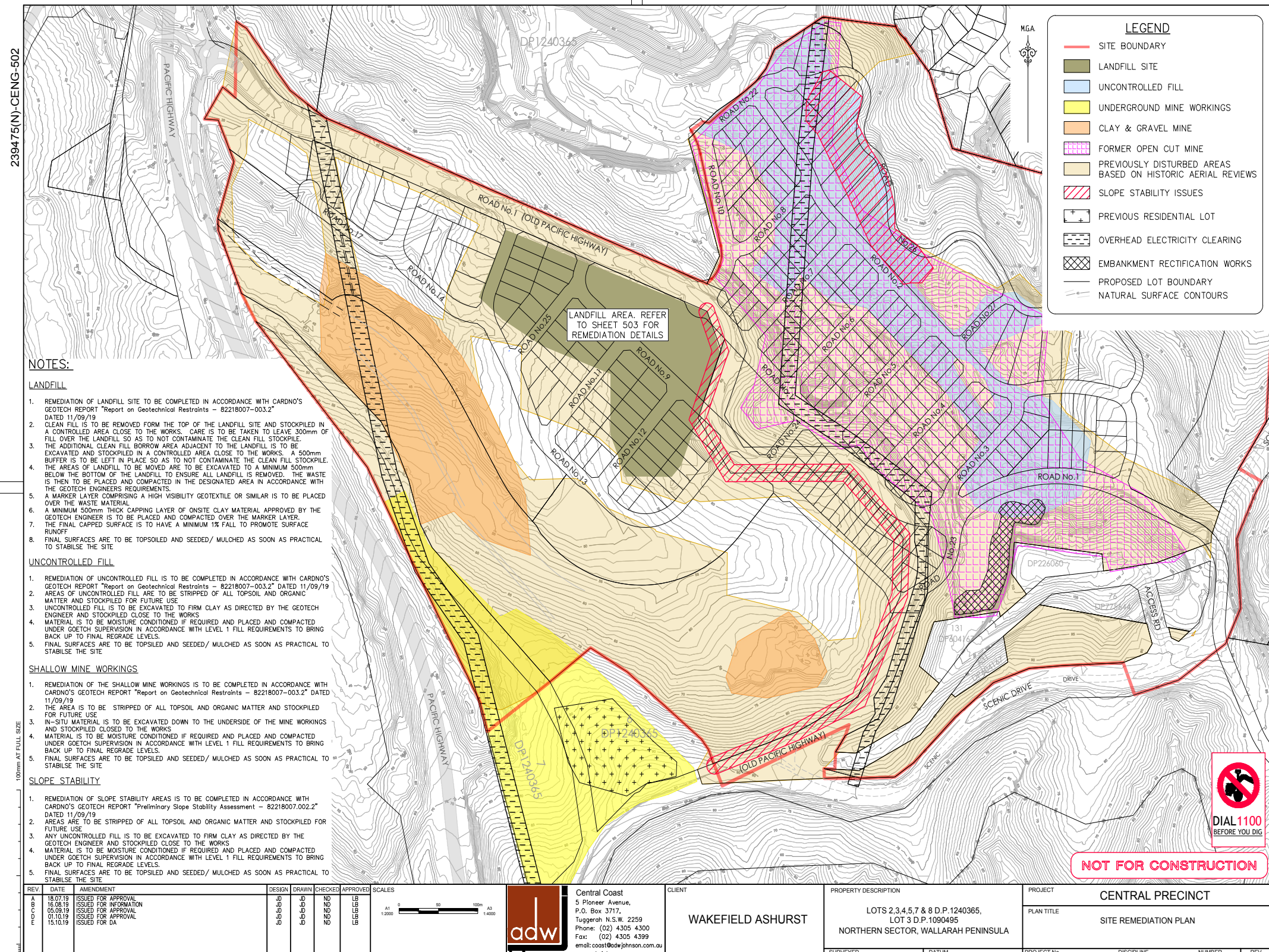
site details:
North Wallarah Peninsula,
Northern Sector,
Central Precinct
Lots 2, 3, 5 & 8 DP 1240365
Part Lots 1,4, 6 & 7 DP 1240365

client:
Wakefield Ashurst
by:
KH / KM
date:
30/10/19
job number:
12132.5
scale:
NTS @ A3
revision:
F

appendix 12 -Geotechnical constraints

visual integration report

76



site details:
North Wallarah Peninsula,
Northern Sector,
Central Precinct
Lots 2, 3, 5 & 8 DP 1240365
Part Lots 1,4, 6 & 7 DP 1240365

client:
Wakefield Ashurst
by:
KH / KM
date:
30/10/19
job number:
12132.5
scale:
NTS @ A3
revision:
F

appendix 13 -adw johnson modeling

visual integration report

77

site details:
North Wallarah Peninsula,
Northern Sector,
Central Precinct
Lots 2, 3, 5 & 8 DP 1240365
Part Lots 1,4, 6 & 7 DP 1240365

client:
Wakefield Ashurst
by:
KH / KM
date:
30/10/19
job number:
12132.5
scale:
NTS @ A3
revision:
F

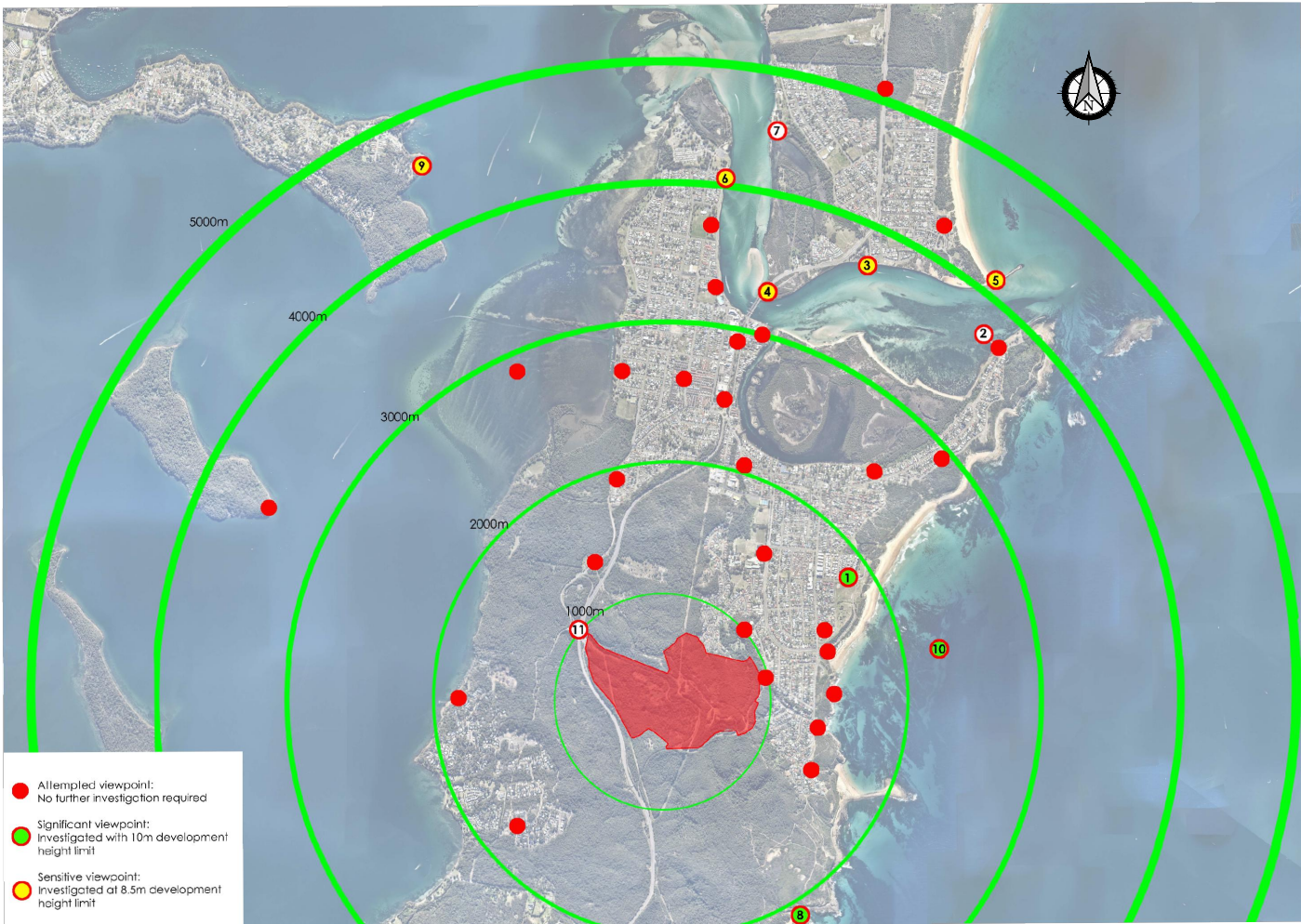


DA 1, CENTRAL PRECINCT

NORTHERN SECTOR, WALLARAH PENINSULA

LOTS 2,3,4,5,7 & 8 D.P.1240365, LOT 3 D.P.1090495

- FIGURES**
- 1 VP1 PLAN, SECTION AND FINAL COMBINED
 - 2 VP1 EXISTING AND CIVIL WORKS
 - 3 VP1 BUILT FORM AND REVEG
 - 4 VP1 FINAL COMBINED (UNZOOMED)
 - 5 VP2 PLAN, SECTION AND FINAL COMBINED
 - 6 VP2 EXISTING AND CIVIL WORKS
 - 7 VP2 BUILT FORM AND REVEG
 - 8 VP2 FINAL COMBINED (UNZOOMED)
 - 9 VP3 PLAN, SECTION AND FINAL COMBINED
 - 10 VP3 EXISTING AND CIVIL WORKS
 - 11 VP3 BUILT FORM AND REVEG
 - 12 VP3 FINAL COMBINED (UNZOOMED)
 - 13 VP4 PLAN, SECTION AND FINAL COMBINED
 - 14 VP4 EXISTING AND CIVIL WORKS
 - 15 VP4 BUILT FORM AND REVEG
 - 16 VP4 FINAL COMBINED (UNZOOMED)
 - 17 VP5 PLAN, SECTION AND FINAL COMBINED
 - 18 VP5 EXISTING AND CIVIL WORKS
 - 19 VP5 BUILT FORM AND REVEG
 - 20 VP5 FINAL COMBINED (UNZOOMED)
 - 21 VP6 PLAN, SECTION AND FINAL COMBINED
 - 22 VP6 EXISTING AND CIVIL WORKS
 - 23 VP6 BUILT FORM AND REVEG
 - 24 VP6 FINAL COMBINED (UNZOOMED)
 - 25 VP7 PLAN, SECTION AND FINAL COMBINED
 - 26 VP7 EXISTING AND CIVIL WORKS
 - 27 VP7 BUILT FORM AND REVEG
 - 28 VP7 FINAL COMBINED (UNZOOMED)
 - 29 VP8 PLAN, SECTION AND FINAL COMBINED
 - 30 VP8 EXISTING AND CIVIL WORKS
 - 31 VP8 BUILT FORM AND REVEG
 - 32 VP8 FINAL COMBINED (UNZOOMED)
 - 33 VP9 PLAN, SECTION AND FINAL COMBINED
 - 34 VP9 EXISTING AND CIVIL WORKS
 - 35 VP9 BUILT FORM AND REVEG
 - 36 VP9 FINAL COMBINED (UNZOOMED)
 - 37 VP10 PLAN, SECTION AND FINAL COMBINED
 - 38 VP10 EXISTING AND CIVIL WORKS
 - 39 VP10 BUILT FORM AND REVEG
 - 40 VP10 FINAL COMBINED (UNZOOMED)
 - 41 VP11 PLAN, SECTION AND FINAL COMBINED
 - 42 VP11 EXISTING AND CIVIL WORKS
 - 43 VP11 BUILT FORM AND REVEG
 - 44 VP11 FINAL COMBINED (UNZOOMED)
 - 45 VP12 PLAN, SECTION AND FINAL COMBINED
 - 46 VP12 EXISTING AND CIVIL WORKS
 - 47 VP12 BUILT FORM AND REVEG
 - 48 VP12 FINAL COMBINED (UNZOOMED)



LOCALITY SKETCH
NOT TO SCALE

NOTES:

1. VIEWPOINTS AS PER TERRAS, WITH MODEL VIEW 1.5m FROM GROUND.
2. BASE CONTOURS VIA LIDAR.
3. BASE TREE LAYER VIA LIDAR.
4. FINISHED DESIGN SURFACE (SHOWN ORANGE) AS PER CONCEPT ENGINEERING PLANS ADWJ.
5. EXISTING VEGETATION REMOVED FROM BASE LIDAR WHERE CLEARING PROPOSED (CIVILS FOOTPRINT).
6. POTENTIAL BUILDING MASS HEIGHTS FROM FINISHED DESIGN SURFACE BEING 5.5m (SHOWN YELLOW), 8.5m (SHOWN RED) AND 12m (SHOWN MAGENTA).
7. TREE CANOPY RE-ESTABLISHMENT BASED ON STAGE 4 SITE ANALYSIS CONCEPT PLAN 239475(N)-SAPS-002 AND 003, WITH 13m TREE HEIGHT AND 8m CANOPY AT 10 YEAR GROWTH FROM ADVANCED STOCK.
8. AERIAL IMAGE DRAPED ONTO LIDAR & TREE SURFACE (I.E NOT 3D, NO BUILDINGS OR DEPTH PERCEPTION).
9. ALL IMAGES EXTRACTED FROM 3D MODEL AND FOR INPUT INTO VISUAL IMPACT ASSESSMENT BY OTHERS.

ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
B	01.11.19	TREES ADDED	AE	ND	DATUM: AHD CONTOUR INTERVAL: N/A	NOT TO SCALE	

• project management

• civil engineering

• infrastructure

• superintendency

• economic analysis

• social impact

• town planning

• surveying

• development feasibility

• visualisation

• urban design

drawing title:

COVER SHEET & LOCALITY SKETCH

location:

NORTHERN SECTOR,
WALLARAH PENINSULA

council:

LMCC

dwg ref:

239475(N)-PSK-210

client:

adwjohnson

central coast office

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hunter office

ph: (02) 4978 5100

sydney office

ph: (02) 8046 7411

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Viewpoint 1

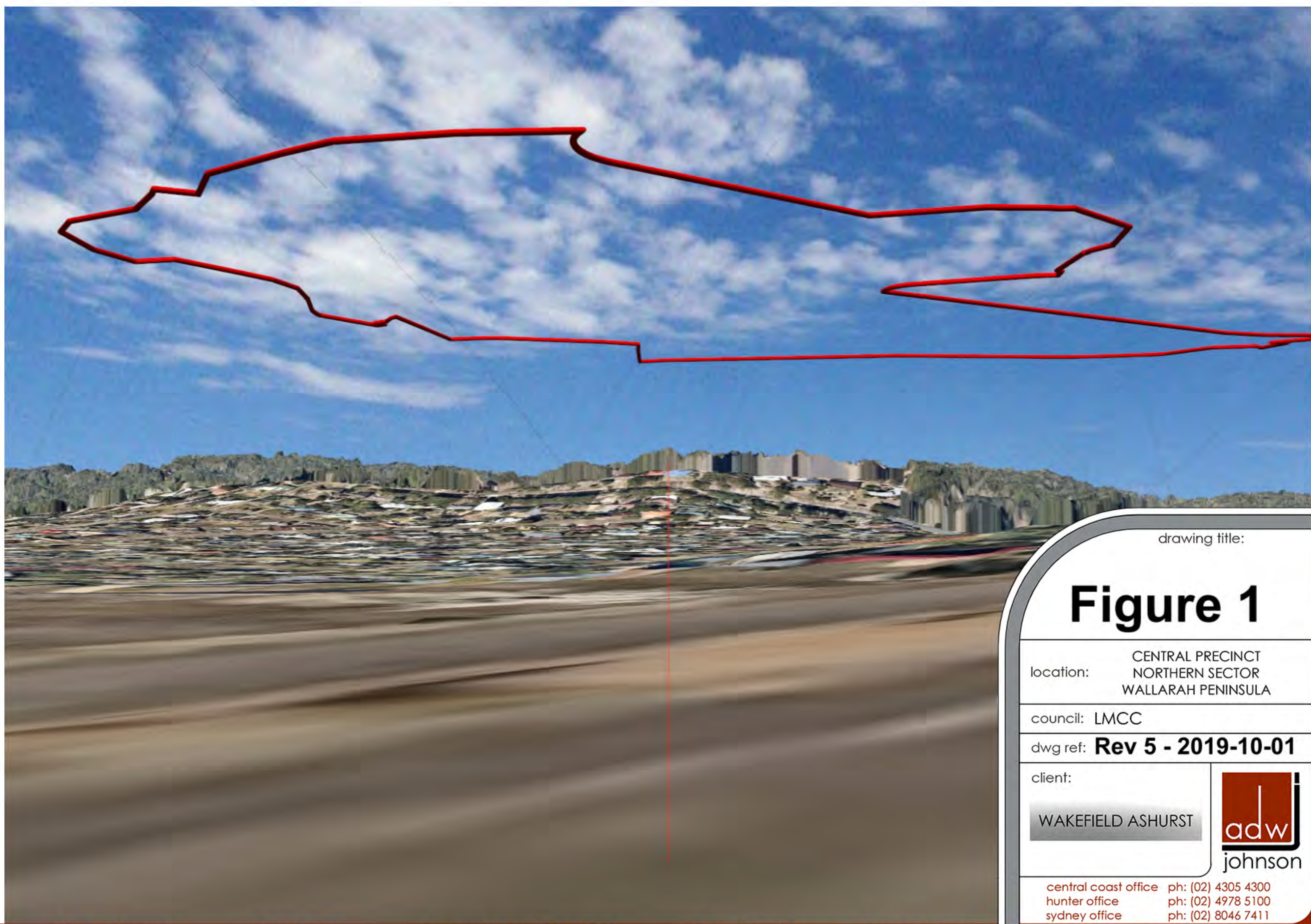
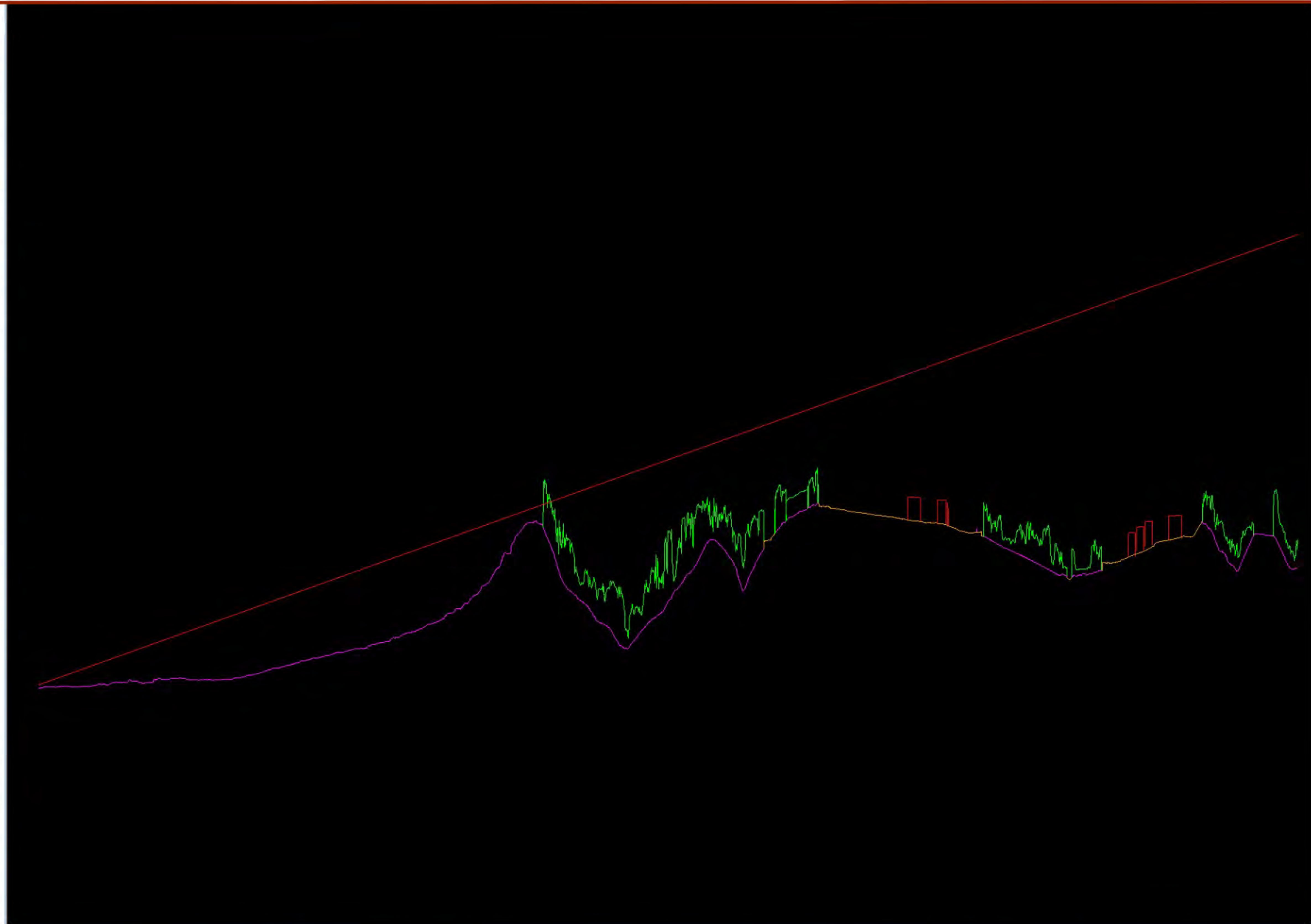
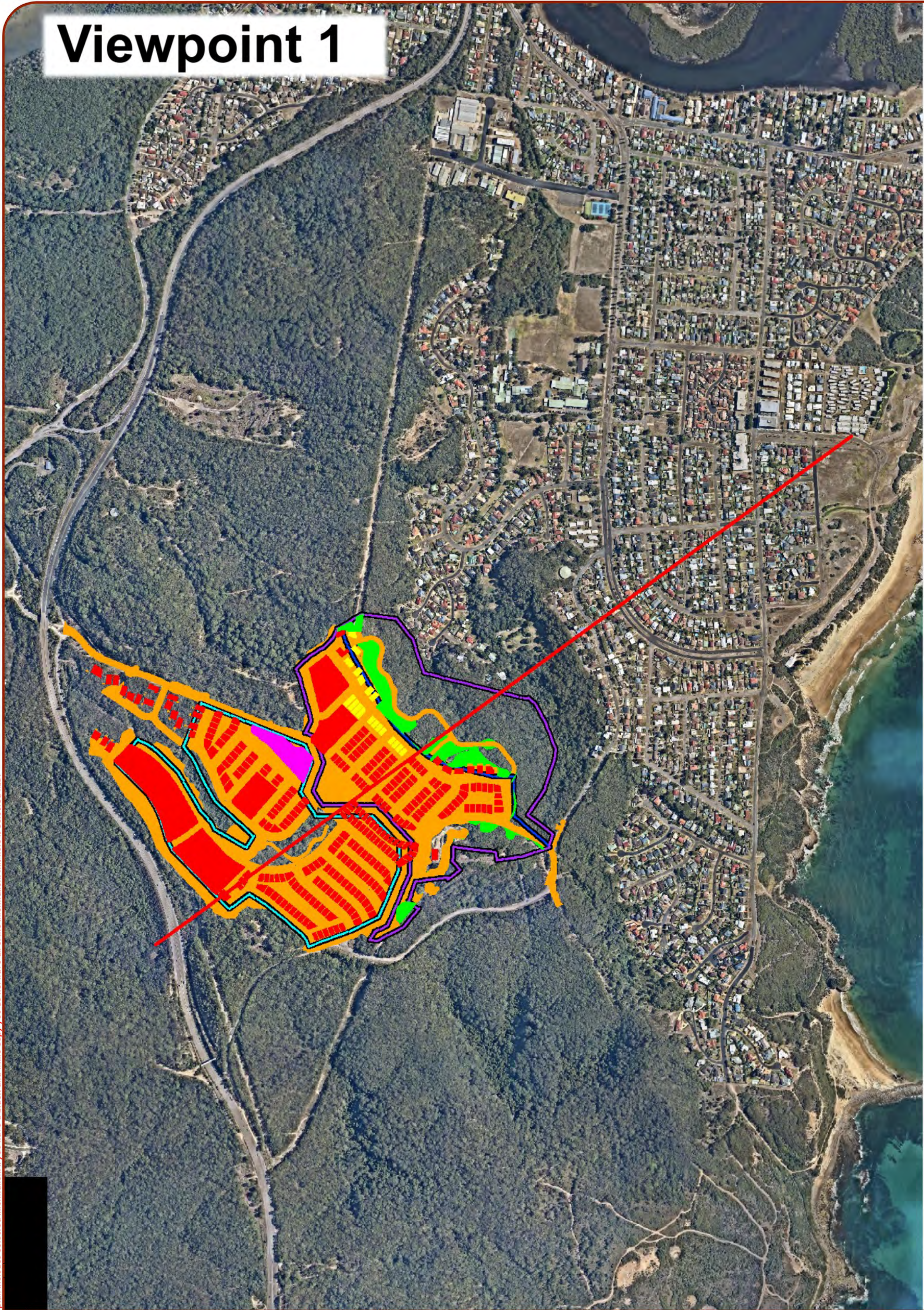


Figure 1

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

WAKEFIELD ASHURST



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Viewpoint 1

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

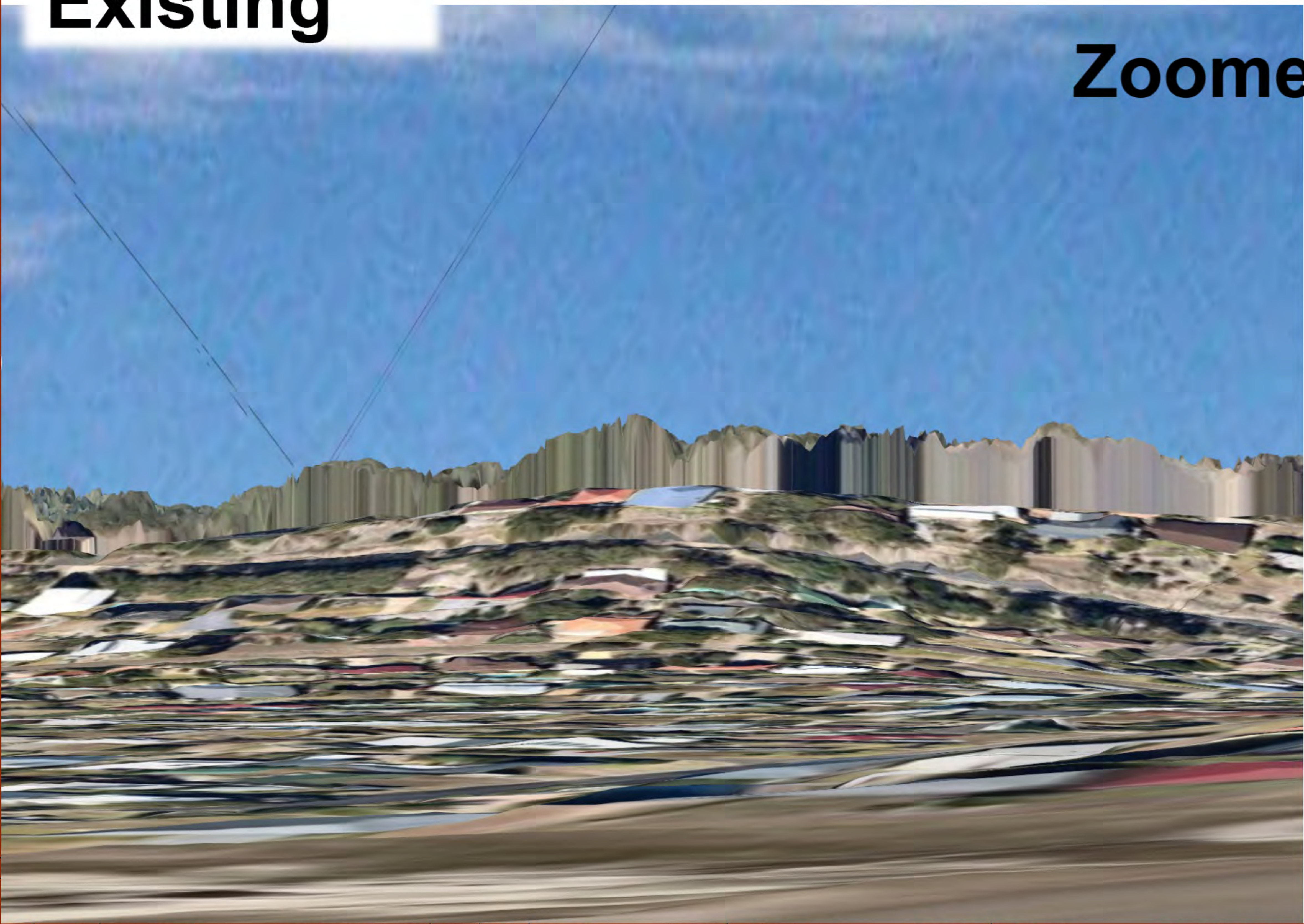


Figure 2

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

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working beyond expectations

Viewpoint 1

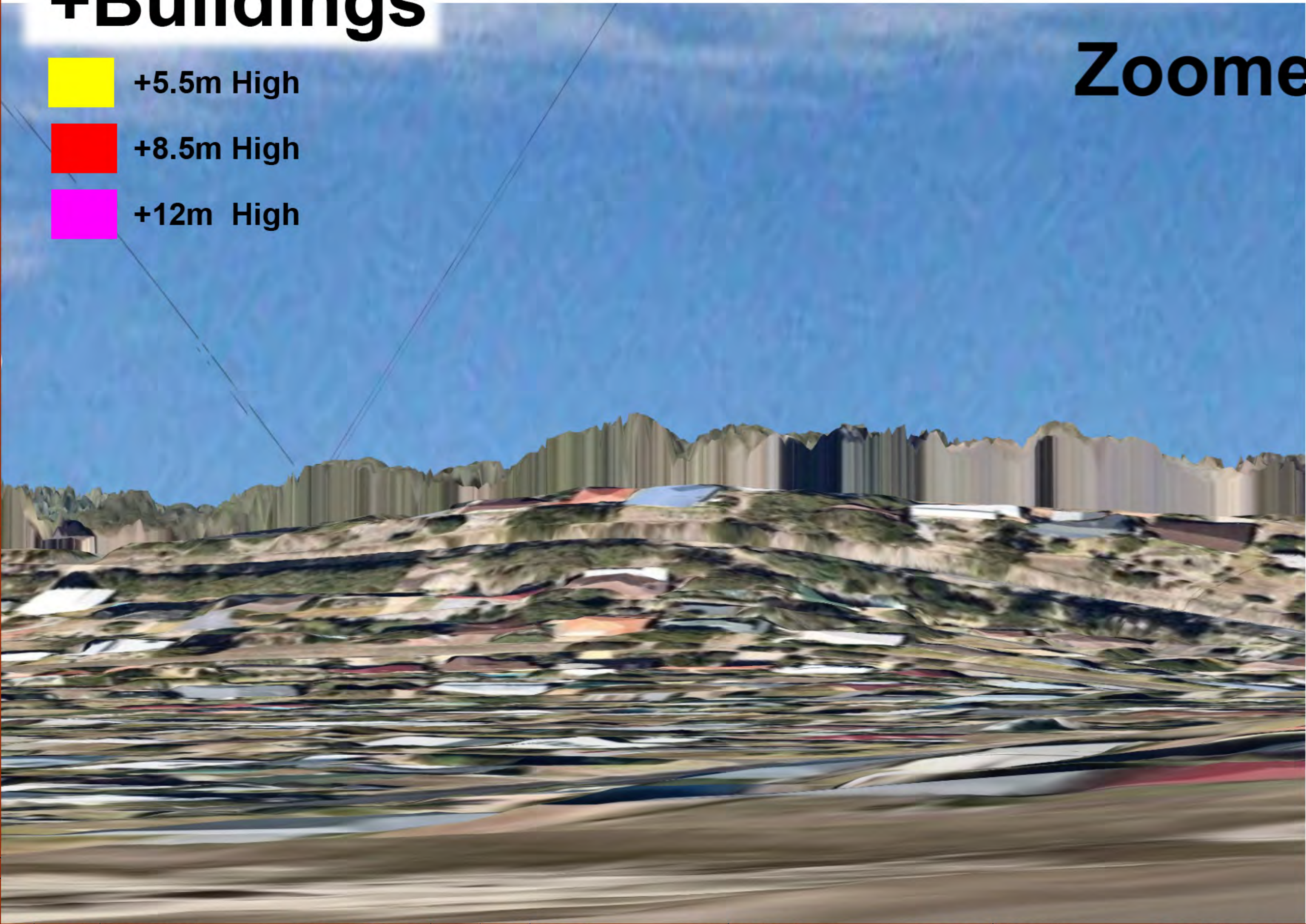
Standard Views



+Buildings

- +5.5m High
- +8.5m High
- +12m High

Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock



Figure 3

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

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Viewpoint 1



working beyond expectations

drawing title:

Figure 4

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST



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sydney office ph: (02) 8046 7411
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Viewpoint 2

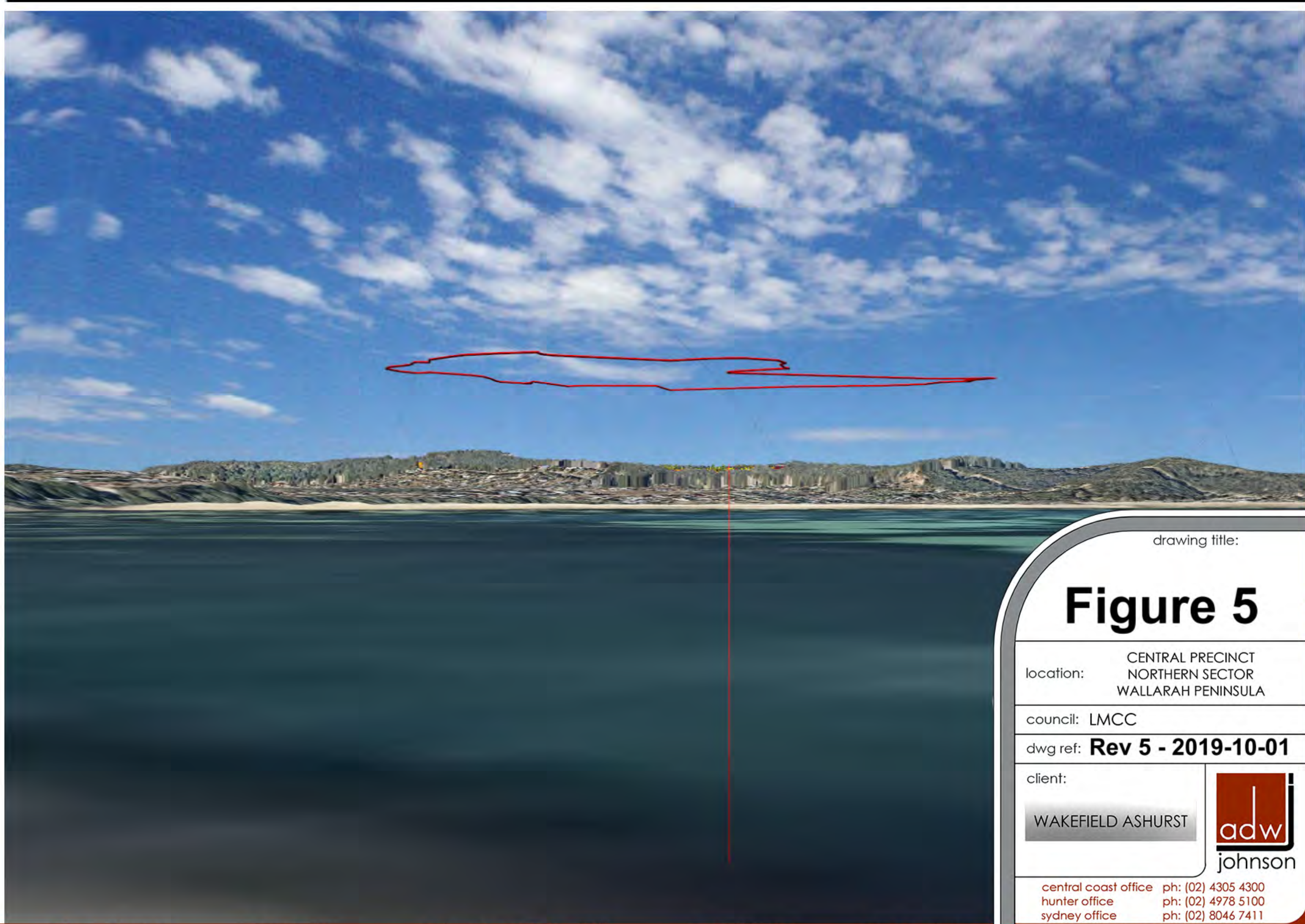
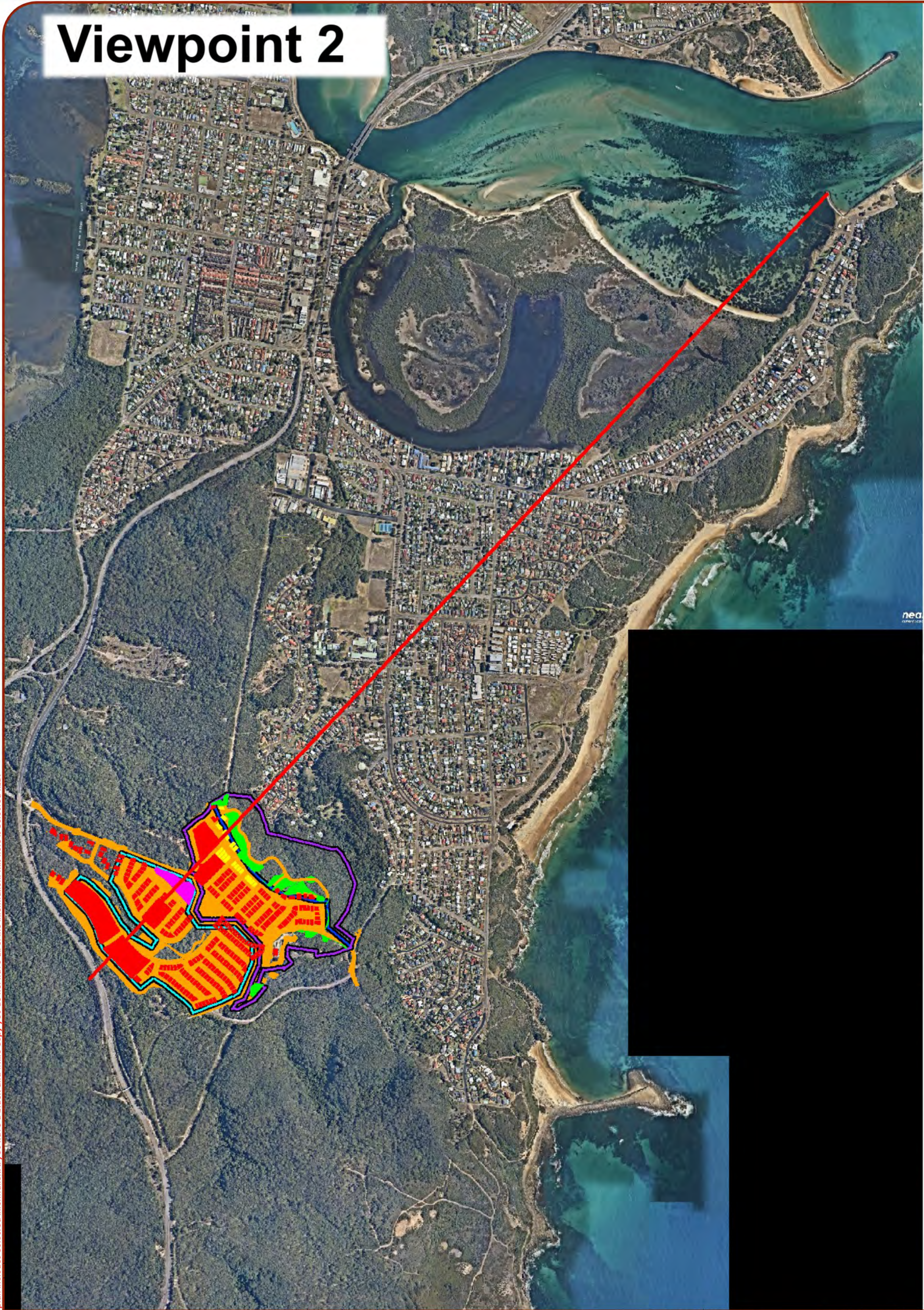


Figure 5

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST



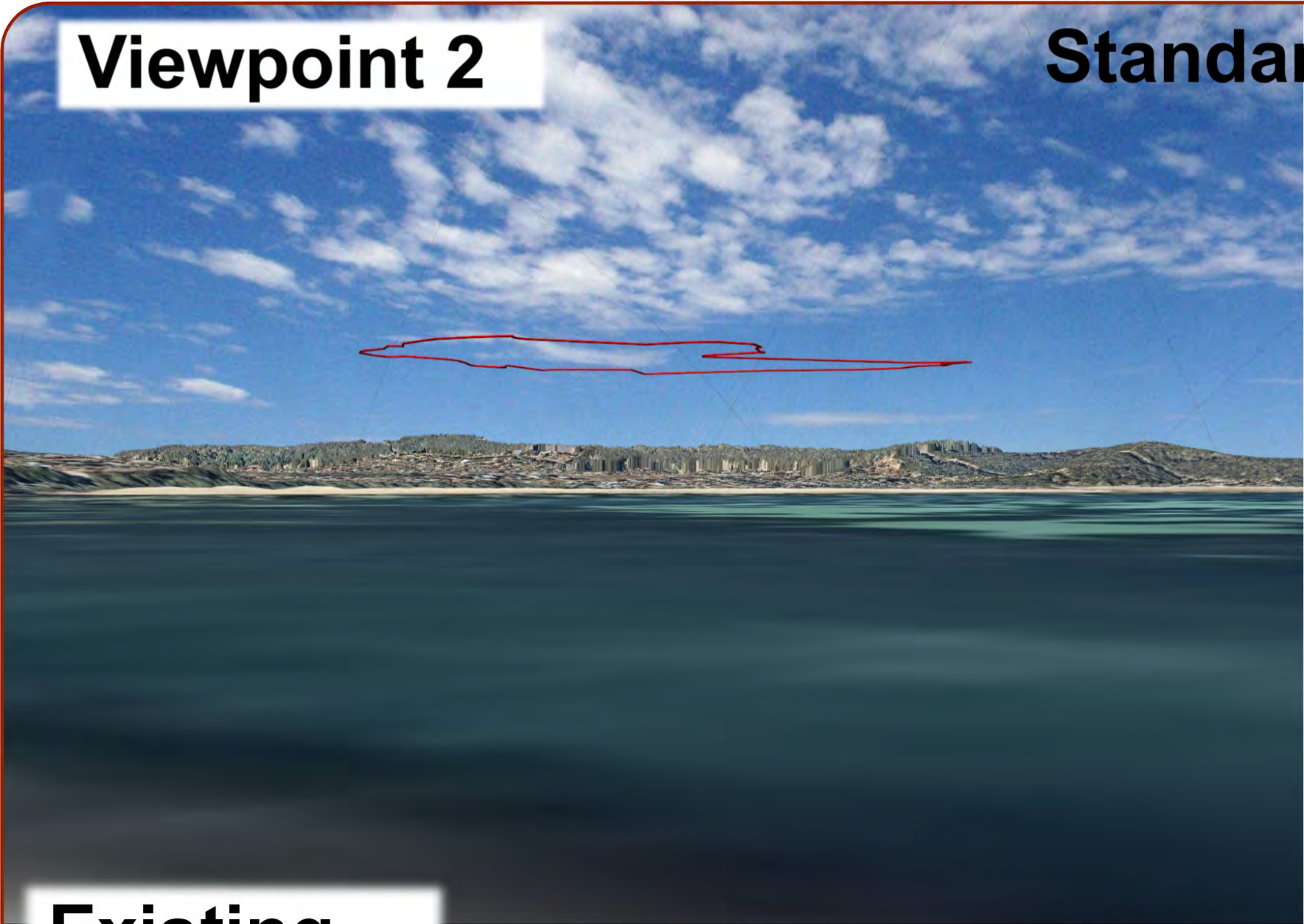
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working beyond expectations

Viewpoint 2

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

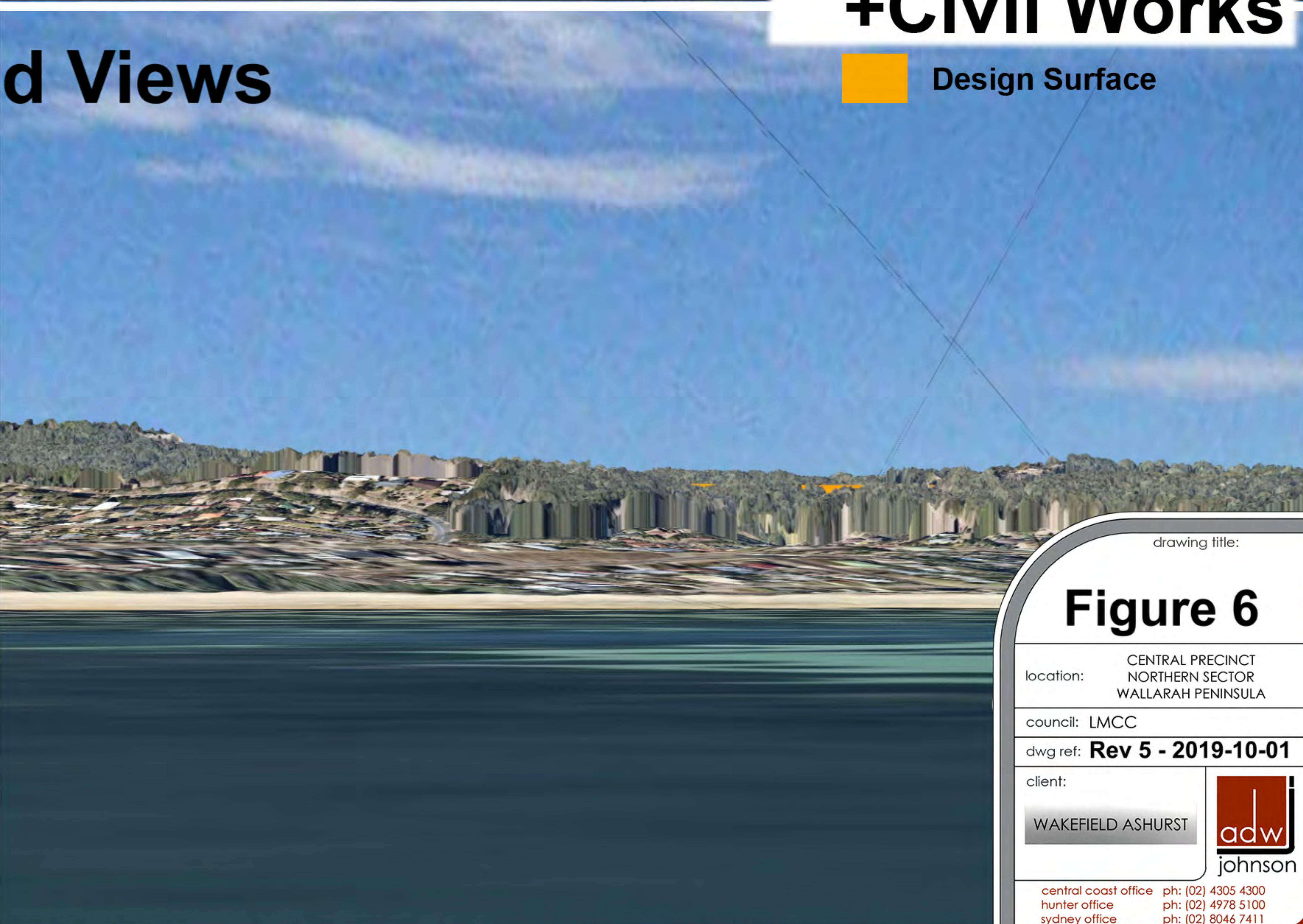


Figure 6

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

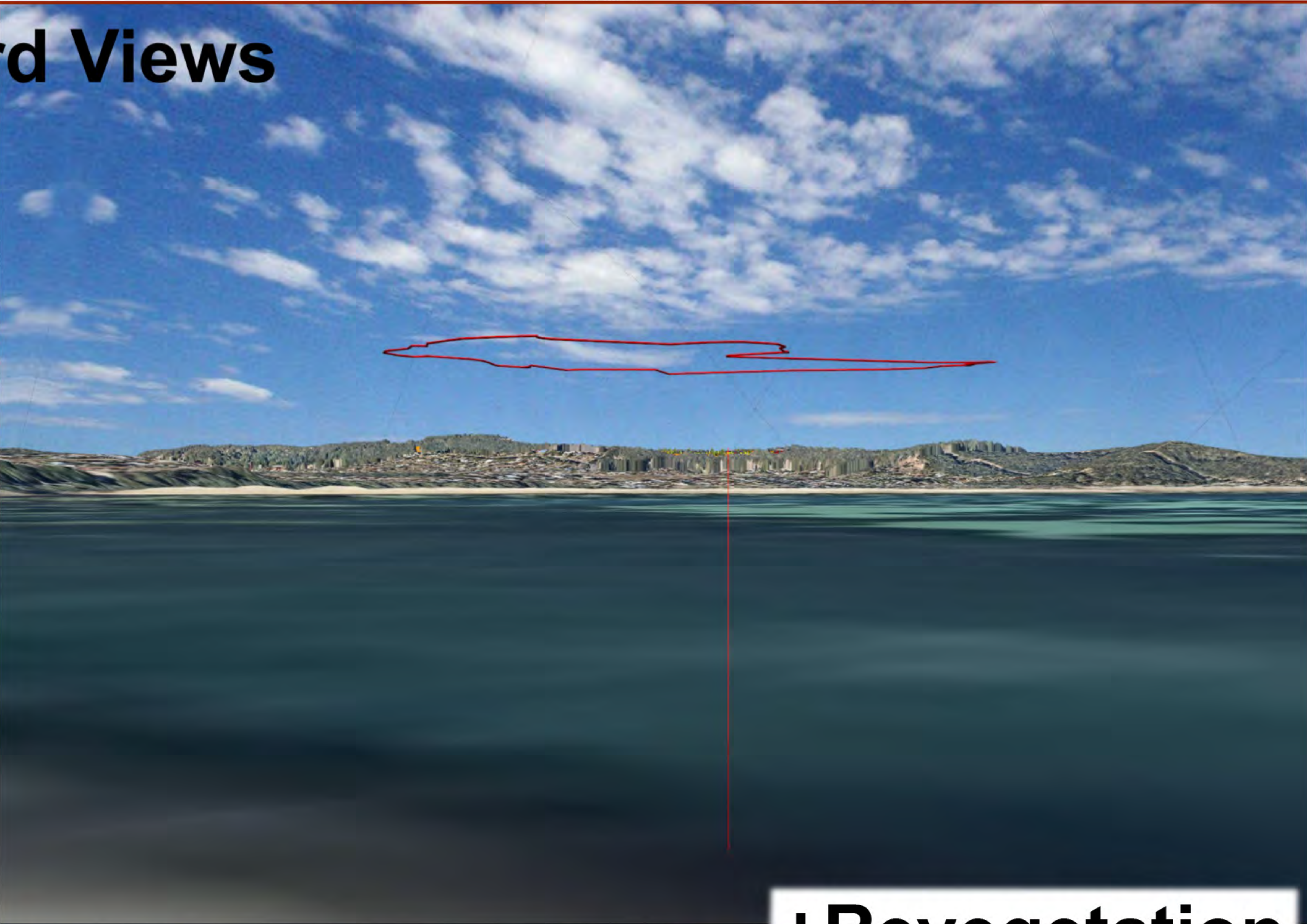
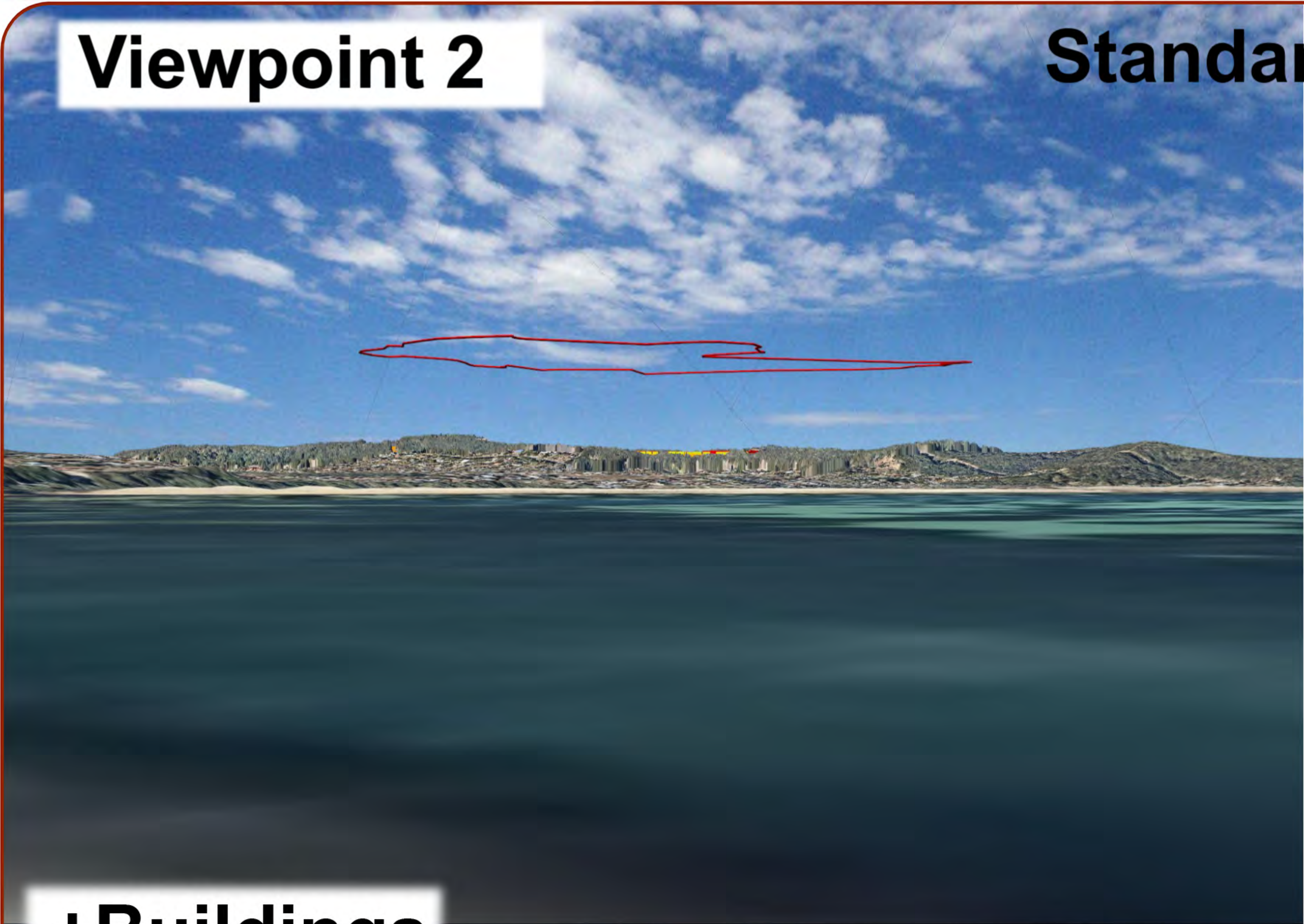
dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

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Viewpoint 2

Standard Views

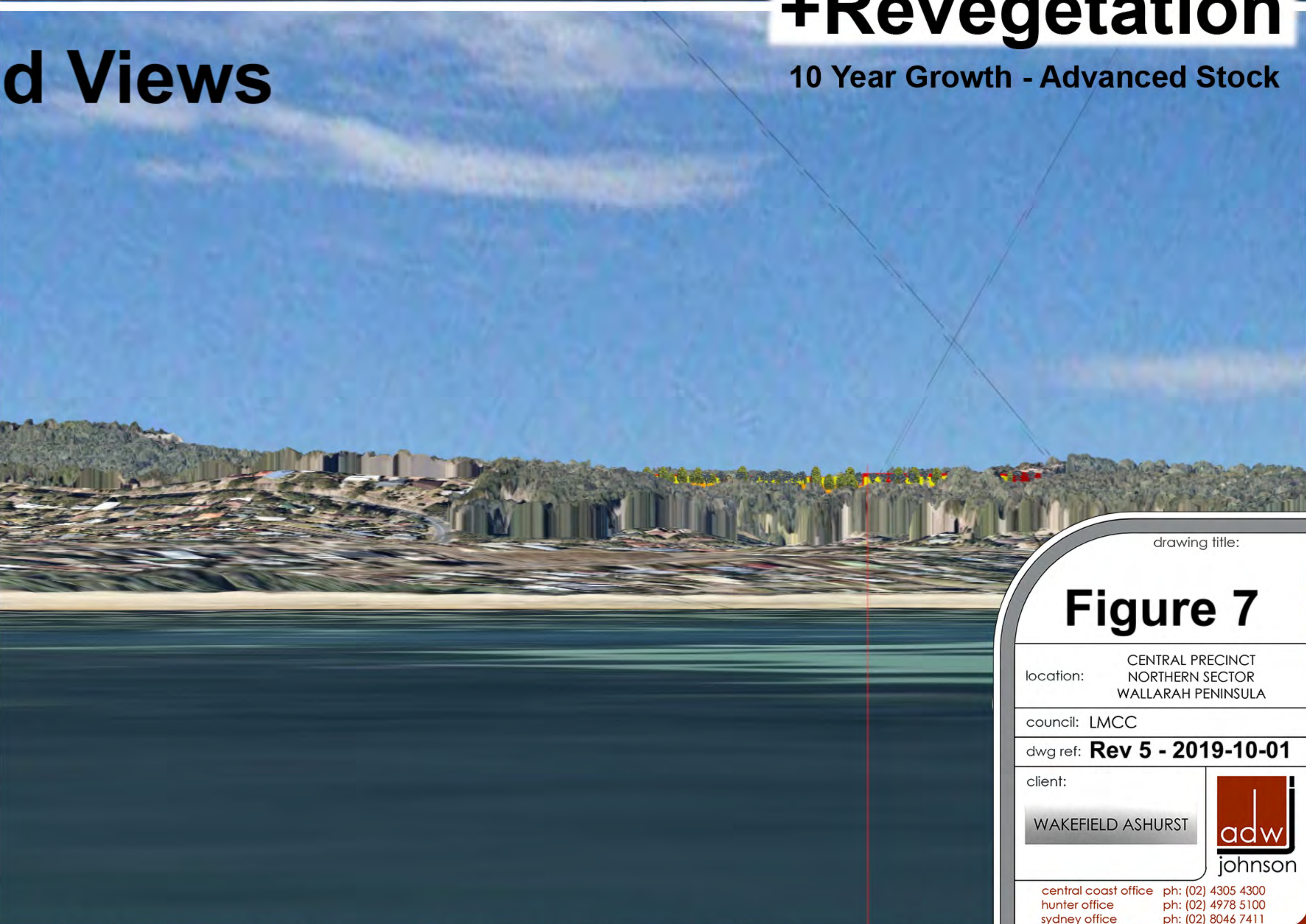


+Buildings

- +5.5m High
- +8.5m High
- +12m High



Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock

Figure 7

location:

CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council:

LMCC

dwg ref:

Rev 5 - 2019-10-01

client:

WAKEFIELD ASHURST

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Viewpoint 2




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working beyond expectations

drawing title:

Figure 8

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
	

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Viewpoint 3

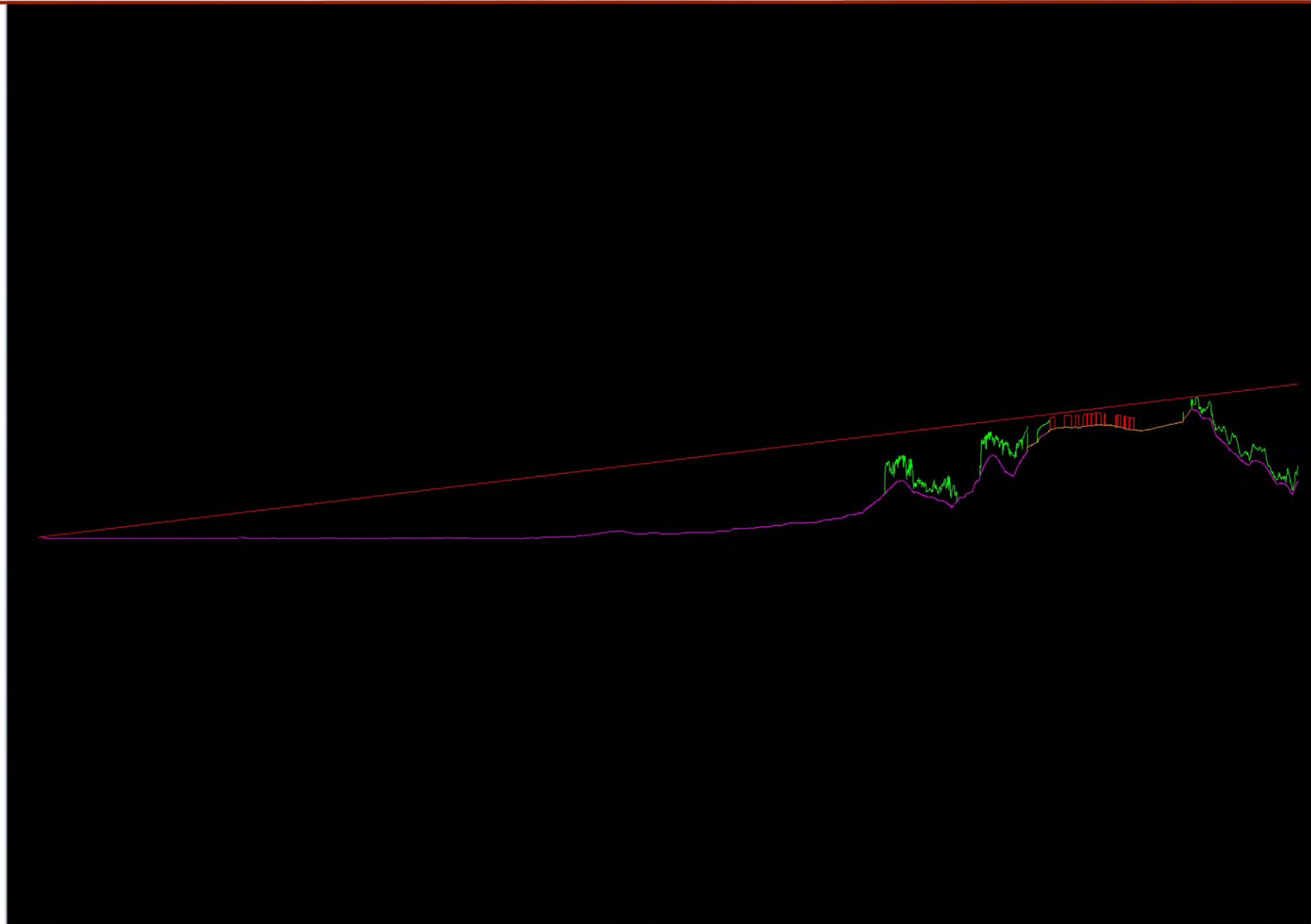
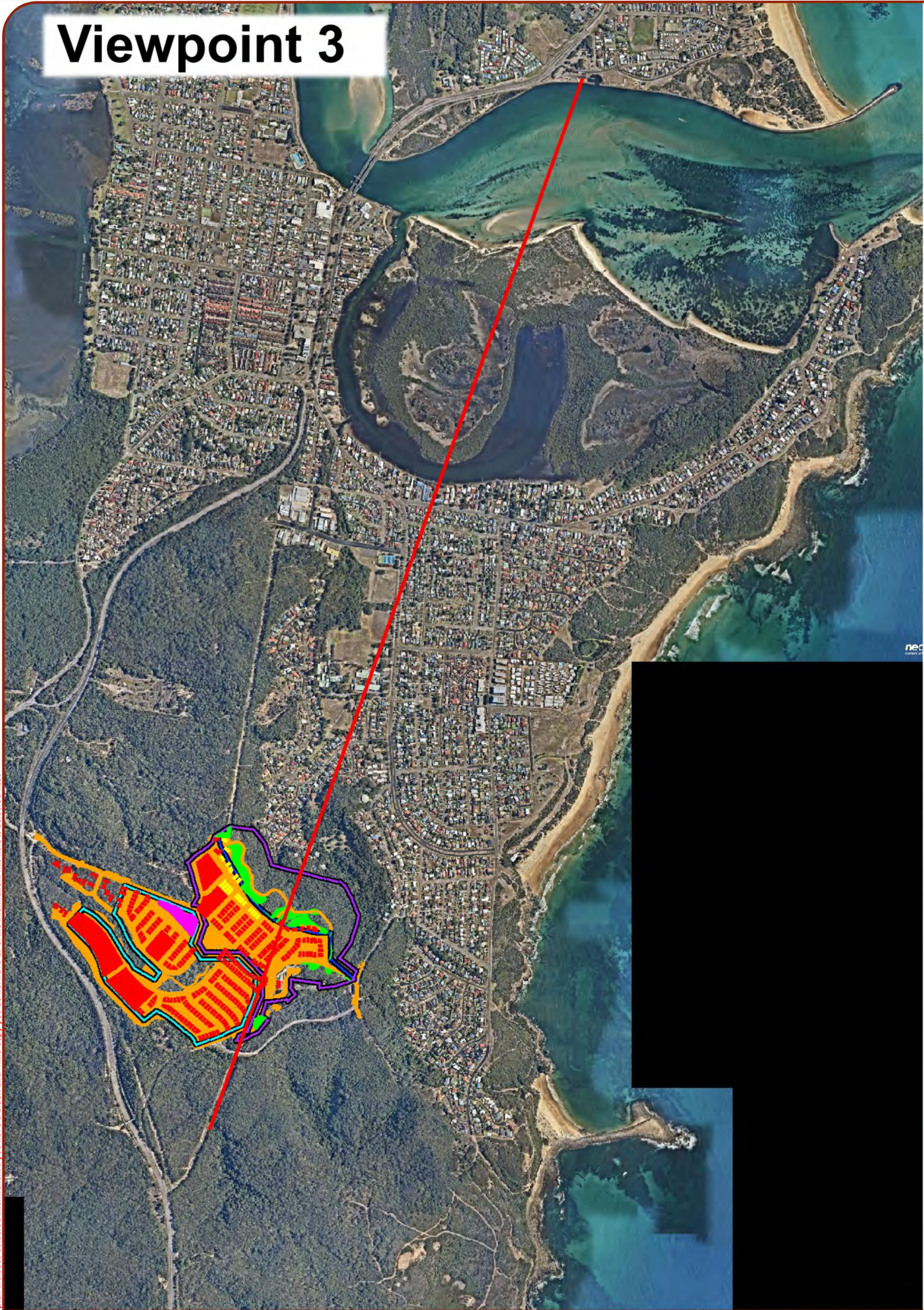


Figure 9

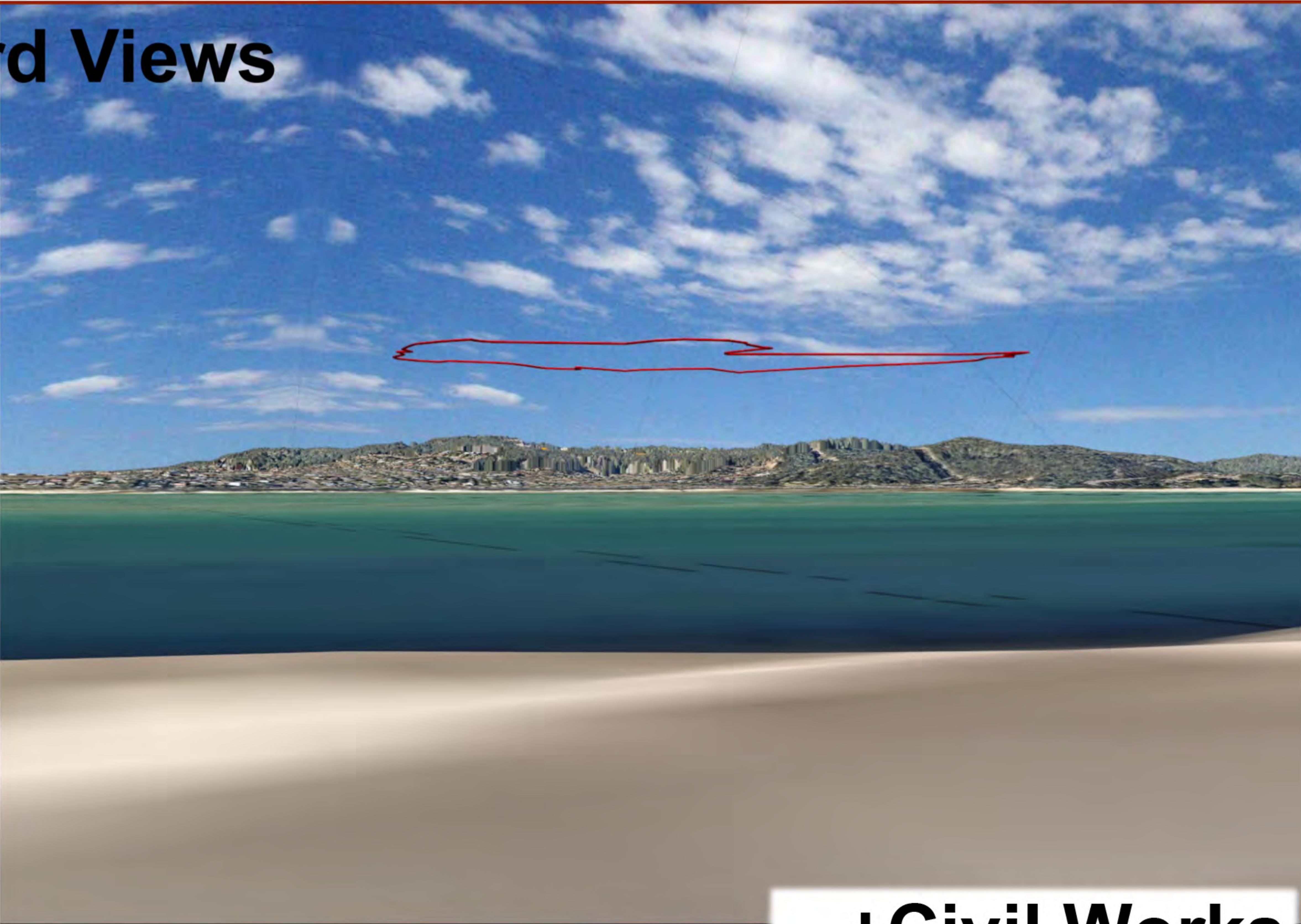
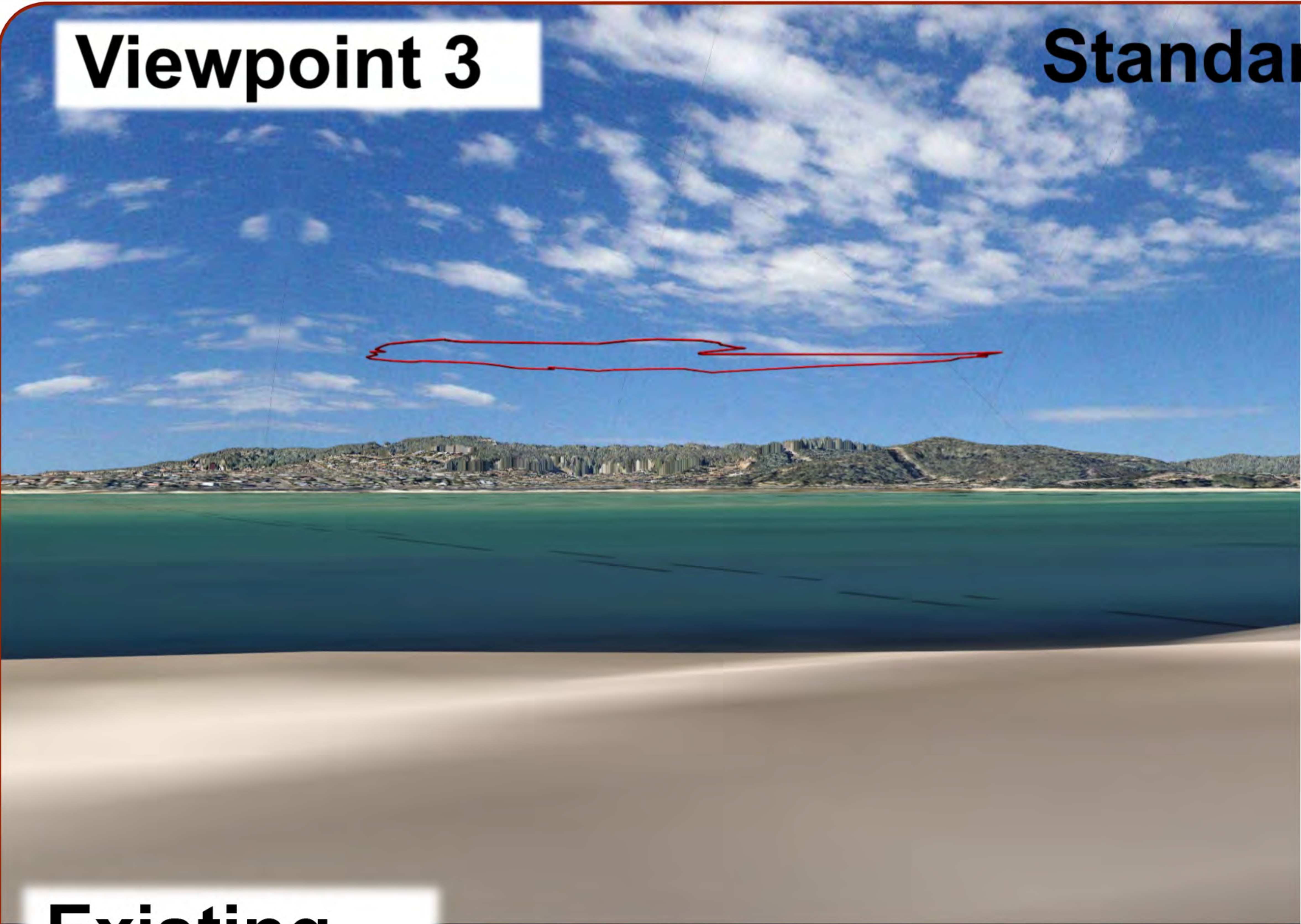
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CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA	
location:	
council: LMCC	
dwg ref: Rev 5 - 2019-10-01	
client:	
WAKEFIELD ASHURST	
central coast office	ph: (02) 4305 4300
hunter office	ph: (02) 4978 5100
sydney office	ph: (02) 8046 7411
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working beyond expectations

Viewpoint 3

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

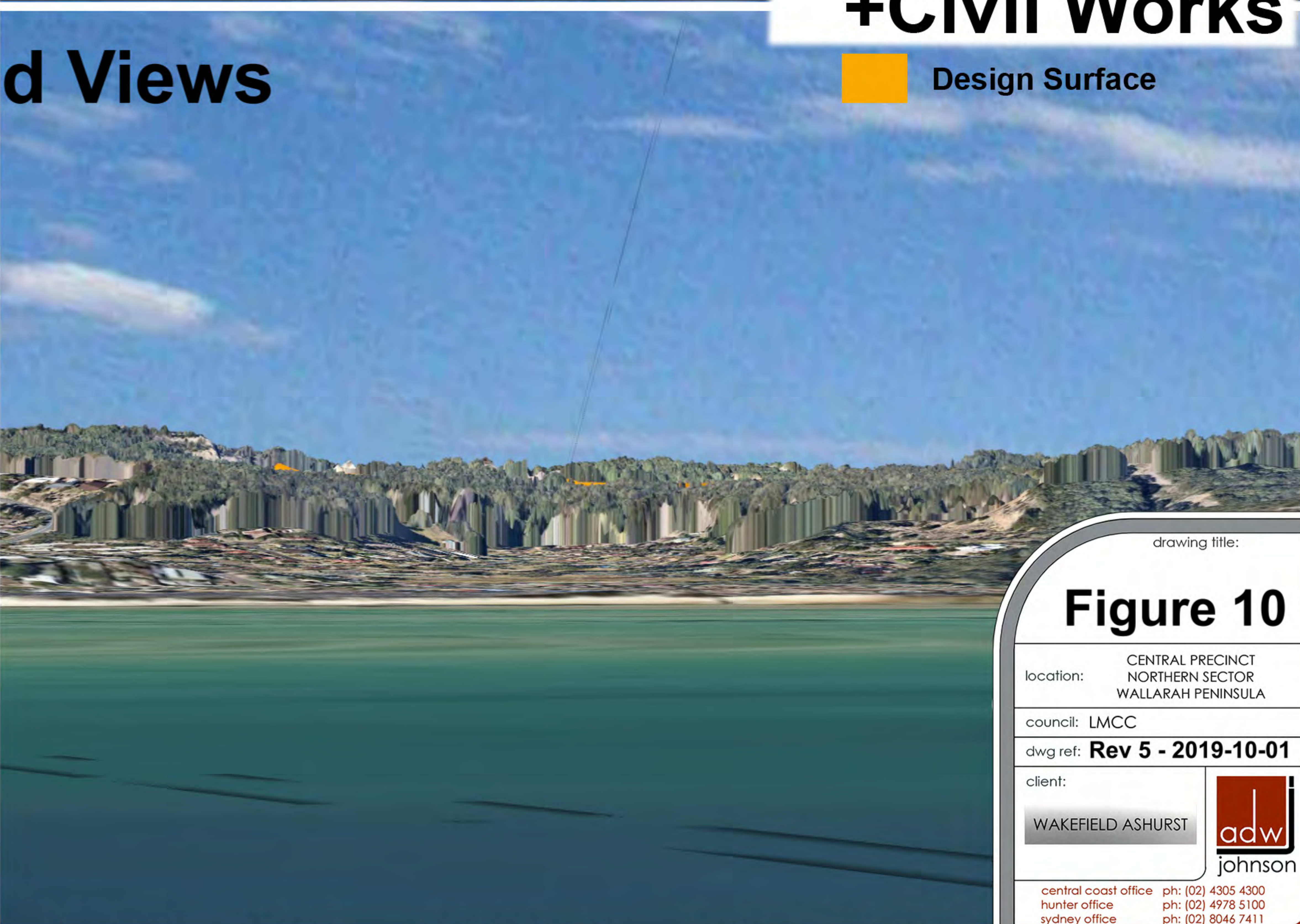
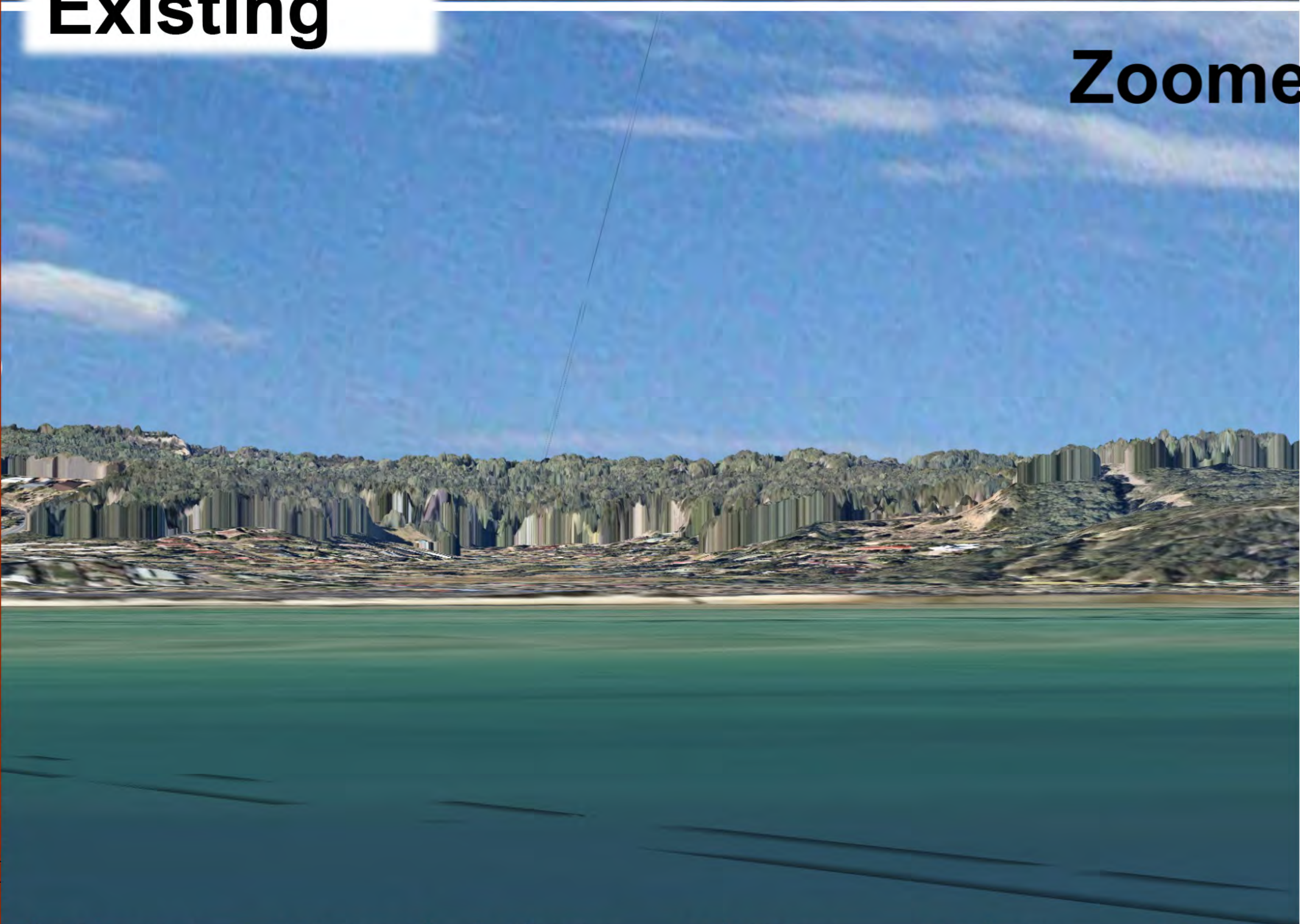


Figure 10

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

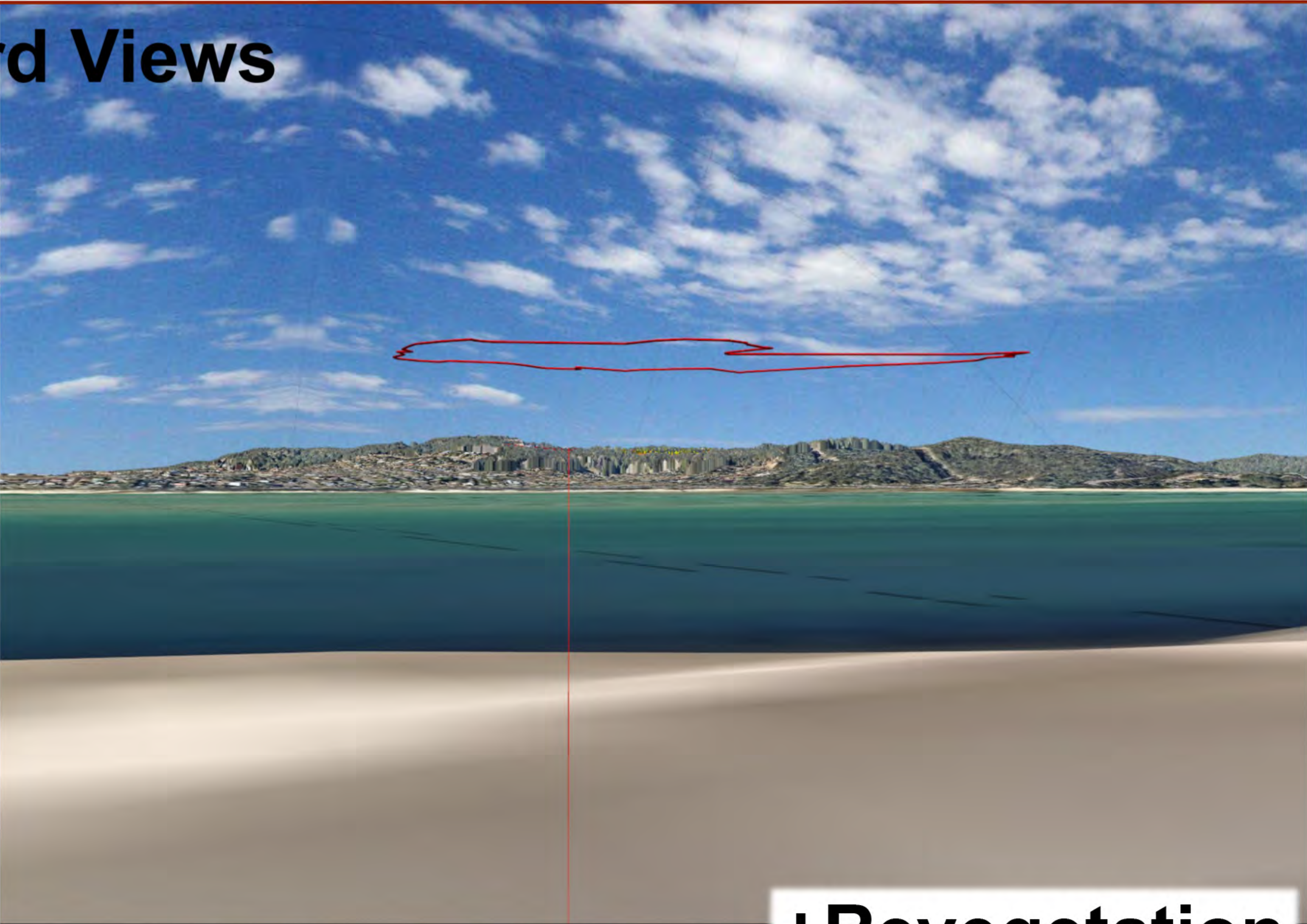
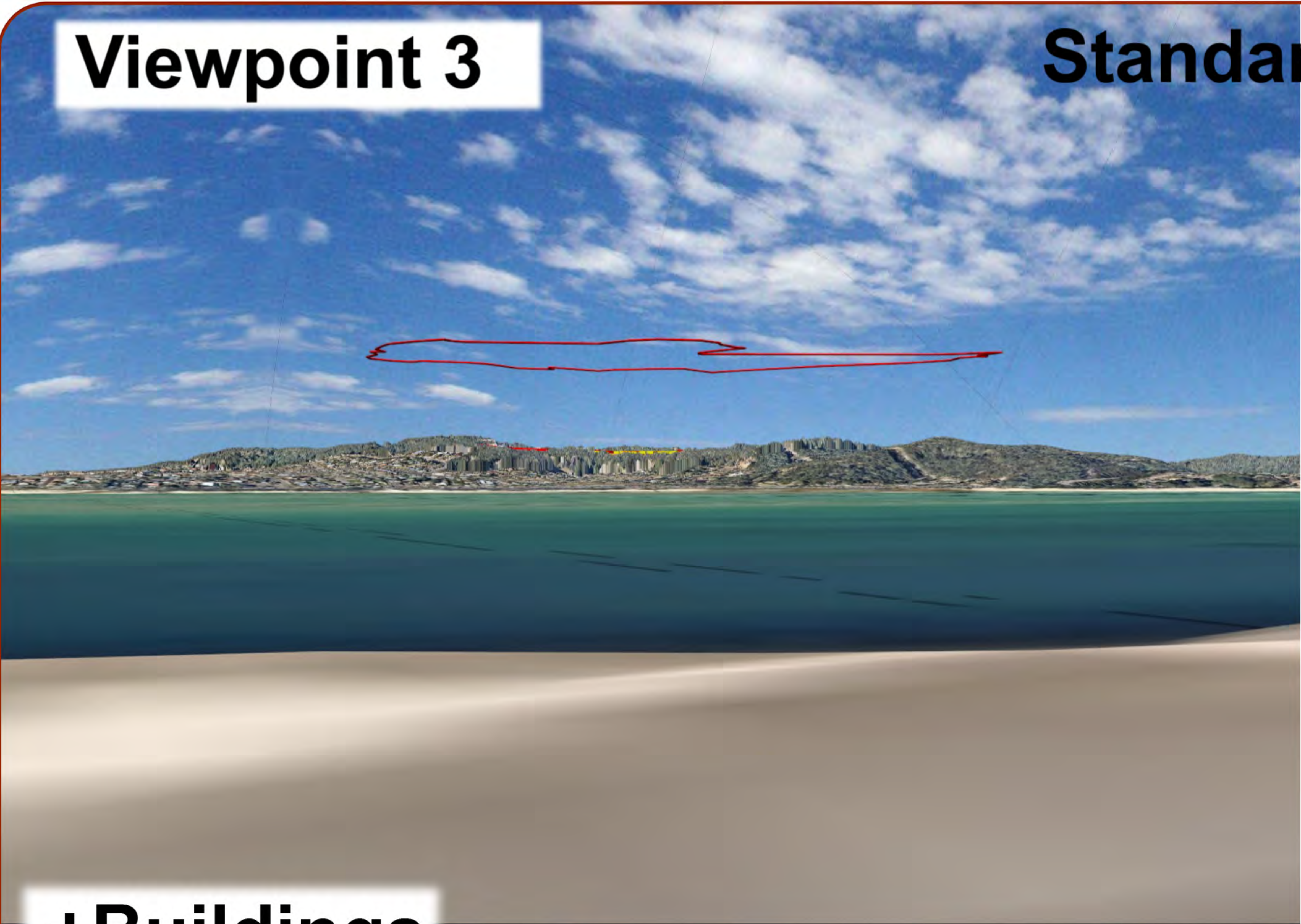
client: WAKEFIELD ASHURST

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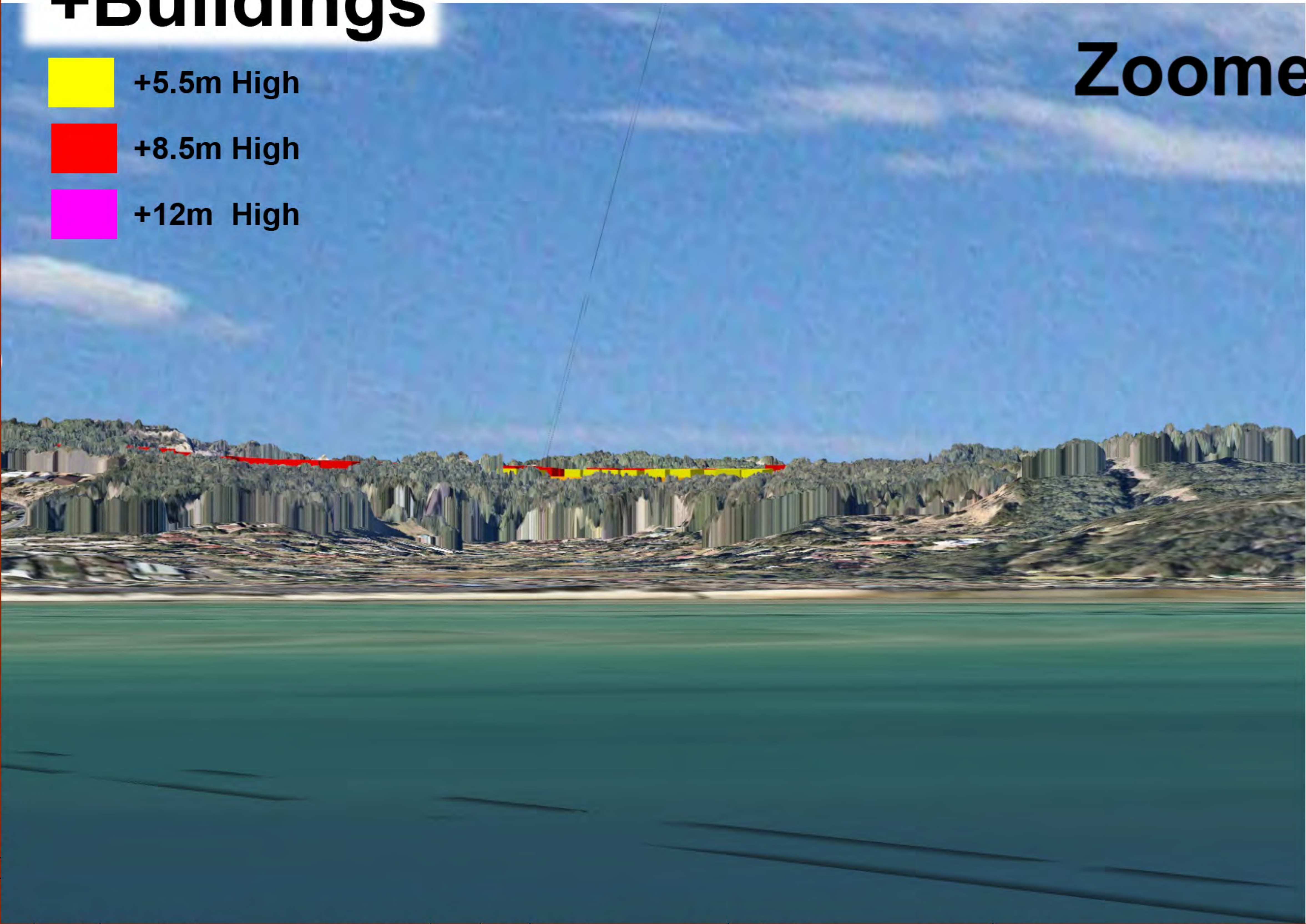
Viewpoint 3

Standard Views

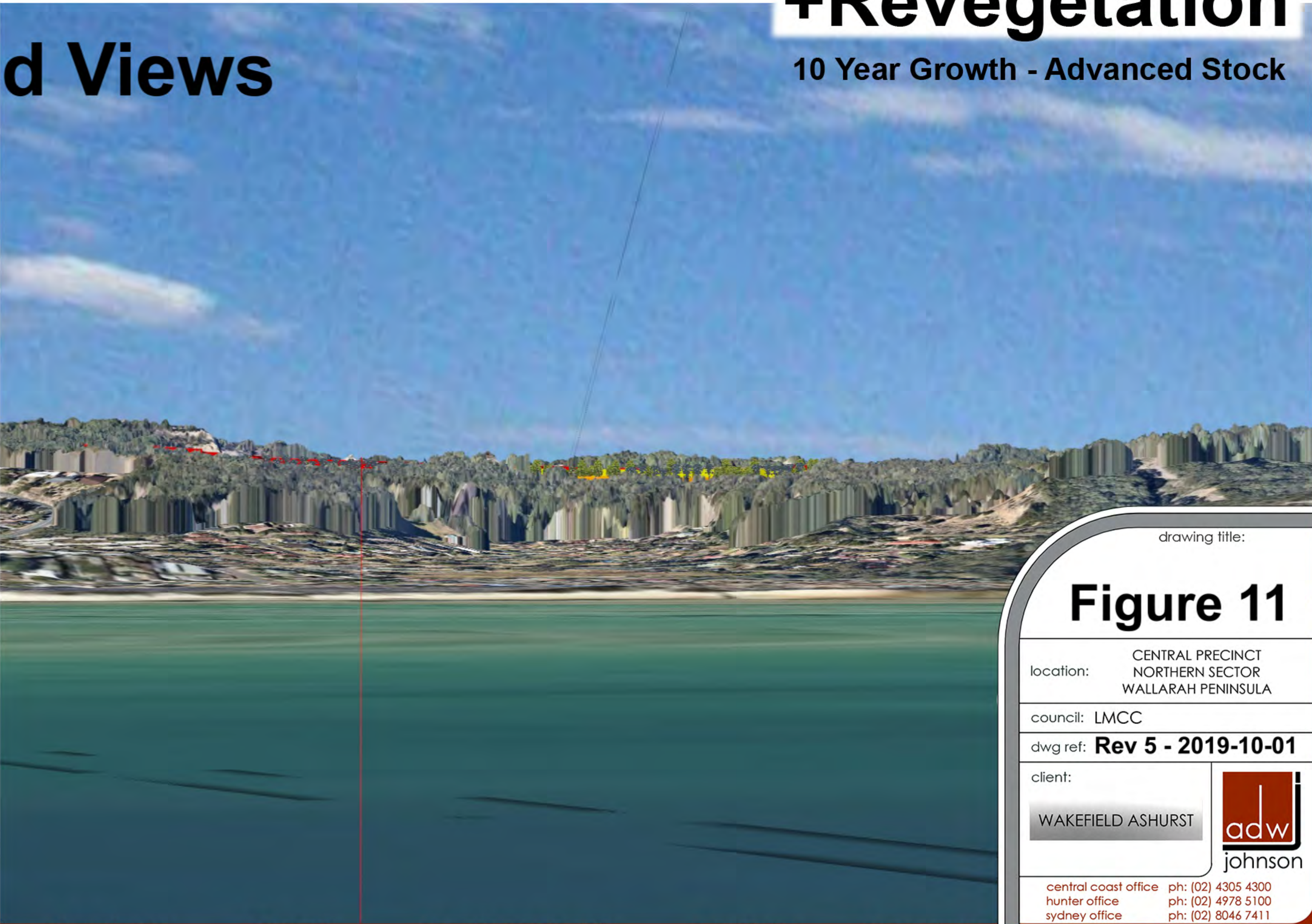


+Buildings

- +5.5m High
- +8.5m High
- +12m High



Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock

drawing title:

Figure 11

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST

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Viewpoint 3




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working beyond expectations

drawing title:

Figure 12

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
	

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sydney office ph: (02) 8046 7411
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Viewpoint 4

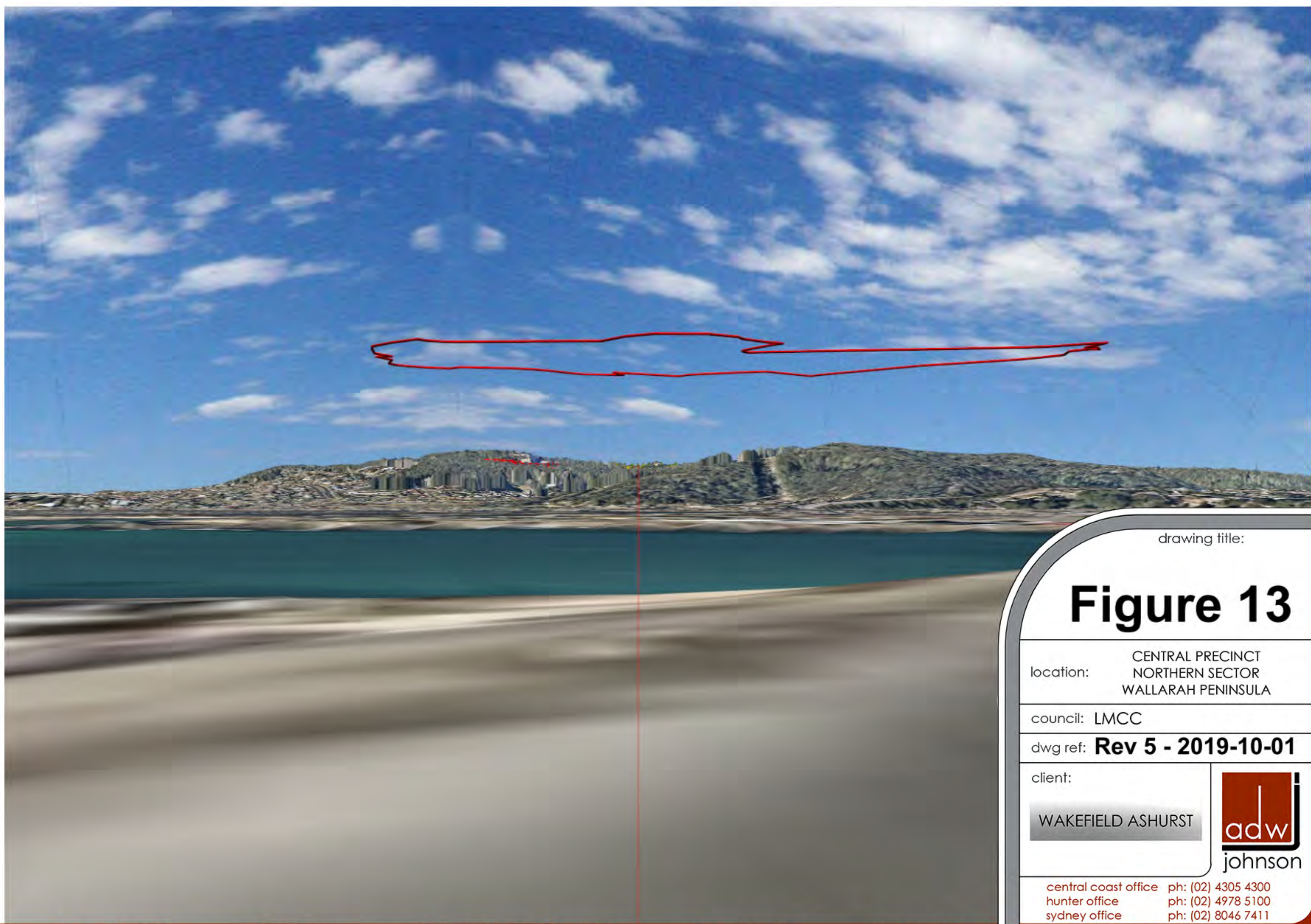
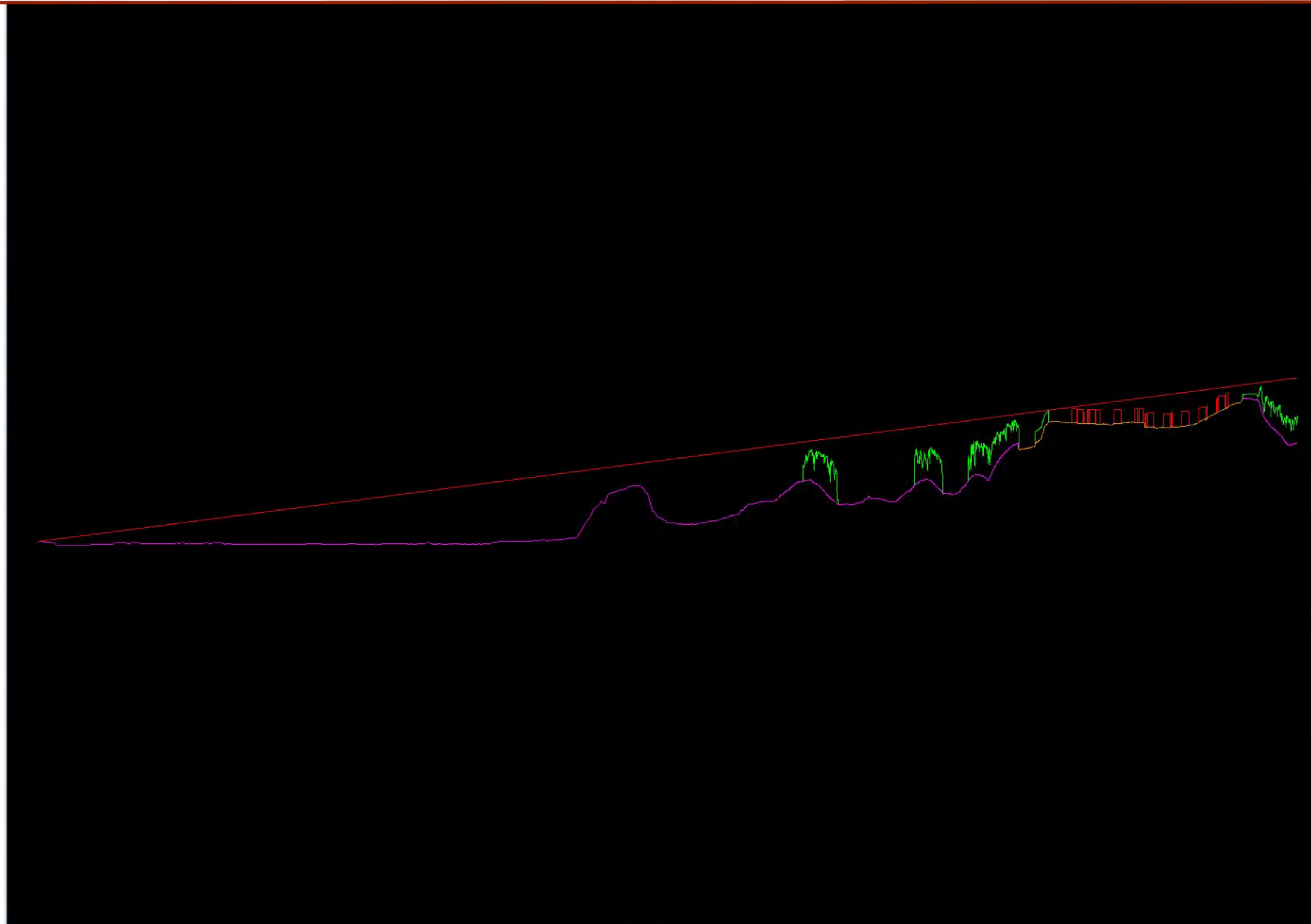
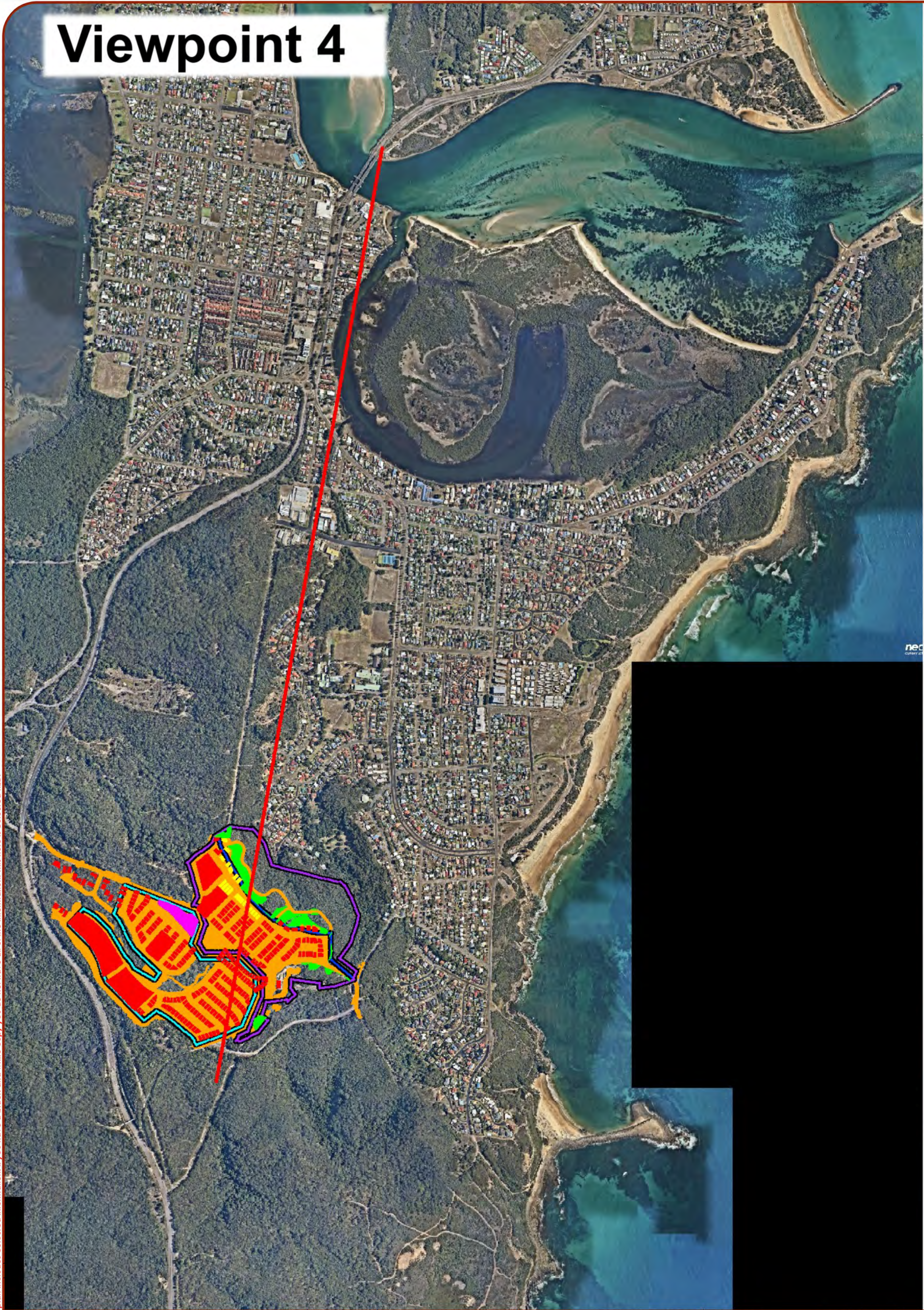


Figure 13

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

WAKEFIELD ASHURST

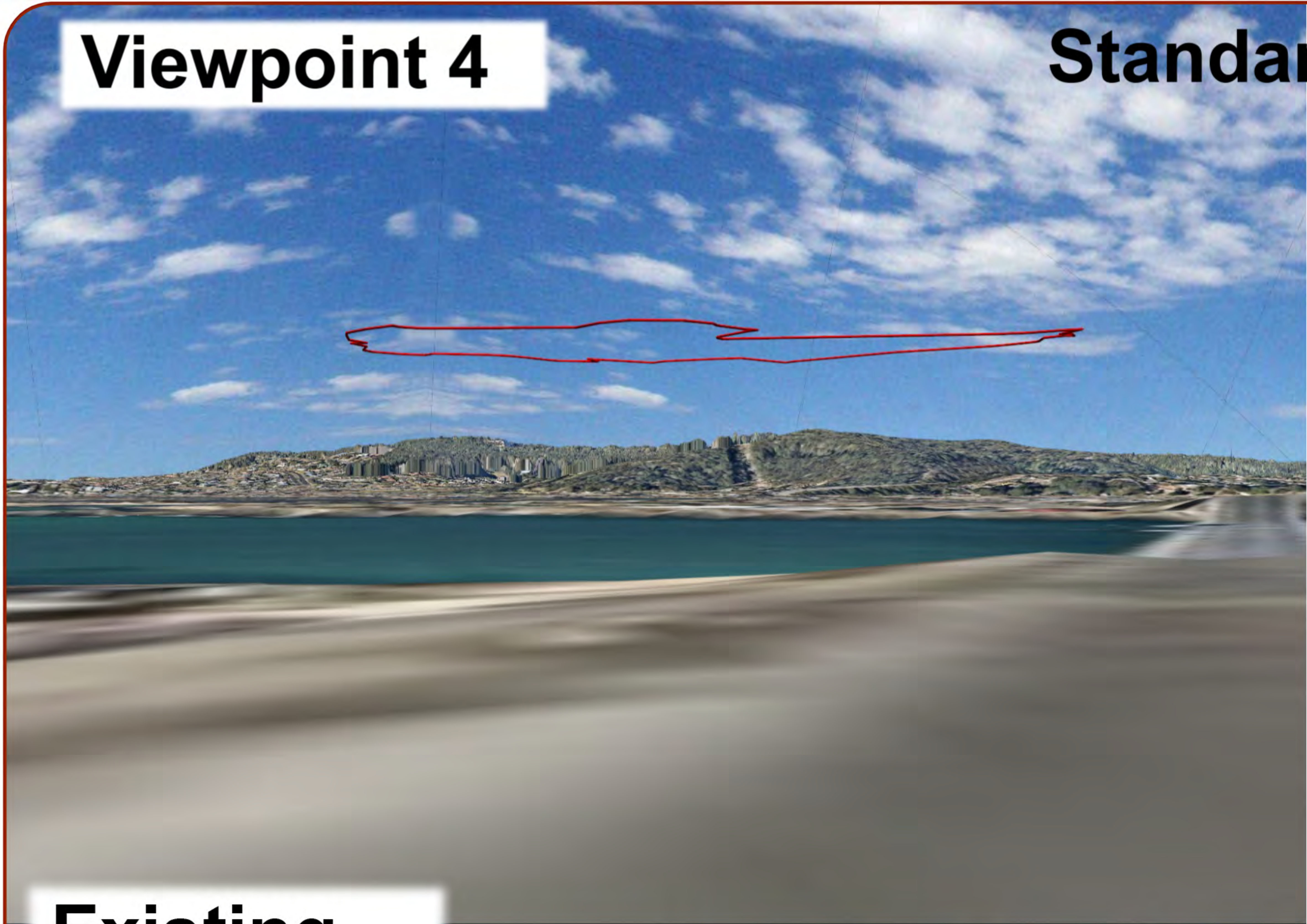
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Viewpoint 4

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views



Figure 14

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

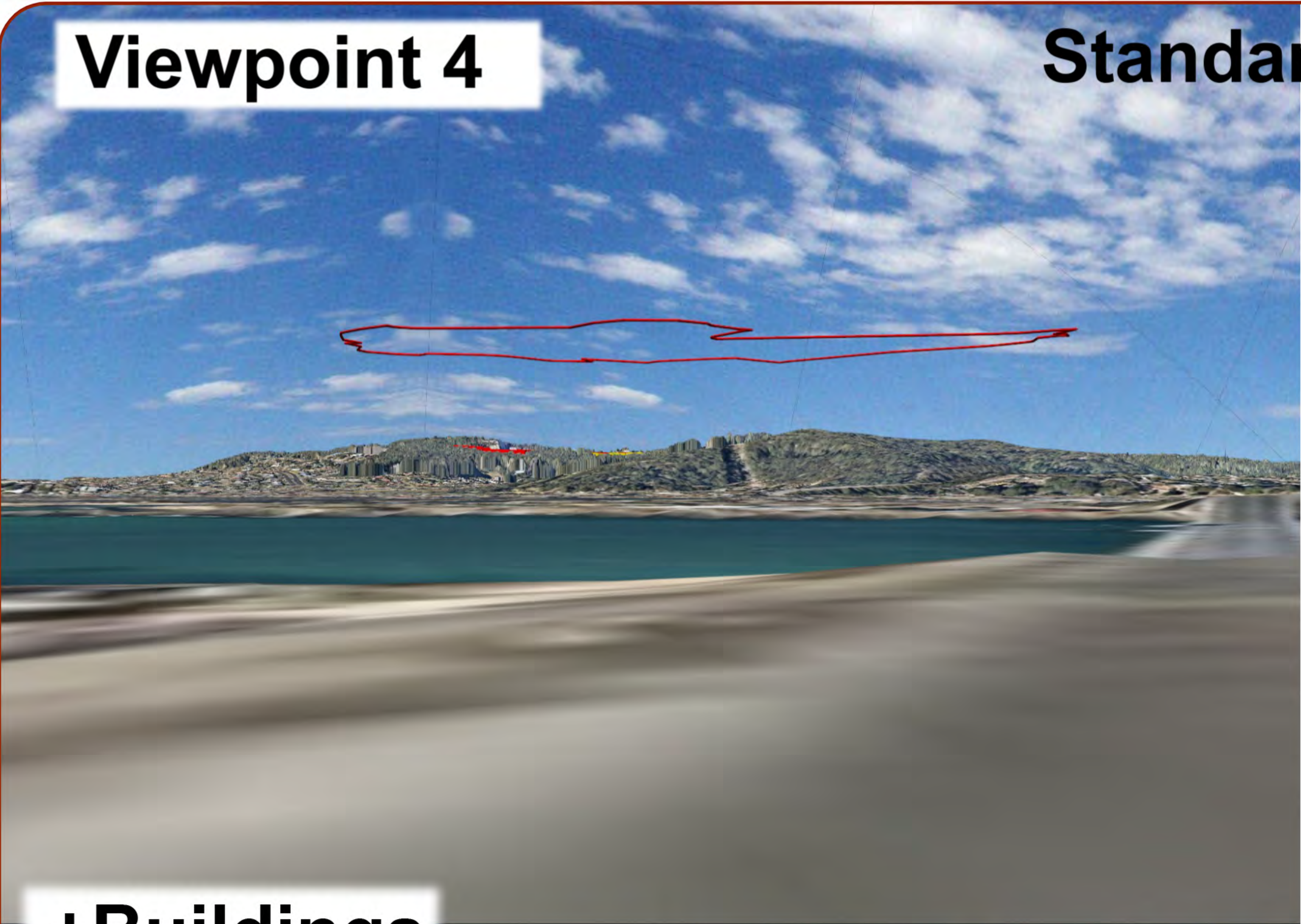
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sydney office ph: (02) 8046 7411
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working beyond expectations

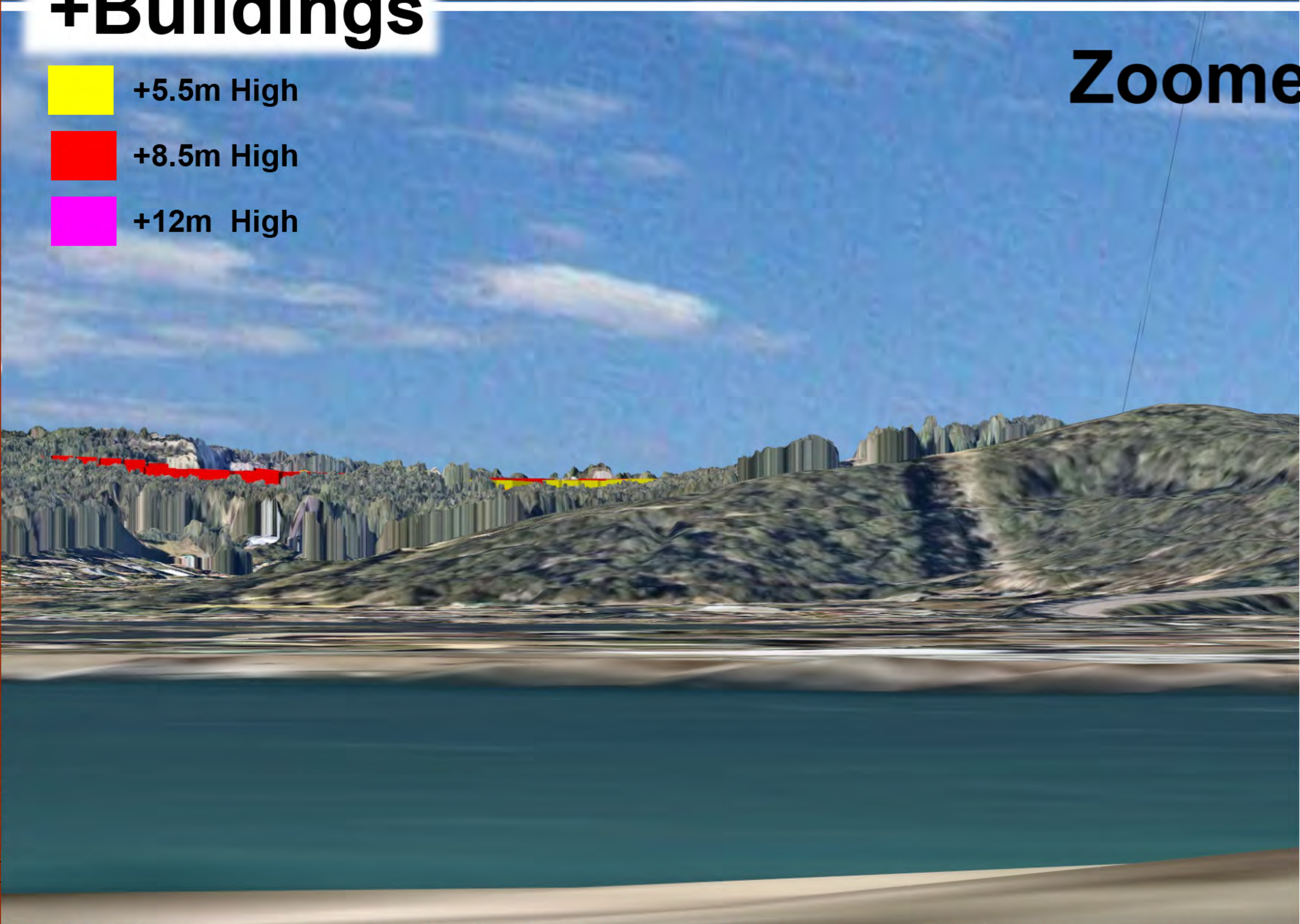
Viewpoint 4

Standard Views



+Buildings

- +5.5m High
- +8.5m High
- +12m High



Zoomed Views

+Revegetation

10 Year Growth - Advanced Stock



Figure 15

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST


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Viewpoint 4



drawing title:

Figure 16

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
	

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sydney office ph: (02) 8046 7411
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Viewpoint 5

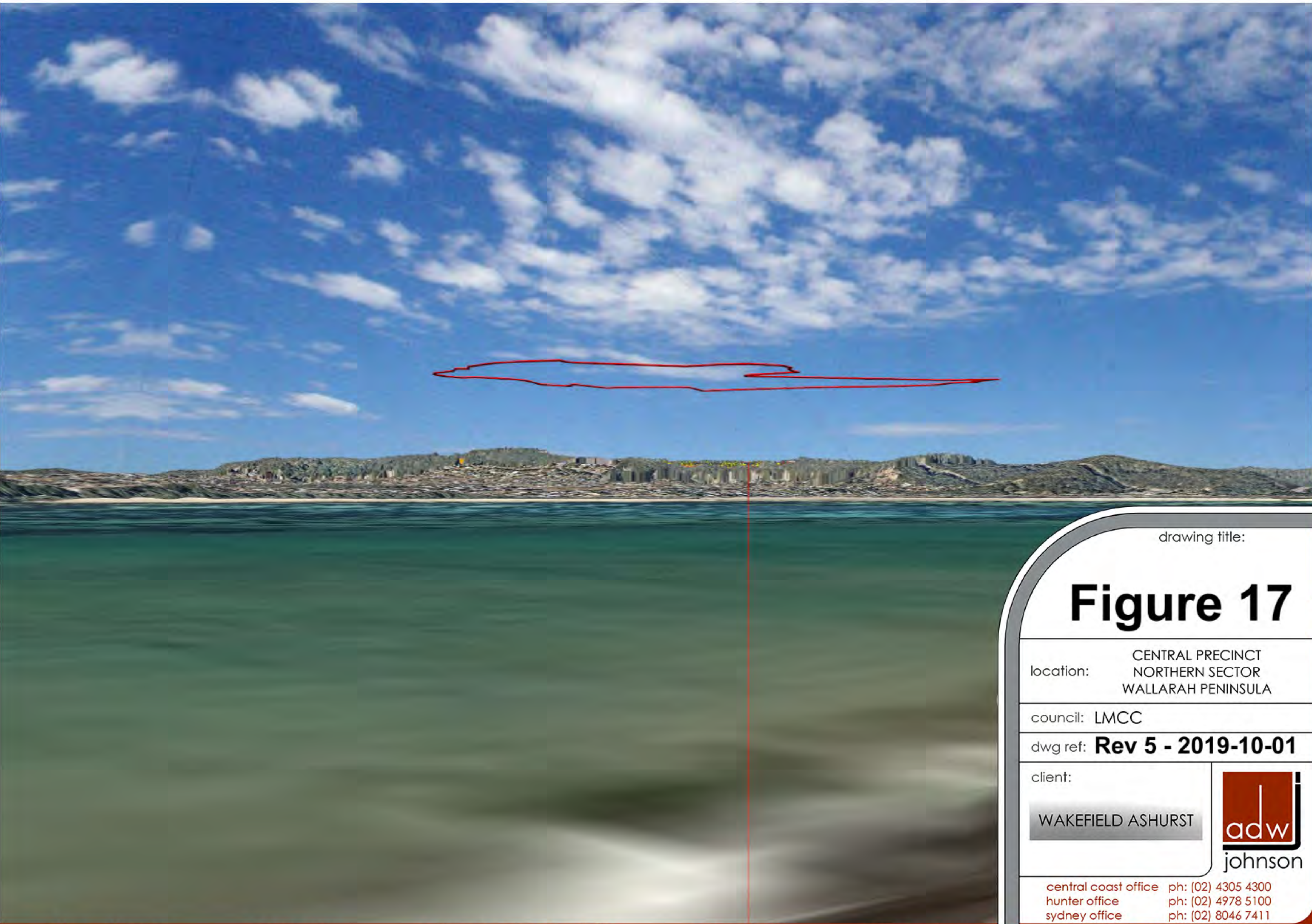
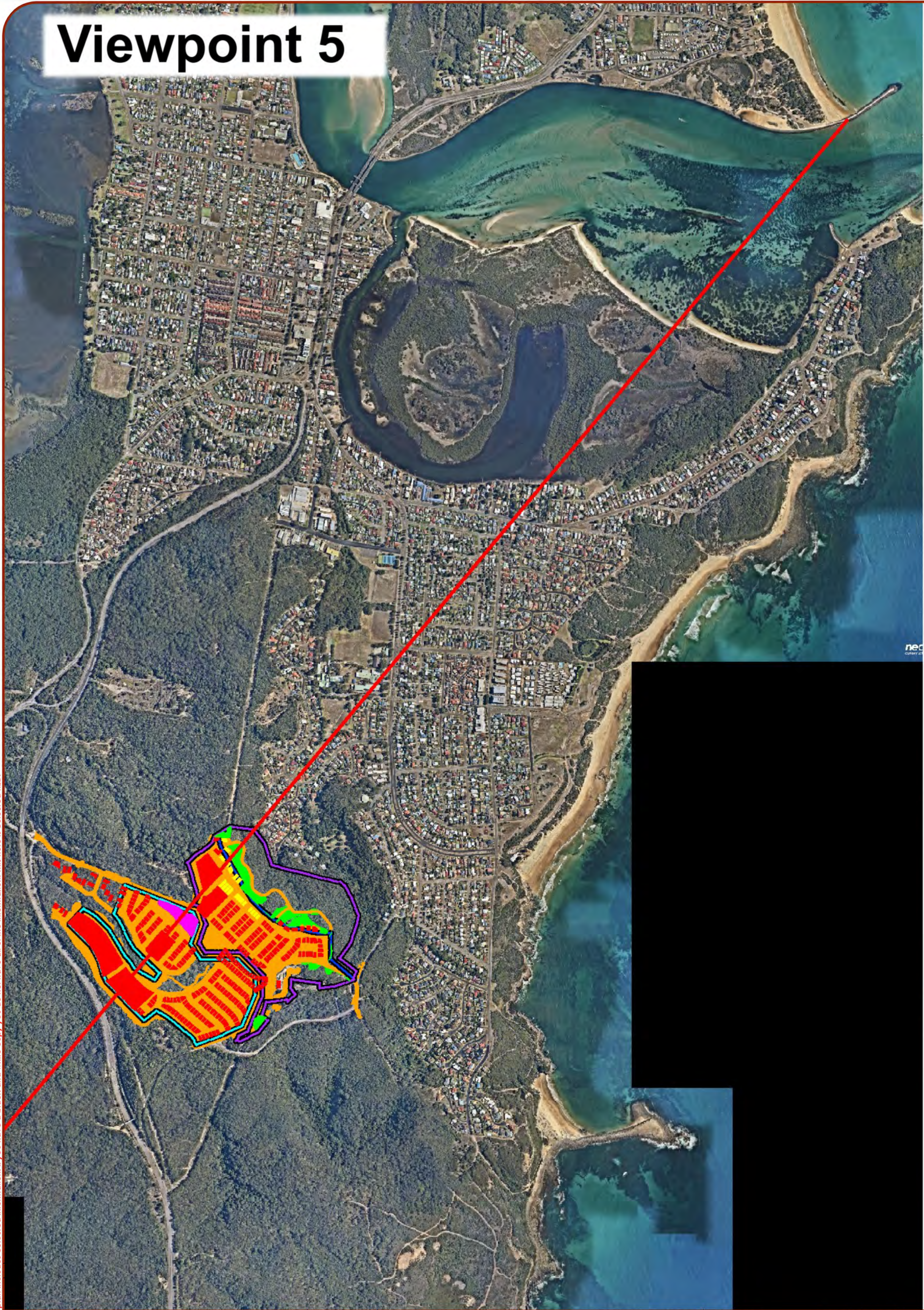


Figure 17

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

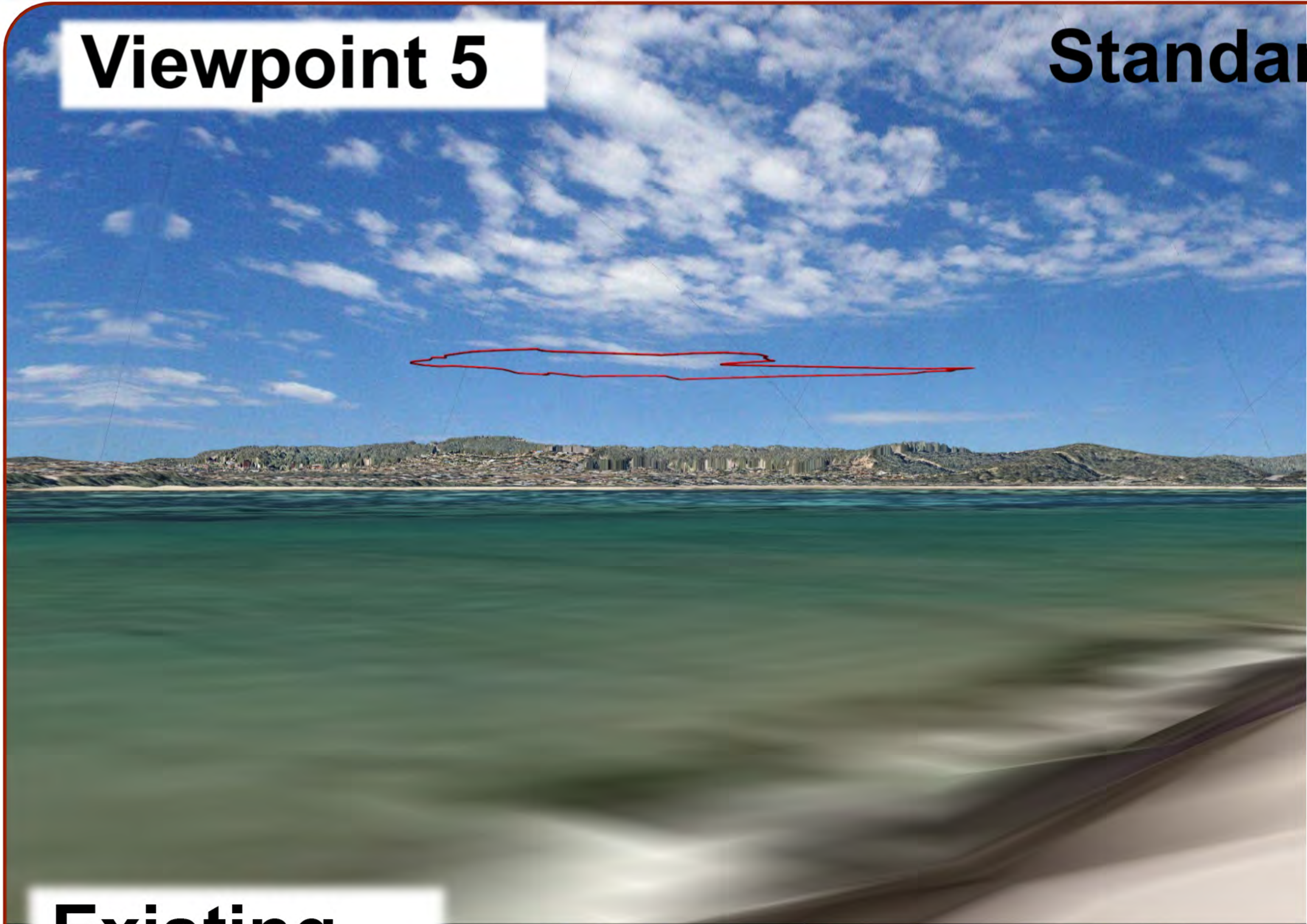
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working beyond expectations

Viewpoint 5

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

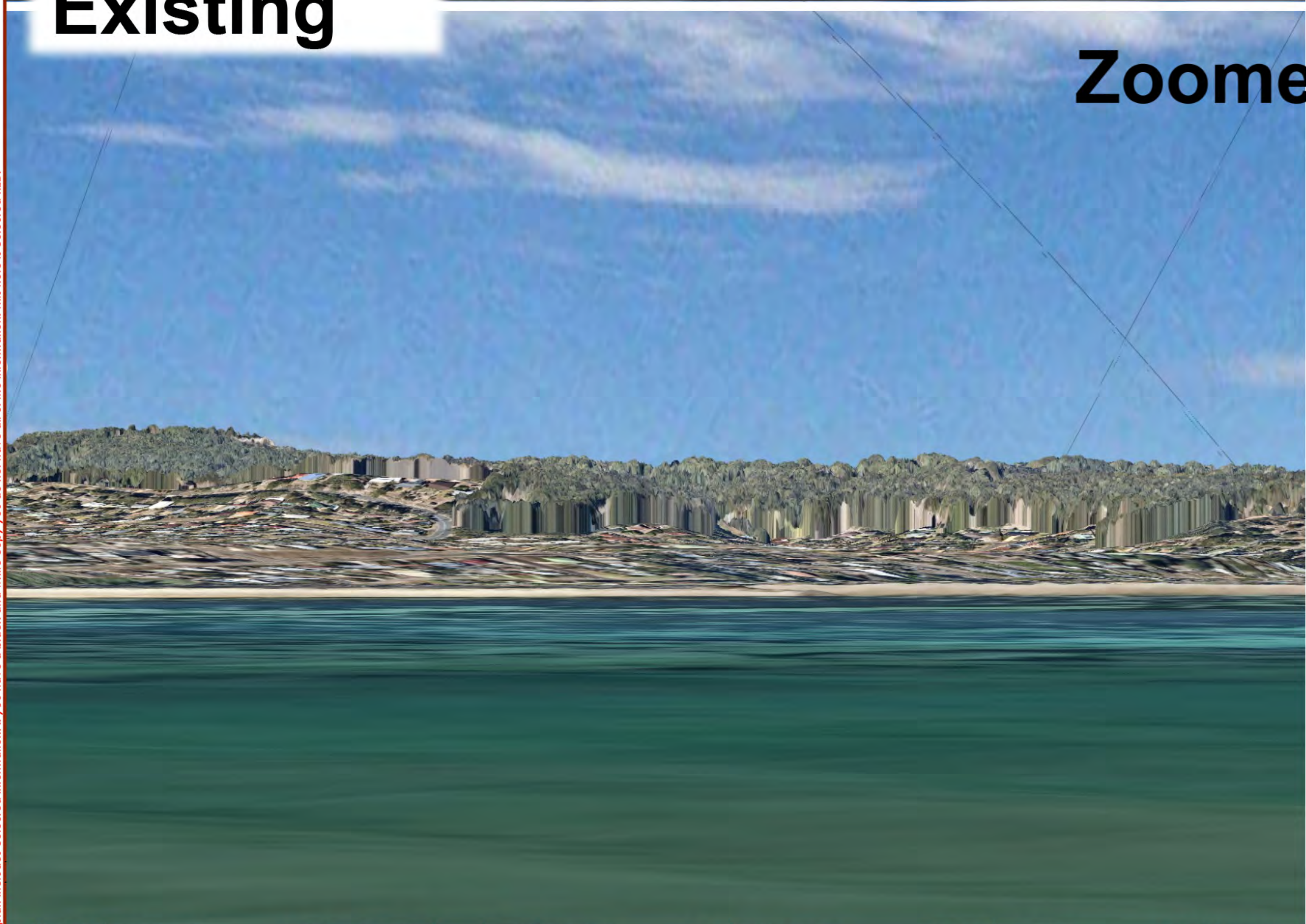


Figure 18

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:
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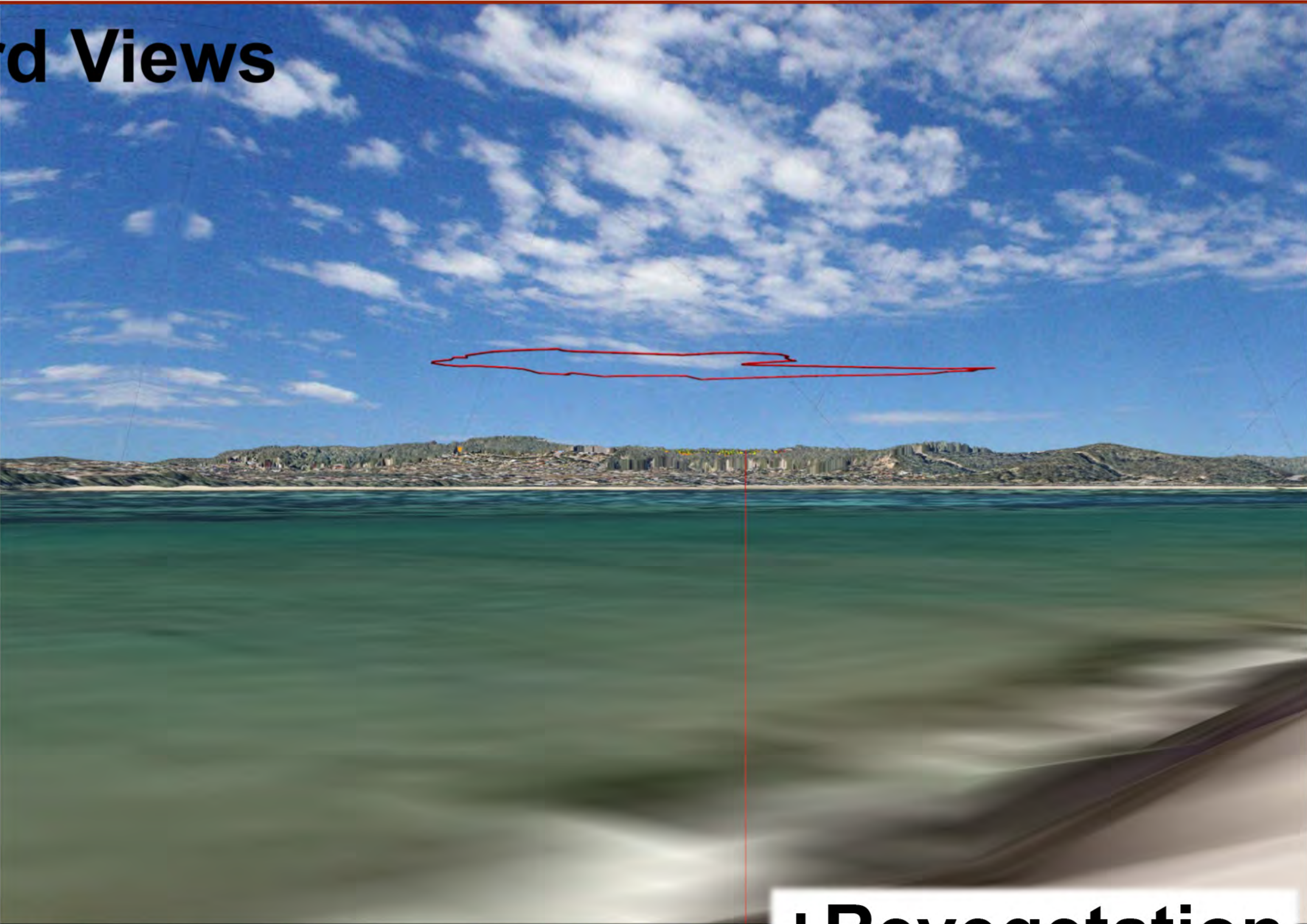
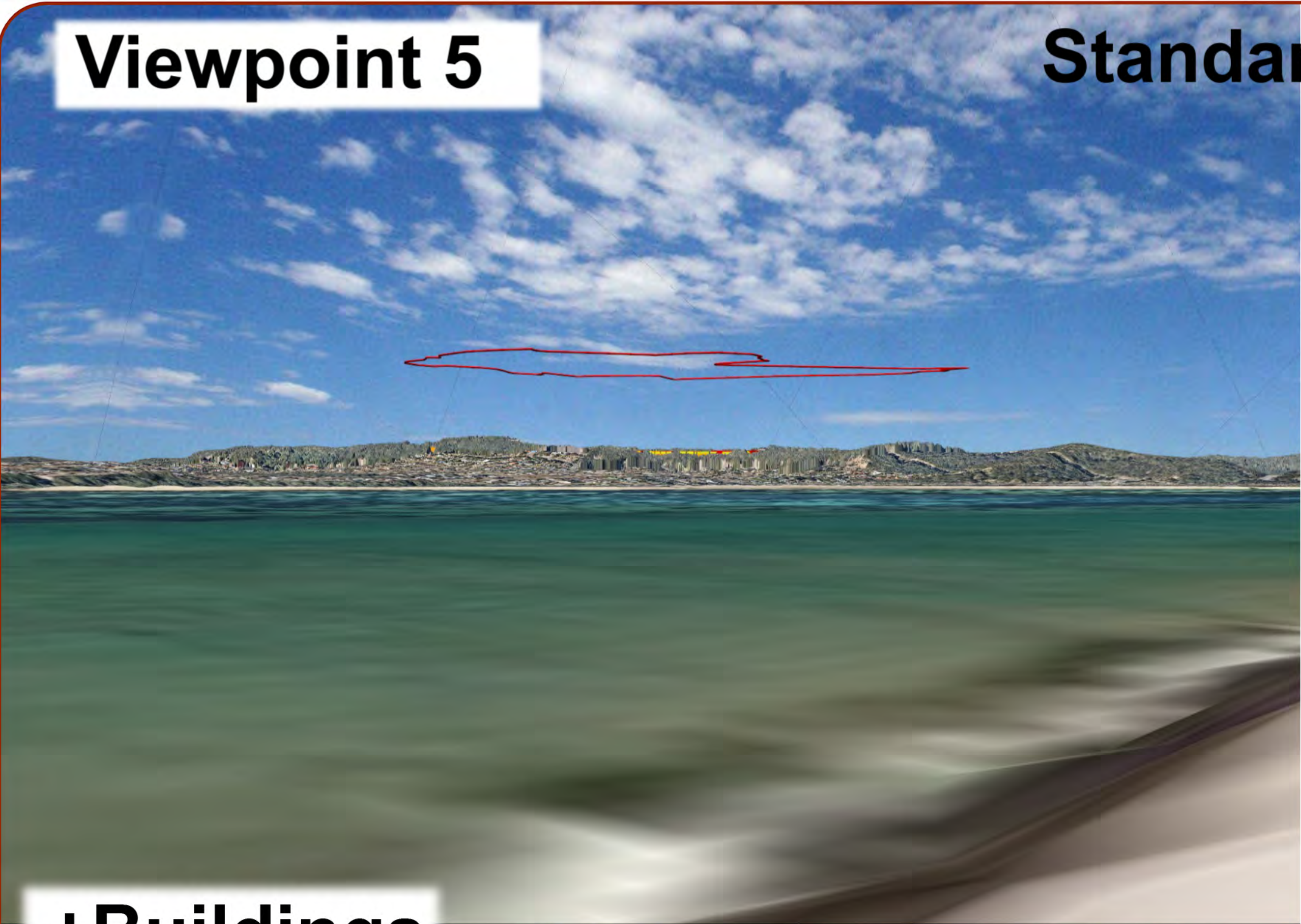
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Viewpoint 5

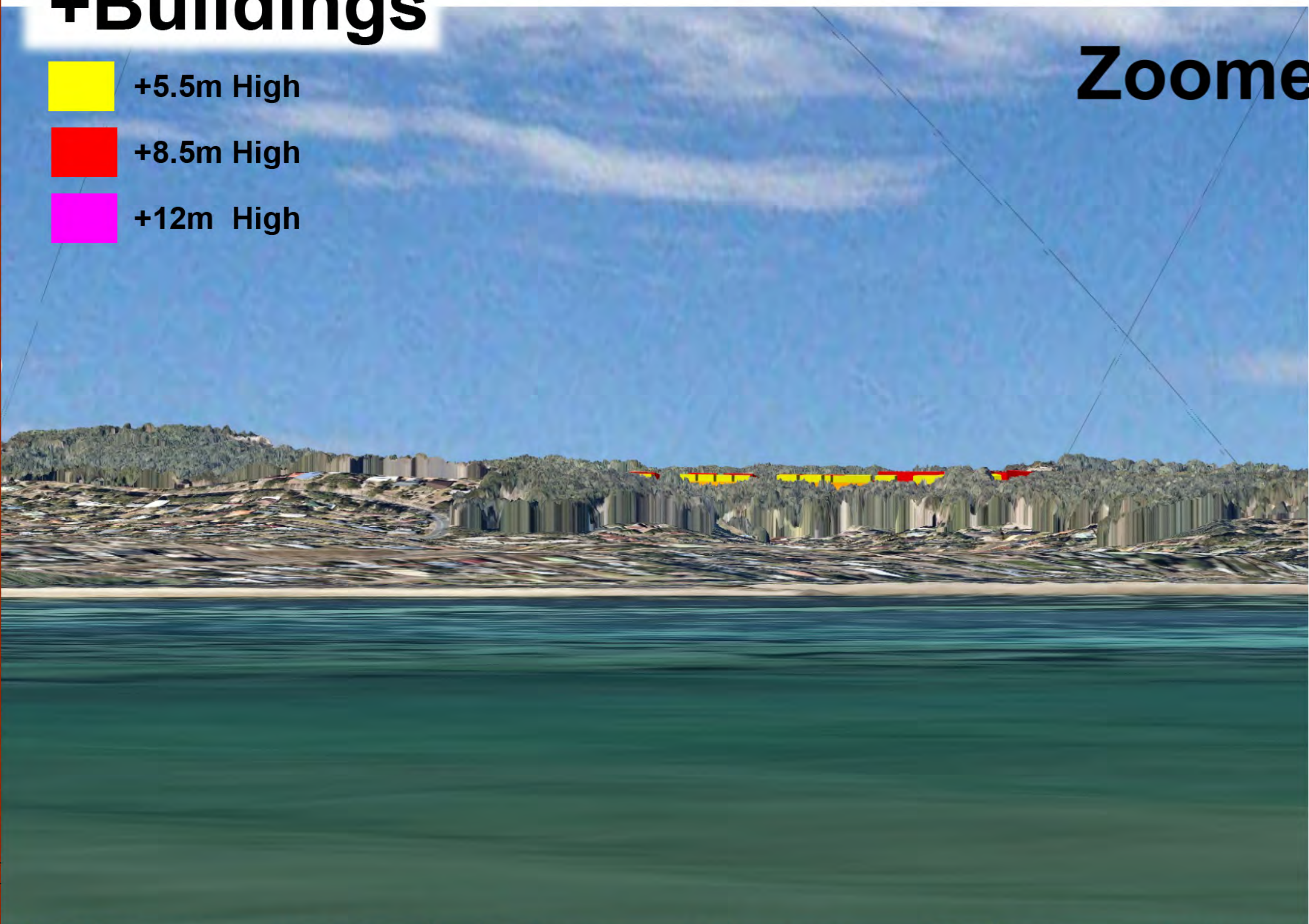
Standard Views



+Buildings

- +5.5m High
- +8.5m High
- +12m High

Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock



Figure 19

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA
council: LMCC
dwg ref: Rev 5 - 2019-10-01
client: WAKEFIELD ASHURST
central coast office ph: (02) 4305 4300
hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411
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Viewpoint 5



drawing title:

Figure 20

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

WAKEFIELD ASHURST



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hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411

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Viewpoint 6

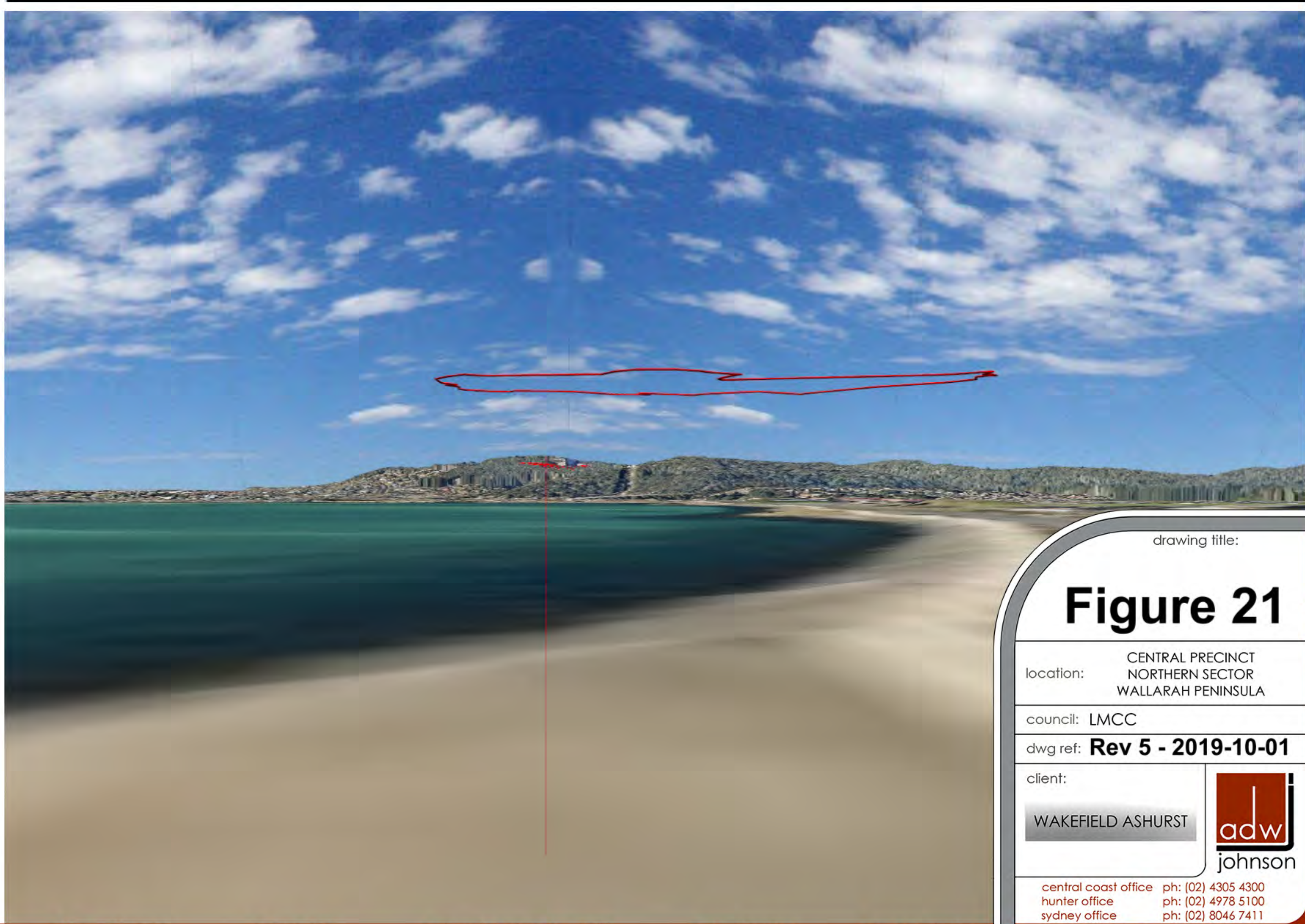
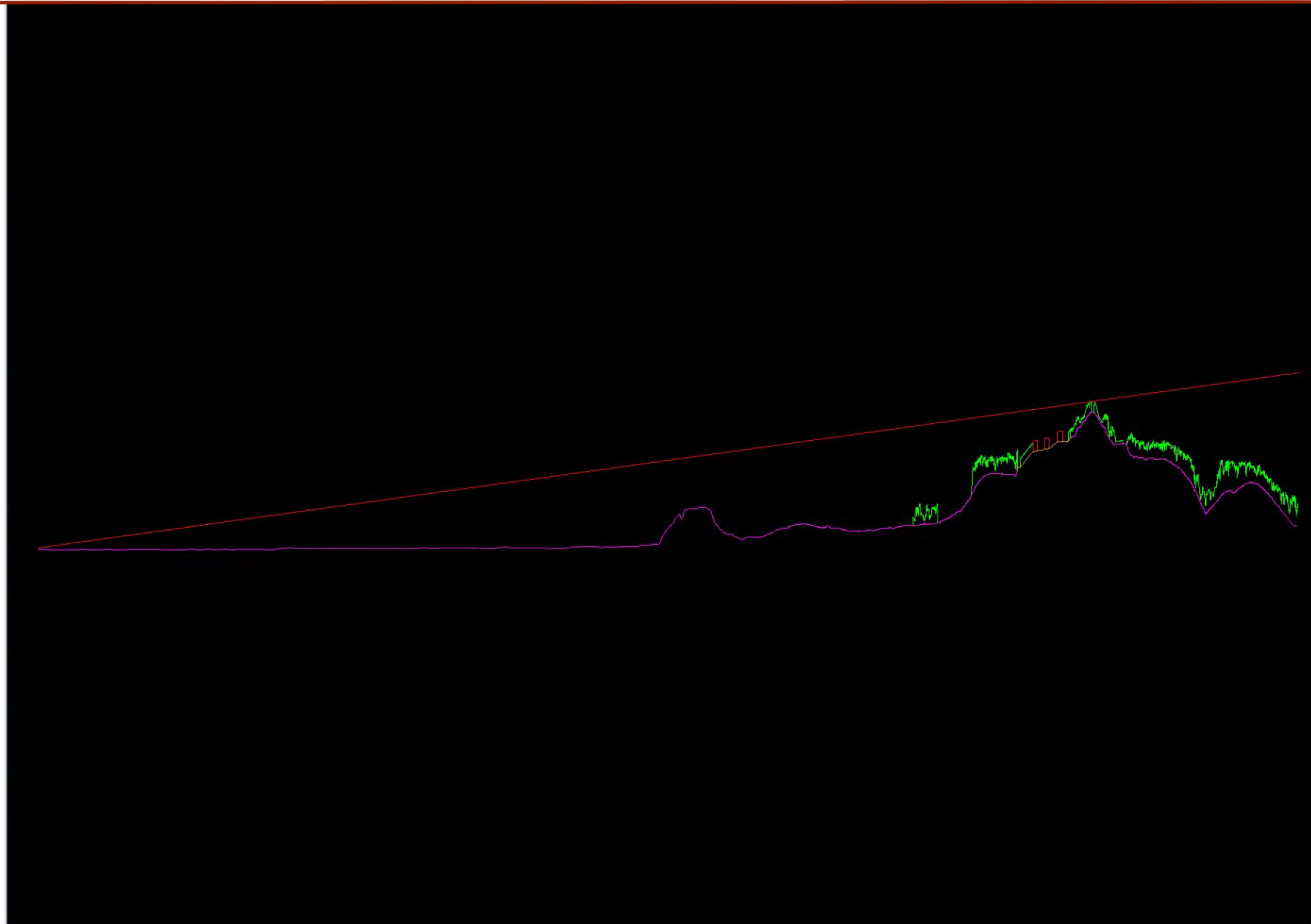
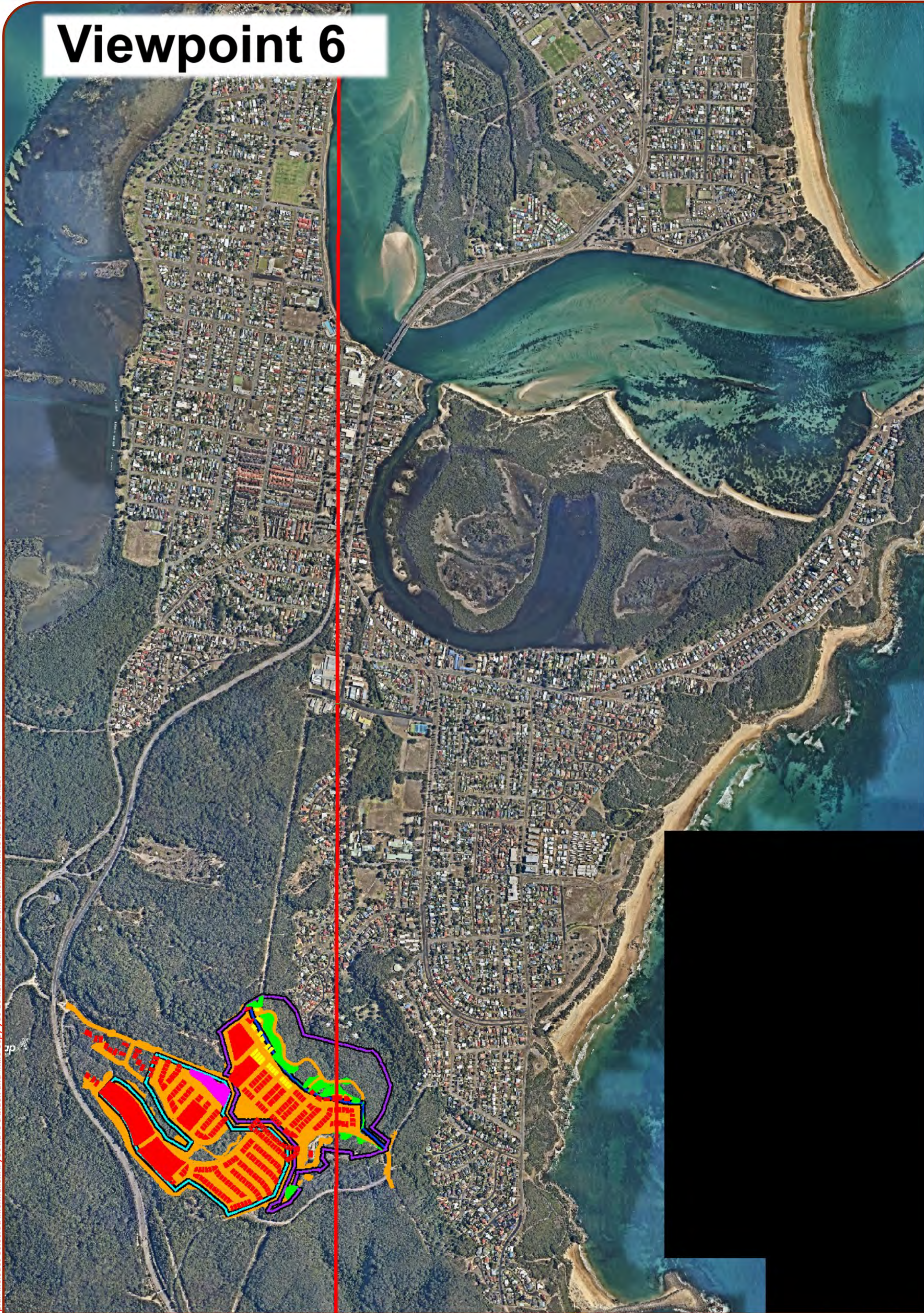


Figure 21

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:
WAKEFIELD ASHURST

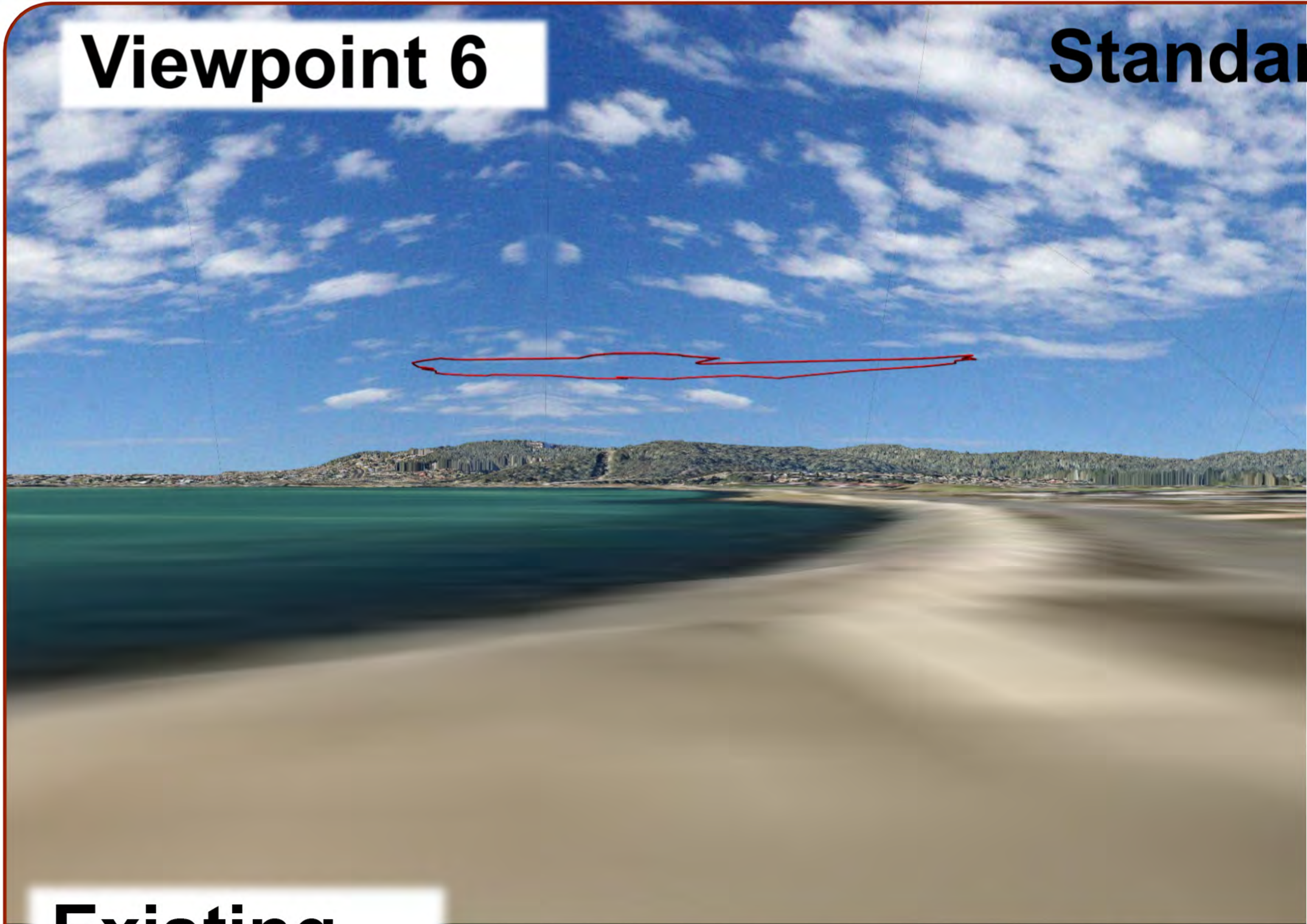
central coast office ph: (02) 4305 4300
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sydney office ph: (02) 8046 7411
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working beyond expectations

Viewpoint 6

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

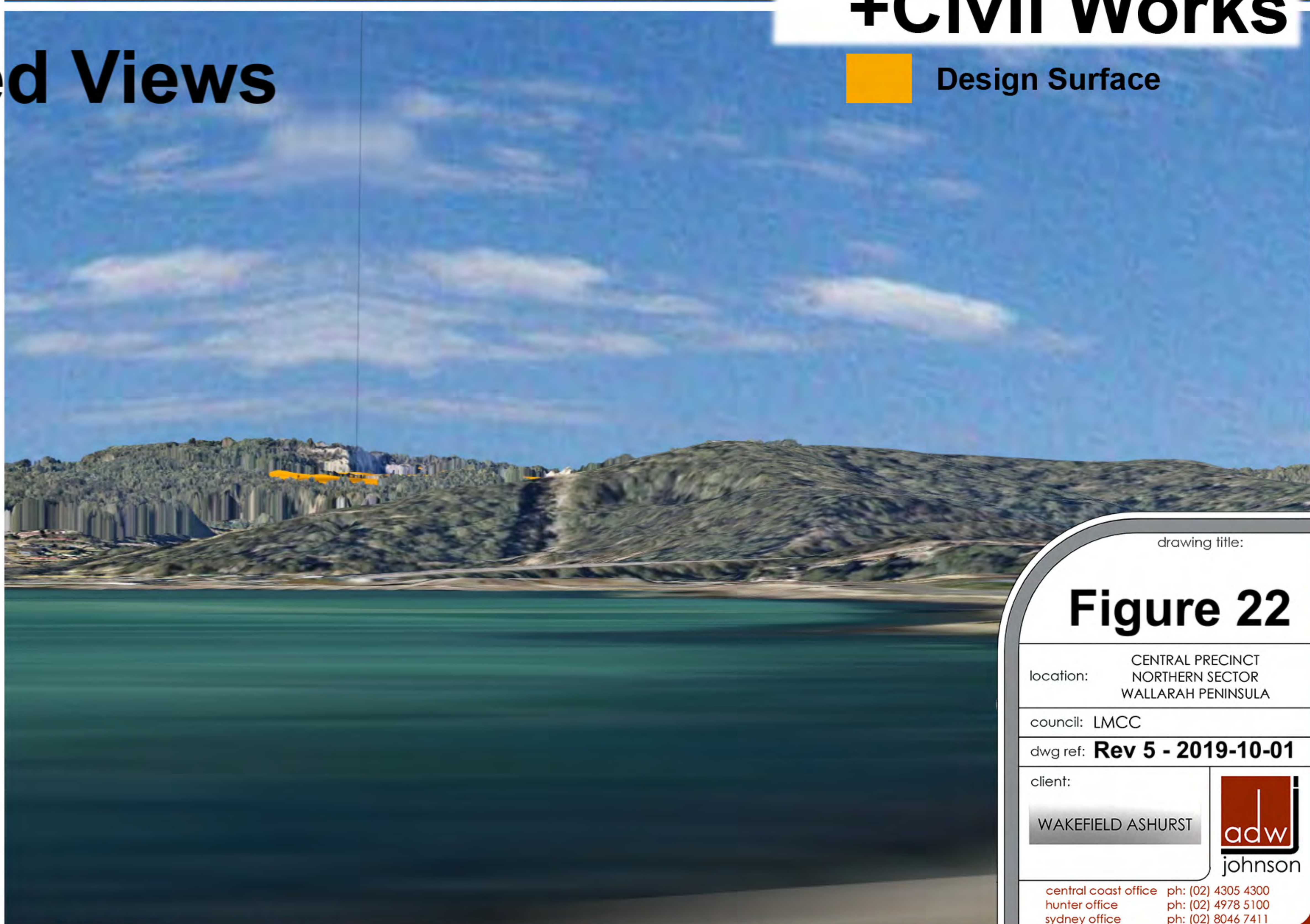


Figure 22

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: Rev 5 - 2019-10-01

client:

WAKEFIELD ASHURST



central coast office ph: (02) 4305 4300
hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411

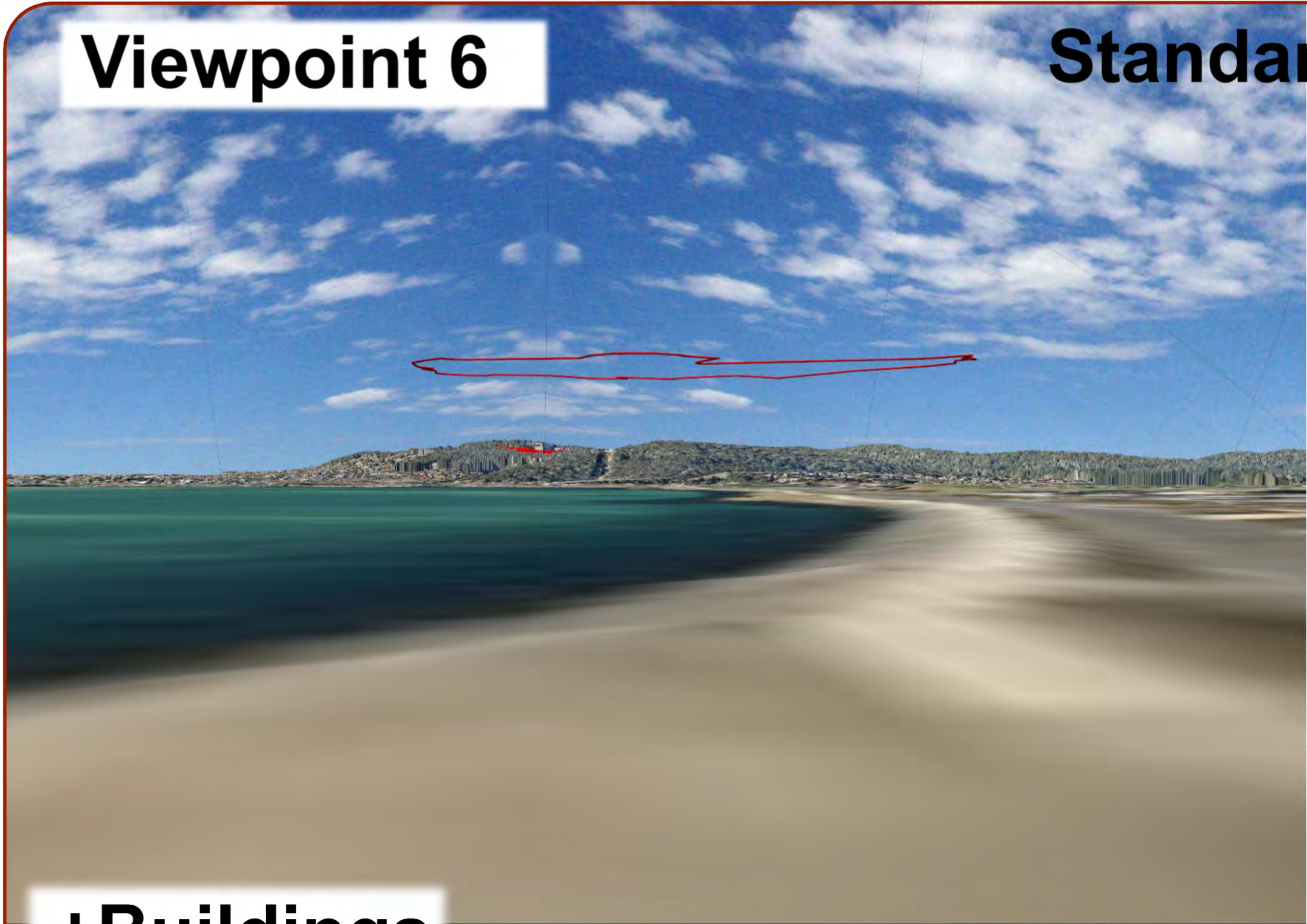
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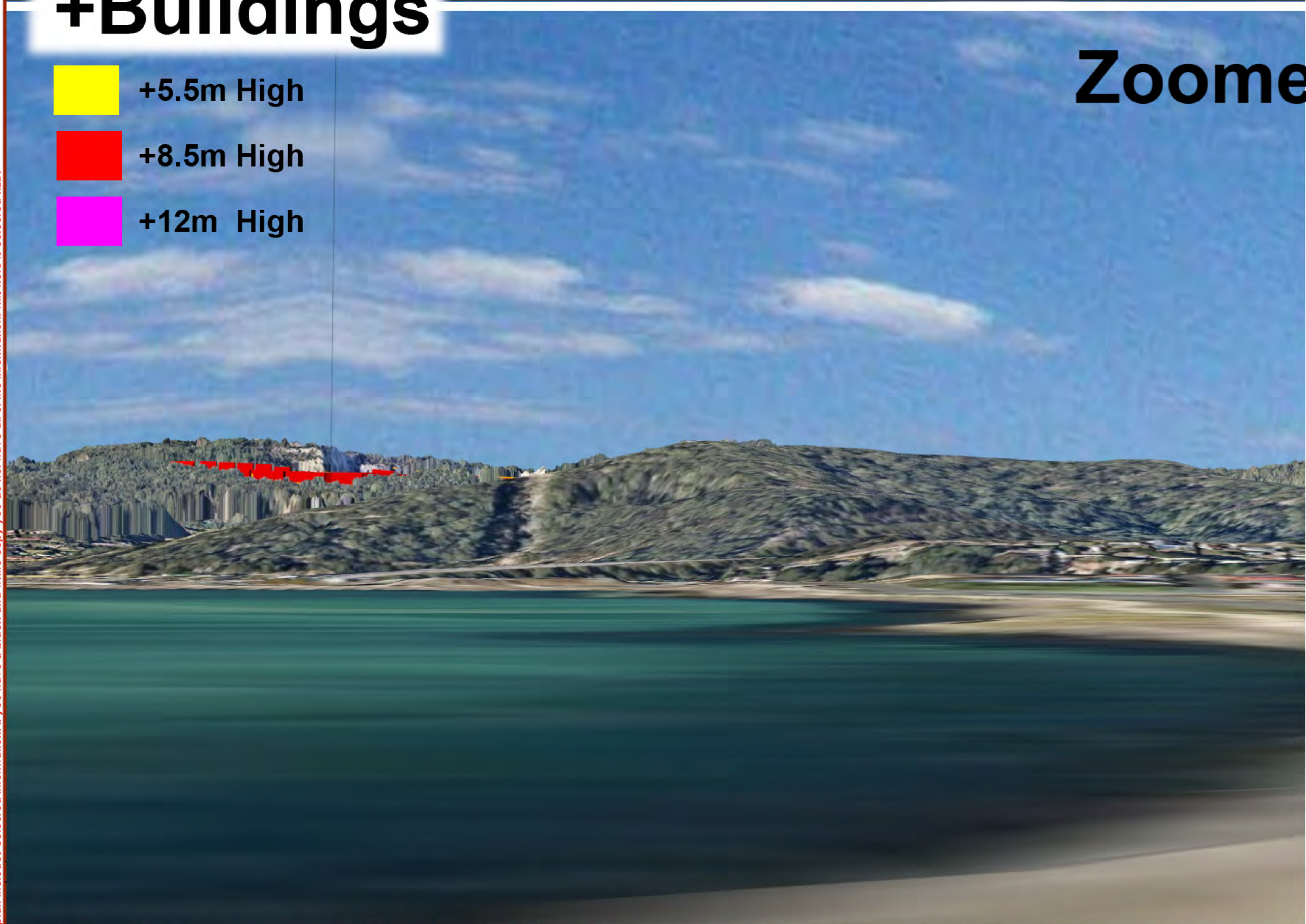
Viewpoint 6

Standard Views

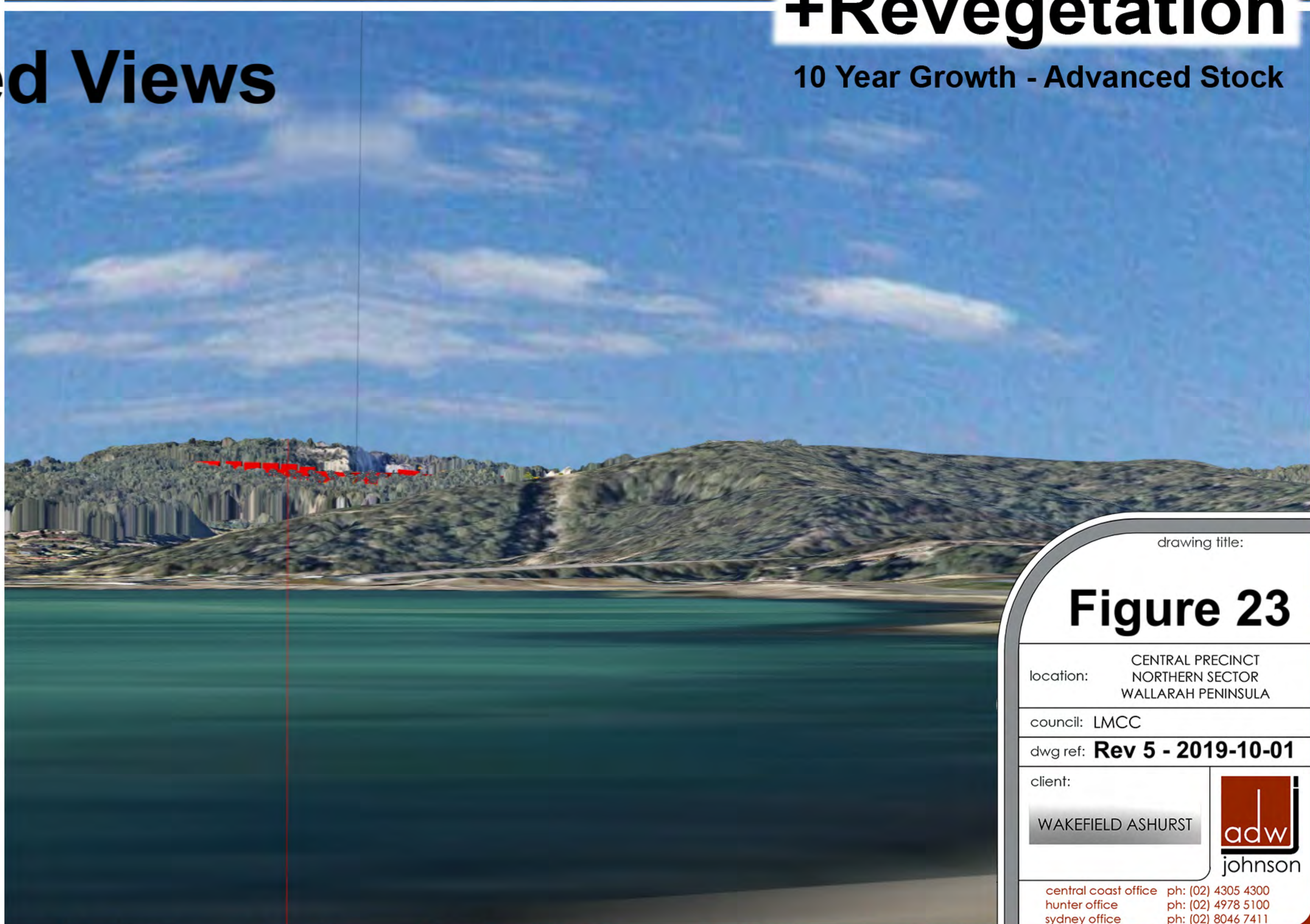


+Buildings

- +5.5m High
- +8.5m High
- +12m High



Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock

Figure 23

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

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Viewpoint 6



working beyond expectations

drawing title:

Figure 24

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
	

central coast office ph: (02) 4305 4300
hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411
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Viewpoint 7

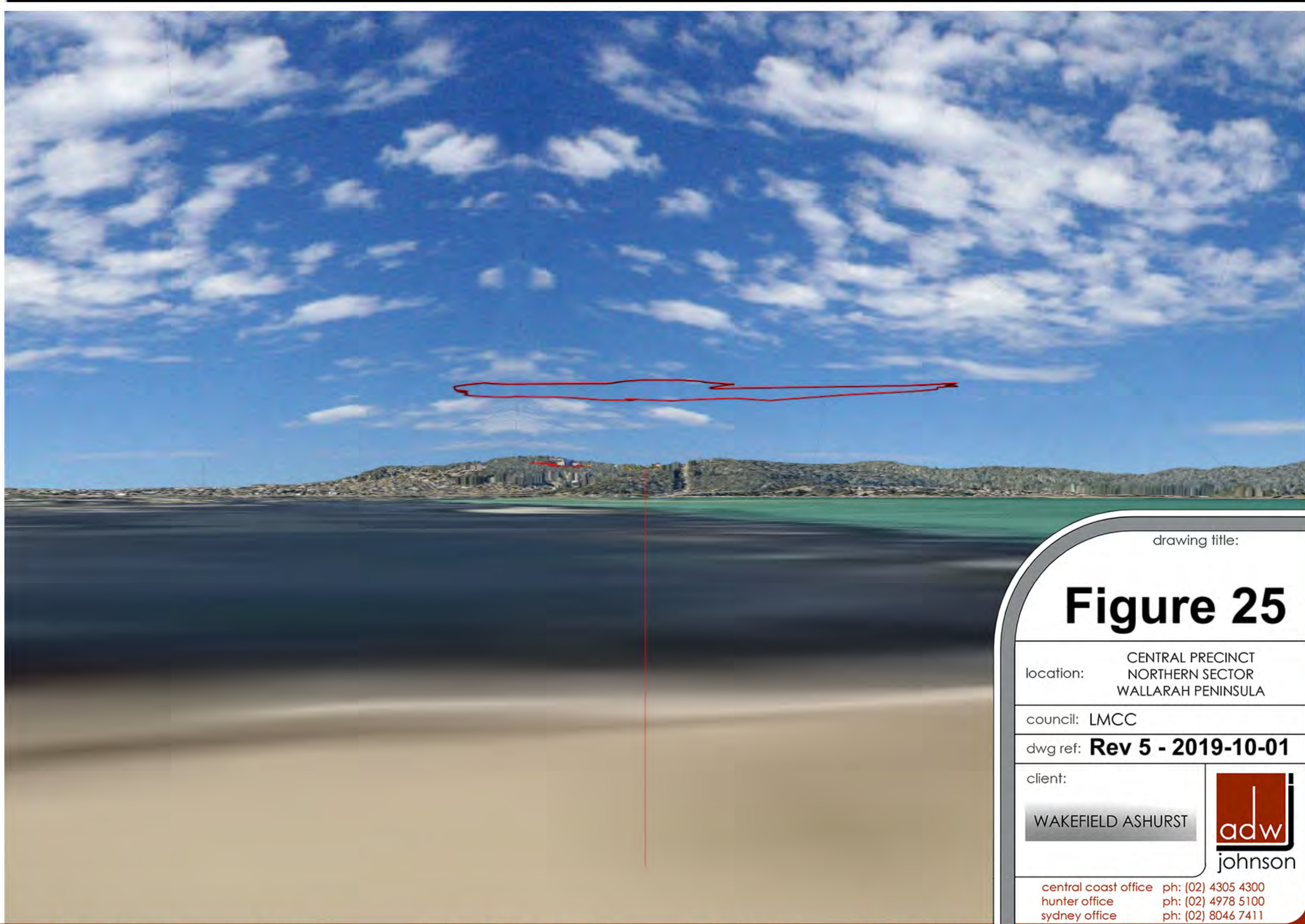
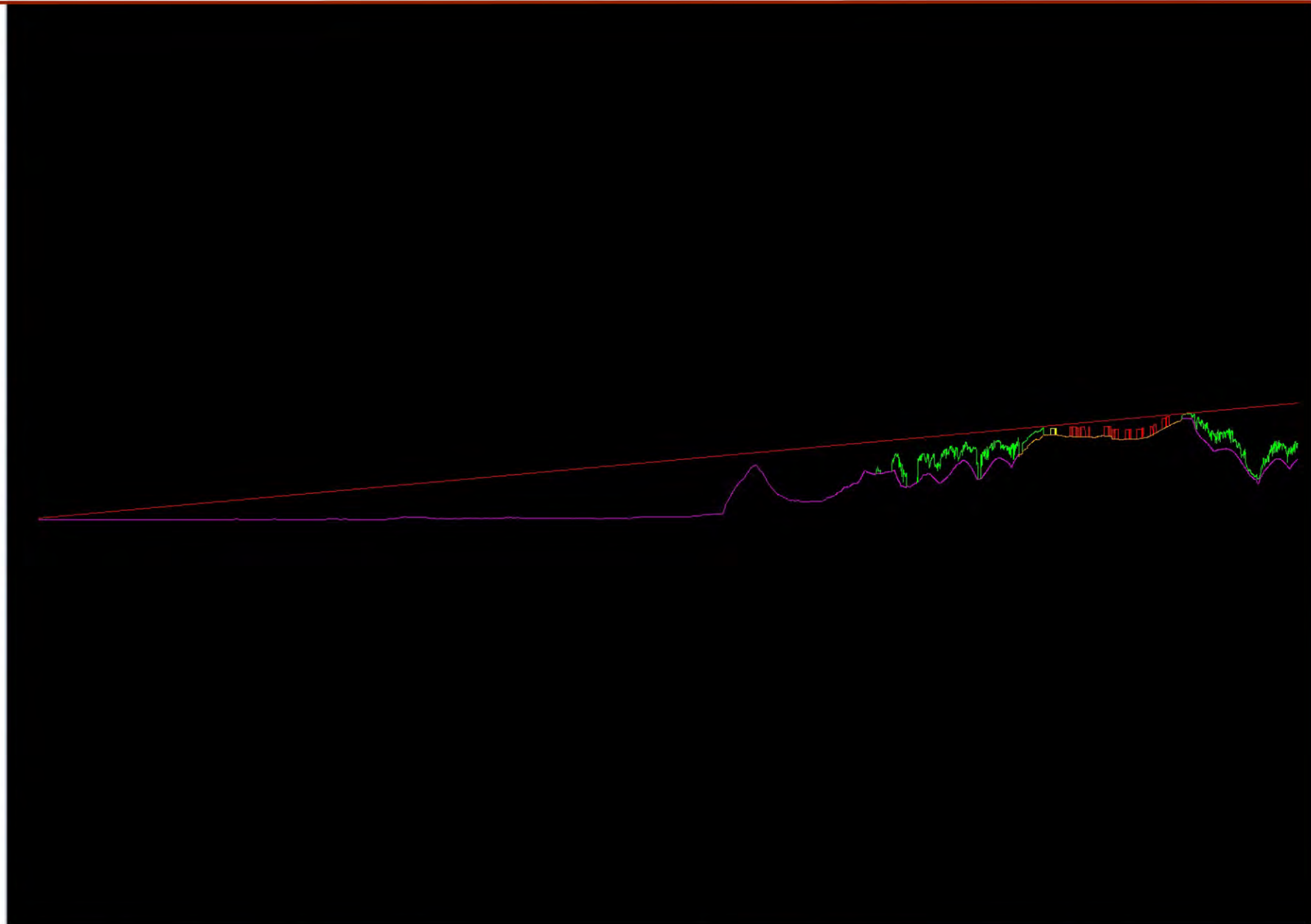


Figure 25

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

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sydney office ph: (02) 8046 7411
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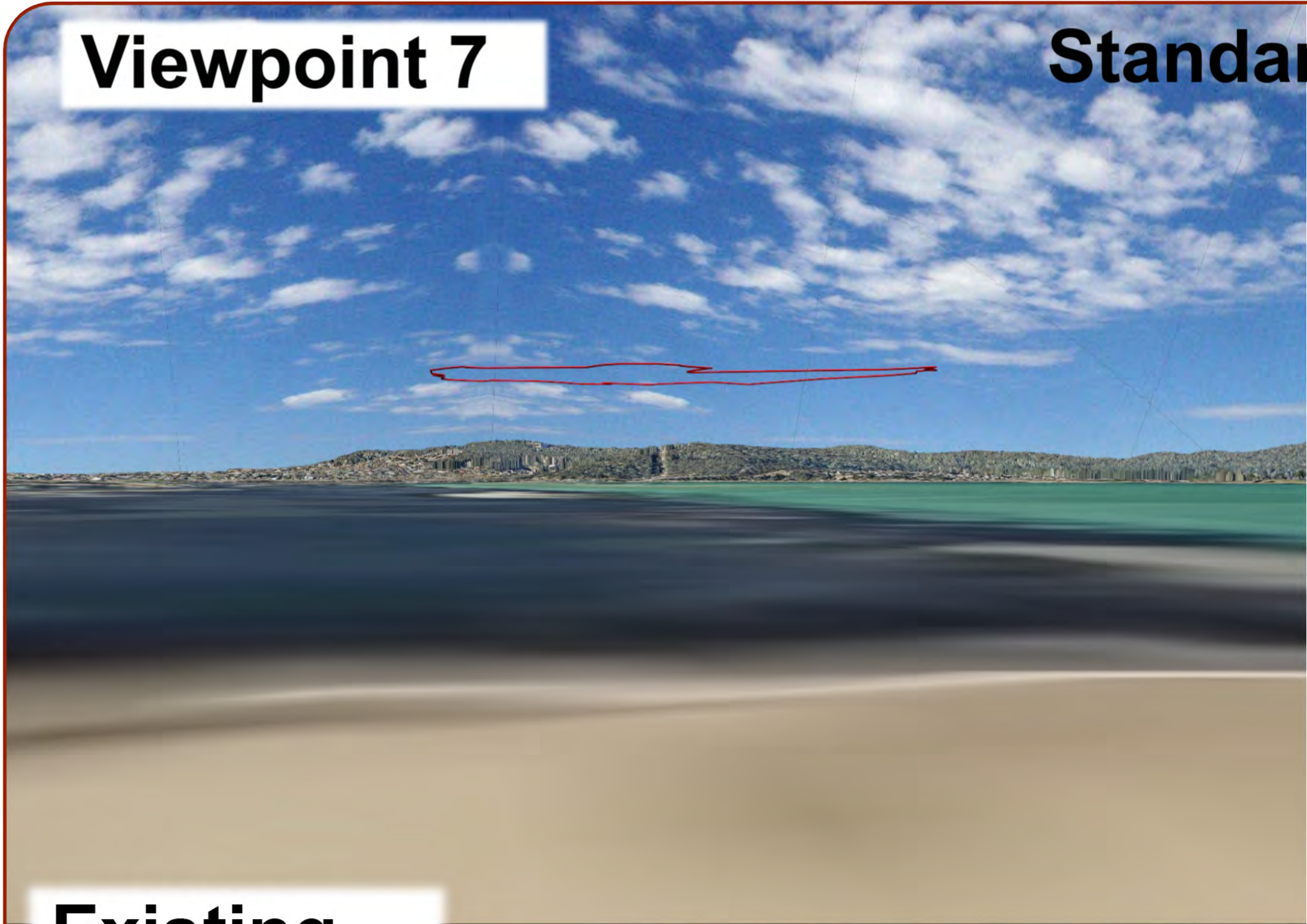
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working beyond expectations

Viewpoint 7

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

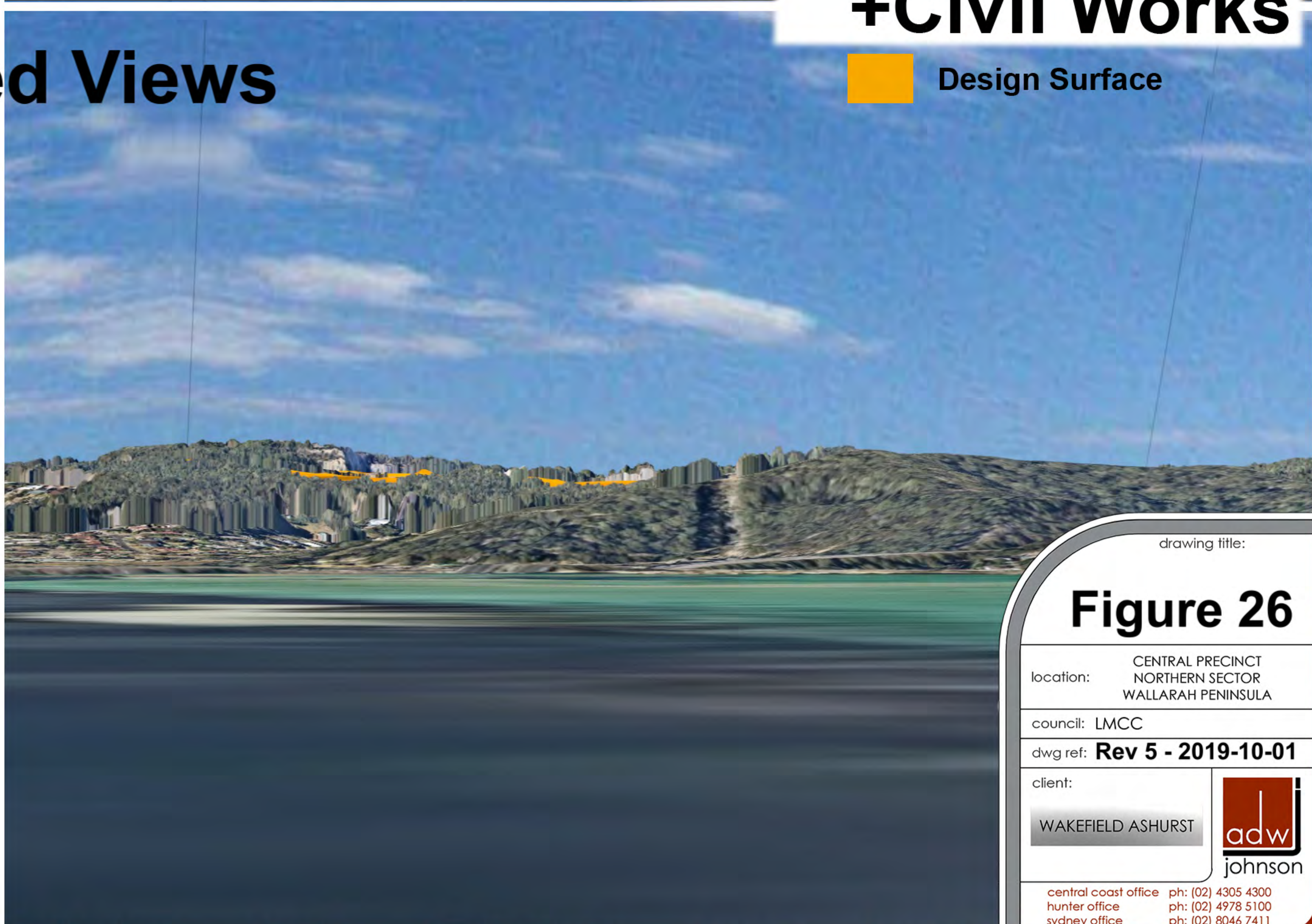
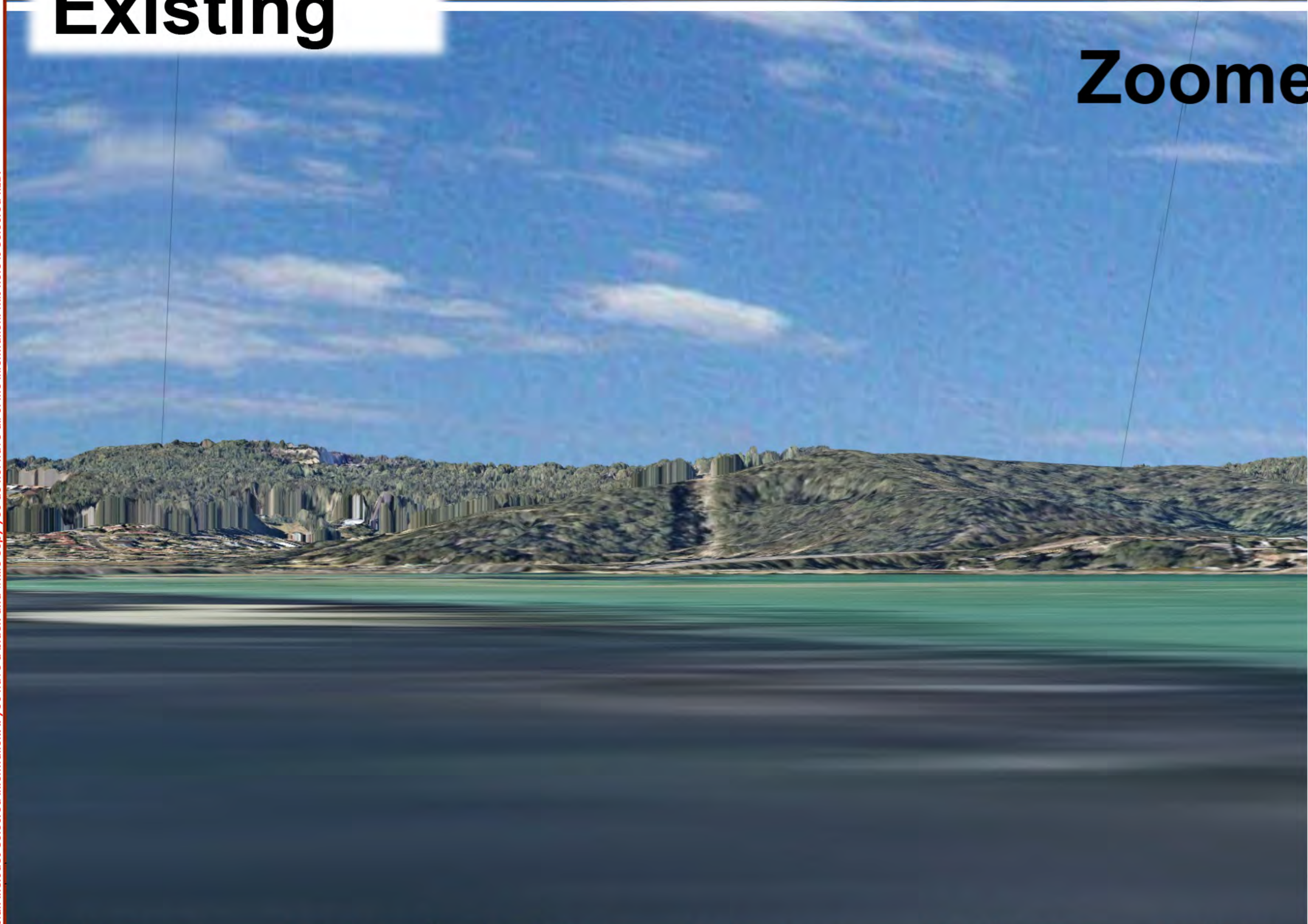
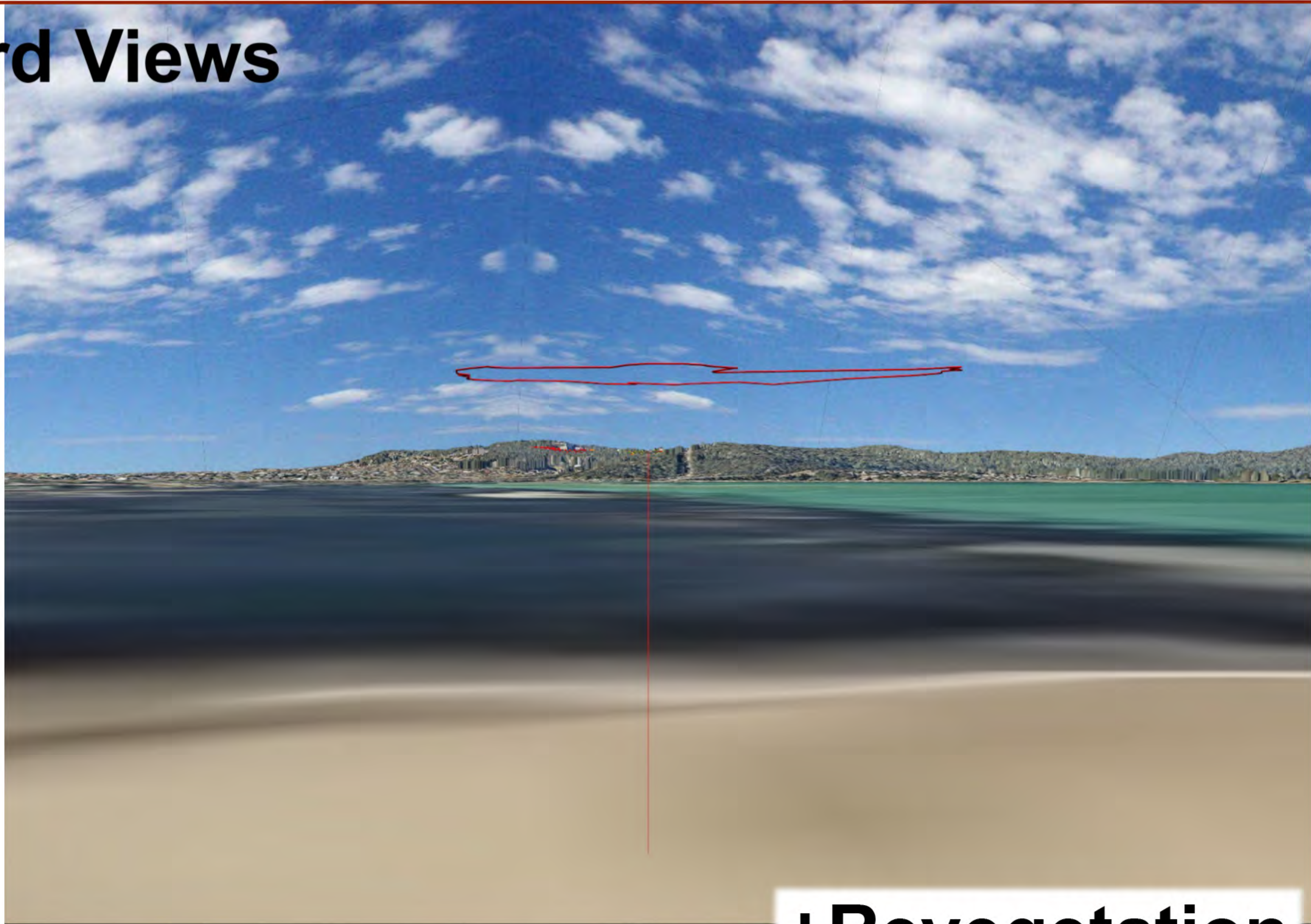


Figure 26

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
central coast office	ph: (02) 4305 4300
hunter office	ph: (02) 4978 5100
sydney office	ph: (02) 8046 7411
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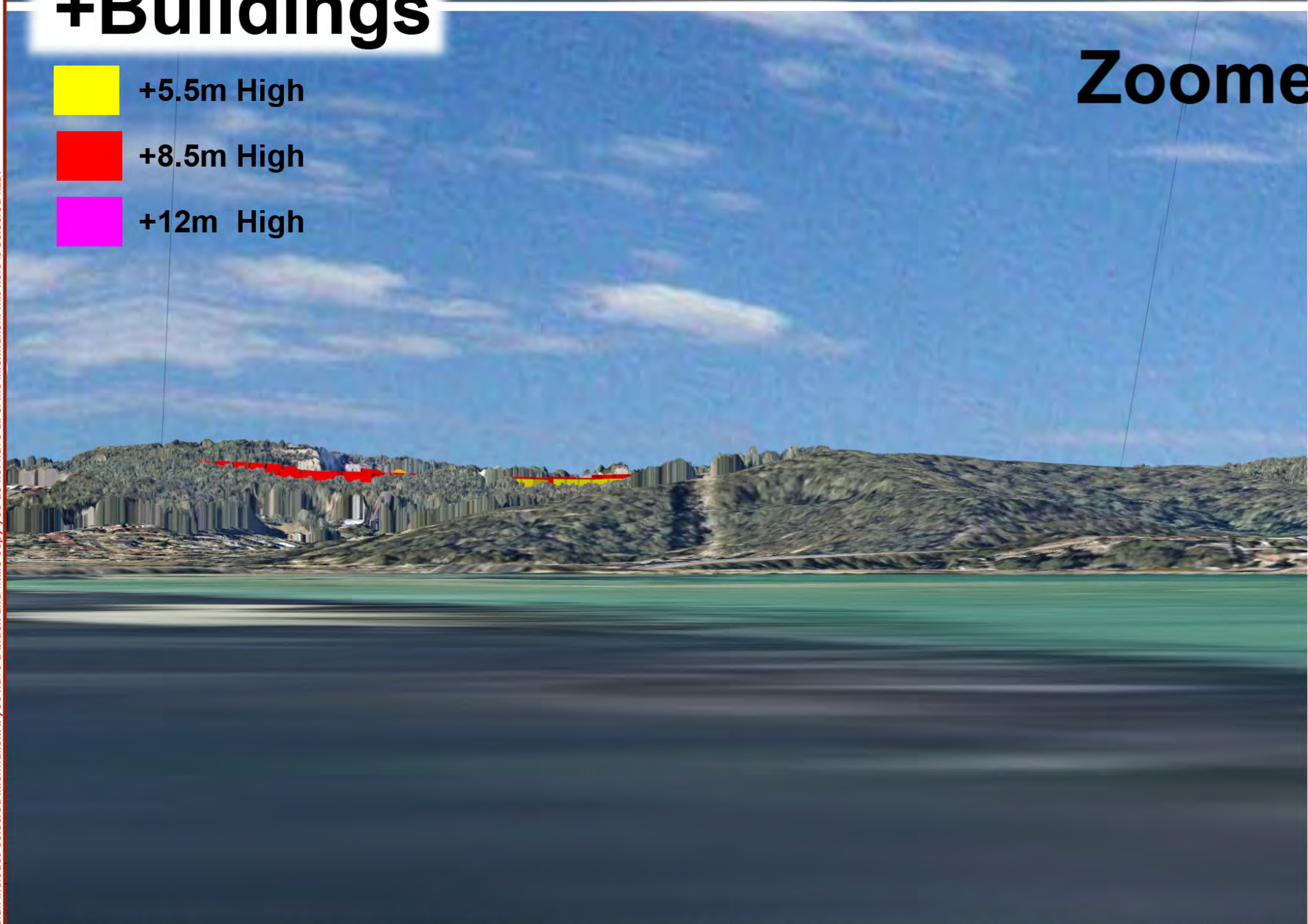
Viewpoint 7

Standard Views

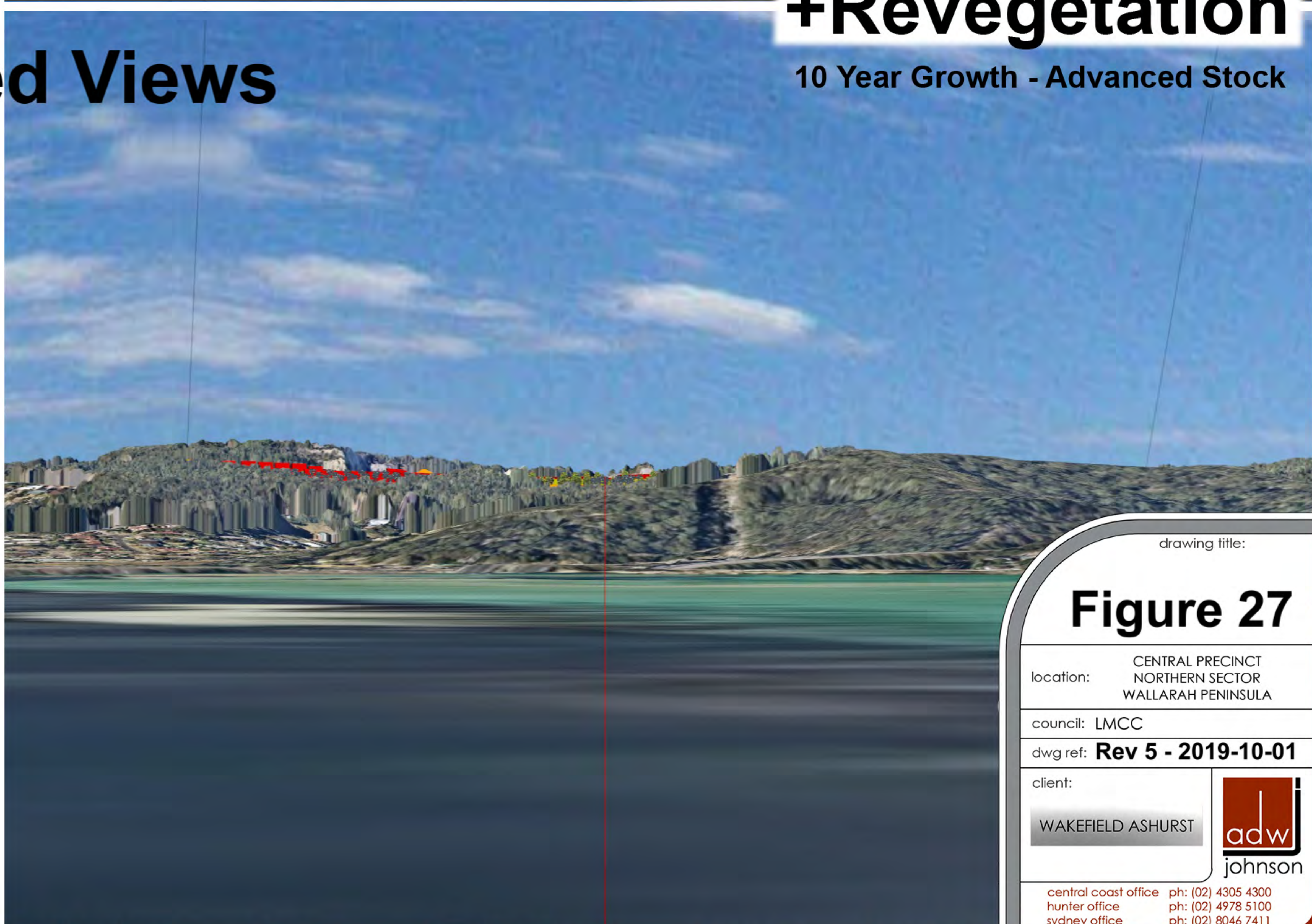


+Buildings

- +5.5m High
- +8.5m High
- +12m High



Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock

Figure 27

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST


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sydney office ph: (02) 8046 7411
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Viewpoint 7



drawing title:

Figure 28

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
	

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hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411
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Viewpoint 8

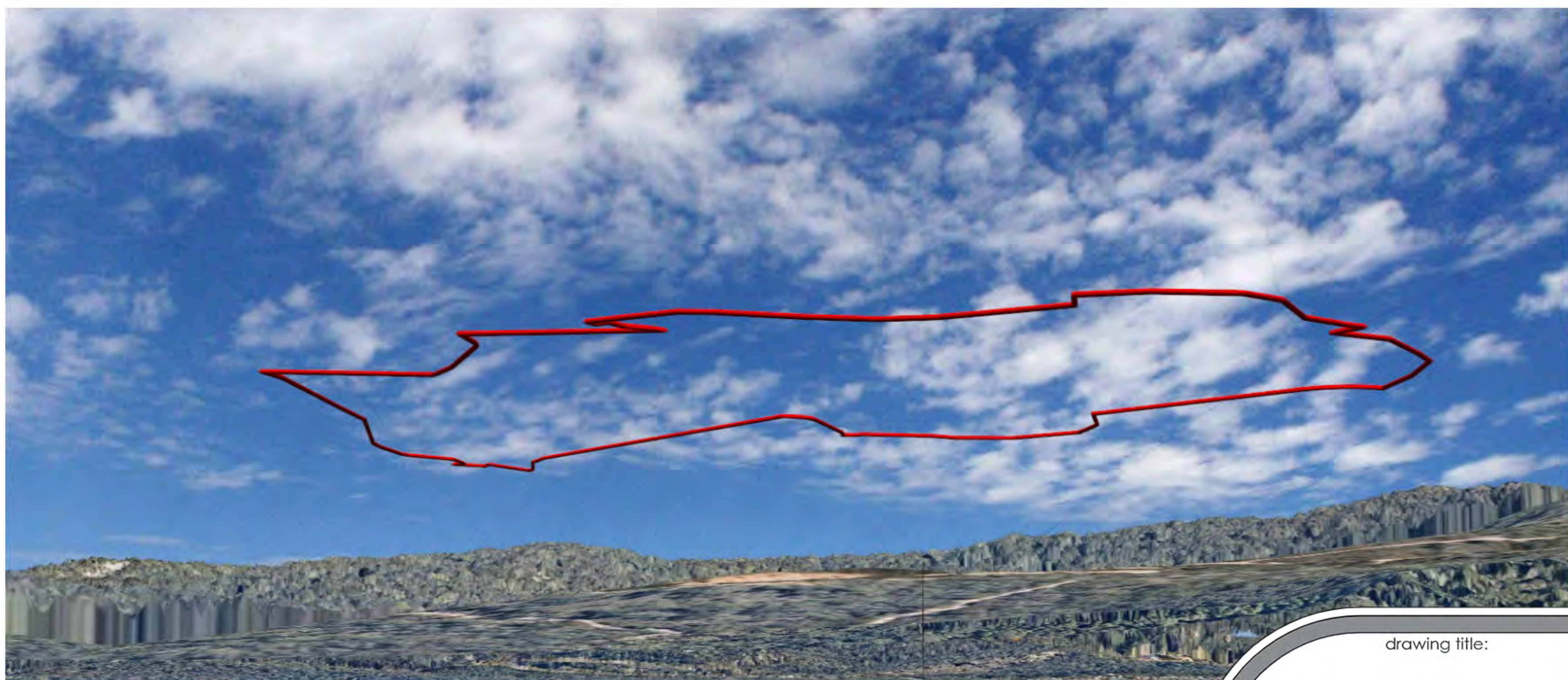
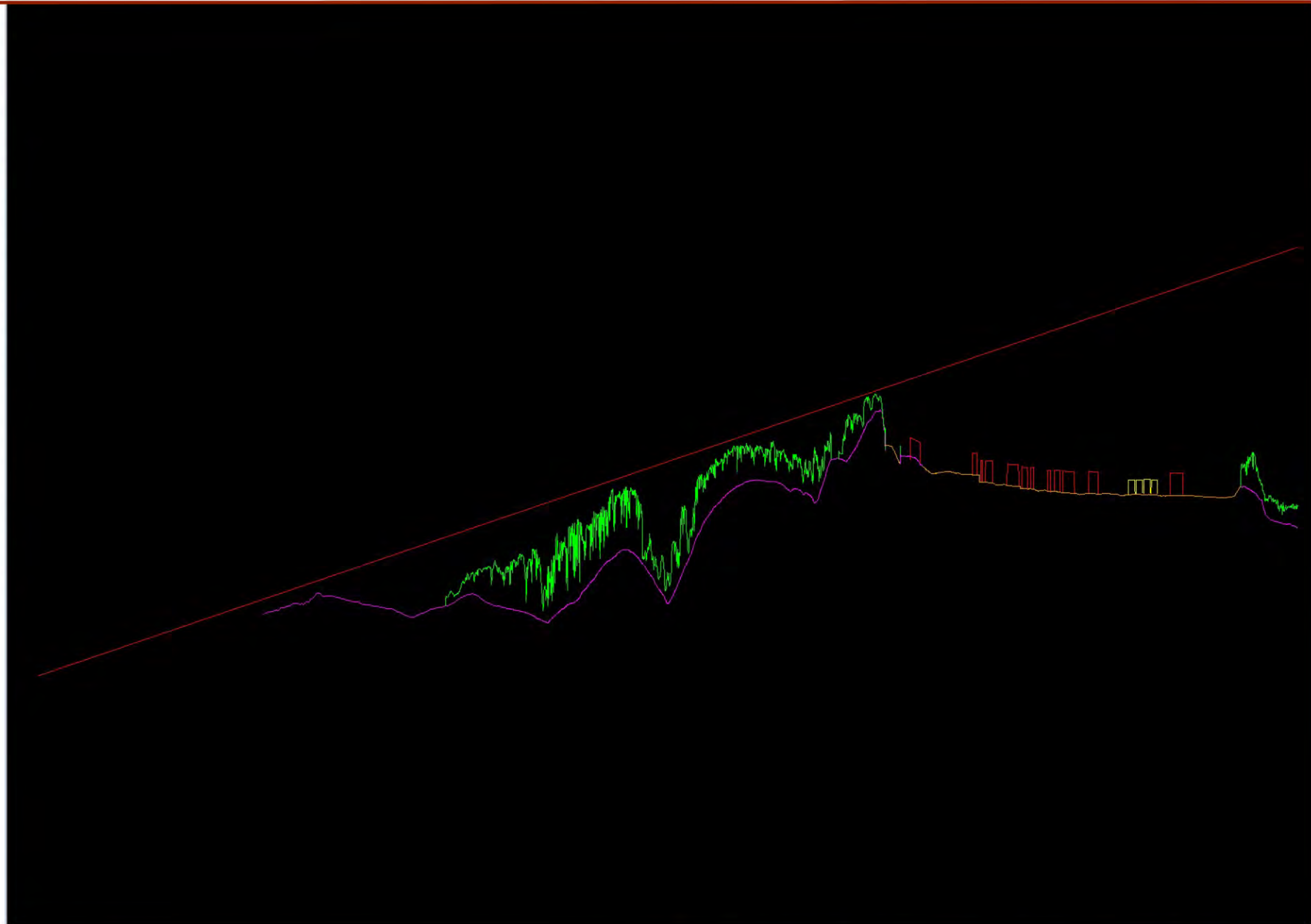
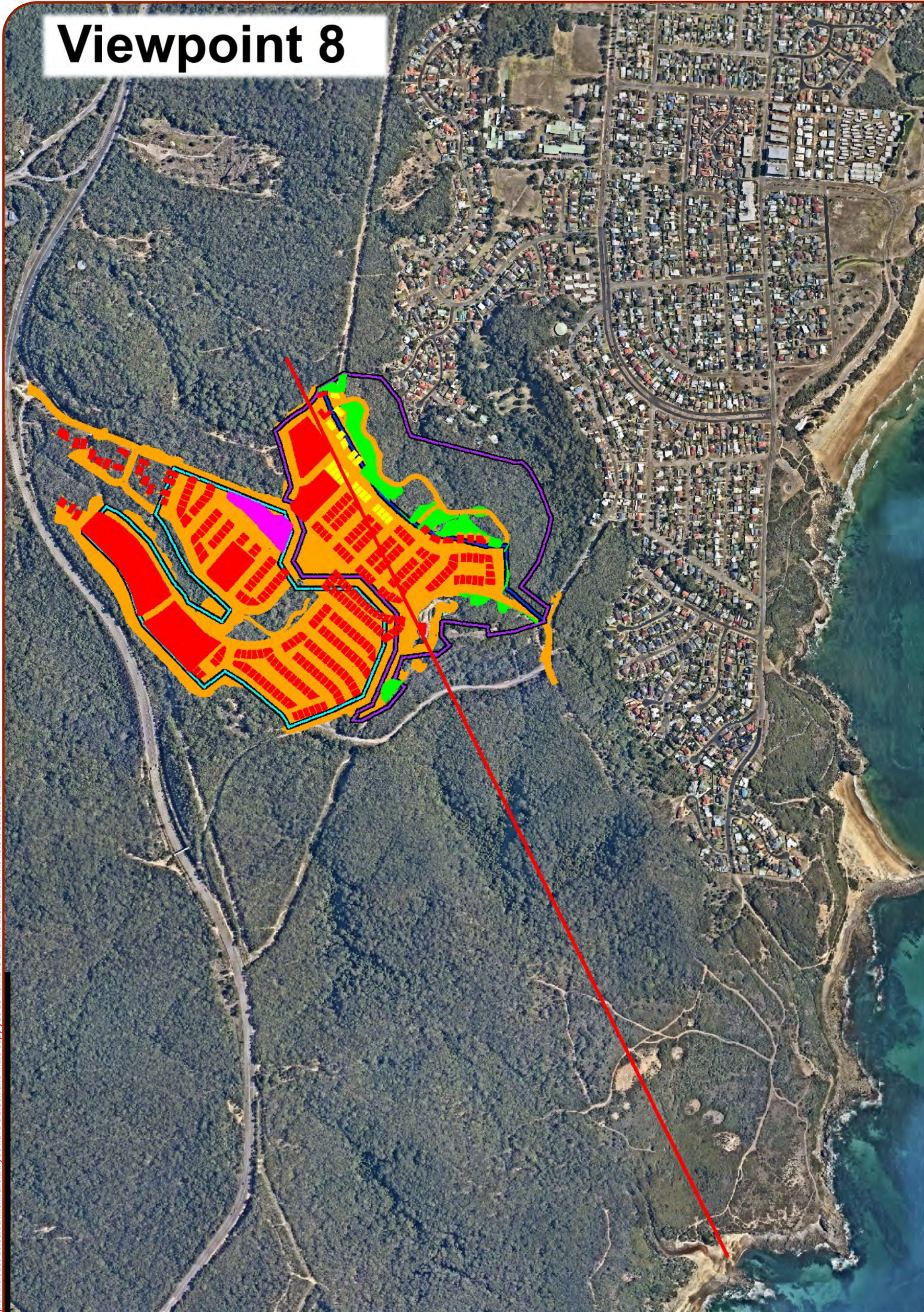


Figure 29

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:
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hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411
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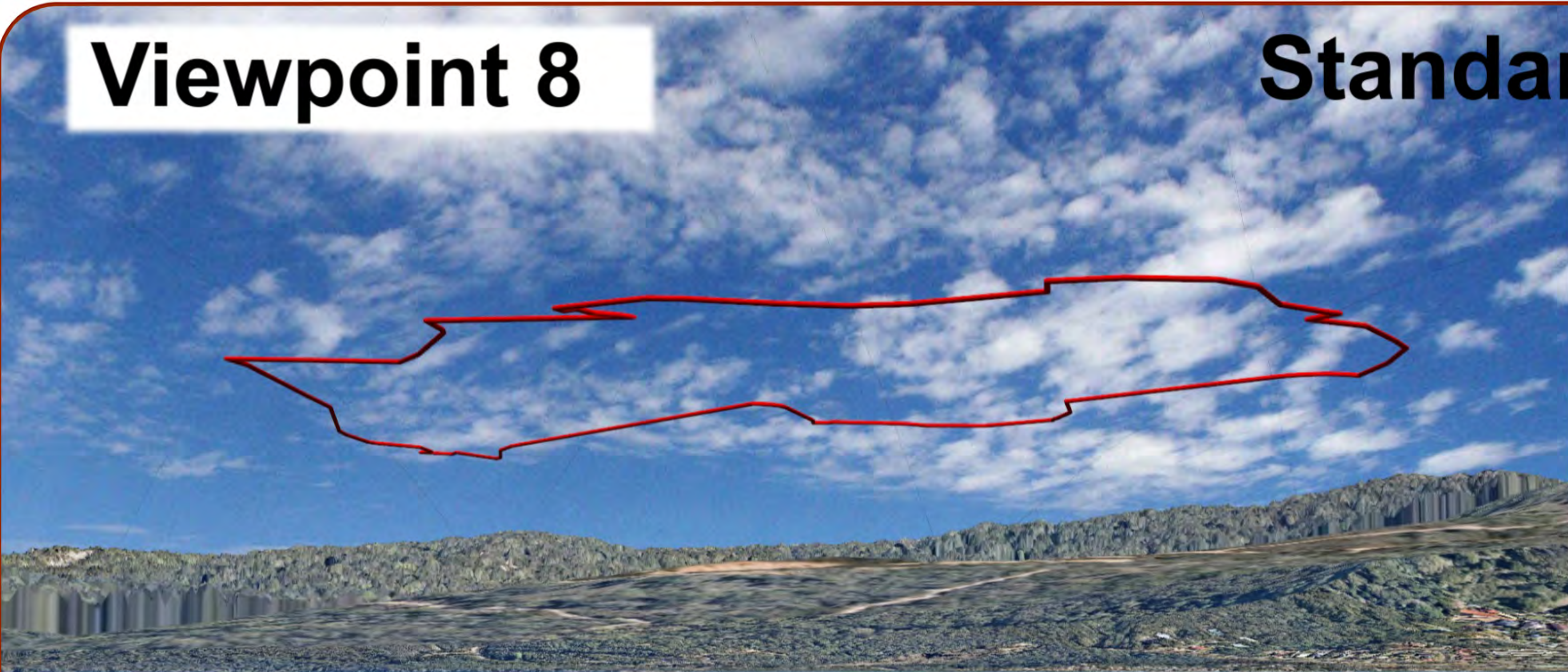
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working beyond expectations

Viewpoint 8

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

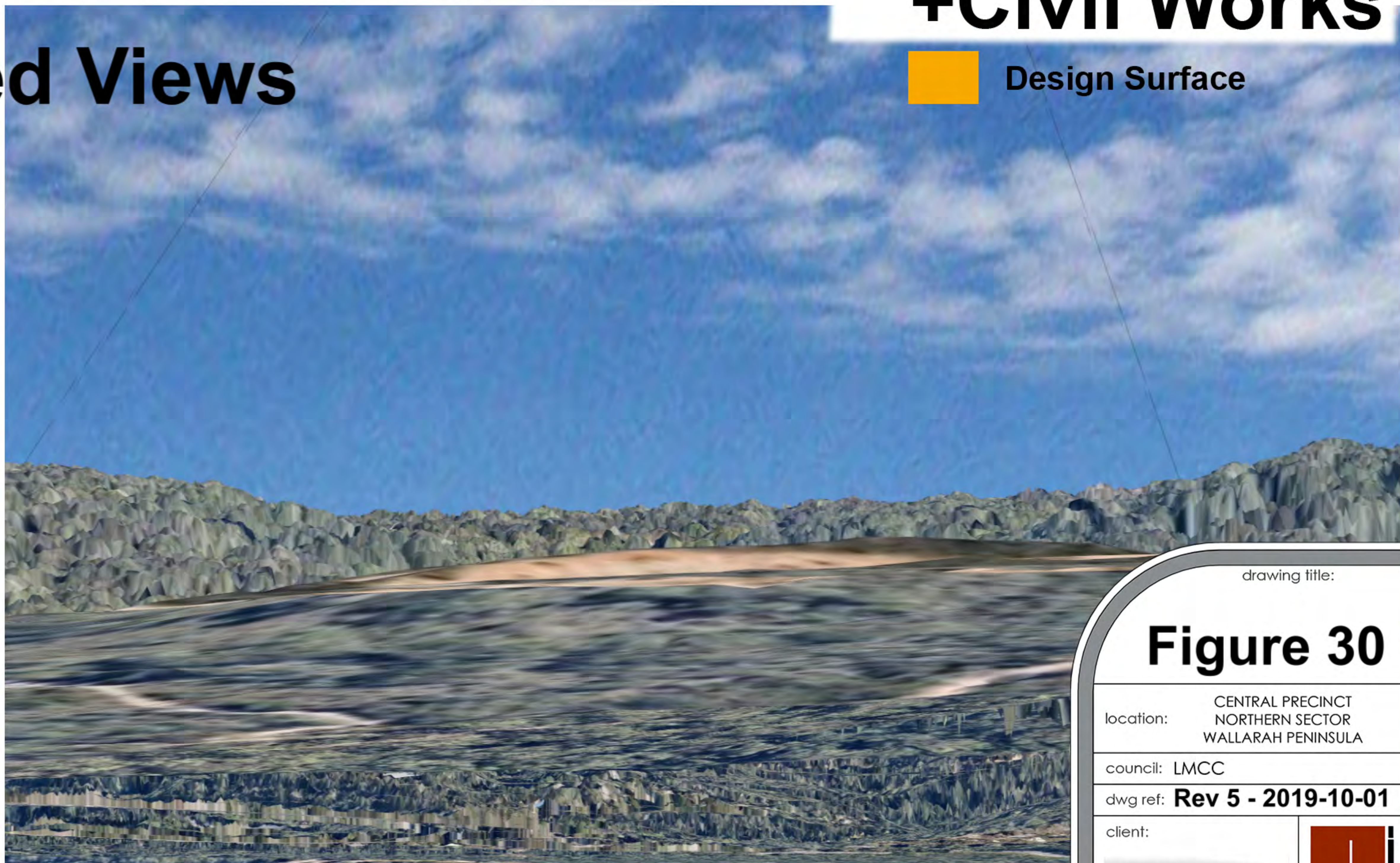
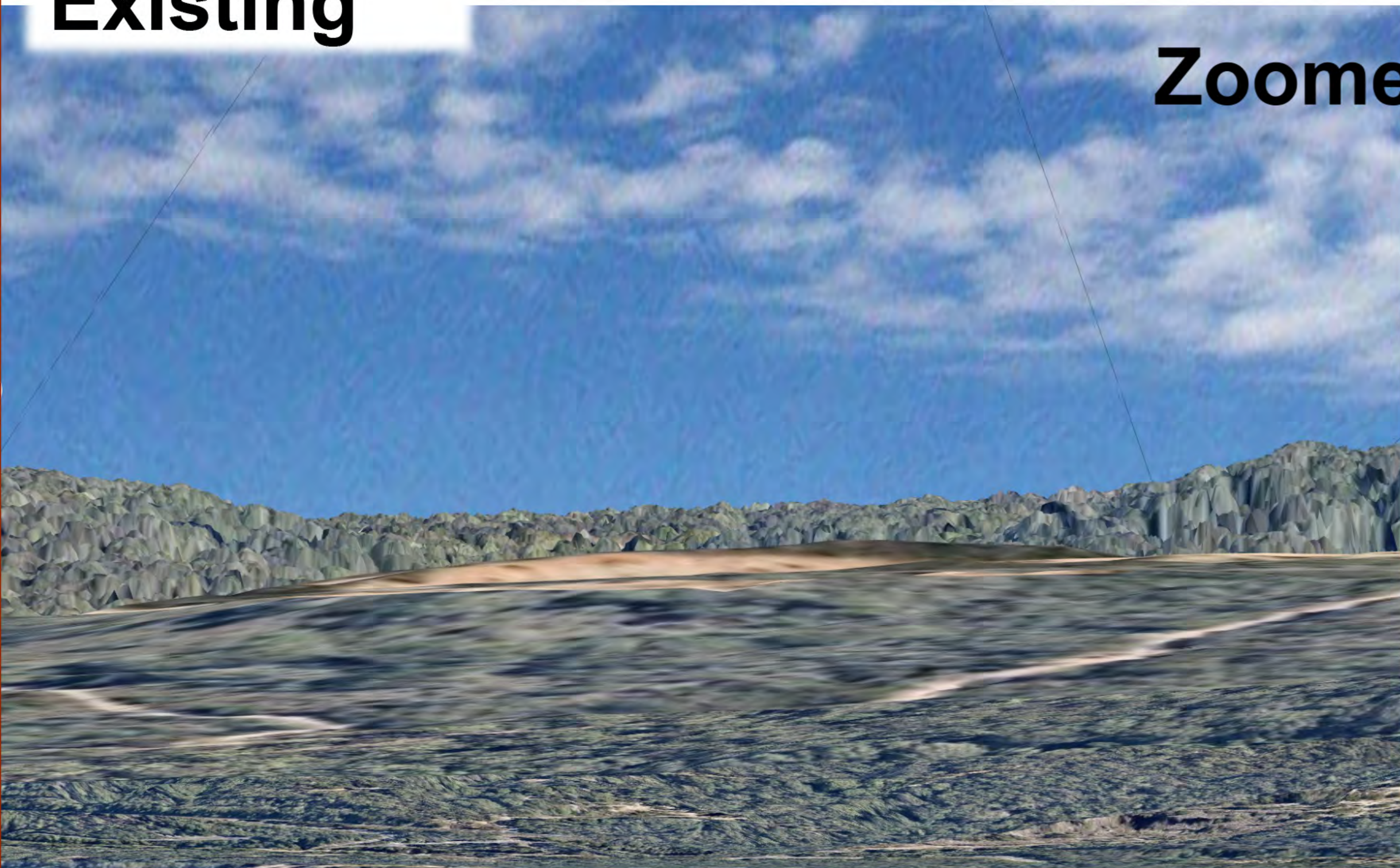


Figure 30

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

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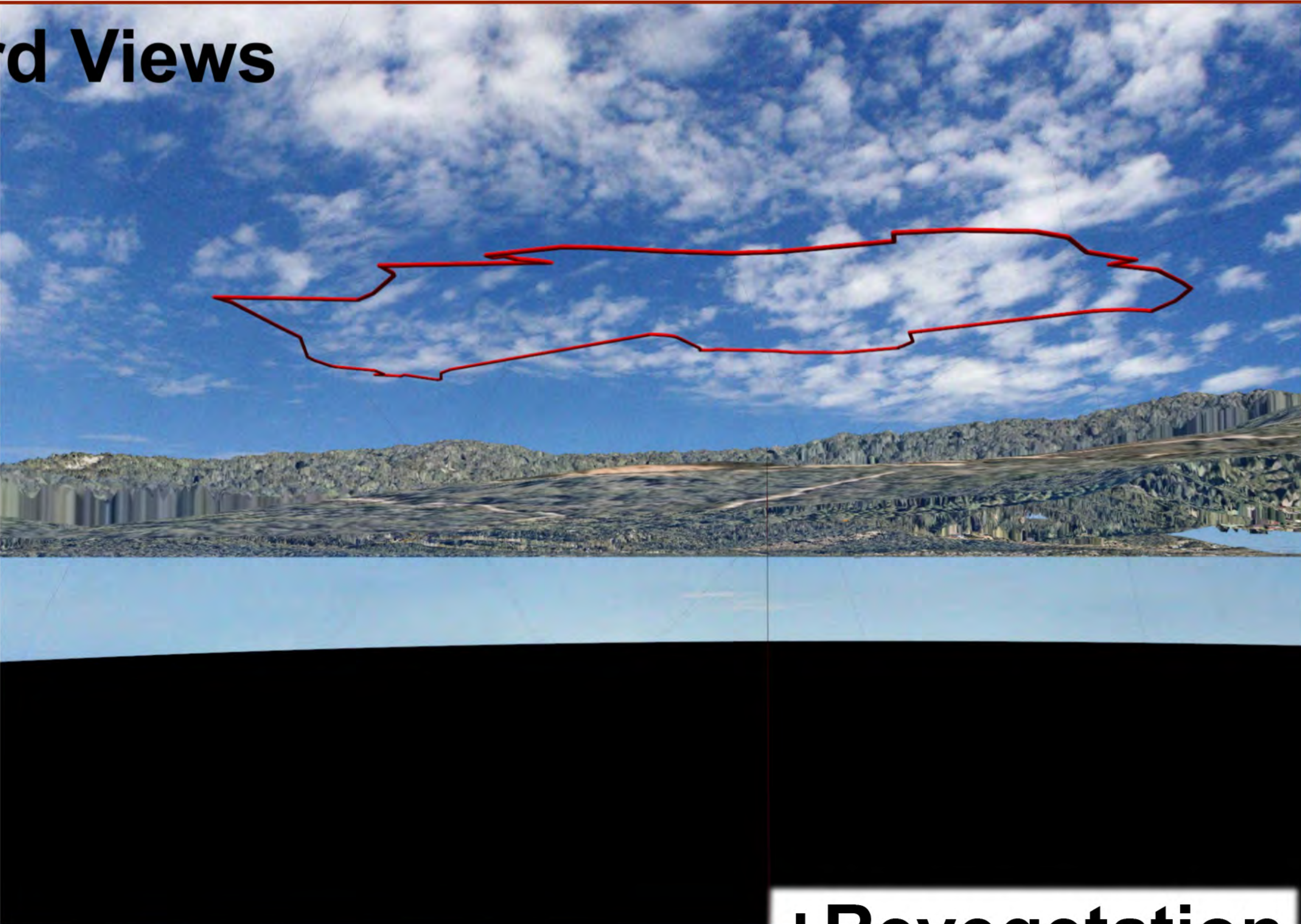
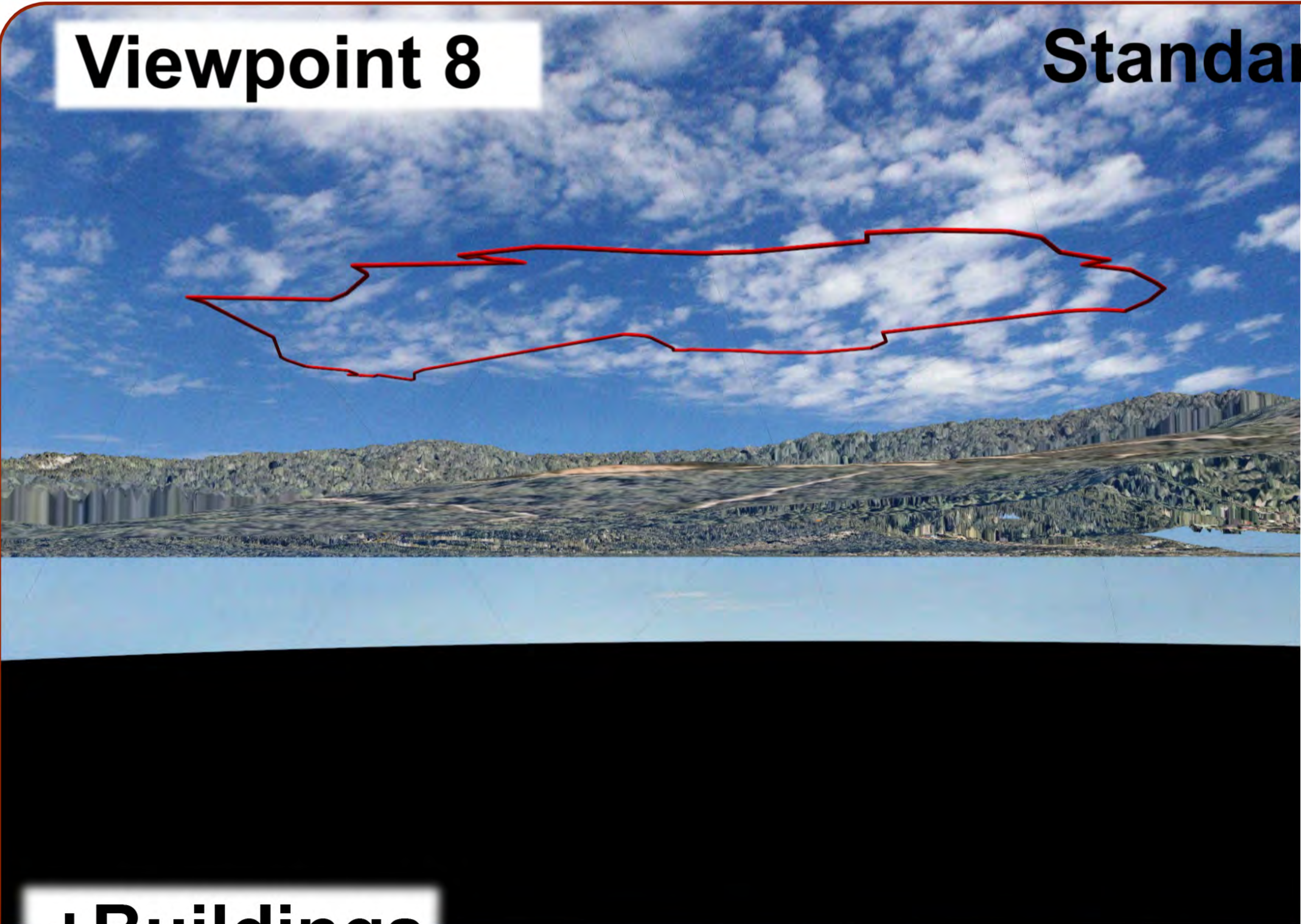
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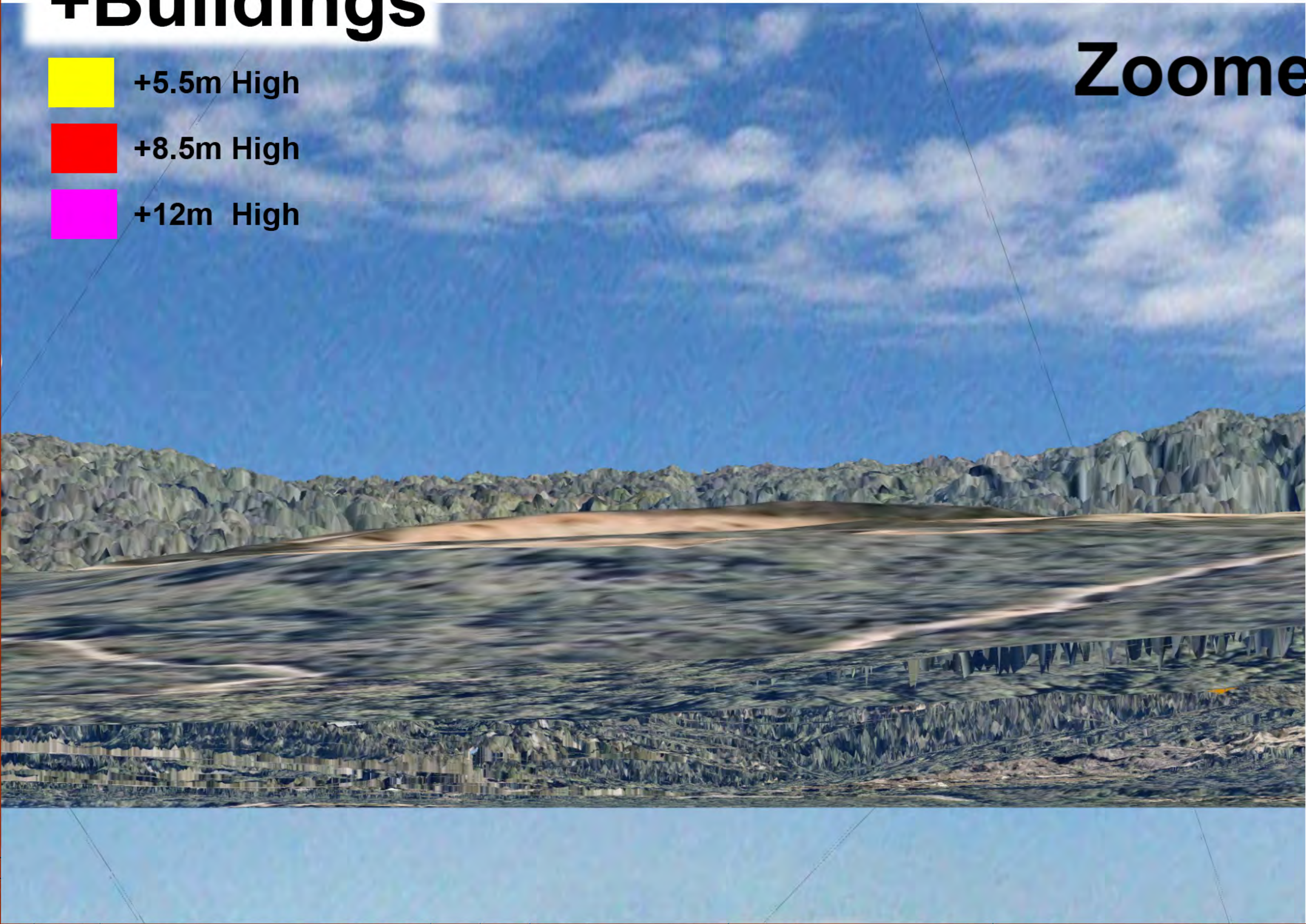
Viewpoint 8

Standard Views



+Buildings

- +5.5m High
- +8.5m High
- +12m High



Zoomed Views

+Revegetation

10 Year Growth - Advanced Stock



Figure 31

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

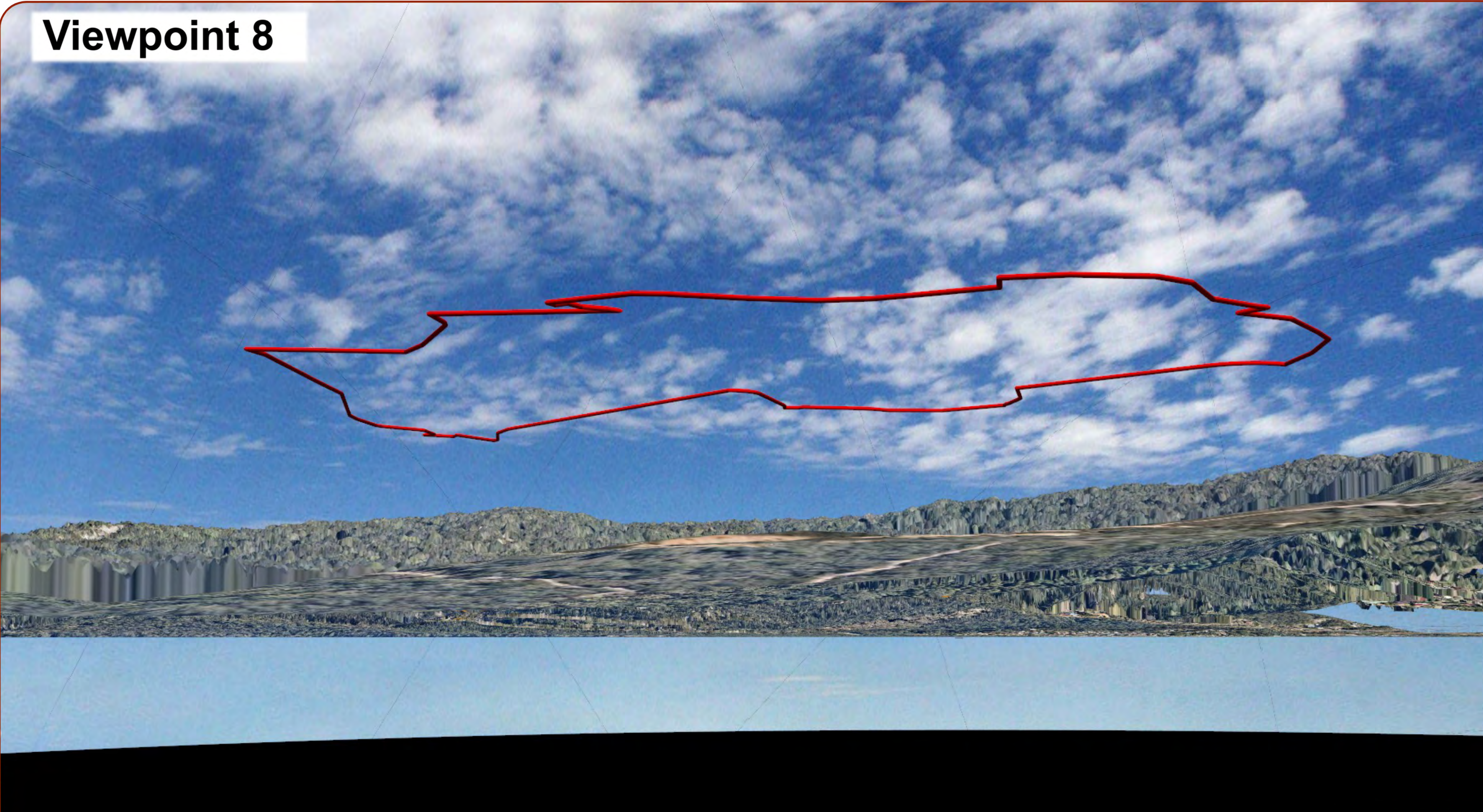
council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

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sydney office ph: (02) 8046 7411
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Viewpoint 8



drawing title:

Figure 32

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

WAKEFIELD ASHURST



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sydney office ph: (02) 8046 7411

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Viewpoint 9

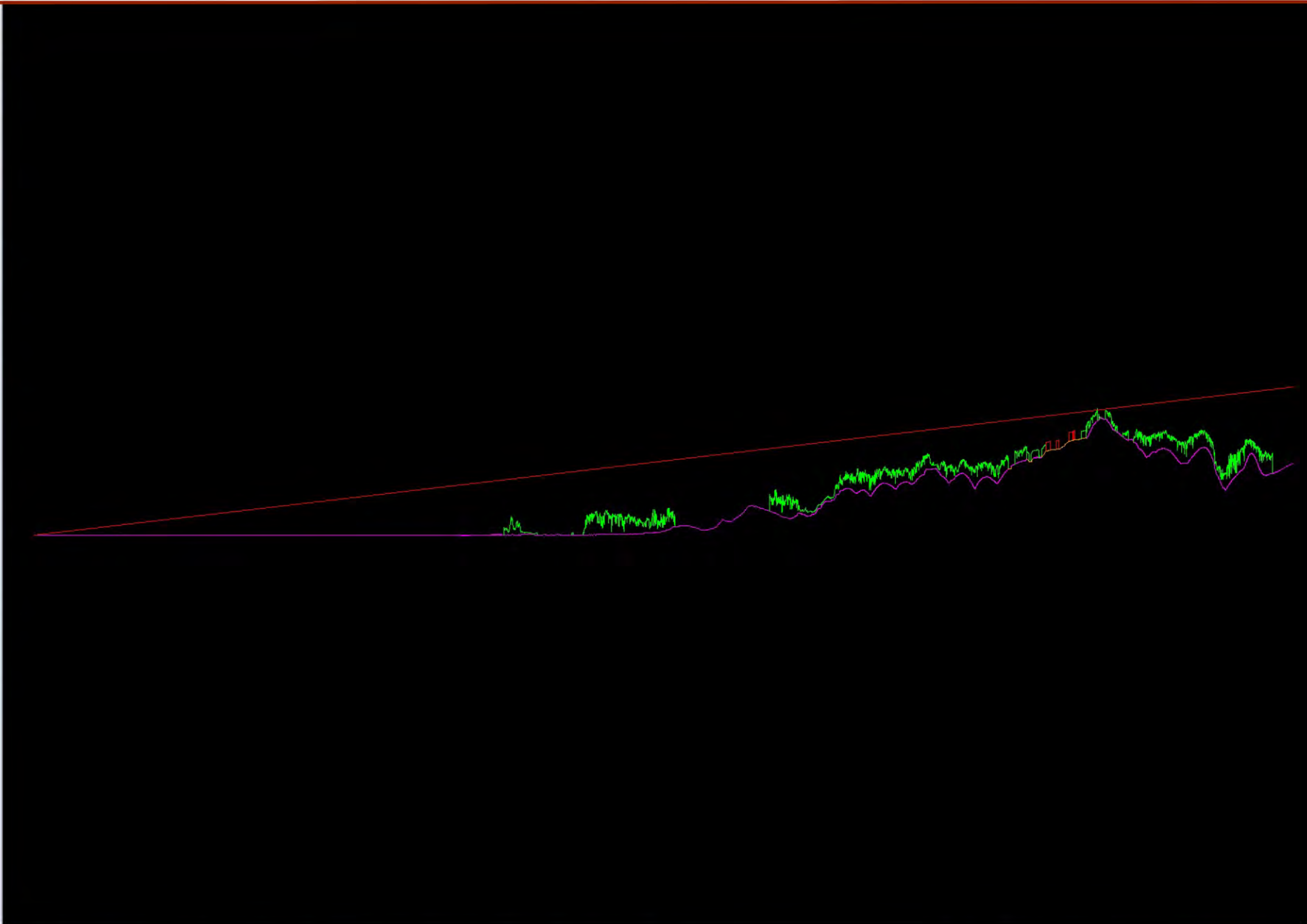
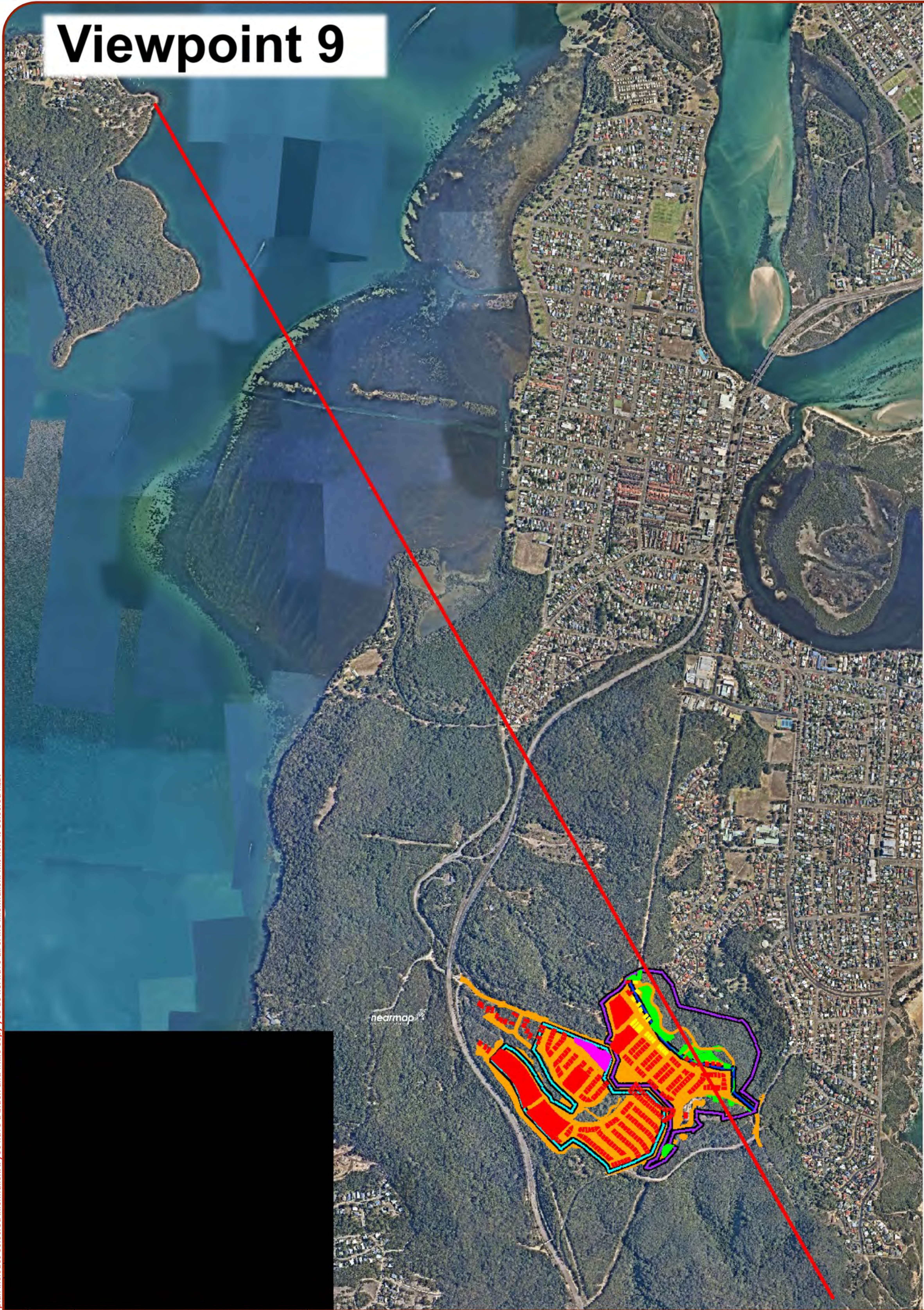


Figure 33

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client: WAKEFIELD ASHURST

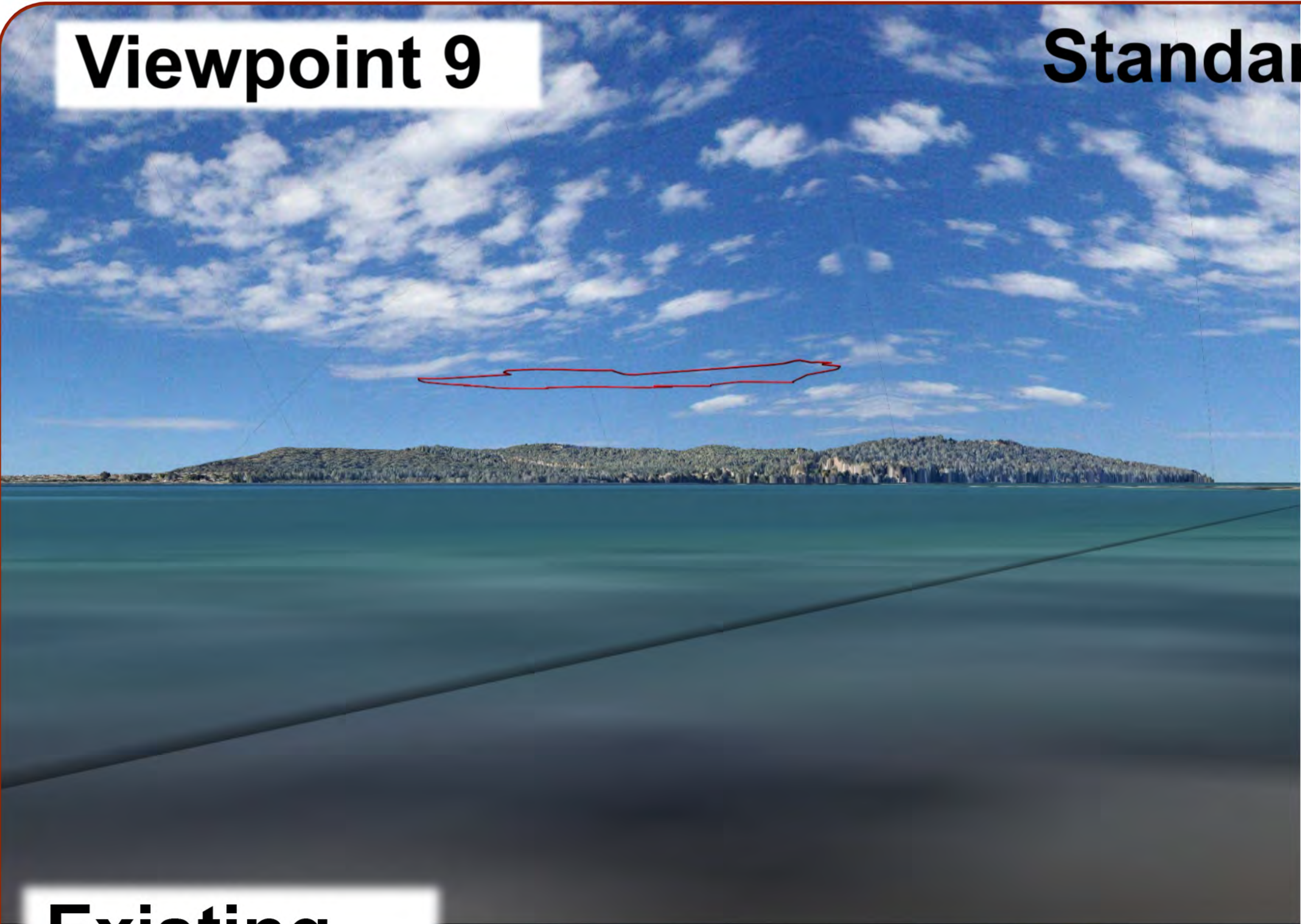
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working beyond expectations

Viewpoint 9

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

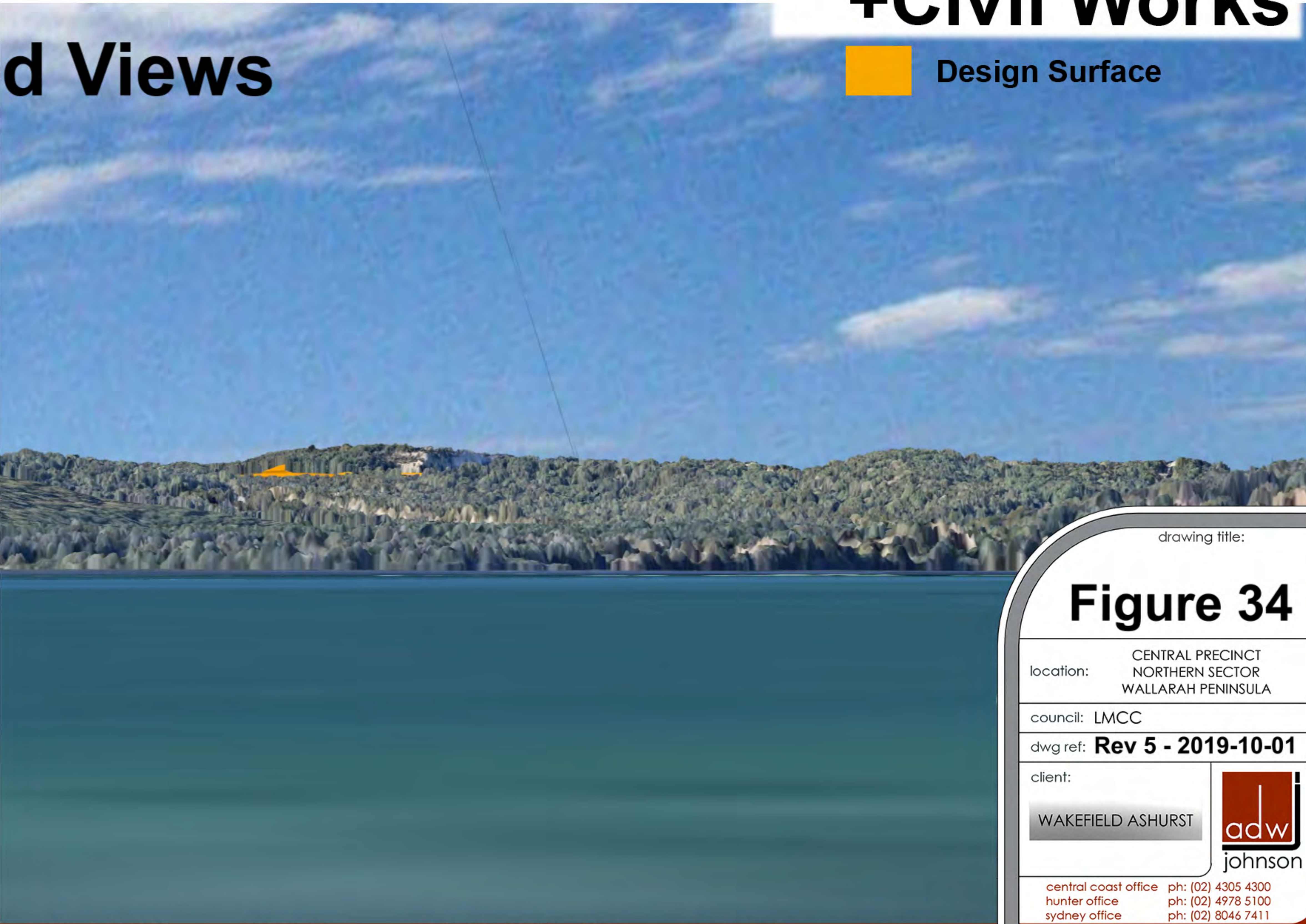
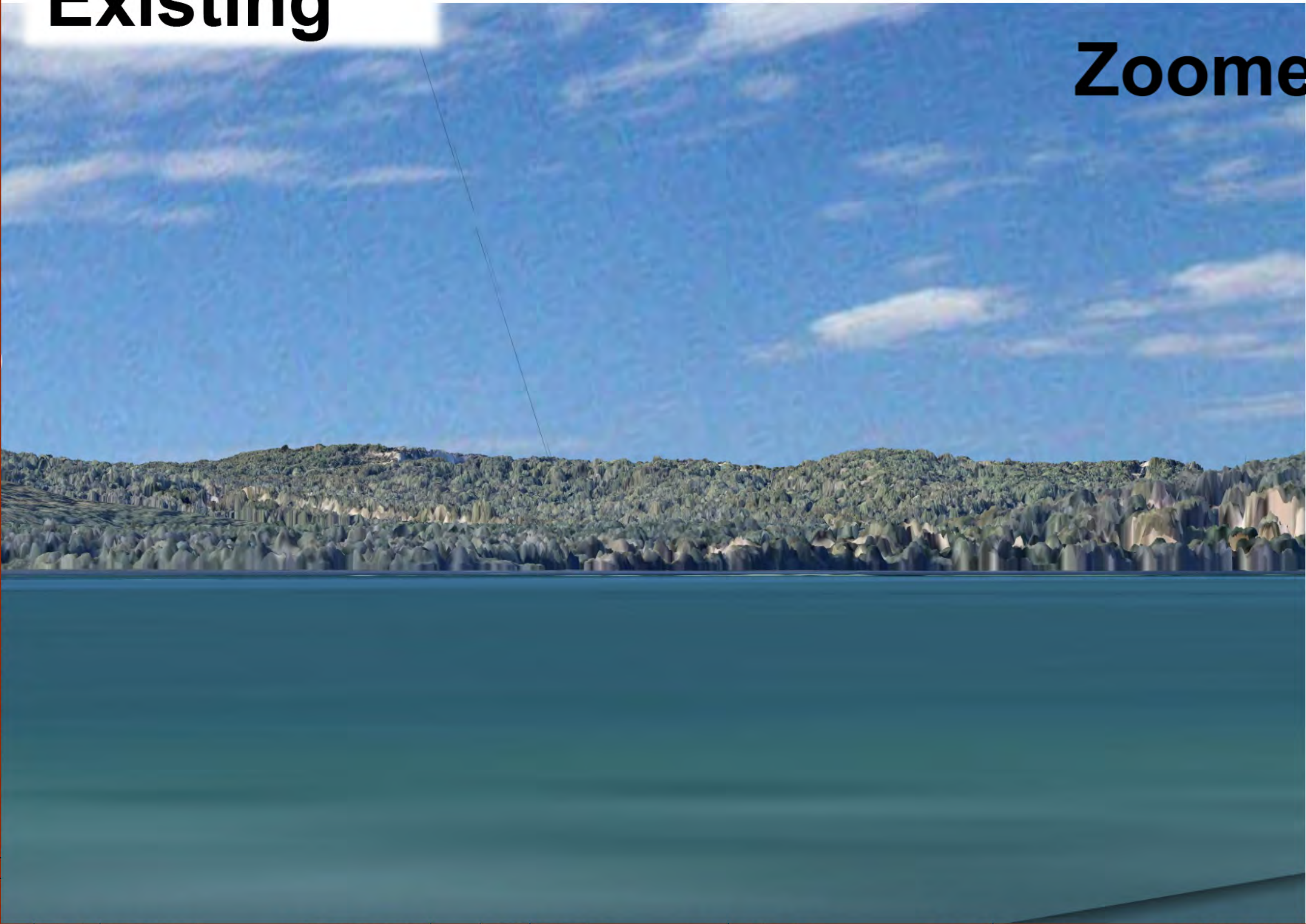


Figure 34

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

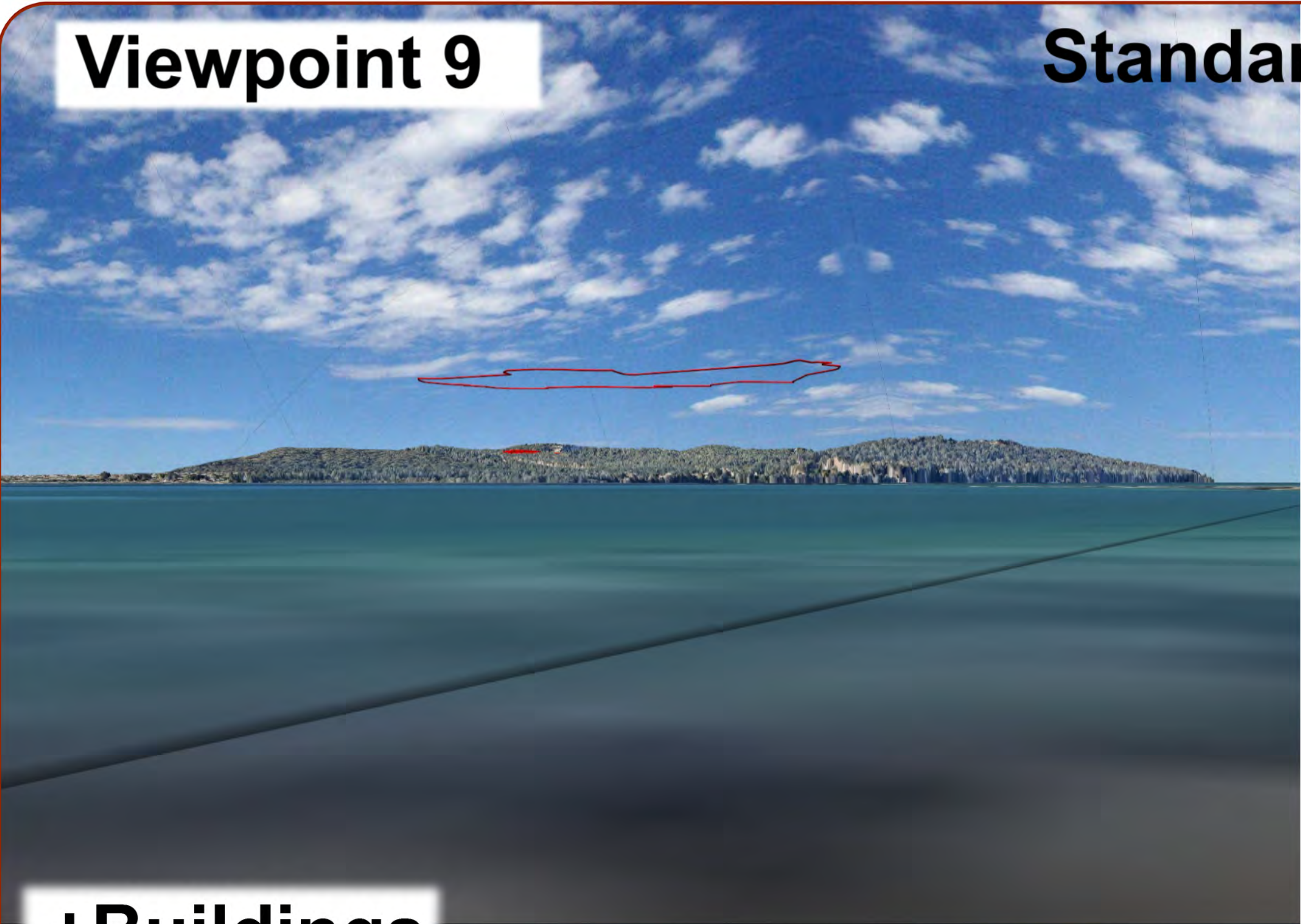
client: WAKEFIELD ASHURST

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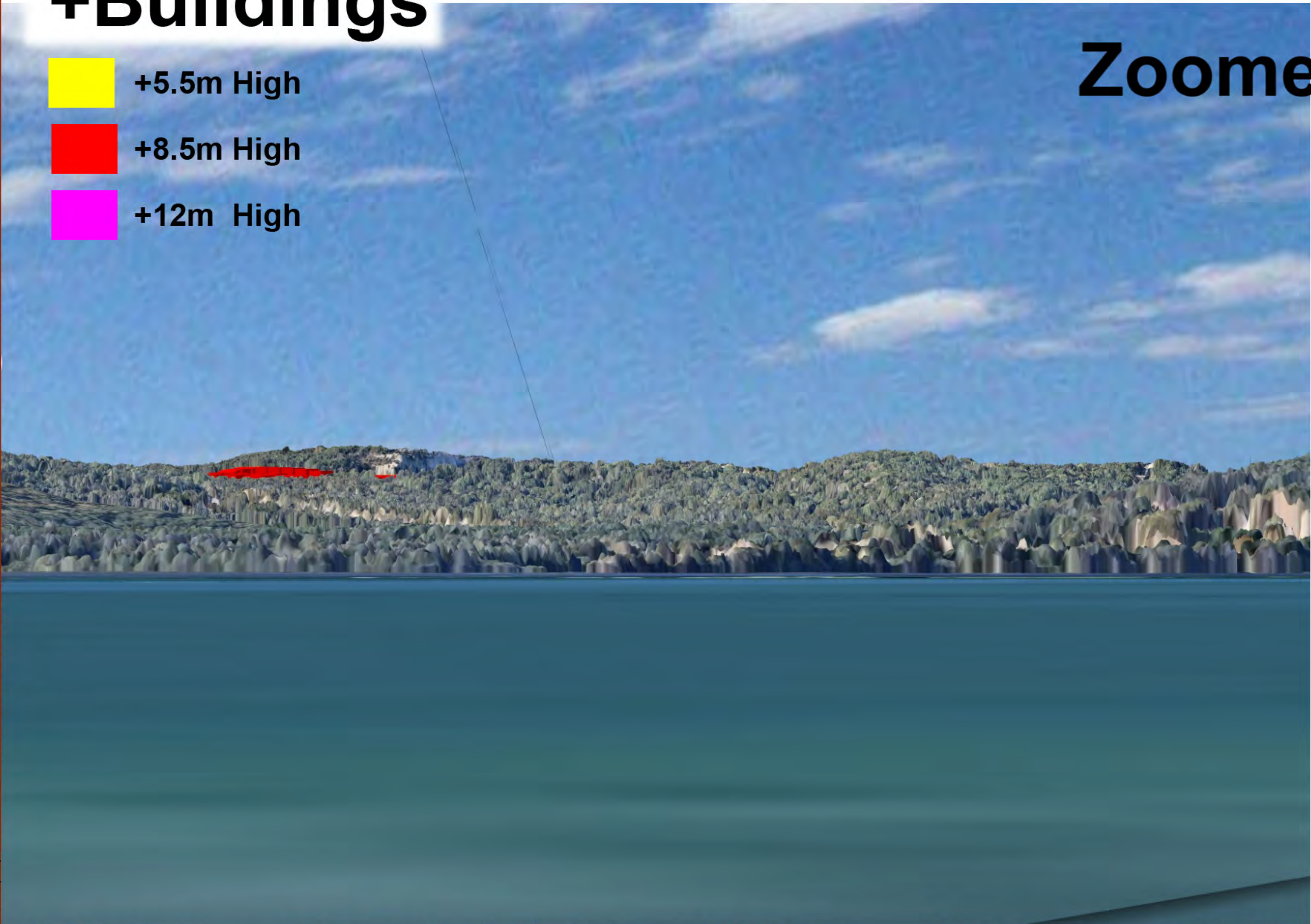
Viewpoint 9

Standard Views

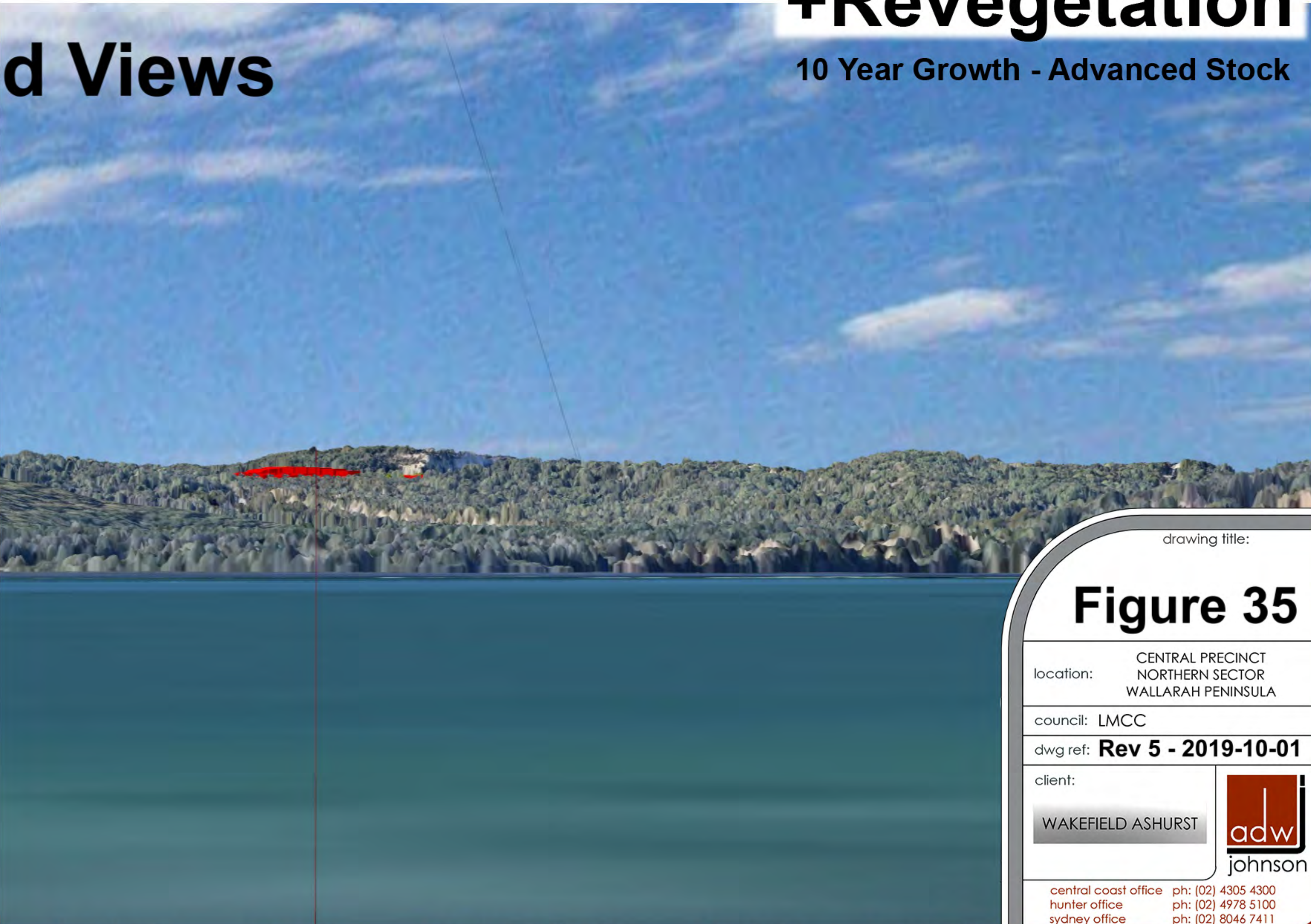


+Buildings

- +5.5m High
- +8.5m High
- +12m High



Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock

Figure 35

location:

CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council:

LMCC

dwg ref:

Rev 5 - 2019-10-01

client:

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working beyond expectations

Viewpoint 9



drawing title:

Figure 36

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST



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hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411
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Viewpoint 10

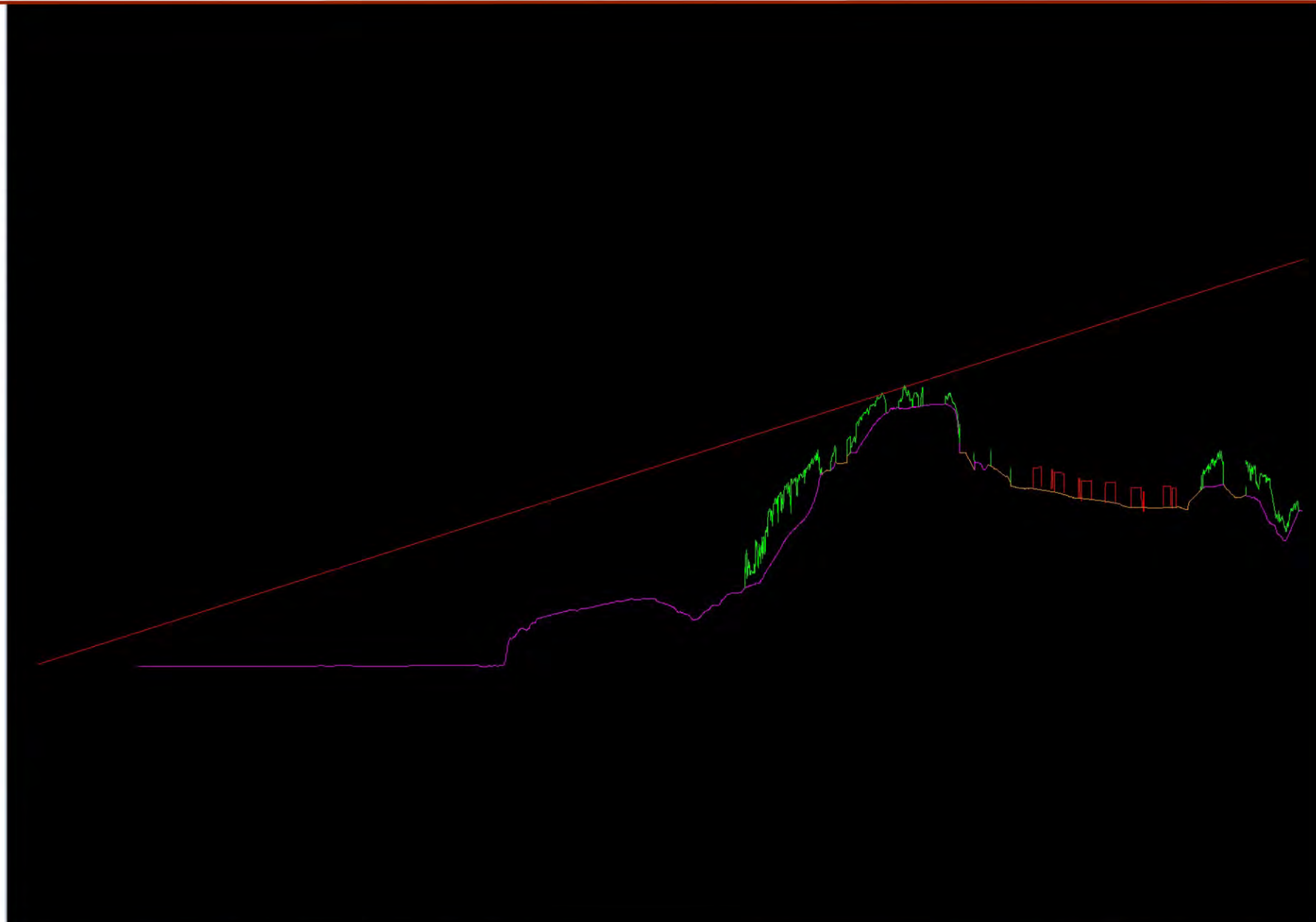
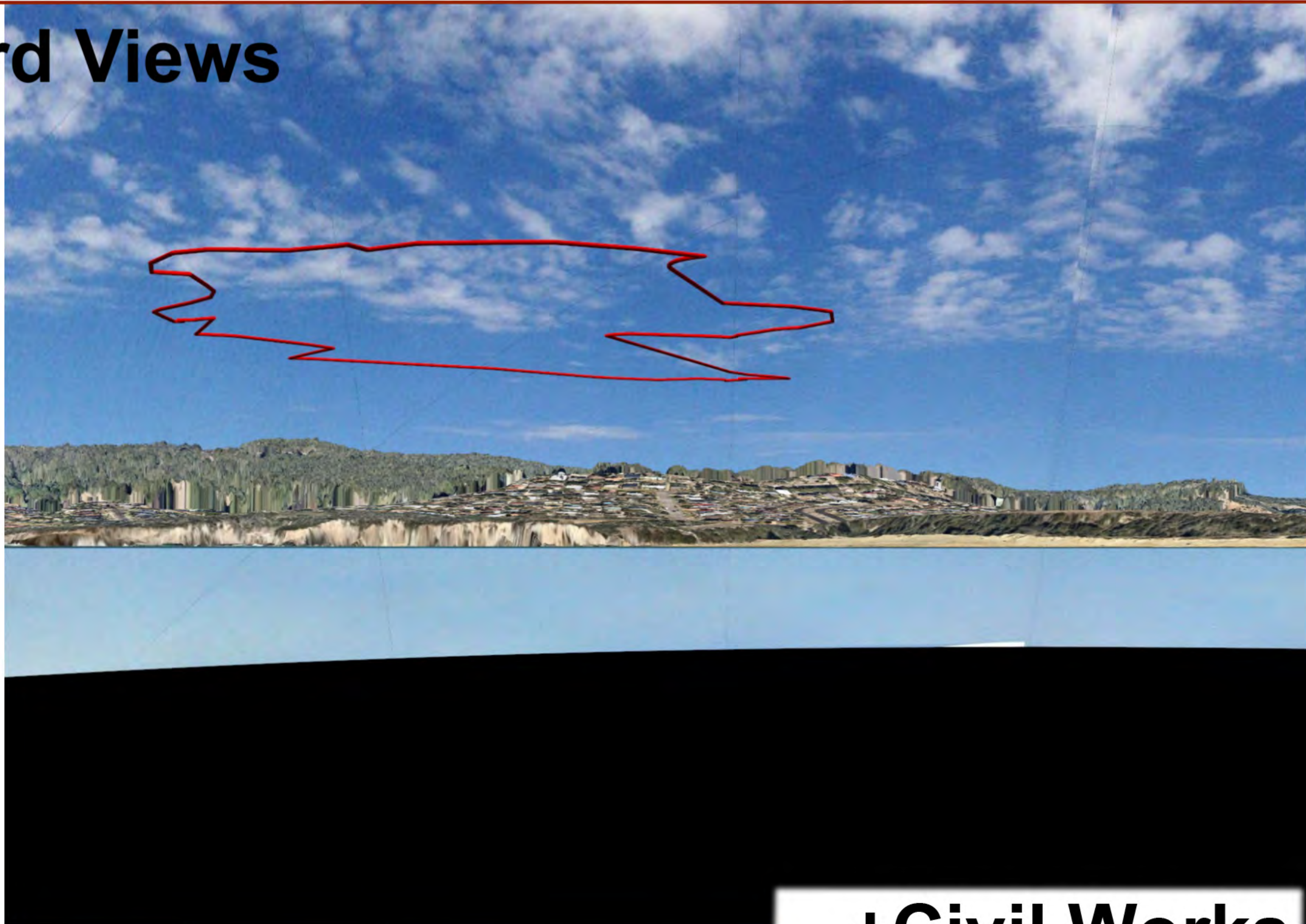
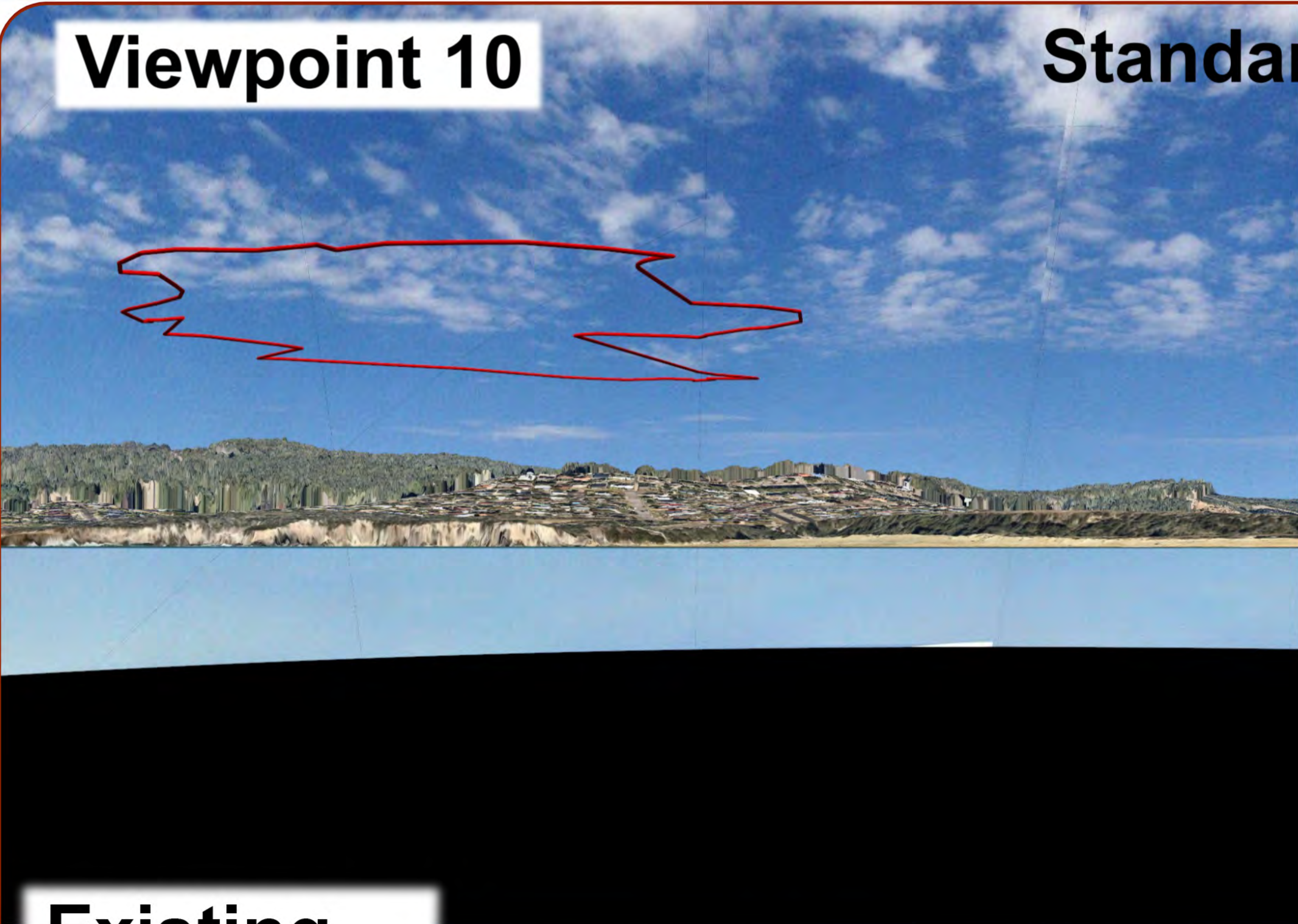


Figure 37

drawing title:	
location: CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA	
council: LMCC	
dwg ref: Rev 5 - 2019-10-01	
client:	
WAKEFIELD ASHURST	
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sydney office ph: (02) 8046 7411	
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Viewpoint 10

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

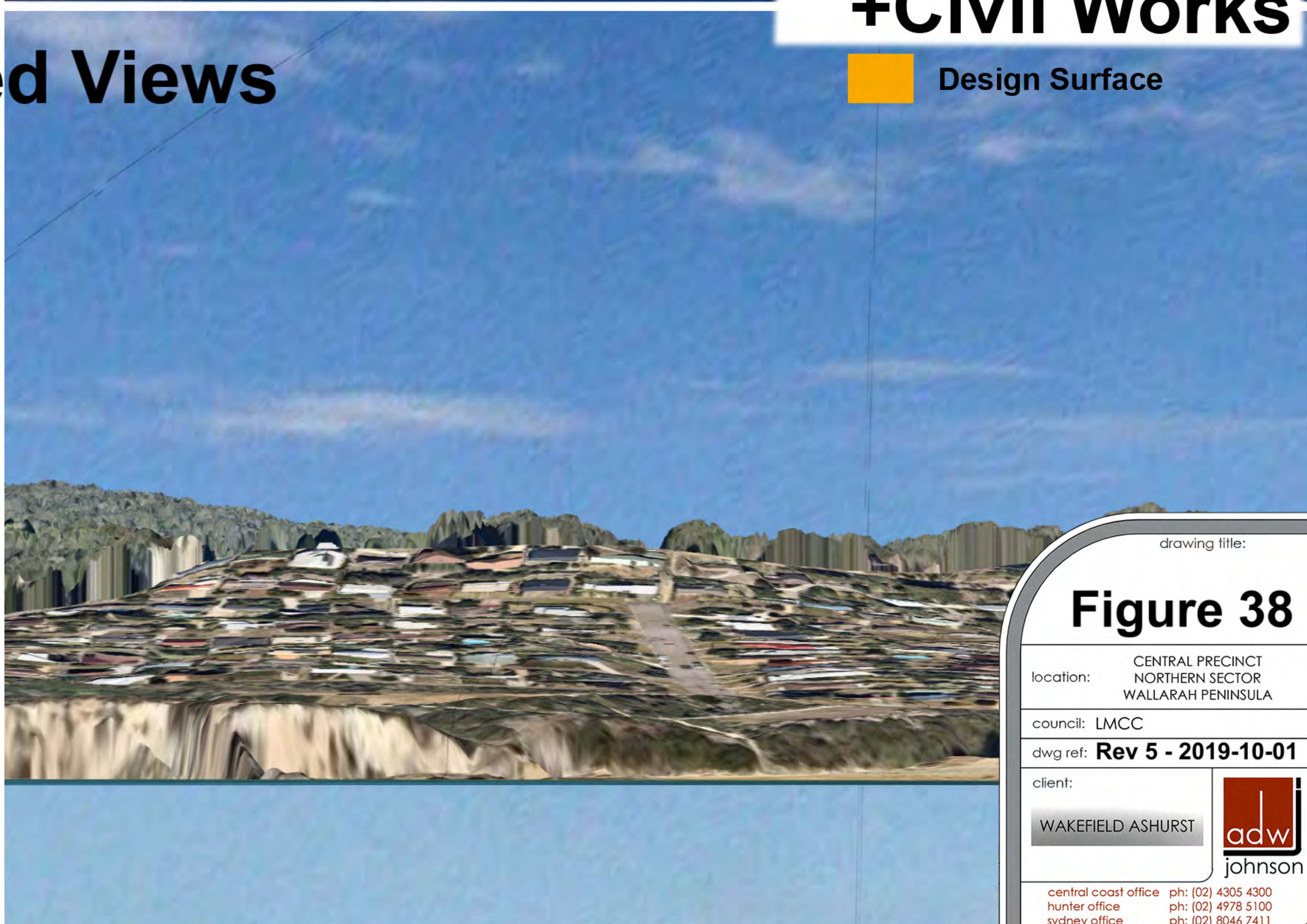
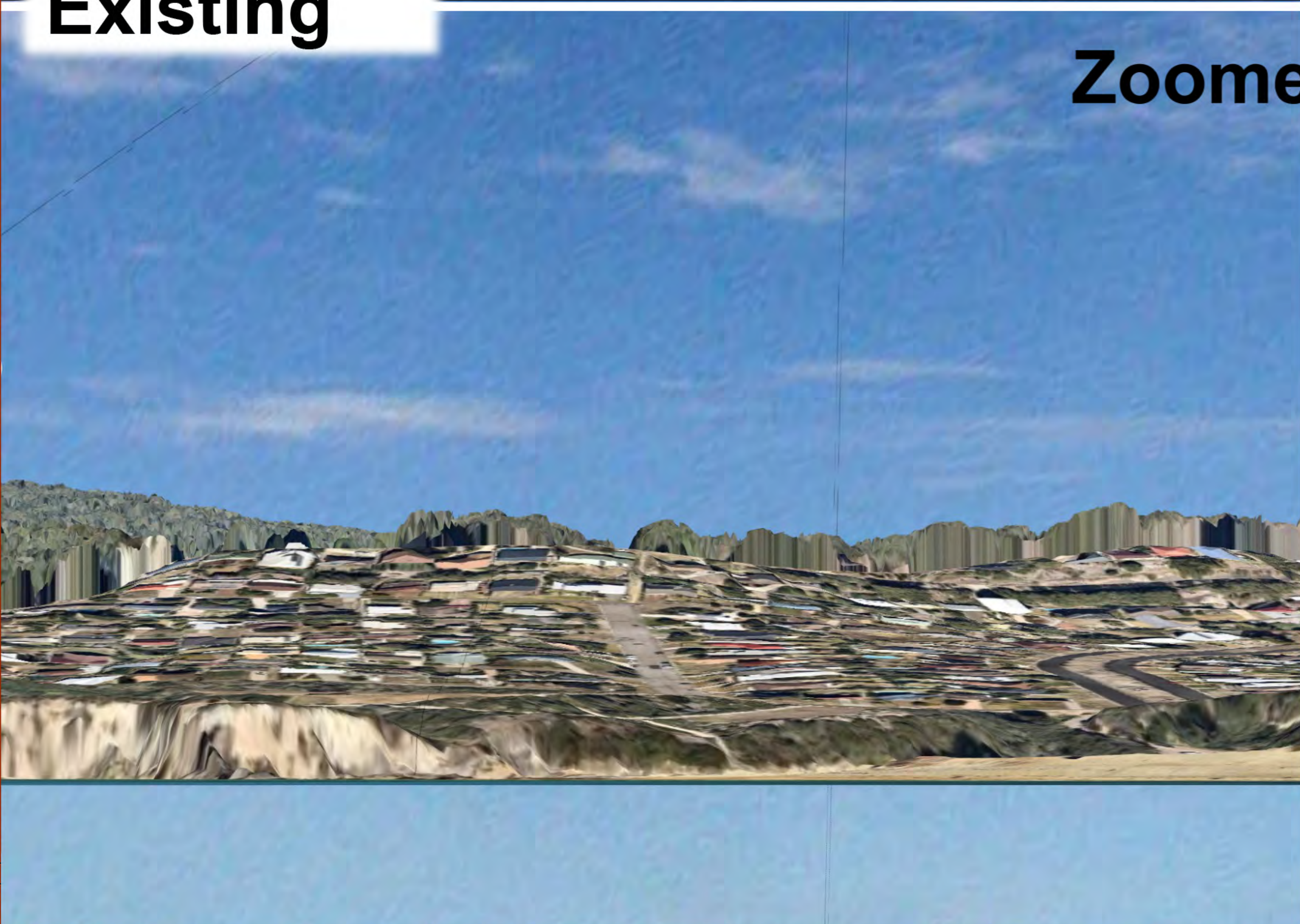
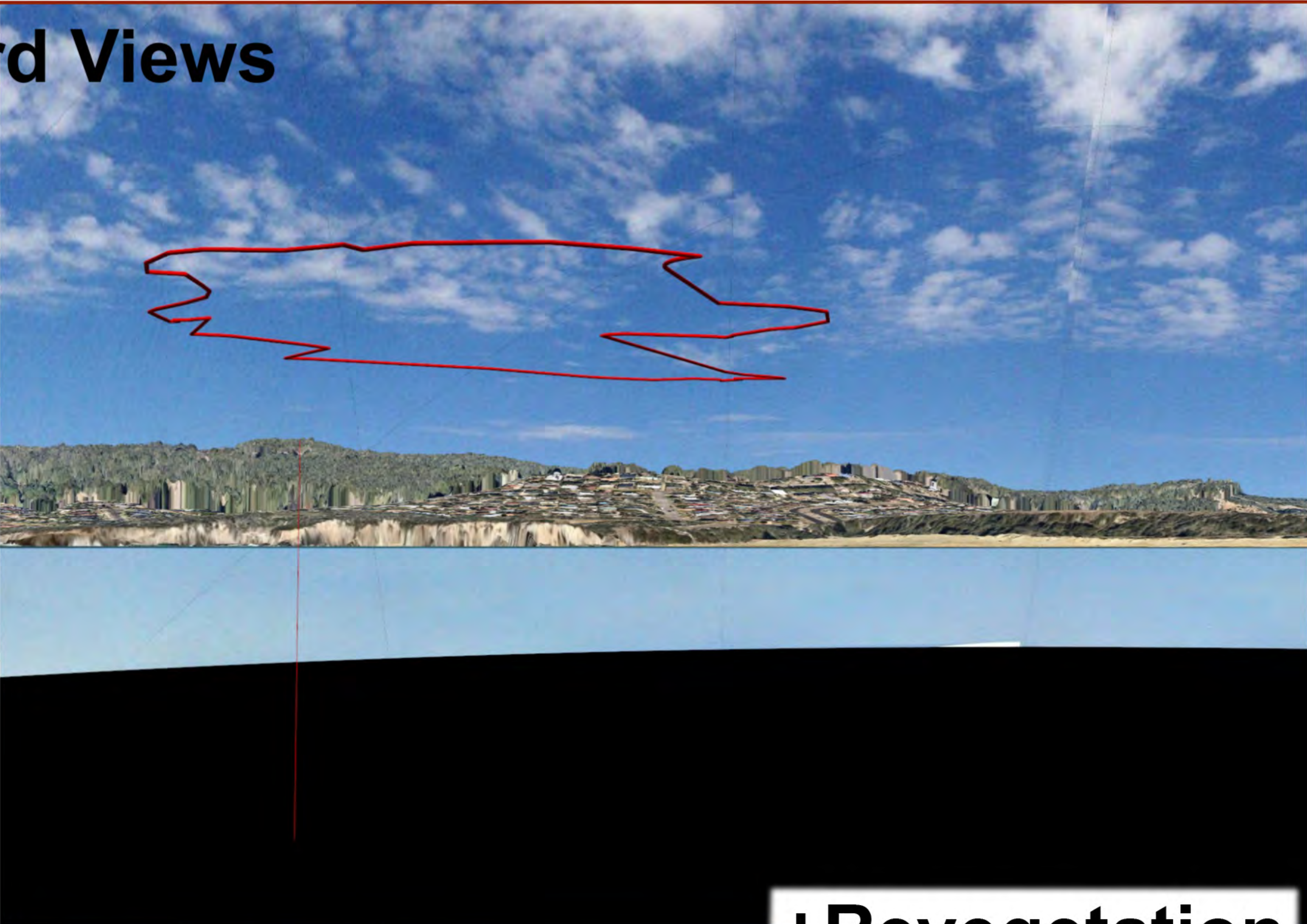
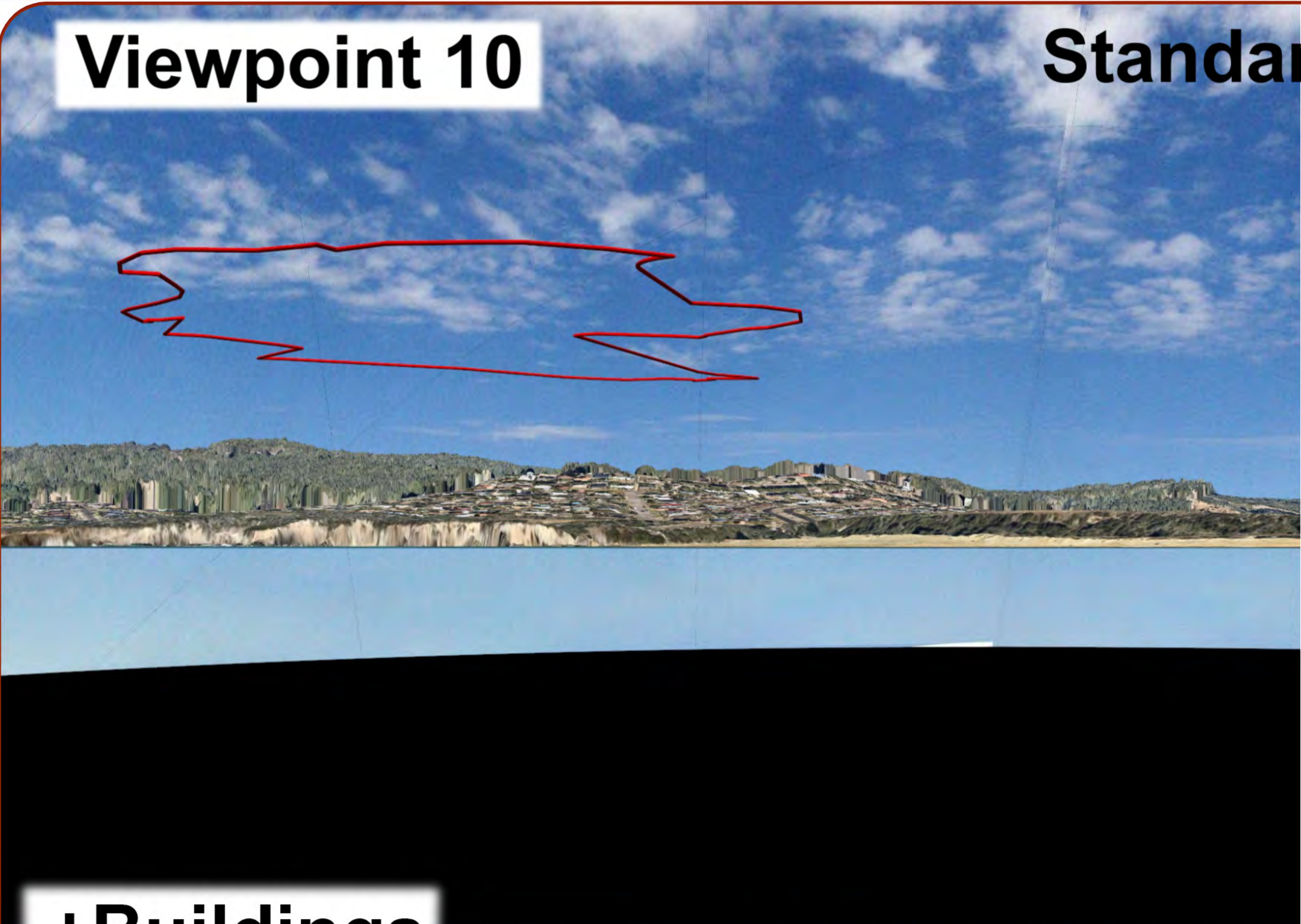


Figure 38

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA
council: LMCC
dwg ref: Rev 5 - 2019-10-01
client: WAKEFIELD ASHURST
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hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411
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Viewpoint 10

Standard Views



+Buildings

- +5.5m High
- +8.5m High
- +12m High

+Revegetation

10 Year Growth - Advanced Stock

Zoomed Views

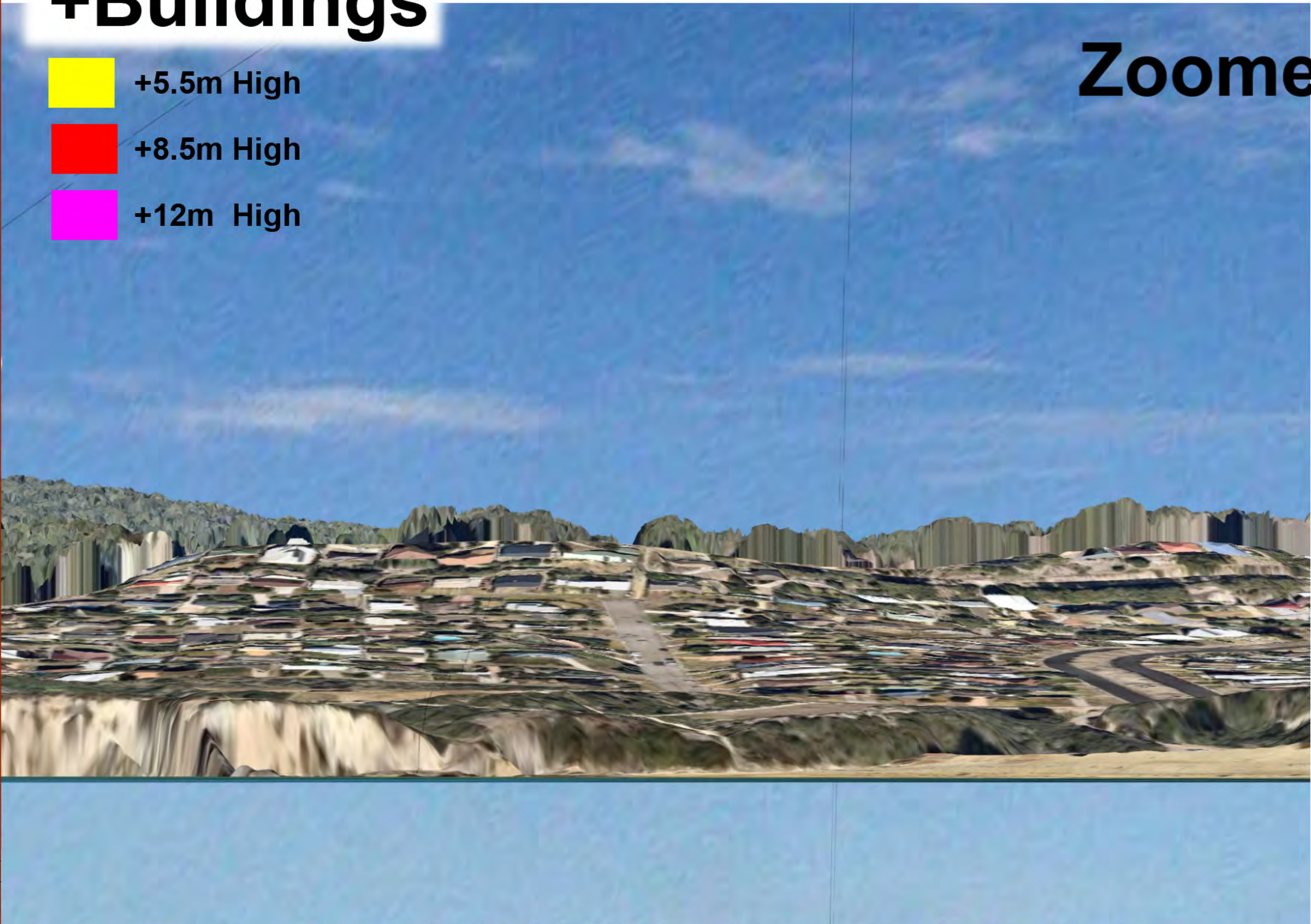


Figure 39

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

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Viewpoint 10



drawing title:

Figure 40

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

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sydney office ph: (02) 8046 7411

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Viewpoint 11

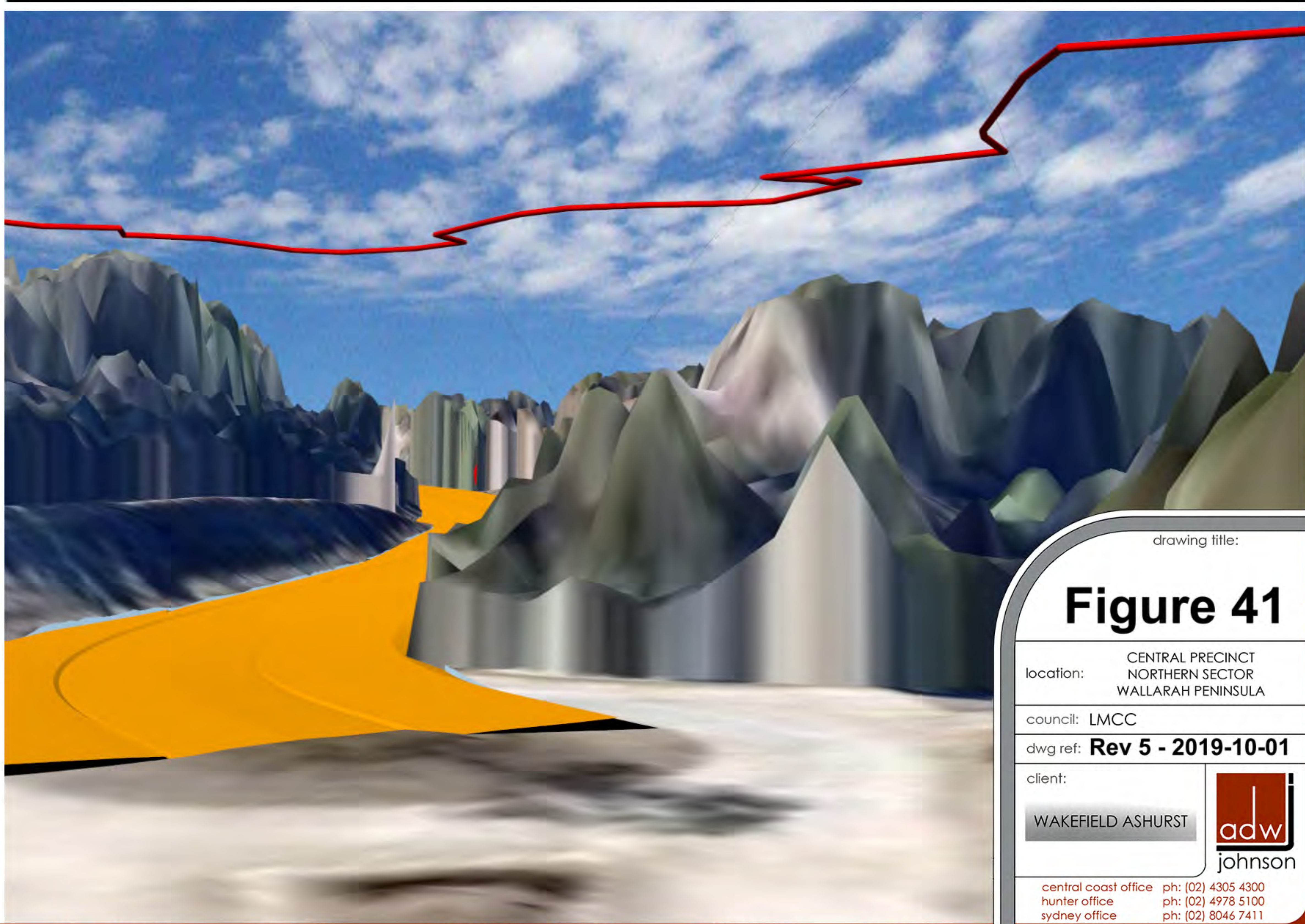
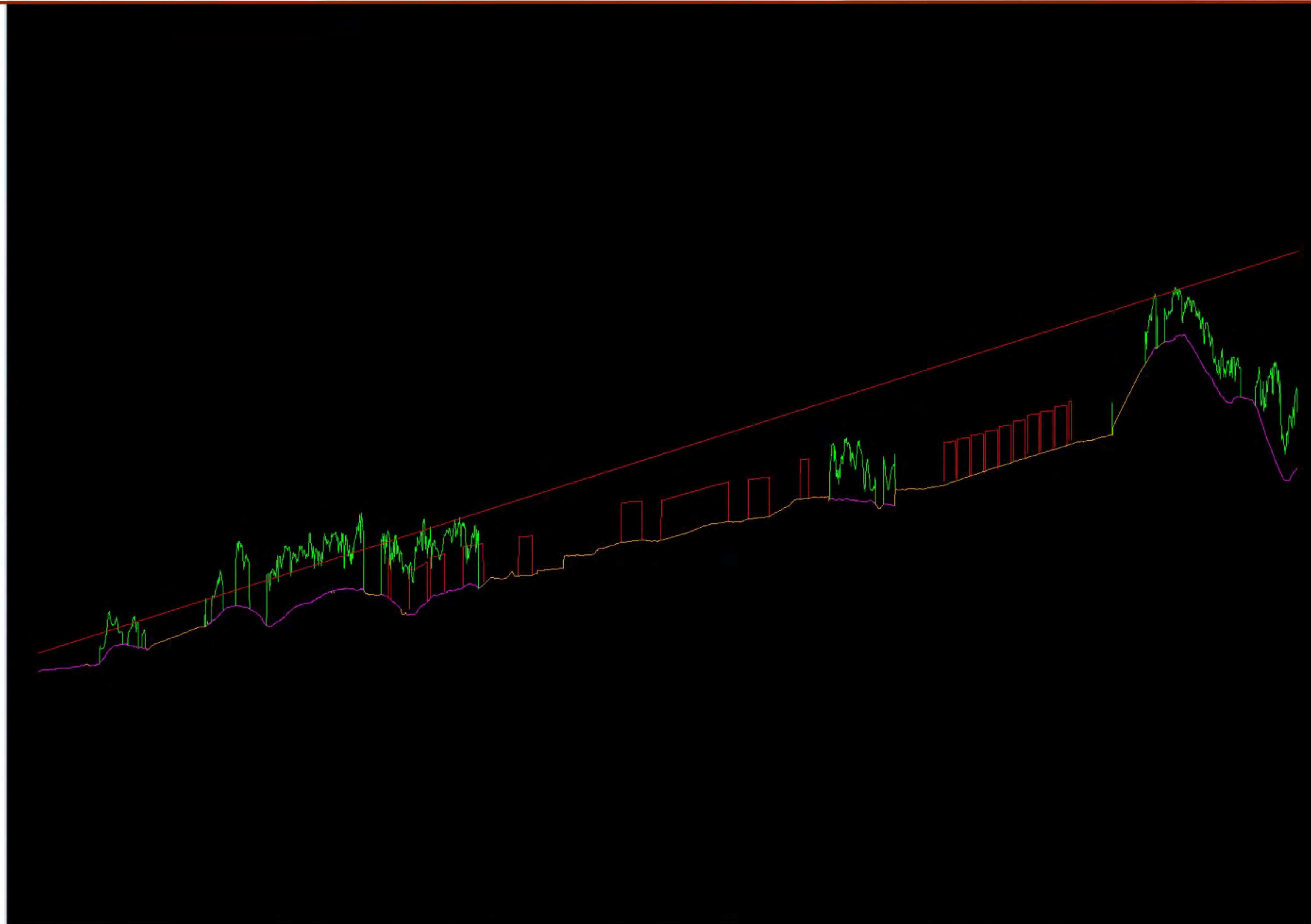
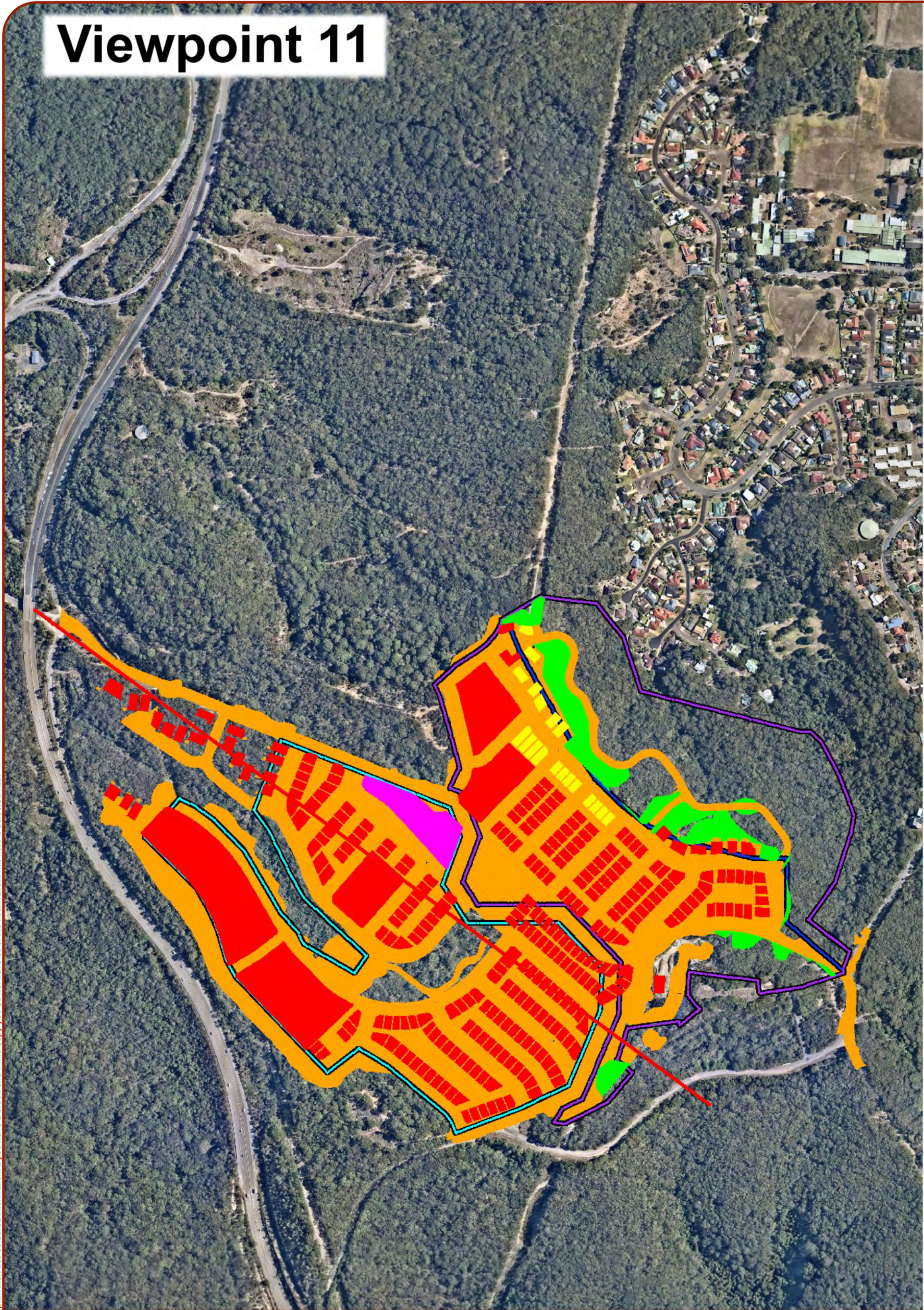


Figure 41

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

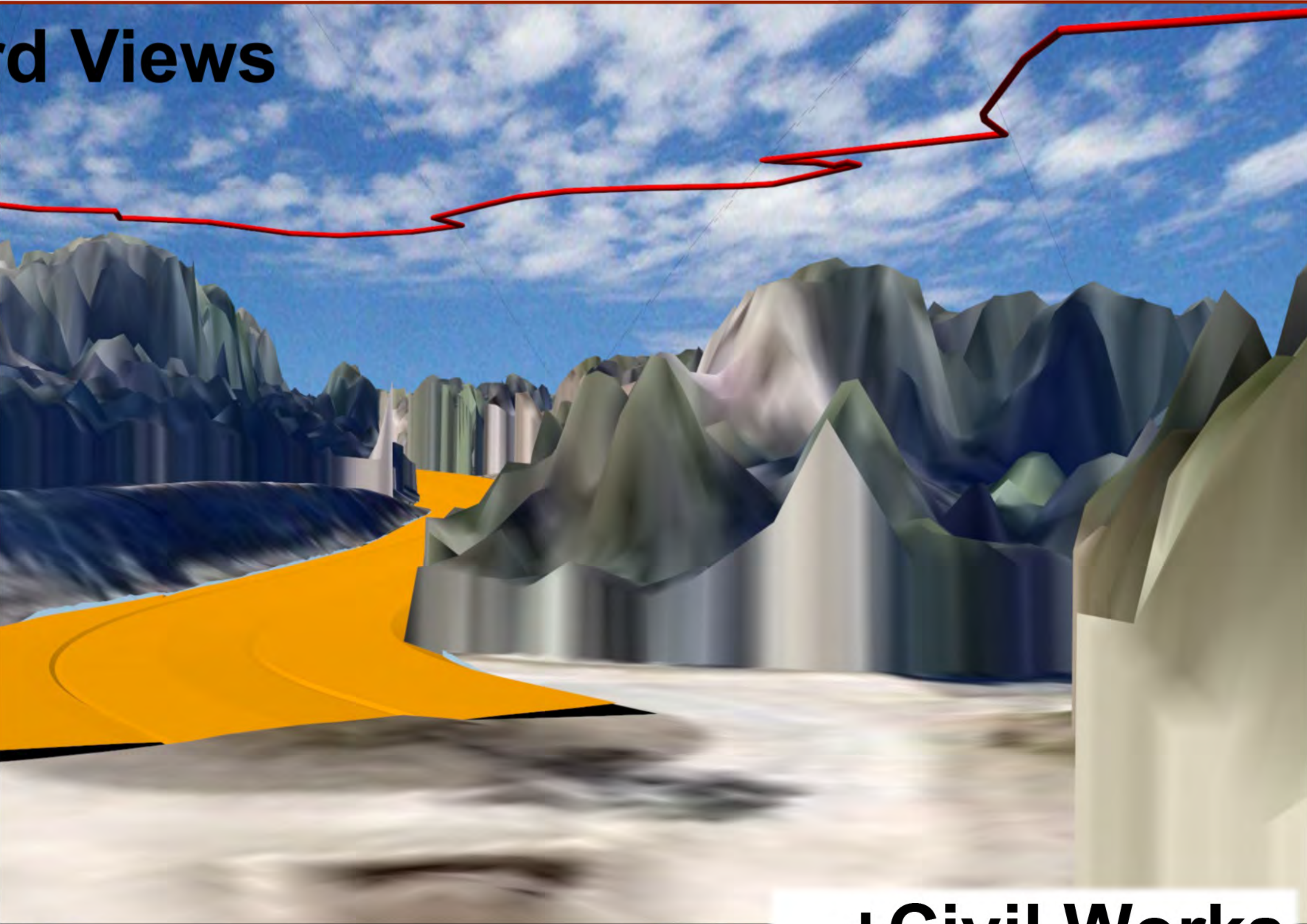
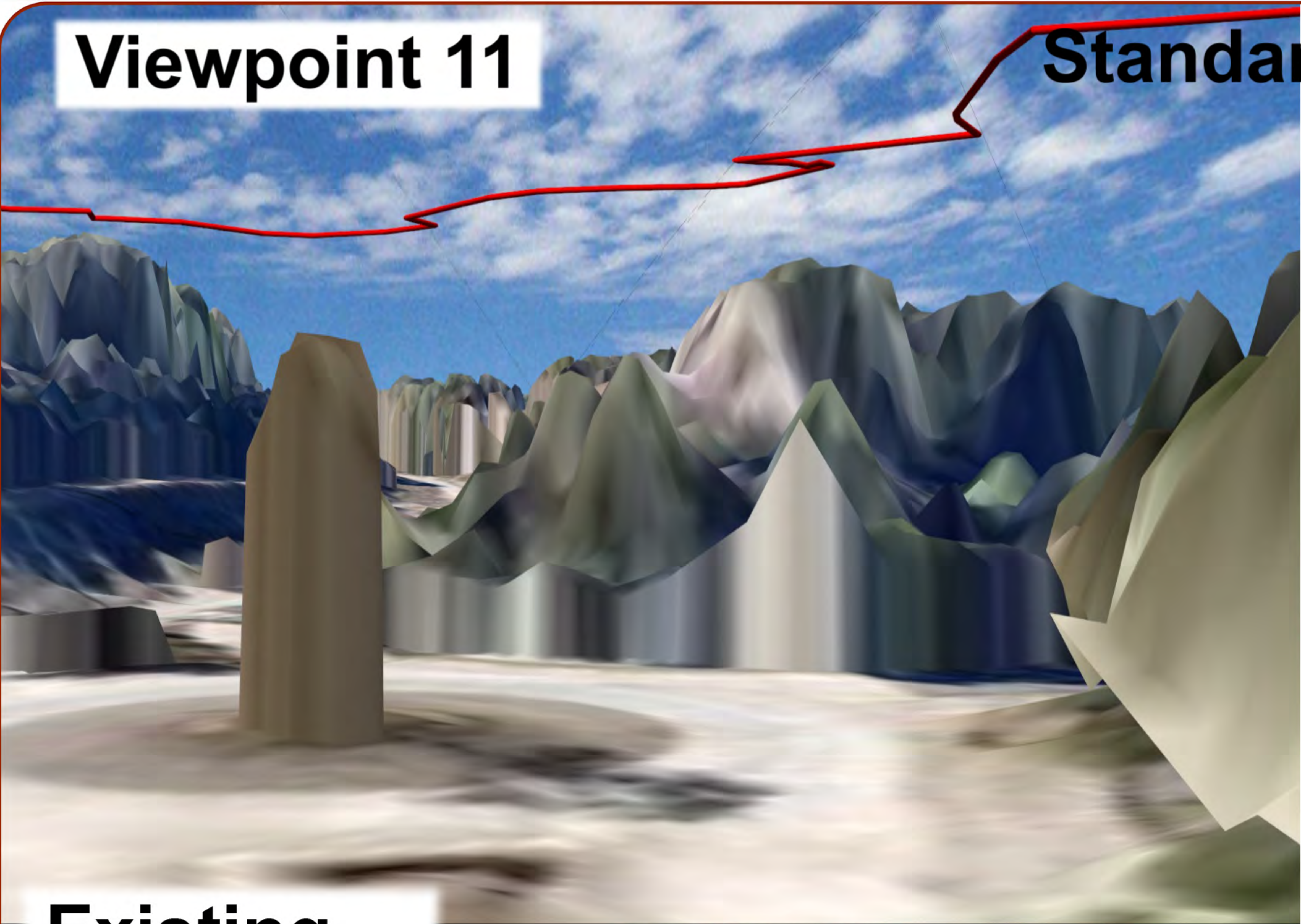
WAKEFIELD ASHURST



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Viewpoint 11

Standard Views



Existing

+Civil Works

Design Surface

Wide Angle

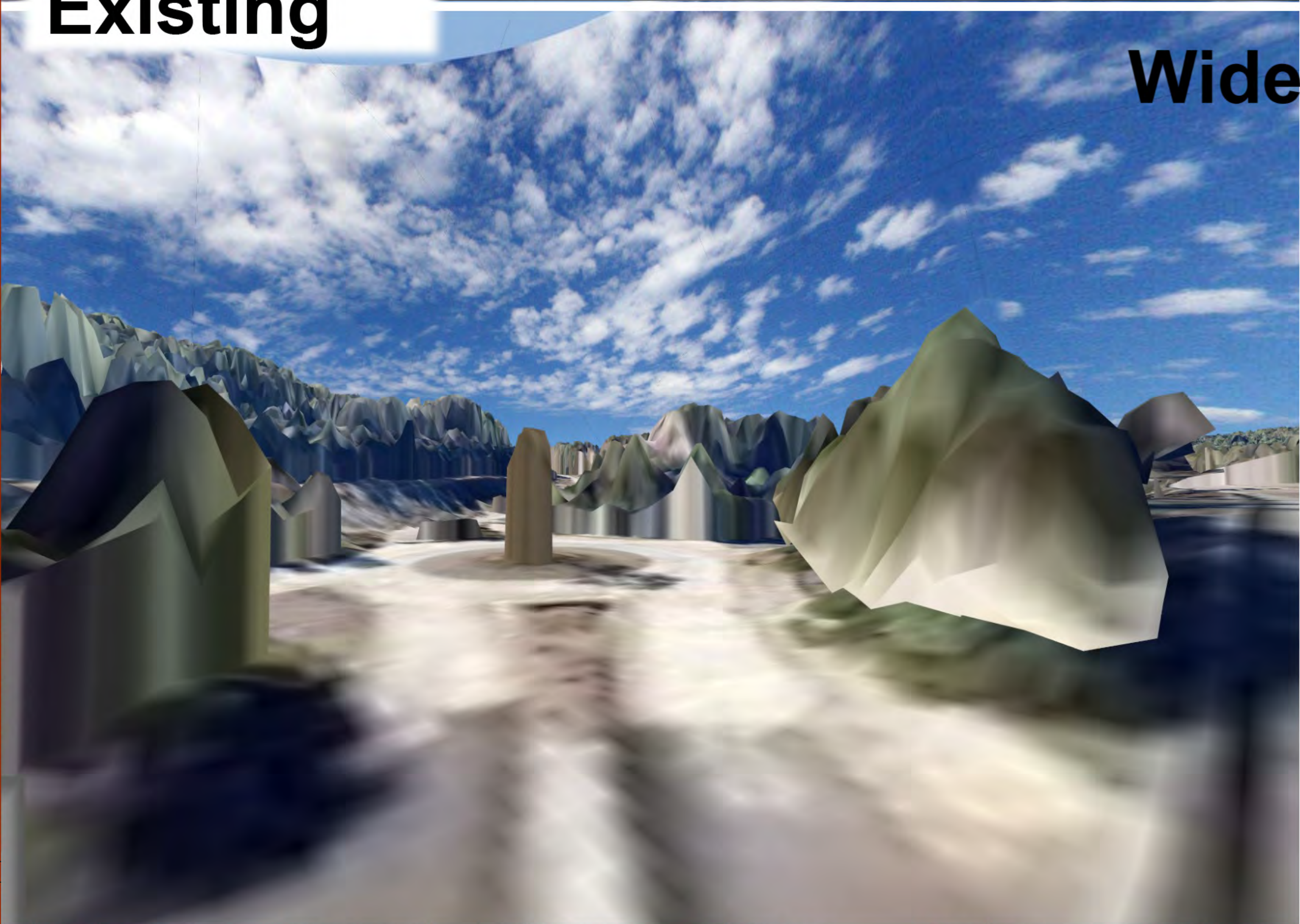


Figure 42

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

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sydney office ph: (02) 8046 7411
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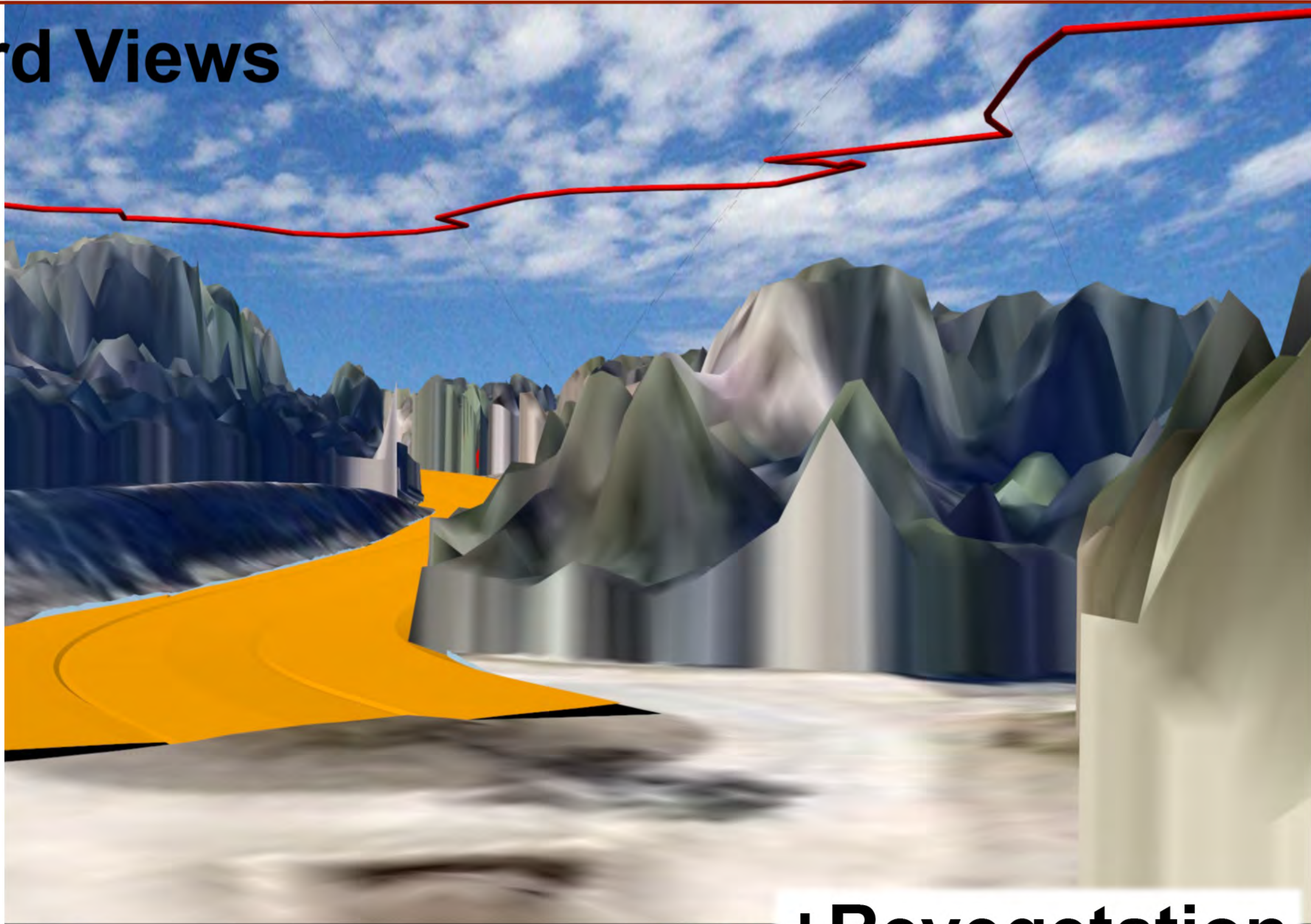
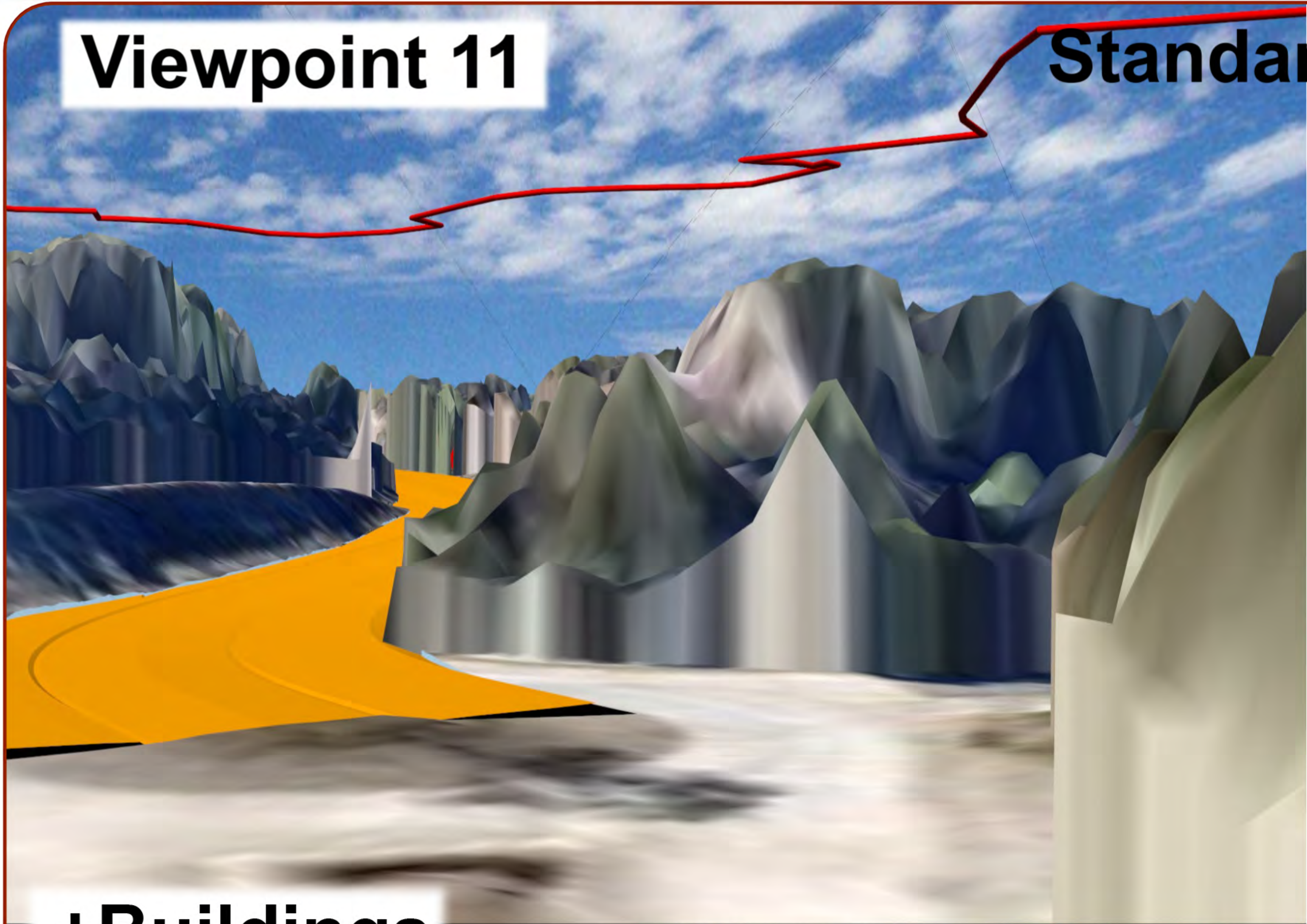
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working beyond expectations

Viewpoint 11

Standard Views



+Buildings

- +5.5m High
- +8.5m High
- +12m High

Wide Angle




+Revegetation

10 Year Growth - Advanced Stock



Figure 43


drawing title:	
location: CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA	
council: LMCC	
dwg ref: Rev 5 - 2019-10-01	
client:	
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sydney office	ph: (02) 8046 7411
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Viewpoint 11



drawing title:

Figure 44

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
	

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Viewpoint 12

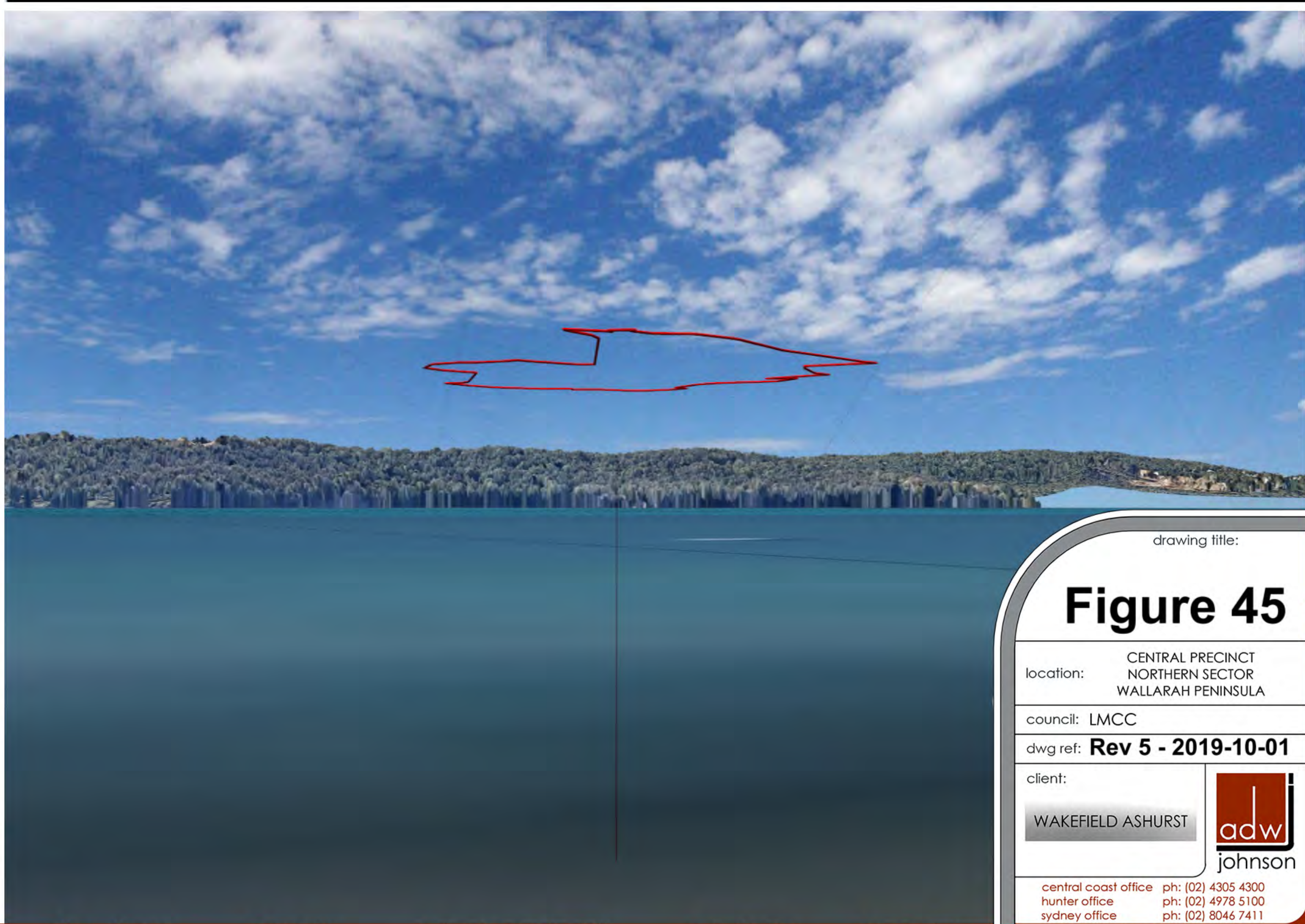
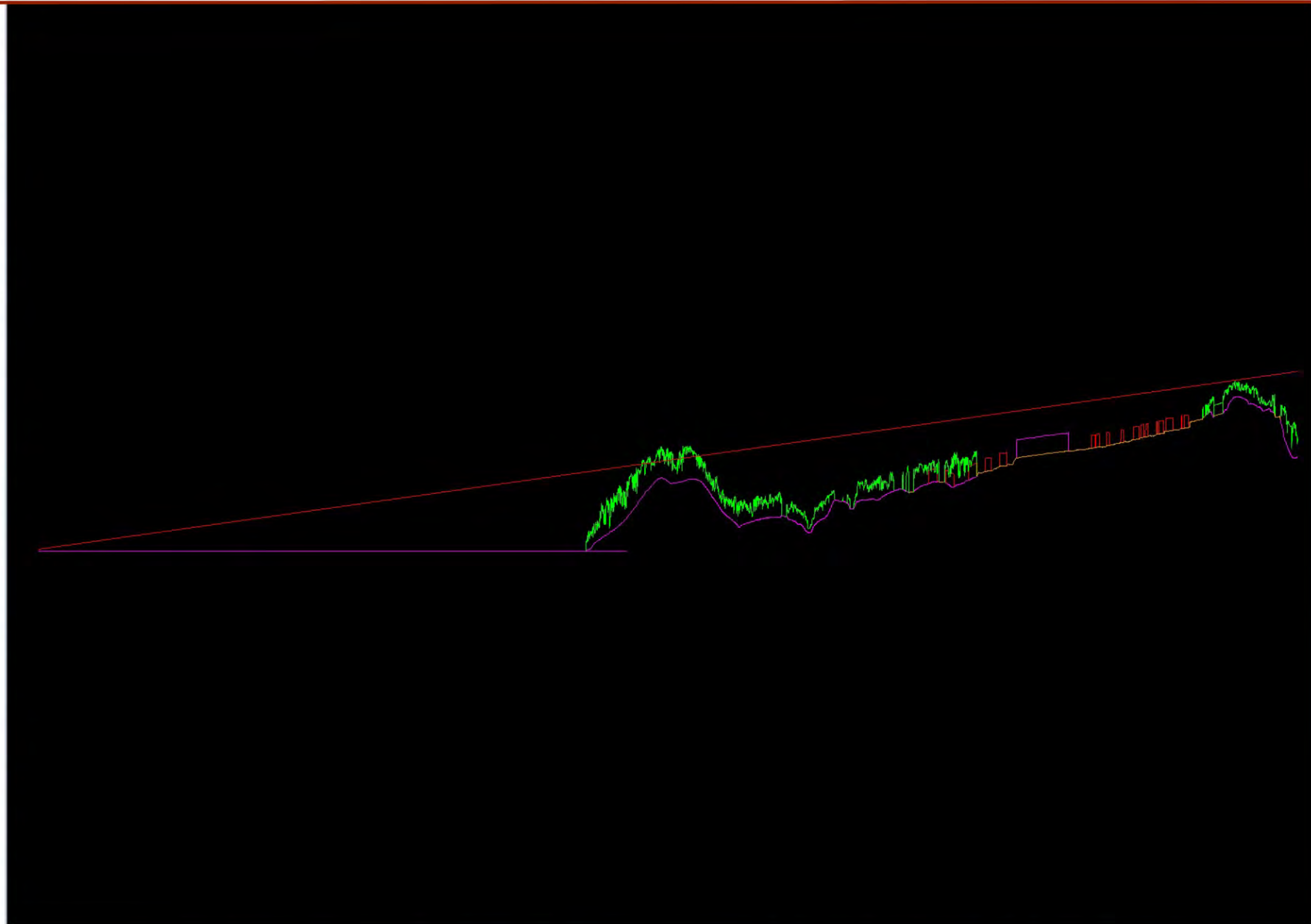
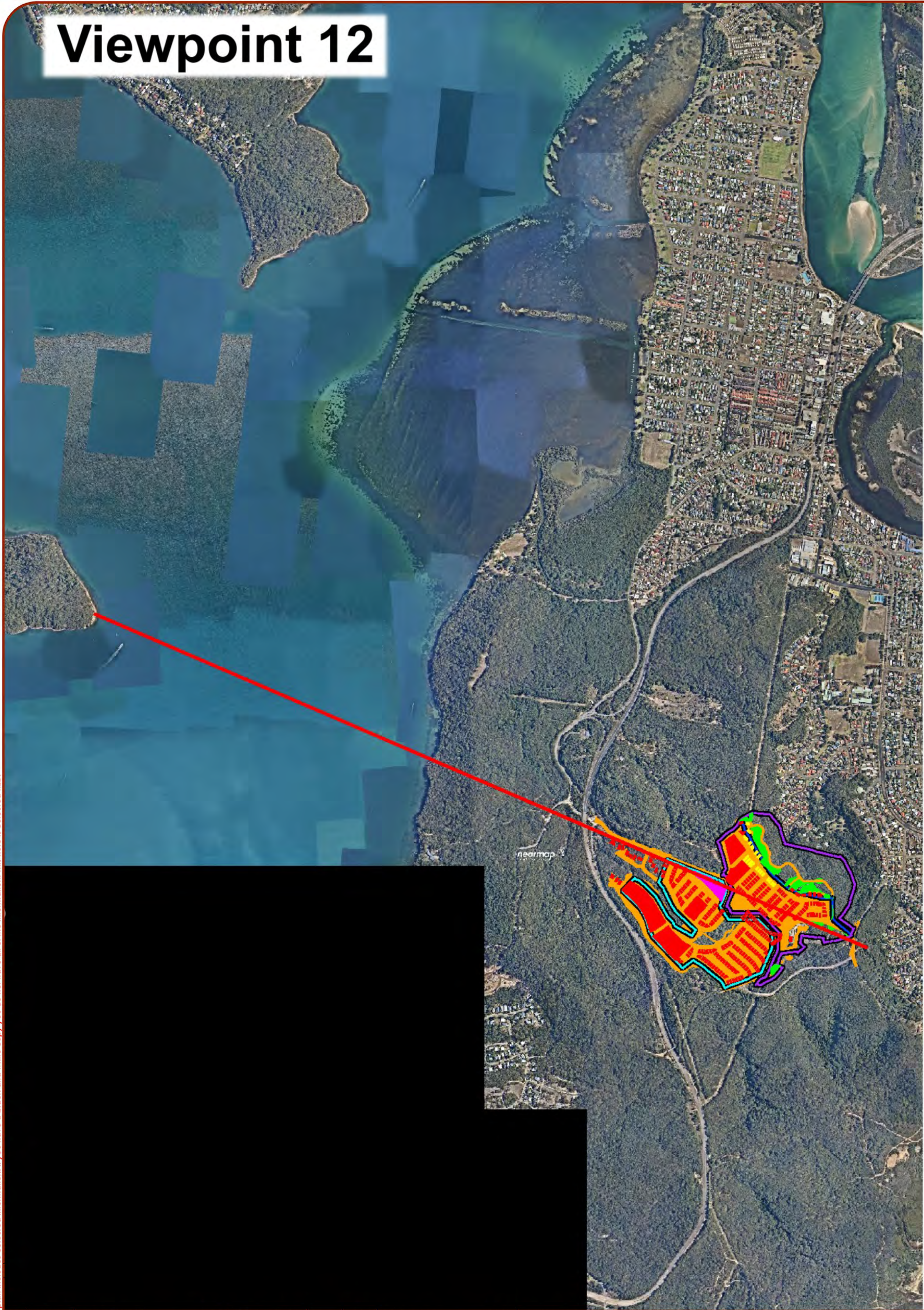
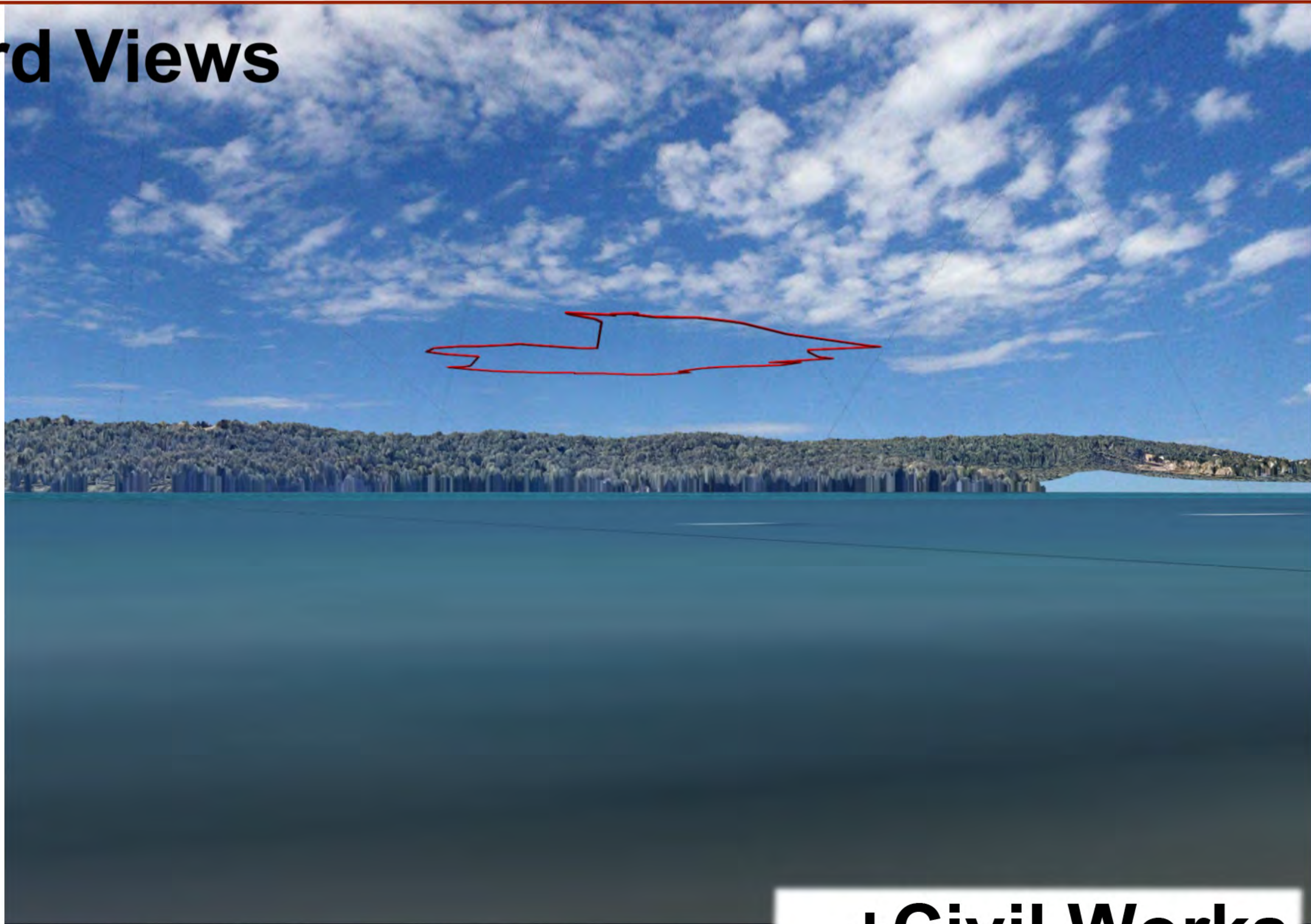
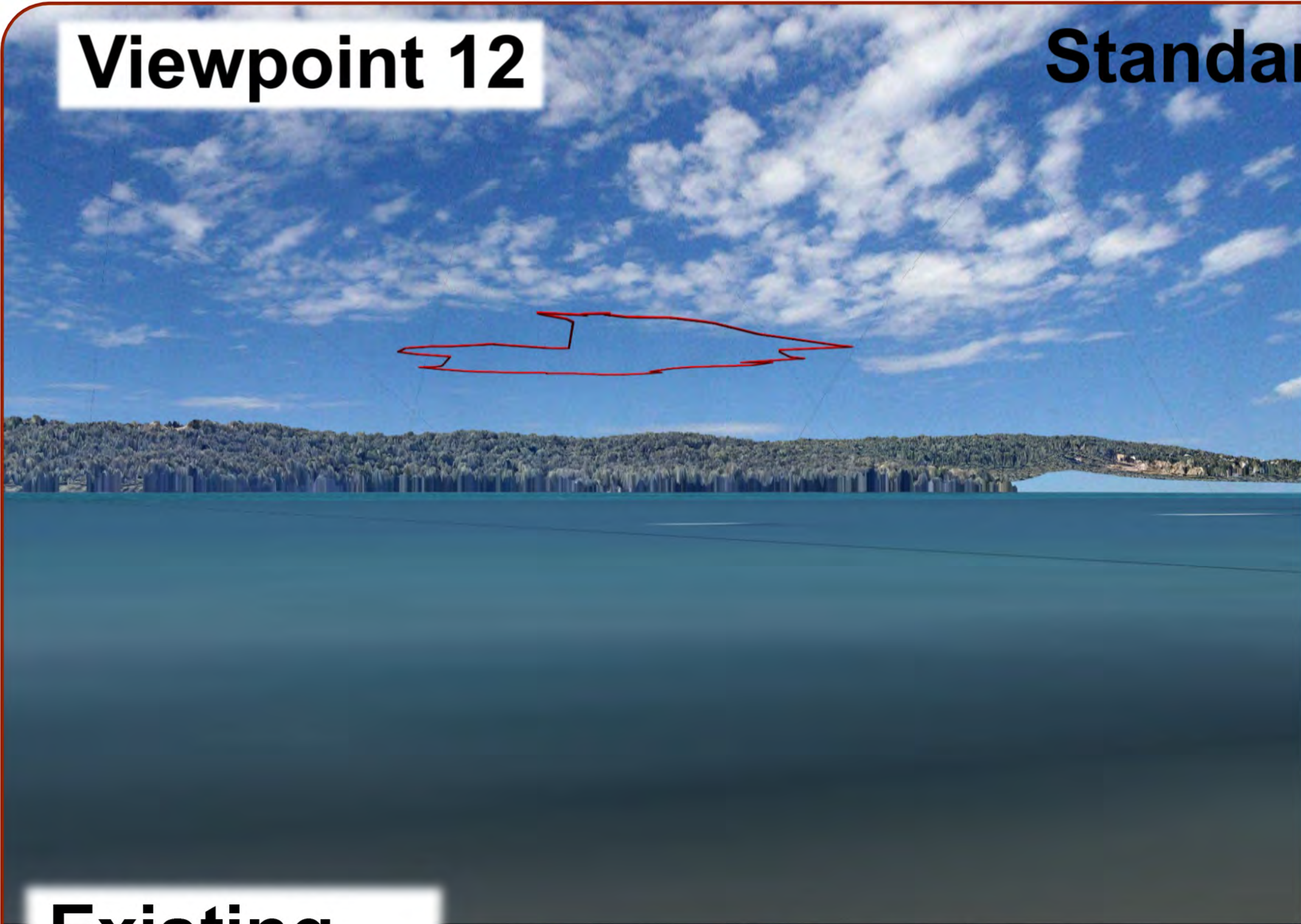


Figure 45

drawing title:	
location: CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA	
council: LMCC	
dwg ref: Rev 5 - 2019-10-01	
client:	
WAKEFIELD ASHURST	
	
central coast office	ph: (02) 4305 4300
hunter office	ph: (02) 4978 5100
sydney office	ph: (02) 8046 7411
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Viewpoint 12

Standard Views



Existing

+Civil Works

Design Surface

Zoomed Views

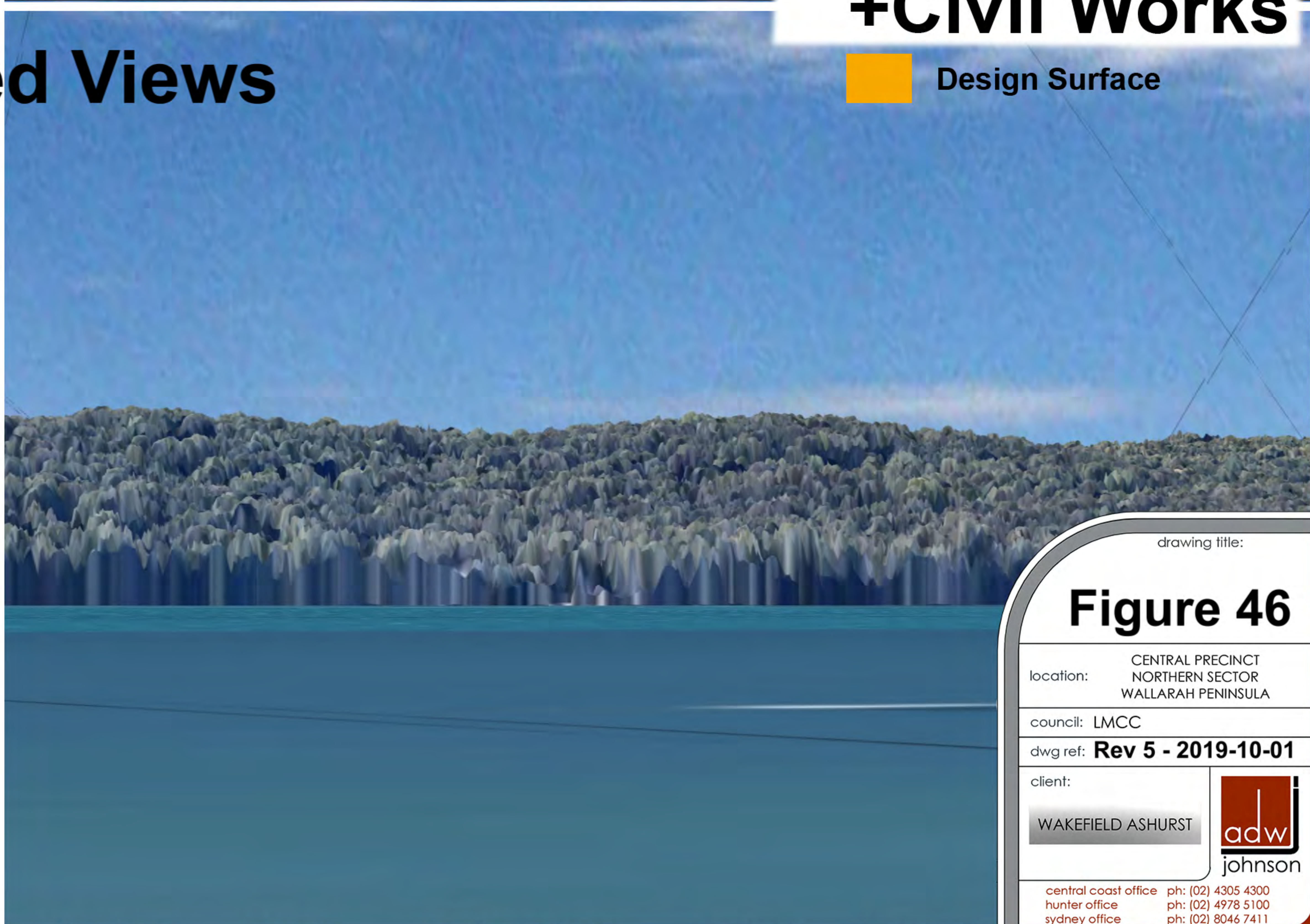
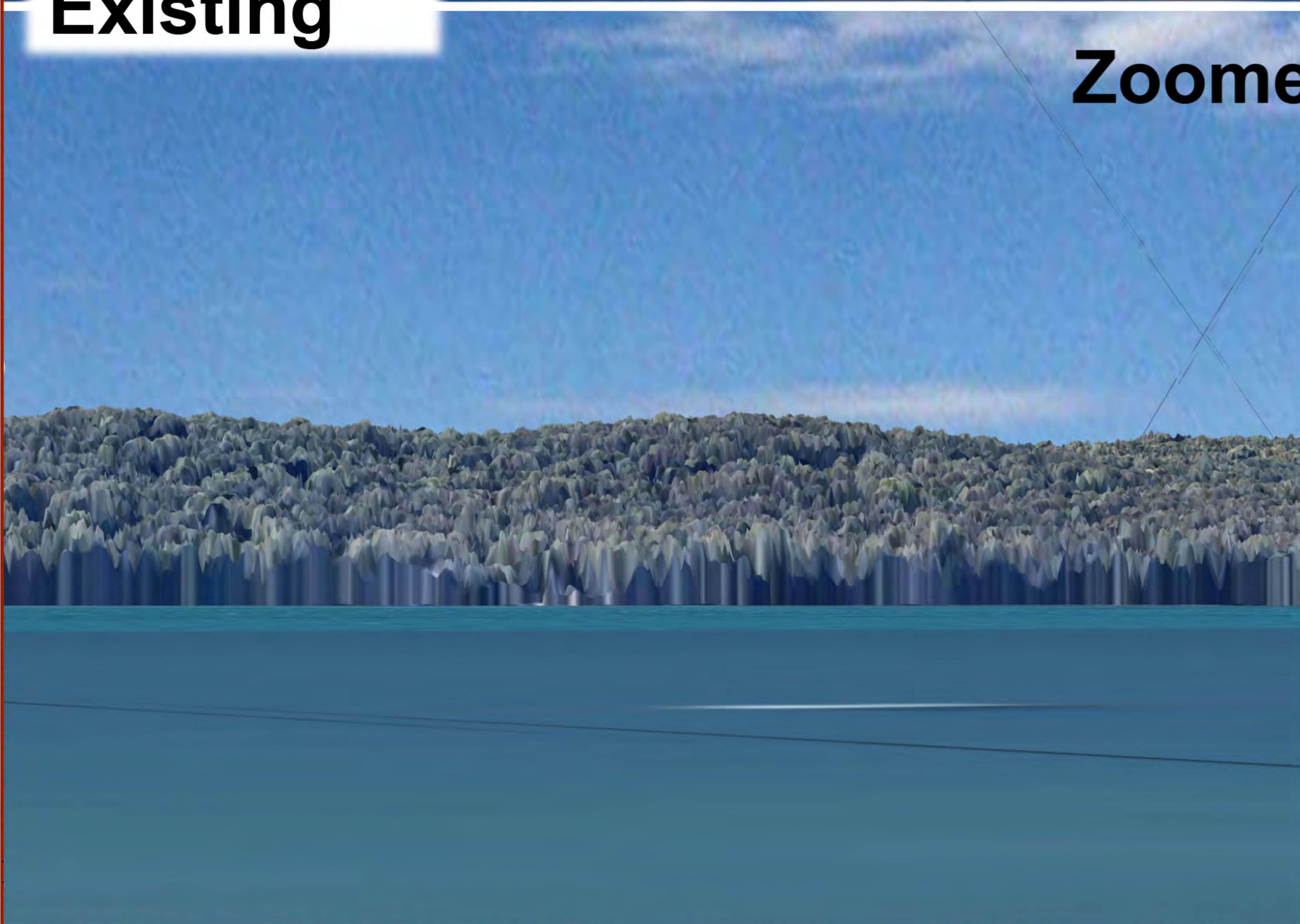
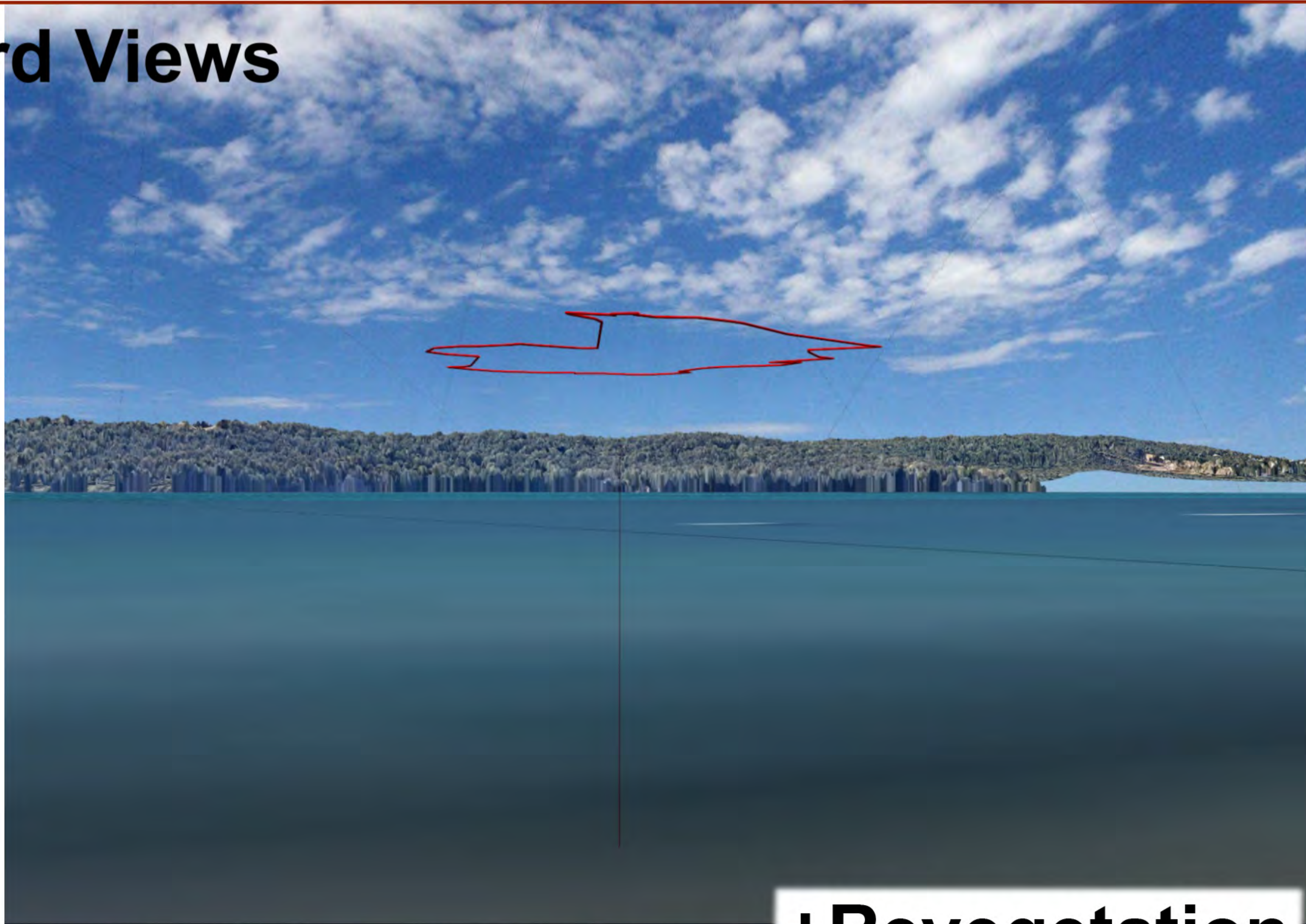
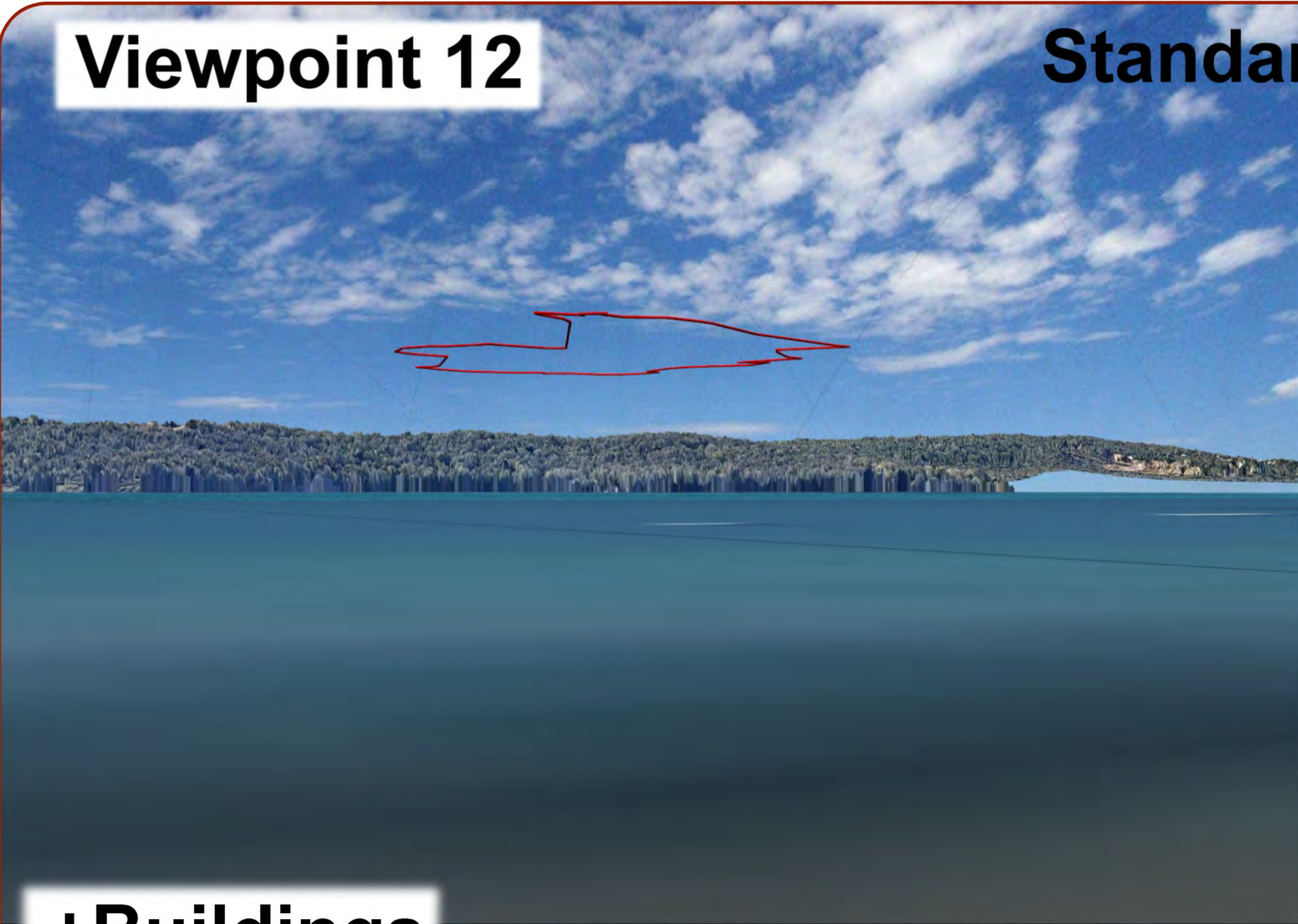


Figure 46

drawing title:	
location: CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA	
council: LMCC	
dwg ref: Rev 5 - 2019-10-01	
client:	
WAKEFIELD ASHURST	
central coast office ph: (02) 4305 4300 hunter office ph: (02) 4978 5100 sydney office ph: (02) 8046 7411 www.adwjohanson.com.au	

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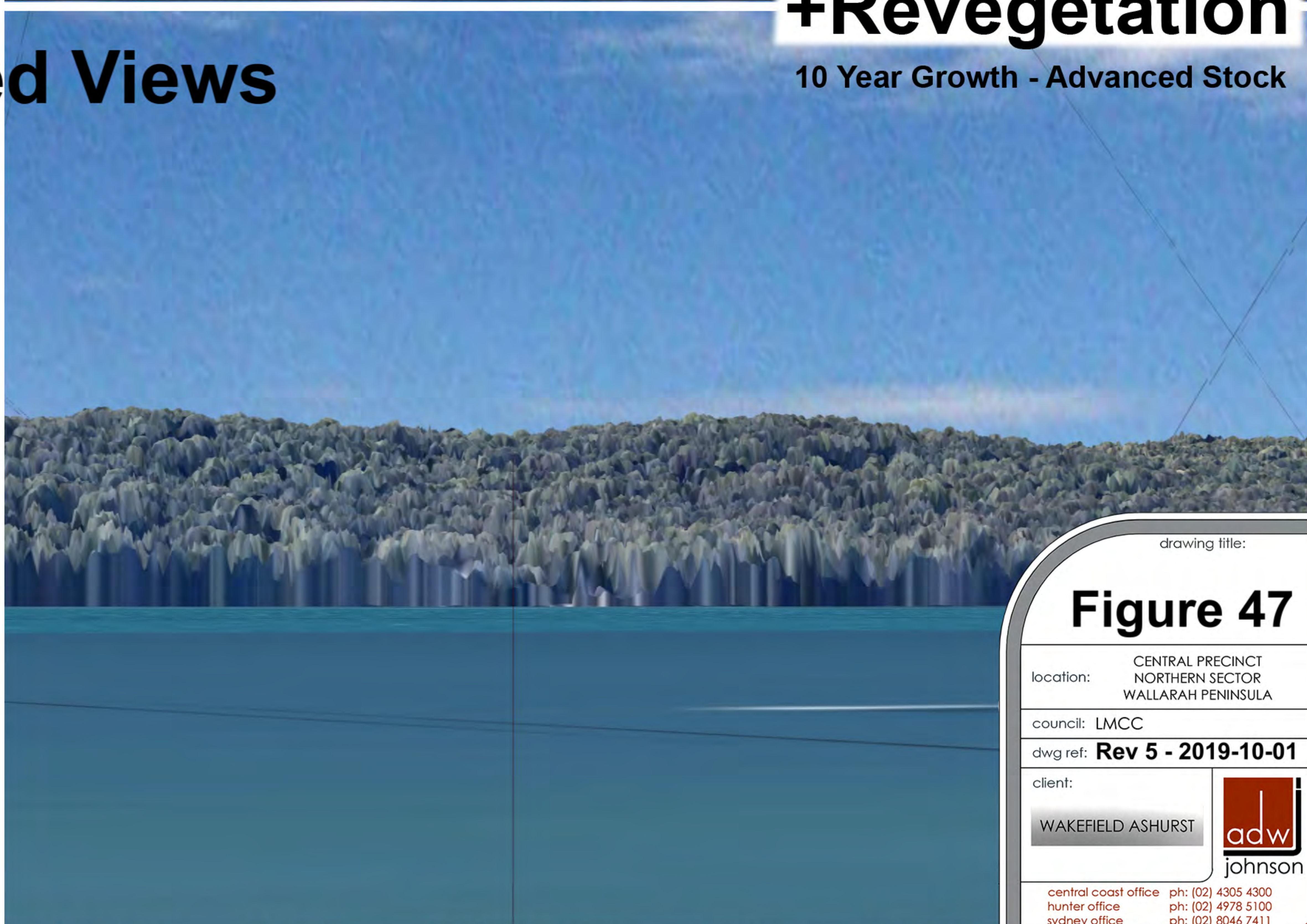
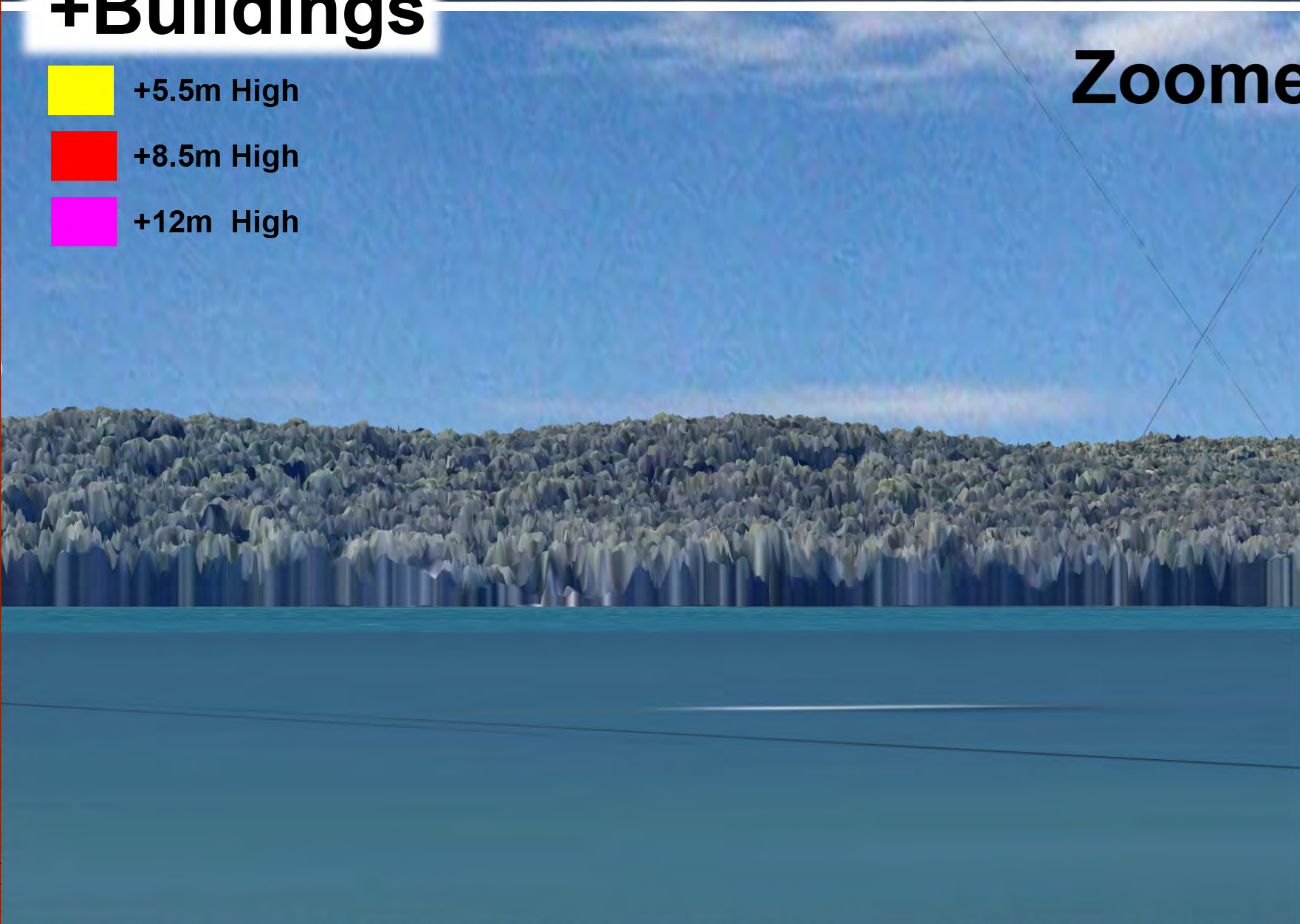
Standard Views



+Buildings

- +5.5m High
- +8.5m High
- +12m High

Zoomed Views



+Revegetation

10 Year Growth - Advanced Stock

Figure 47

location:	CENTRAL PRECINCT NORTHERN SECTOR WALLARAH PENINSULA
council:	LMCC
dwg ref:	Rev 5 - 2019-10-01
client:	WAKEFIELD ASHURST
central coast office	ph: (02) 4305 4300
hunter office	ph: (02) 4978 5100
sydney office	ph: (02) 8046 7411
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Viewpoint 12



drawing title:

Figure 48

location: CENTRAL PRECINCT
NORTHERN SECTOR
WALLARAH PENINSULA

council: LMCC

dwg ref: **Rev 5 - 2019-10-01**

client:

WAKEFIELD ASHURST



central coast office ph: (02) 4305 4300
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sydney office ph: (02) 8046 7411

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