Attachment C – Amended Architectural Design Statement with additional Design Concept Process Documentation prepared by RArchitecture

MOUNT LOFTY GOLF ESTATE – DESIGN STATEMENT

INTRODUCTION

Mt Lofty Golf Estate was established in 1921. The founders imagined that their descendants would "build and rebuild the club as they like". They hoped only that it would "retain the friendly and social atmosphere for which The Mount Lofty Club is, and has been, so highly regarded"[1]. The Applicant's vision is to return the Stirling Golf Club to its original name; the Mt Lofty Golf Estate. The aim is to achieve this vision in time for the Club's centenary celebrations which commence in 2026.

This Design Statement outlines:

- The design philosophy,
- The evolution of the proposal (including options explored and discounted) from the initial concept to the final design with reference to the Design Review Panel process which the Applicant undertook,
- Site access,
- Servicing strategy, including emergency access,
- Building site selection,
- Built form and visual impact,
- Materiality,
- Landscaping, including the proposal's response to the unique landscape setting and any work in the public realm,
- Environmentally Sustainable Design,
- Universal/equitable access,
- Adaptive reuse of the Local Heritage Place – the Perfumery.

DESIGN PHILOSOPHY

The key objectives of the design philosophy are:

- Minimise impact to existing site topography
- Preserve and enhance native flora and fauna
- Preserve and enhance the original publicly accessible golf course
- Respect for Traditional Owners
- Reflect the history and character of the Adelaide Hills
- Optimise views
- Showcase environmentally sustainable design
- Showcase local produce
- Preserve and enhance local amenity
- Grow regional tourism and make a positive economic contribution

The design philosophy evolved from a detailed site analysis and investigations process. The consideration of topography, existing built form, flora and fauna, key view corridors and

[1] Cox, B., 1975, Out of the Rough, A history of the Mount Lofty Golf Club, Gillingham Printers Pty Ltd, Adelaide South Australia, pg 90.

environmental conditions informed the building's siting and design. Detailed site investigations were undertaken in relation to the existing trees, vegetation and waterways, with a 'retain and protect' approach employed. The resultant architecture aims to maximise the opportunities to integrate and merge the landscape into the built form and minimise the architectural response to the land.

The constraints and opportunities of the site informed the siting of buildings. Three potential locations were investigated as part of the initial site investigations which informed the site's location. Site selection was based on the following criteria:

- Topography
- Minimising view impacts from the Heysen Trail
- Distance to Mount George Conservation Park
- Availability and proximity to services
- Minimising visual impacts to residents on Golf Links Road
- Minimising functional impacts to the existing 18-hole Golf Course
- Minimising the need for removal of trees and vegetation - through application of advice sought from the Native Vegetation Council (NVC)
- Minimising cut and fill
- Minimising impacts to people and property in the event of a bushfire - through application of advice sought from the Country Fire Service (CFS)

DESIGN EVOLUTION

The proposed design has evolved considerably from the initial master planning proposals. It was initially proposed that the development would be a hotel while maintaining the existing golf pro-shop and clubhouse. This evolved with the building being in various positions. Eventually it was deemed most appropriate to locate the hotel closer to the existing buildings to provide better connections and easier site operation and management. The initial design approach was based on 'boxier' geometry. Through the design review process with the State Commission Assessment Panel (SCAP), a more organic and terraced building form was established to help the building sit more comfortably within the landscape.

The accommodation PODs went through a similar design process. The early locations for the PODs were considered to have a large impact on native vegetation and bushfire safety. In addition to this having the PODs located far away from the main building, although provided a unique experience from a user perspective, they were not suitable from a management and servicing perspective. Therefore, the current location was determined to be best i.e. close to the main hotel building while still having the character being amongst the trees and landscape. Once this location was established, the layout and number of PODs also went through various iterations to achieve an outcome that minimized the impact on native vegetation along with providing a safe and accessible accommodation in the event of a bushfire. The number of PODs was reduced from 20 to 17 as part of the design evolution.

The Applicant also took advantage of the opportunity to engage in the Design Review Panel (DRP) and Pre-lodgement Panel Process to assist in the evolution of the proposed development and gain formal agency feedback. Taking on board the Government Architect's feedback, the scale of the development and the design concept has evolved considerably since inception. A visual representation of the design's evolution throughout the design review process is provided overleaf.

The visual bulk and scale have been substantially reduced through the design's evolution. Materials selection and a reduction in the scale of the proposed buildings, played a large part in integrating the built form into its surroundings.

Following public exhibition of the proposed development, the project was amended as follows:

- Removal of the 17 accommodation pods and 1 service Pod, that previously were proposed to the west of the main Tourist Accommodation and Golf Club Facilities buildings.

- A reduction in the amount of native vegetation impacted from 1.716 hectares (ha) and 151 scattered trees to 0.757 ha and seven scattered trees. This equates to a reduction in the amount of native vegetation impacted of almost 1 ha and a 95% reduction in the amount of impacted scattered trees.
- Reconfiguration of Perfumery Gardens and Orchard to retain additional trees.
- Additional detail regarding externally lit areas, together with night-time imagery of the proposal.
- Relocation and additional car parking for staff, now accessible from Old Carey Gully Road, to reduce forecast daily traffic movements on Golflinks Road.

A new dedicated pedestrian trail adjacent Golflinks Road to increase pedestrian safety and separate cars from pedestrians.

The most recent design changes made in November 2024, in response to final comments received from the Government Architect's Office include:

1. Concealing Hotel carpark entry:

The hotel carpark entry has been relocated to not be visible from the arrival area. The access driveway has been relocated to be off the main driveway and is concealed behind a new landscaped mound.

2. Concealing Facilities vehicle entry:

The entry door to lower level carpark for guests & golfclub patrons has been relocated further up the main driveway instead of being in the public promenade. This change supports segregation of vehicles accessing the carpark from the hotel guest and public promenade and presents a more pedestrian focused plaza.

Services and staff carpark are now located on the upper deck which is accessible from a service driveway which is now concealed behind the Roof Terrace and associated sloped landscape.

3. Facilities carpark presentation:

Concrete and metal mesh previously proposed for the Facilities carpark has been substituted with timber fins and open sections in between. The façade has also been stepped along the terrace. The wall has been repositioned with more clearance to the main driveway to allow for additional tree planting. Ground levels have been readdressed to create opportunity for integrated and immersive landscape presentation.

Reimagining the carpark presentation to main arrival promenade has added a more human scale and presentation to the built form.

4. Roof Terrace design:

The roof terrace has been split into a lower terrace which now overlooks the arrival promenade and has direct access from inside the Facilities building as well as pedestrian access from tee box 1. The upper terrace is designed for more intimate gatherings and functions overlooking fairway 1 and visual connection to tree canopy to south. The upper terrace has now shifted away from arrival to reduce overall building mass and scale-down the built form. In addition to this the detail for lower terrace balustrade has be redesigned to reduce overall wall height.

The upper terrace adopts the level difference created by head clearances required for services vehicles at loading dock.

5. Re-arranging internal spaces & façade activation:

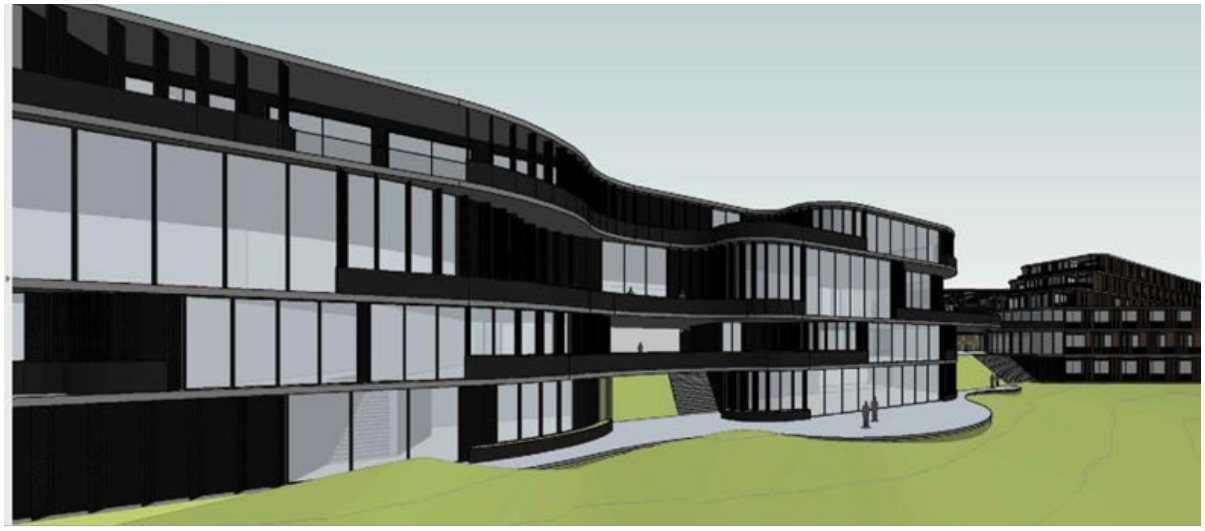
Back of house spaces in the facilities building have been re-arranged to suit functionality and activation of façade. This re-arrangement of internal spaces in the facilities building now provides staff with glazed windows overlooking the public promenade which also result in better work environment, as well as activation of the building façade. The eastern façade of the building facing tee box 1 is proposed to have Mount Lofty Golf Club logo etched into the wall to create a backdrop at the 1st tee.

6. Topography to built-form connection:

The overall approach to site wide planning such as segregation of vehicles from pedestrians, services vehicles vs guest arrival point and walkable connections within the main hotel / facilities / golf precinct as well as design details and finishes such as the facilities carpark wall height, timber fins, earth mounds and landscape integration, have established a more seamless connection between topography and built-form; one that is welcoming and encourages public engagement.

Imagery of the design's evolution are provided below:

EARLIER DESIGN ITERATIONS:



EARLIER DESIGN ITERATIONS:

CURRENT DESIGN:

A Design Process Report is provided at **Attachment A**. This report provides additional detail of the design intent and progression that brought about the design's most recent evolution. These changes were in response to final comments received from the Government Architect's Office for Design and Architecture dated 19 July 2024.

BUILT FORM AND SITE SELECTION

The proposal utilises location of the existing golf club and car parks. In its current form, the site is already highly modified comprising the golf course and golf club buildings and car parking areas. The use of this area minimises the impact on the surrounding landscape and vegetation, along with benefiting from the existing site cuts and benching.

The built form has an organic appearance, with curved building forms complimenting the dynamic nature of the site's topography. As the building rises it steps back and twists to create a more interesting visual appearance, along with orientating the building to the various panoramic views of the site and to the northern aspect.

The built form is intentionally split into two for a few reasons. The first to create a unique arrival experience with a larger central courtyard and pedestrian promenade. The gap between the buildings gives people a glimpse of the landscape beyond. Only until you enter the building and are met with a wall of glass do you get the full impact of the impressive landscape.

The other benefit of the separation is to create clear separation of uses. People staying at the hotel have clear separation from the golf club. These are still linked at the lower ground level to allow for functional management and services of the development.

This break in built form also provides some relief when viewing the building from across the site. It was important that the vegetation and canopies of the trees where visible behind and between the buildings.

The building also steps back as it gets taller, maintaining a 3-4 storey form as it terraces back towards Golf Links Road with the steep topography. The buildings form nestles into the landscape and topography rather than appear as though it was dropped onto the site.

The site of the proposed development was chosen because:

- It utilises the existing 'pad' where the clubrooms are located, minimising the need for significant cut and fill
- It designs with the sites unique topography by stepping the building form, and
- It can connect to existing services (with some upgrades), and
- It minimises the potential for impacts to views from external vantage points by locating the buildings centrally within the site and at a low point of the site, and
- Minimises impacts to the function of the golf course through utilising the area presently occupied by the existing golf club buildings, and
- Is located away from Mount George Conservation Park.

BUILT FORM AND VISUAL IMPACT

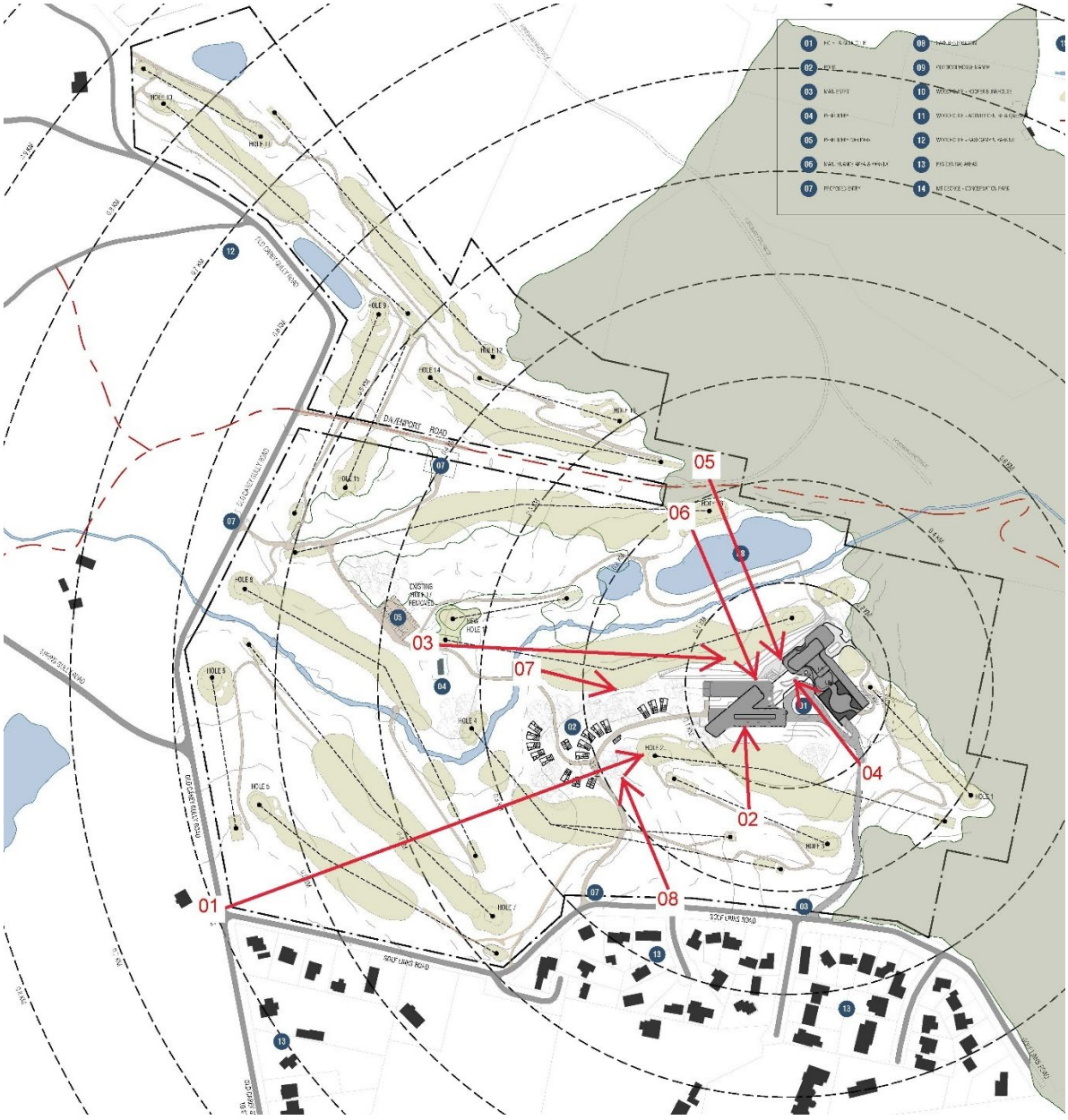
Given the location of the proposal being in the Mt Lofty Ranges, it required a bespoke approach to siting, design and architecture, which responded to the scenic and natural character of the area. The proposed design sought to achieve this through:

- High quality design complementary to the locality,
- Maximises views to and from the site,
- Architectural form and materiality which responds to its natural surroundings,
- Building scale which responds to the site's peri-urban and highly accessible context.

The design and its evolution as described in this design statement achieves the above. This assists in minimising the visual impact of the proposed development. Of note also, is the existing condition of the site, it is a highly modified landscape, and has been as such for at least the least 50 years. The appearance of the land is in contrast to the nearby residential properties on Golflinks Road and the densely vegetated natural landscape of the Mount George Conservation Park. Manmade structures are anticipated in association with a golf course. To this extent, a member of the general public would expect to see built form associated with the golf course, in this location, as has occurred for many years at this site.

The following views have been analysed of the proposed built form, to detail how it will sit visually in the landscape and the level of visual impact post development.

VIEWING ANGLES



This visual impact analysis was based on the following criteria:

1. Whether the view is from an external or internal vantage points, the following scale was applied: 2 – external view point, 1 – internal view point.
2. How different the view is post development compared to pre-development, the following scale was applied: 3 – very different, 2 – somewhat different, 1 – not very different, 0 - barely visible.

The higher the rating, the greater the post development visual impact, for example:

- **1 - low impact**
- **2 – low to medium impact**
- **3 – medium impact**
- **4 – medium to high impact**
- **5 – high impact**

VIEW 01

This view is from Old Carey Gully Road and Golflinks Road, it is external from the site (2) and the post development view is barely visible (0) = total visual impact = (2) – **low to medium visual impact**

VIEW 02

This view is from well within the site, approximately 130m away from the nearest residential propoerty at Golflinks Road. It demonstrates the topography of the site and the siting of the built form at low point of the land. It is an internal view (1) and the view is somewhat different (2) given that from this vantage point would have always contained the built form of the existing golf club buildings = total visual impact = 3 – **medium impact.**

VIEW 03

This view is internal to the site (1). It is of the 18th hole towards the facilities building and new clubrooms. In the existing this view provides important visual relief, common to Golf Courses around the world, whereby the end of the course is in sight. This view demonstrates the buildings materiality in action and how it assists in blending it into its landscape context. The view is somewhat different (2) given that from this vantage point, a golfer would always be able to see the built form of the golf club buildings = total visual impact = 3 **– medium impact.**

VIEW 04

View 04 is internal to the site (1). It was the architects intention to create a sense of arrival at this location. The split in the built form at this view point provides visual relief and provides a strong visual

link through to Mt George. This view is somewhat different (2). The total visual impact from View 04 is 3 - **medium impact.**

VIEW 05

This view is internal to the site (1), as the Heysen Trail traverses the site in this location. The visual impact from this vantage point is very different (3). Retention of established trees assists in mitigating the extent of visual impact of the development from this view. It is not uncommon that man-made structures are visible from the Heysen Trail given its expansive length and diverse terrain. A walker on the Heysen Trail would have always viewed built form from this location, albeit that the scale has now changed. The total visual impact from View 05 is 4 **– medium to high impact.**

VIEW 06

As with View 05, this view is internal to the site (1) and the visual impact from this vantage point is very different (3). The impacts stated in View 05 are the same as View 06. The total visual impact from View 06 is 4 **– medium to high impact.**

VIEW 07

View 07 is internal to the site (1). It is not very different when compared to existing (2). The use of materials, the scale of the PODs and their orientation assists in mitigating visual impacts from this view point. Total visual impact = 2 **- low to medium impact**

VIEW 08

View 08 is external to the site (2). The development is barely visible from this view (2). The siting of the PODs, the use of materials natural toned materials and their scale assists in mitigating visual impacts from this view point. Total visual impact = 2 **- low to medium impact**

The cumulative visual impact arising from the development is 3 - **medium impact**. This was based on an average of the impacts from each view point, as follows:

- View 01 = 2 – **low to medium visual impact**
- View 02 = 3 – **medium impact**
- View 03 = 3 – **medium impact**
- View 04 = 3 – **medium impact**
- View 05 = 4 – **medium to high impact**
- View 06 = 4 – **medium to high impact**
- View 07 = 2 – **low to medium impact**
- View 08 = 2 – **low to medium impact**

Total visual impact (based on an average of the above) = 3 - **medium impact**

The cumulative visual impact is **medium.** A degree of visual impact is anticipated in a development of this scale. The architectural response sought to minimise visual impacts through:

- Choice of materials, the use of timber cladding, curved precast concrete and slate cladding respond to the sites natural surroundings,
- Breaking up the building form into two parts to provide visual relief and provide a landscaped backdrop,
- Designing with the sites topography to minimise views of the building form from external vantage points, and
- Optimise views from within the site from the accommodation and golf course to create a high amenity accommodation and golfing experience.

MATERIALITY

The chosen materials palette is depicted below. The use of timber cladding, curved precast concrete and slate cladding were key shifts in the design evolution which responded to the sites natural surroundings. The façade is intended to patina over time, allowing it to settle into its landscape context. Exposed concrete, complimented with black metal accents provide a sleek and modern appearance juxtaposed against the softness of the timber cladding.


CLD-1


PL-1


CLD-2


PC-1


CLD-3


CLD-4


FN-1

MATERIALS & FINISHED SCHEDULE

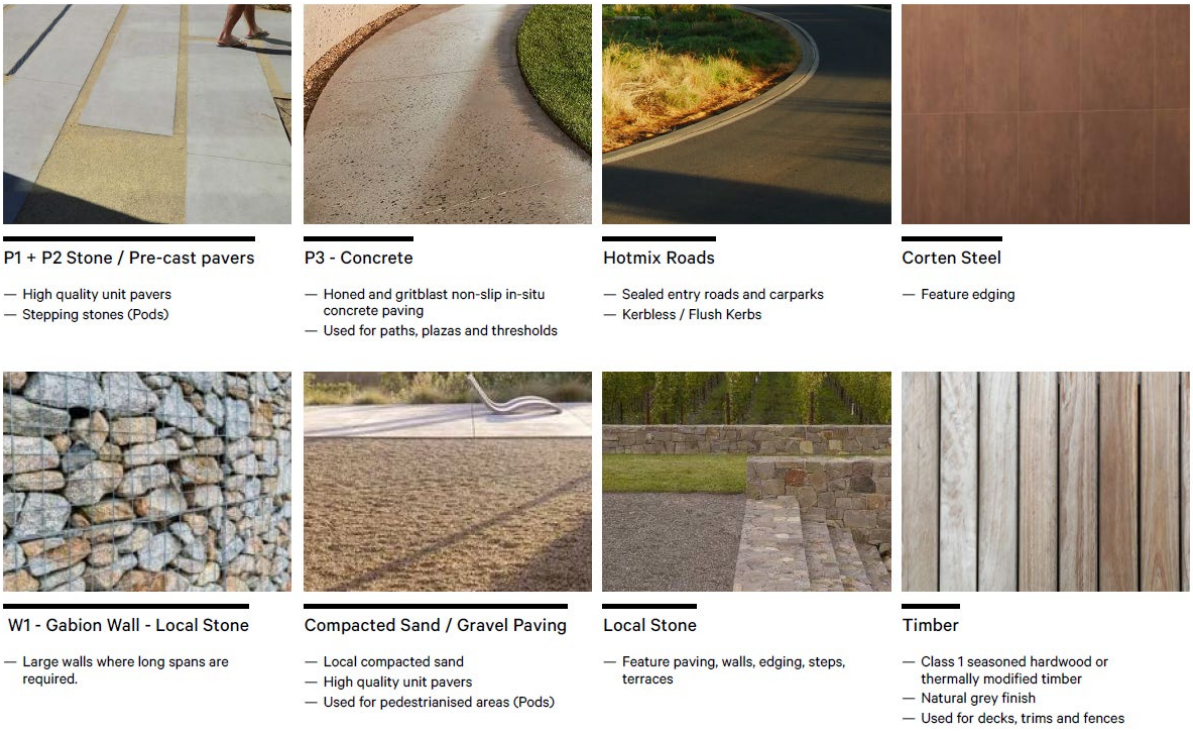
WALLS	CON-1: INSITU CONCRETE SLAB EDGE AND WALLS COLOUR: NATURAL CONCRETE PC-1: CURVED PRECASTE CONCRETE PANELS COLOUR: NATURAL CONCRETE PC-2: PRECASTE CONCRETE PANELS COLOUR: NATURAL CONCRETE CLD-1: TIMBER CLADDING - MORTLOCK TRENDPLANK SHIPLAP CLADDING SPECIES: PACIFIC TEAK - BAL-19 COMPLIANT (OR EQUIVALENT) CLEAR OILED FINISH TO WHEATHER CLD-2: SLATE SHINGLE CLADDING. COLOUR: NATRUAL FINISH CLD-3: PANALISED METAL CLADDING. 300MM INTERLOCKING PROFILE COLOUR: COLORBOND NIGHT SKY (BLACK OR EQUIVALENT) CLD-4: PERFORATED METAL CLADDING. COLOUR: COLORBOND NIGHT SKY (BLACK OR EQUIVALENT)
RAISED PLANTERS	PL-1: PREFABRICATED ALUMINIUM PLANTER WITH WIRE TERLLIS COLOUR: COLORBOND NIGHT SKY (BLACK OR EQUIVALENT)
BALUSTRADE	BAL-1: STEEL BLADE BALUSTRADE COLOUR: COLORBOND NIGHT SKY (BLACK OR EQUIVALENT)
WINDOWS	POWDERCOAT ALUMINIUM FRAME WINDOWS WITH GLAZING. COLOUR: BLACK (OR SIMILAR)
DOORS	CARPARK DOORS: PERFORATED METAL SECTIONAL GARAGE DOORS COLOUR: COLORBOND NIGHT SKY- BLACK (OR SIMILAR)

FINISHES LEGEND

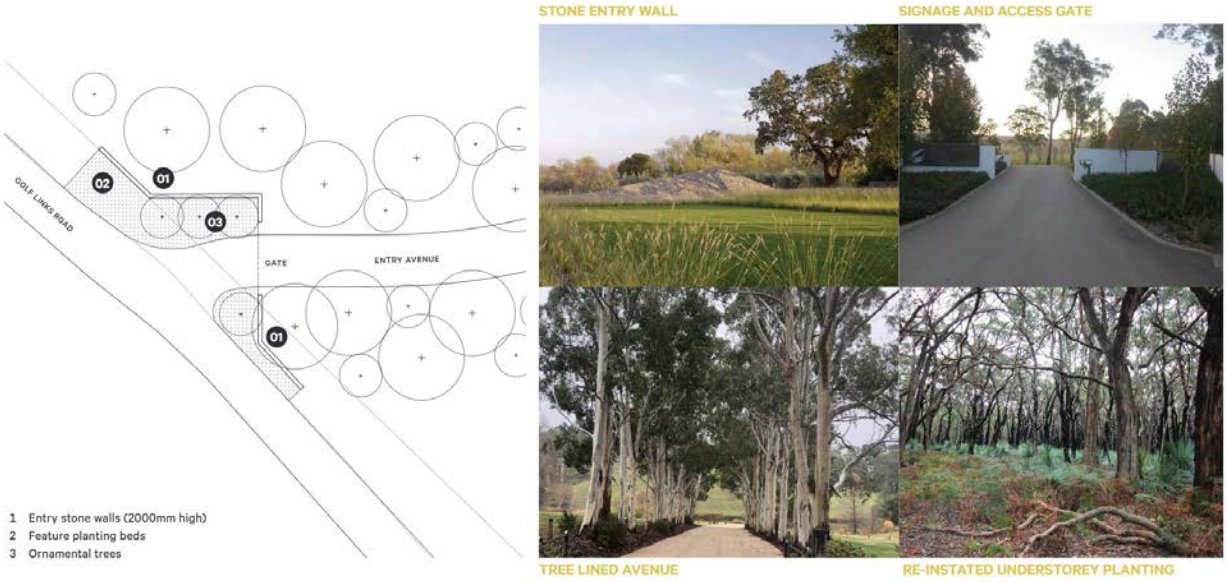
CON-1	INSITU CONCRETE FINISH
CLD-1	TIMBER CLADING
CLD-2	NATURAL SLATE CLADDING
CLD-3	METAL PANALISED CLADDING
CLD-4	PERFORATED METAL CLADDING
FN-1	TIMBER LAMANITED FINS
WN-1	POWDERCOATED ALUMINIUM WINDOWS
PL-1	PREFABRICATED METAL PLANTER WITH TRELLIS
BAL-1	METAL BLADE BALUSTRADE

LANDSCAPE

Local Landscape Architects, Oxigen, undertook the landscape design for the site. The approach focuses on re-establishing the site's tree canopy and increasing the site's green credentials through the application of distinct landscape typologies. The middle and under-storey canopies are re-established under the existing native tree canopy. Blackberries, gorse and other weed species are removed. The new native planting comprises species native to the Adelaide Hills region with an emphasis on wattles, bottlebrush and correa comprising yellow and red winter and early summer flowerings. Whenever possible, the existing forest of Manna Gum and Stringybark are retained. Particular care is taken to preserve views to Mt George and to position the new built form so to reduce the impact on views from the Heysen Trail. The choice of materials reflects the desire to blend the building with its surroundings. The following extracts from the landscape design strategy detail approach to planting, site design and materiality.



Source: Oxigen

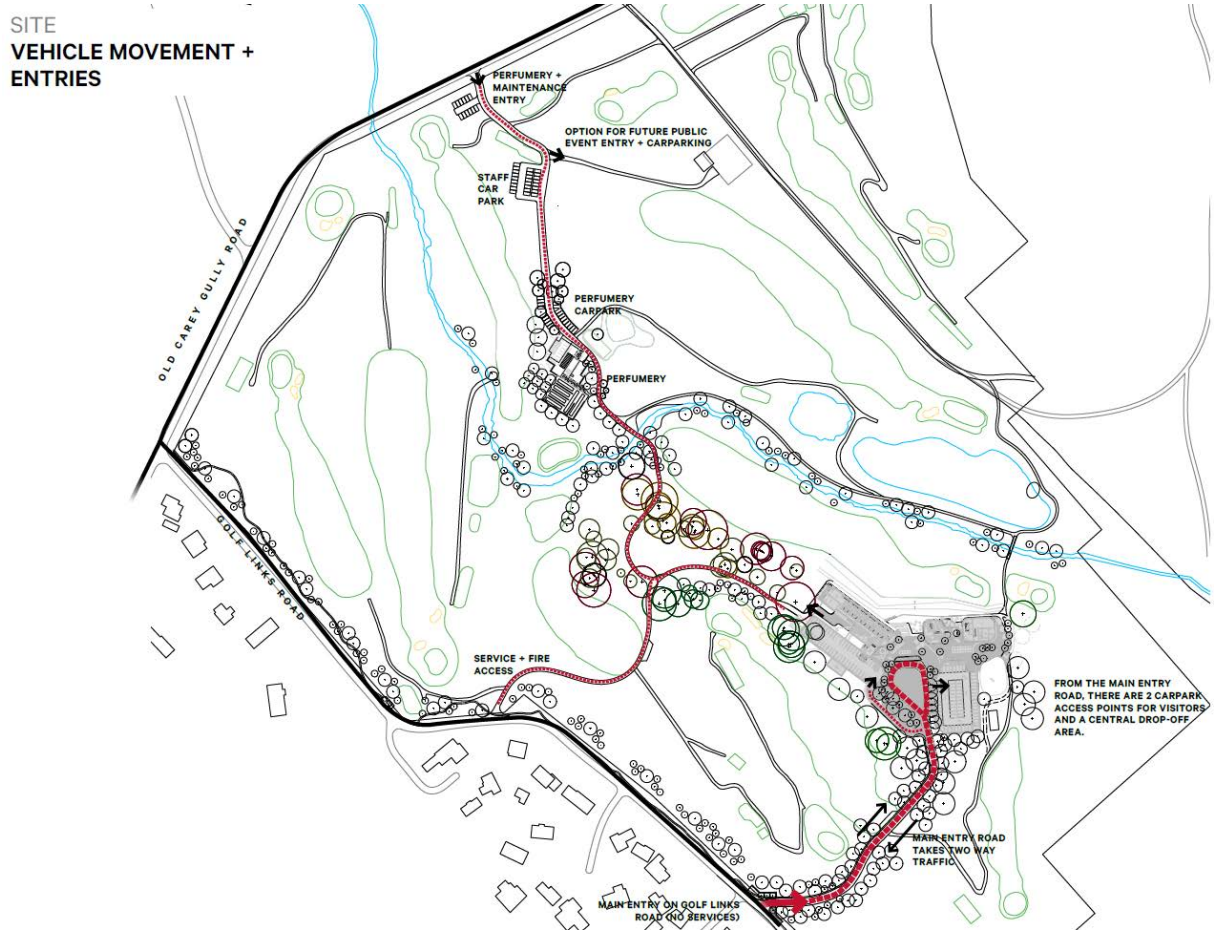


Source: Oxigen

SITE ACCESS

The design proposes to upgrade the existing infrastructure and utilise the existing points of access where possible. Additional site access has been proposed to Golf Links road which is to be used for emergency access and egress. Not for regular day to day use. There is also existing access via Old Carey Gully Road which is to be upgraded for vehicular access. This connects to the proposed parking adjacent to the refurbished heritage building. The existing network of pathways are to be upgraded to comply with vehicle and fire truck access and circulation.

Services/maintenance and delivery vehicles will use the main access. There is a loading bay and circulation provided from this point that links to all aspects of the building.



Source: Oxigen

ENVIRONMENTALLY SUSTAINABILITY DESIGN

A key driver in the project was to showcase environmentally sustainable design. From design inception ESD initiatives were integrated into the architecture to reduce the development's impact on the environment in both construction and operation. These ESD initiatives were derived using computer building simulation design techniques so that the sustainability performance of the built form could be assessed.

The architectural response to ESD is:

- Buildings oriented toward the north which captures free heating from the winter sun with external shade elements and balconies used to provide shade protection from the summer sun, reducing the reliance on active climate control techniques.
- Facade shading elements and glazing specifications have been selected by energy performance modelling and computer simulation techniques.
- A tailored approach has been taken regarding facade glazing. Solar heat gain coefficients have been optimised for each building type to ensure a balance between summer and winter temperature regulating.
- Air leakage pressure testing will be conducted on the external facade to ensure ideal air leakage rates, significantly reducing air conditioning energy consumption.
- Installation of a green roof, facade planters and extensive landscaping will provide a passive cooling effect from water transpiration and act as a barrier
- Completely electrified energy system with no fossil fuels or natural gas required.

- Installation of 300 solar voltaic panels on the rooftop at 330W per panel, providing 20% of the total energy requirement of the building.

Additional sustainable practices will be incorporated in the hiring or local labour and materials as well as selecting recycled materials and highly efficient water and electrical fittings.

The confluence of these actions and practices reduce the energy consumption of the proposal by 24% (and the carbon emissions from energy use by 18%) when compared to a reference study from the National Construction Code (DSquared, 2022).

UNIVERSAL ACCESS

The proposal has been designed to provide universal / equitable access where possible. Upon arrival by vehicle, people are able to move throughout the ground floor freely with a large pedestrian concourse proposed to link the variety of amenities provided on this level. Lifts have been provided in various locations to allow for safe access to all other levels of the buildings.

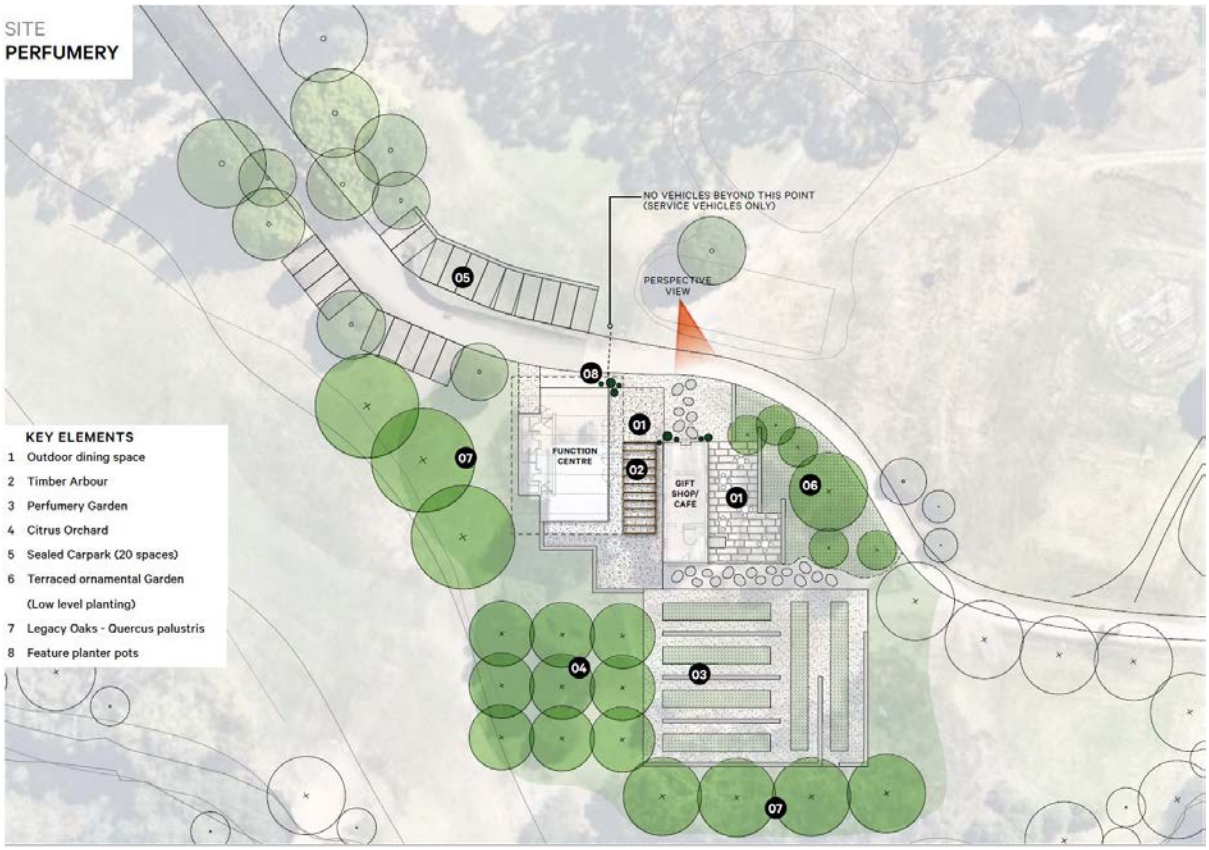
Due to the steep sloping nature of the site – compliant ramps are generally not possible due to the existing gradients. Golf Carts will be readily for people to move throughout the site – linking the proposed perfumery, PODs and main building areas.

ADAPTIVE REUSE OF THE LOCAL HERITAGE PERFUMERY

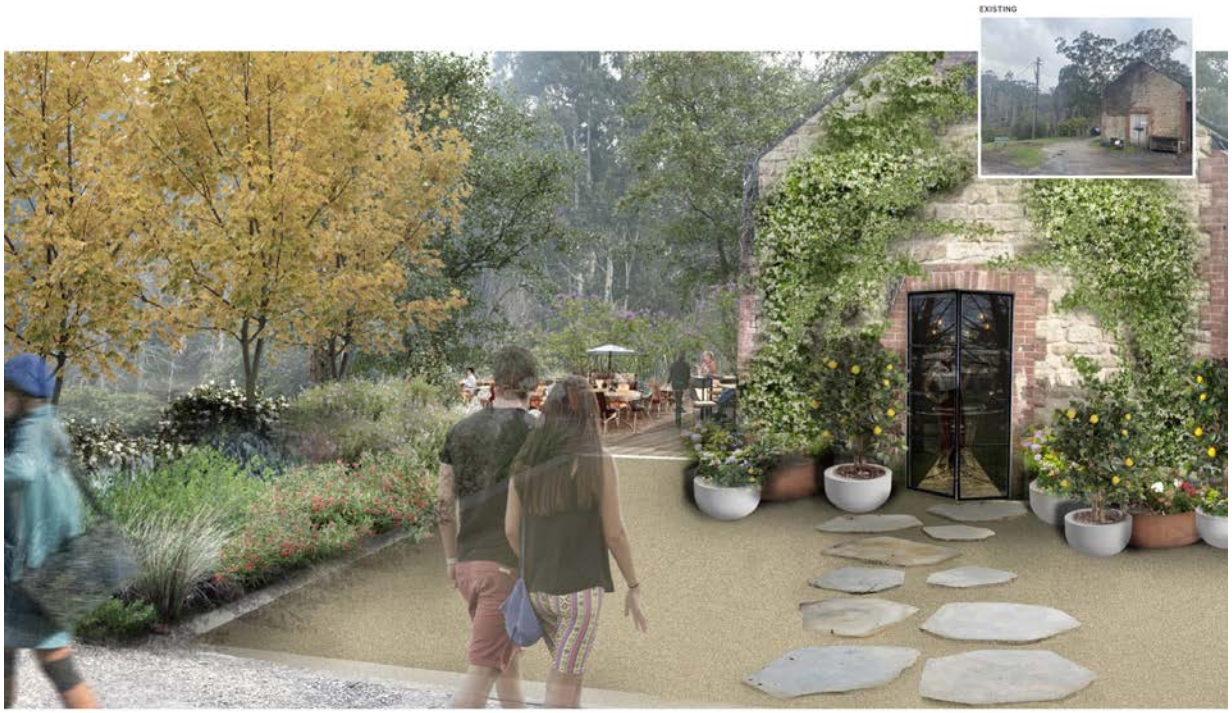
The design intent for the perfumery is to restore the existing heritage building to its original state (or as close as possible). The building is to be refurbished with a new modern structure to sit adjacent providing additional amenity and dining spaces. The materiality will consist of mainly glass and metal to provide a contrast and clear modern addition to the existing stone building. The intent is to have modern pavilion in juxtaposition, providing a clear timeline of architectural styles. The new pavilion will be looked to touch lightly on the ground. The interior of the heritage building is to have minimal work done to showcase the stone structure and exposed timber trusses. There is existing power and water provided to the building. As this is currently used as the site maintenance building and office.

Oxigen Landscape Architects proposed reinforcing the historical ties to the use of the Perfumery building in the adjacent landscape design. A scent garden, tree orchard and potential outdoor seating provide opportunities to enjoy the adaptive reuse of the Local Heritage Place.

Source: RArchitecture

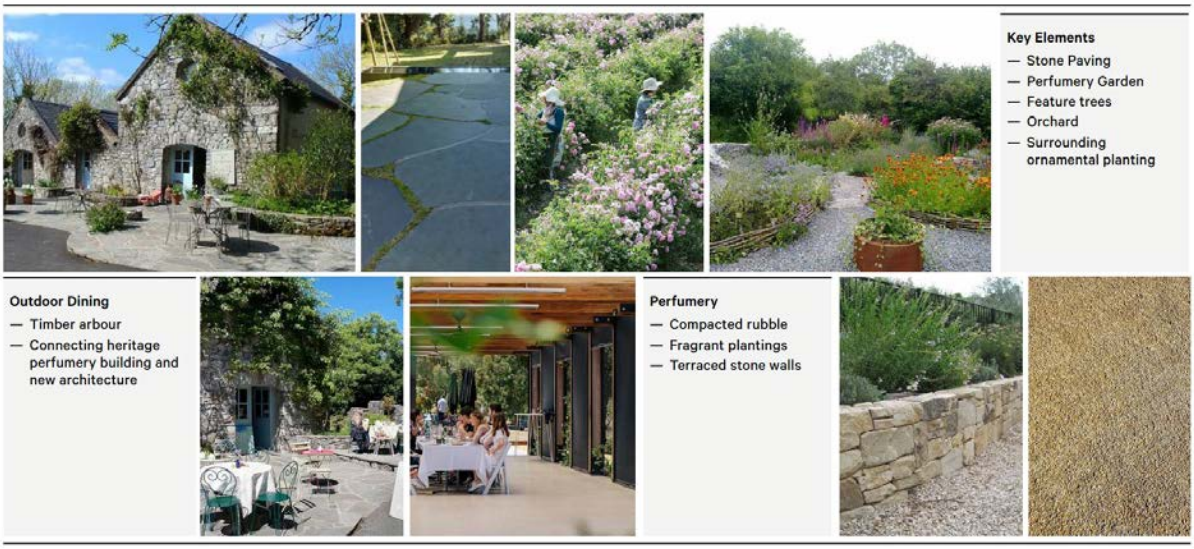


Source: Oxigen



Source: Oxigen

PERFUMERY
ELEMENTS + MATERIALS



Source: Oxigen

Attachment A - Design Process Report

MOUNT LOFTY GOLF ESTATE

DESIGN PROCESS REPORT

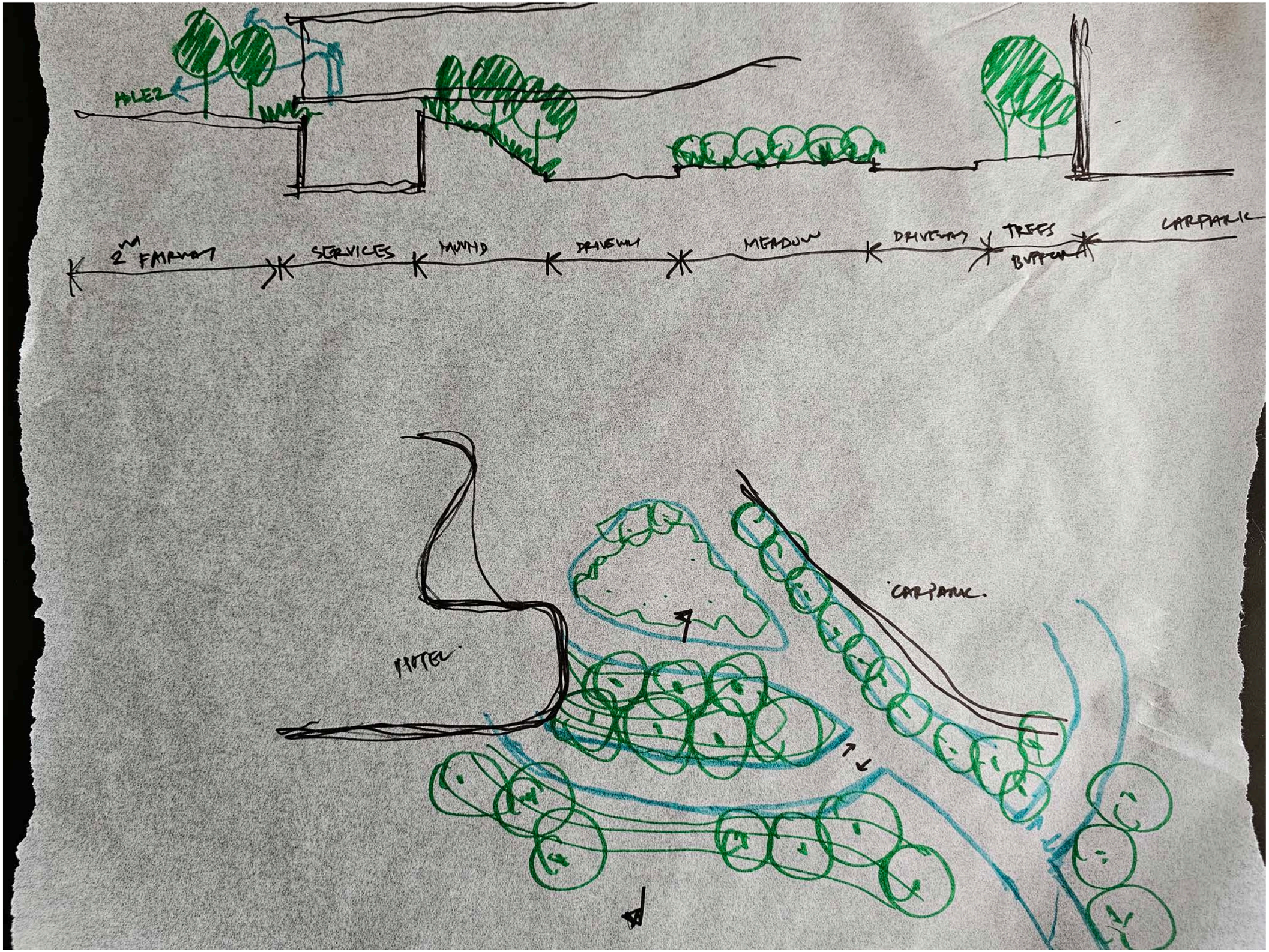
R ARCHITECTURE

30/10/24

2

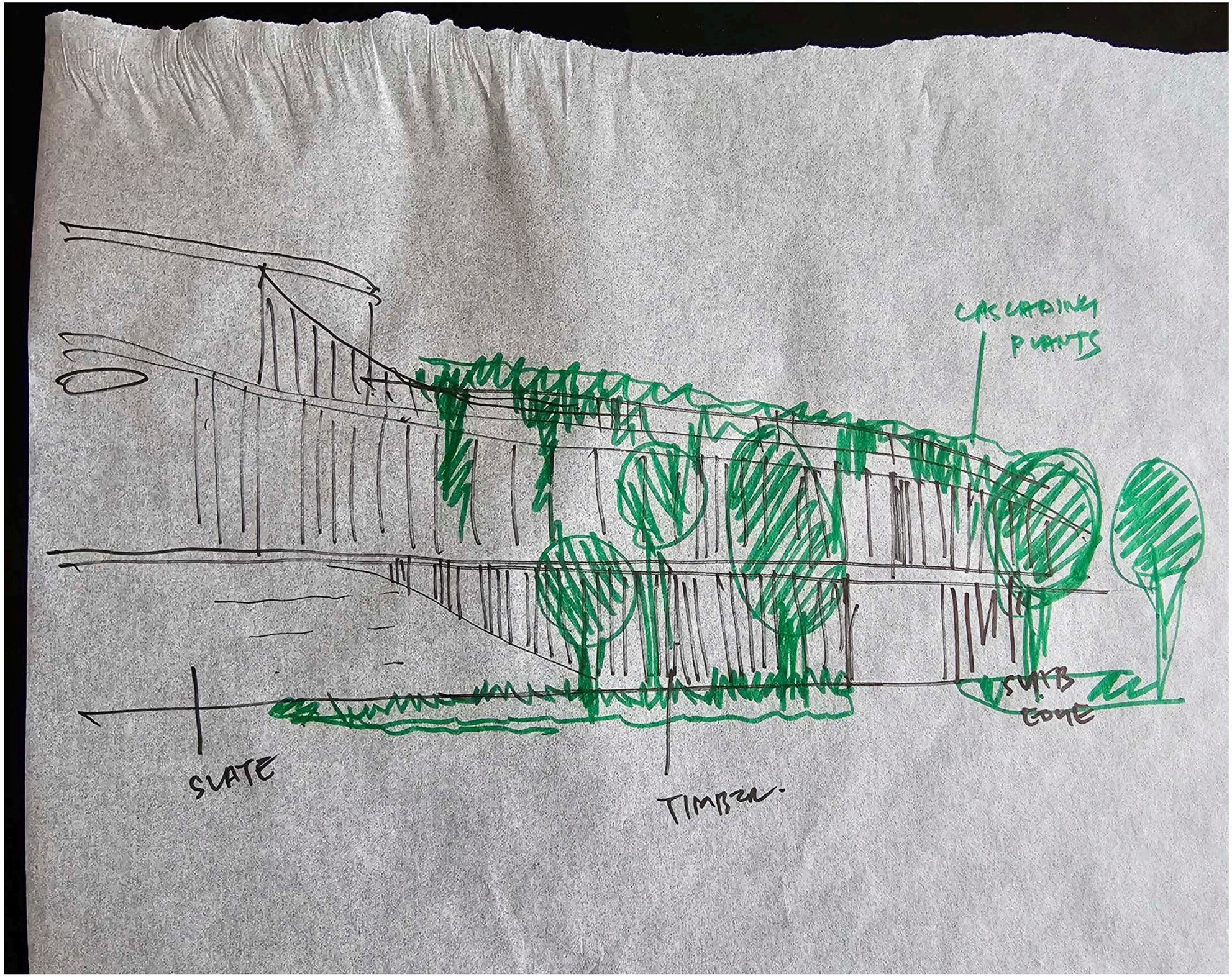
HOTEL DRIVEWAY ACCESS CONCEPT

MOUNDED GARDEN

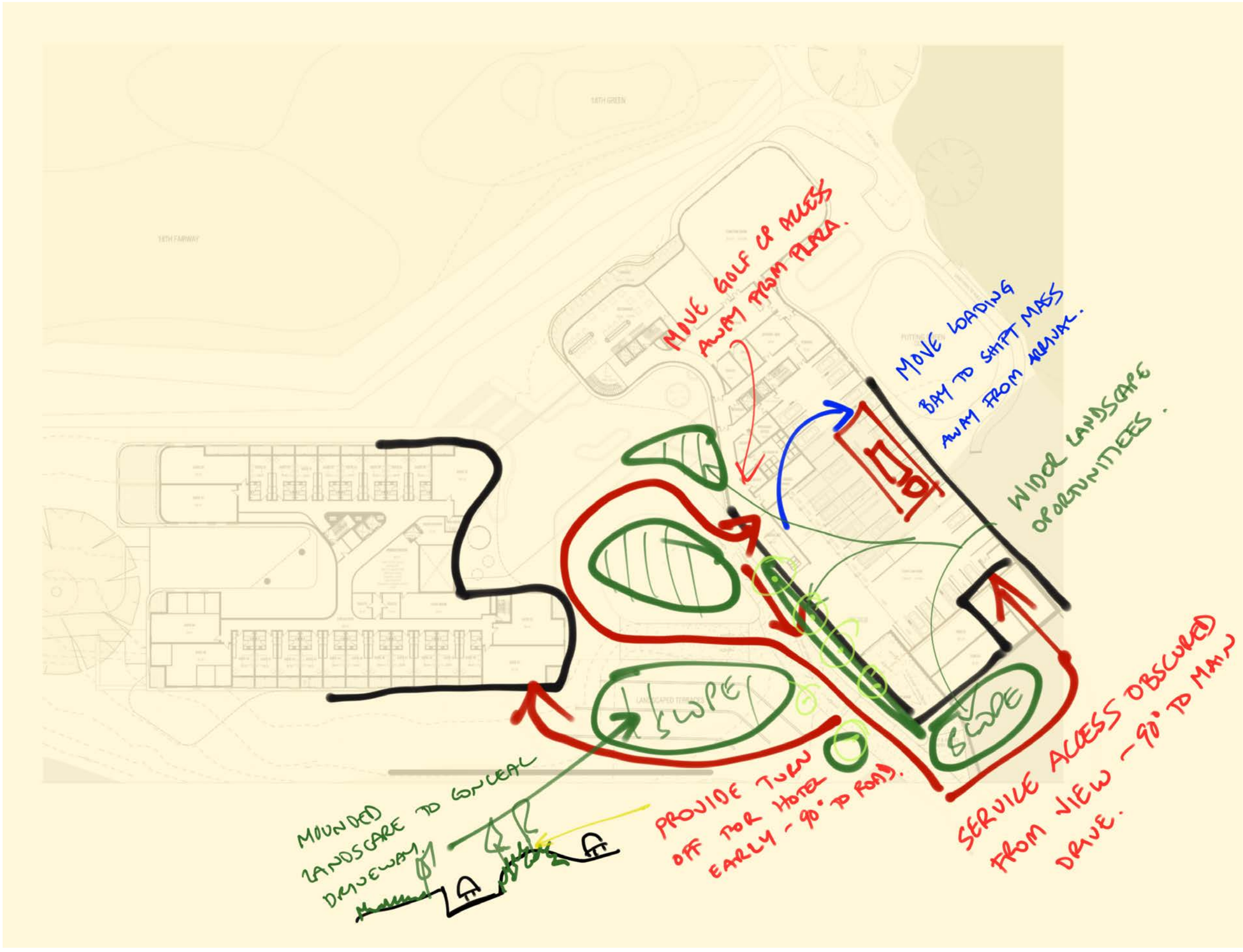


R ARCHITECTURE

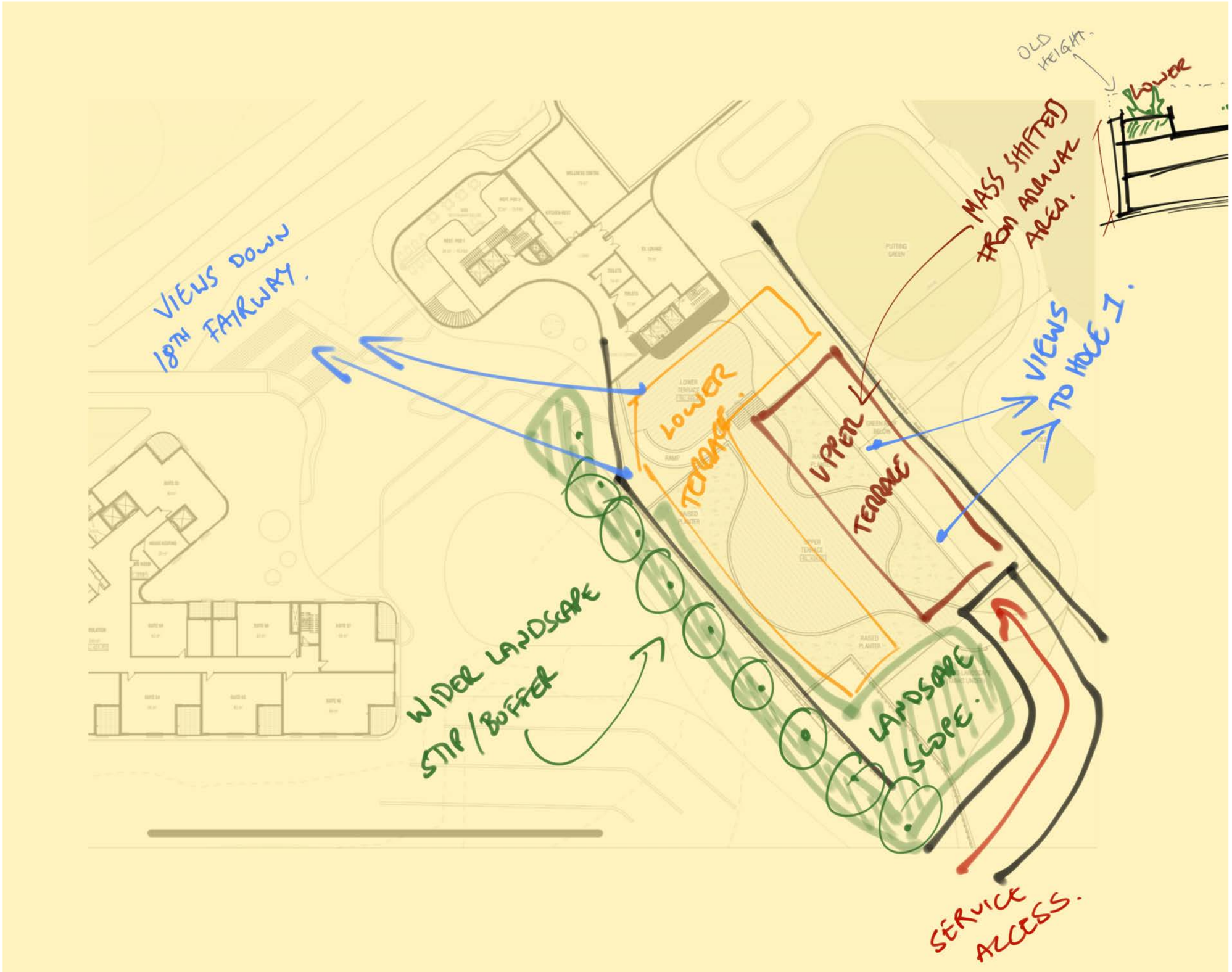
MOUNT LOFTY GOLF ESTATE
DESIGN PROCESS REPORT
23/10/2024



R ARCHITECTURE


MOVE GOLF CP AWAY FROM PLAZA.
MOVE LOADING BAY TO SHIFT MASS AWAY FROM ARRIVAL.
WIDE LANDSCAPE OPPORTUNITIES.
SLOPE
SLOPE
MOUNDED LANDSCAPE TO CONCEAL DRIVEWAY.
PROVIDE TURN OFF FOR HOTEL EARLY - 90° TO ROAD.
SERVICE ACCESS OBSCURED FROM VIEW - 90° TO MAIN DRIVE.

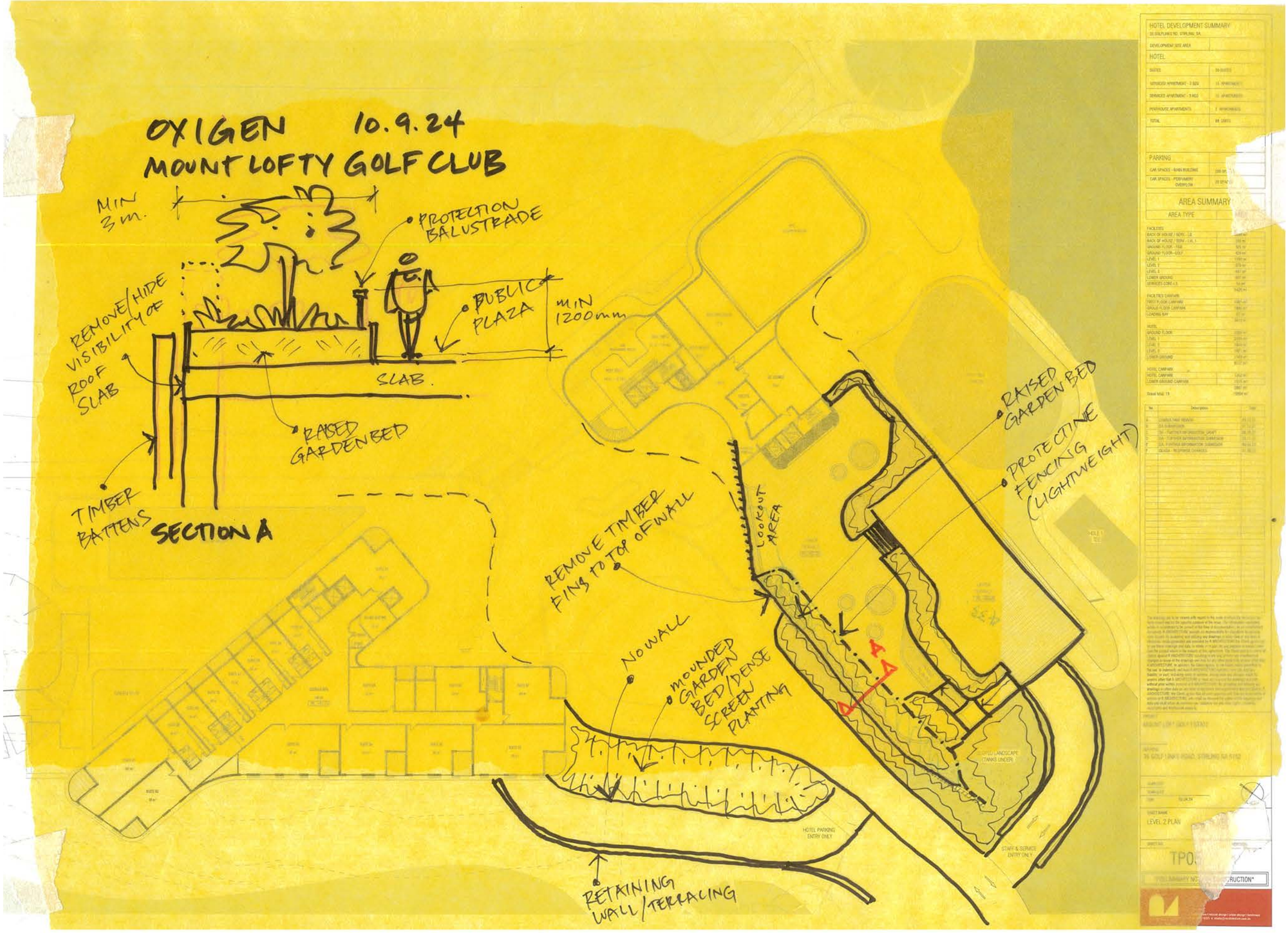
TERRACE CONCEPT SKETCHES



R ARCHITECTURE

CARPARK INTERFACE DETAIL

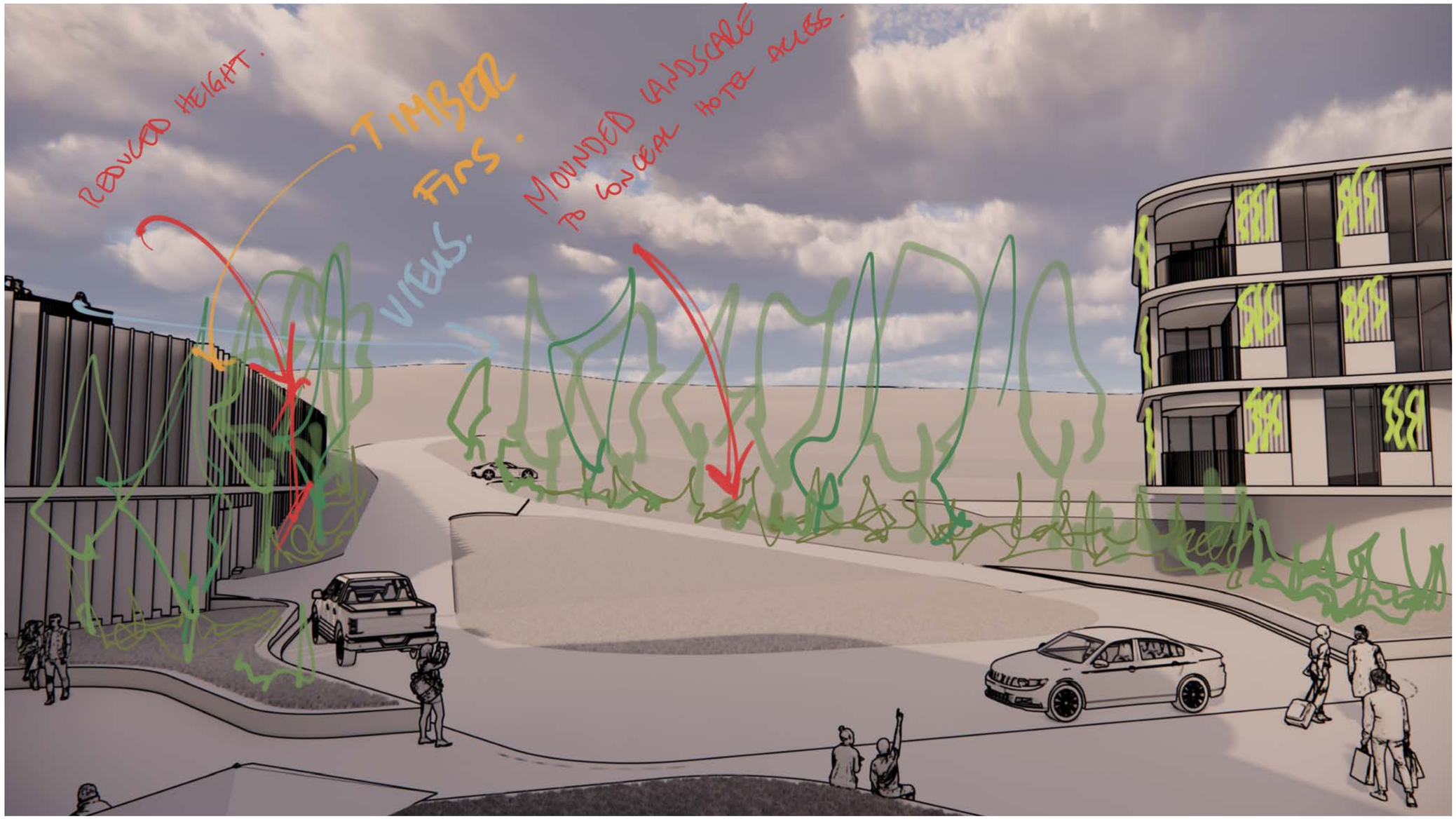
OXIGEN - BALUSTRADE / PLANTER DTAIL



R ARCHITECTURE

MOUNT LOFTY GOLF ESTATE
DESIGN PROCESS REPORT
23/10/2024


REDUCED HEIGHT.
SHIFTED UPPER TERRACE.
VIEWS
VIEWS
CONCEALED ACCESS
WIDER LANDSCAPE STRIP.
CONCEALED ACCESS

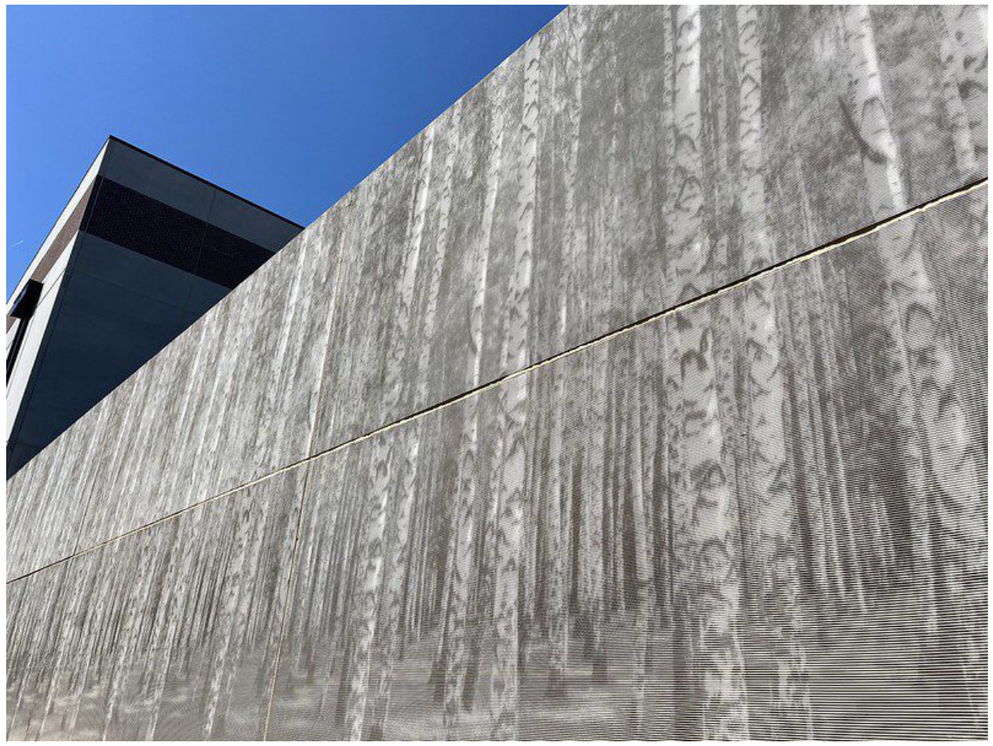

REDUCED HEIGHT.
TIMBER FINS.
VIEWS.
MOUNDED LANDSCAPE TO CONCEAL HOTEL ACCESS.

MATERIAL CHANGES 09

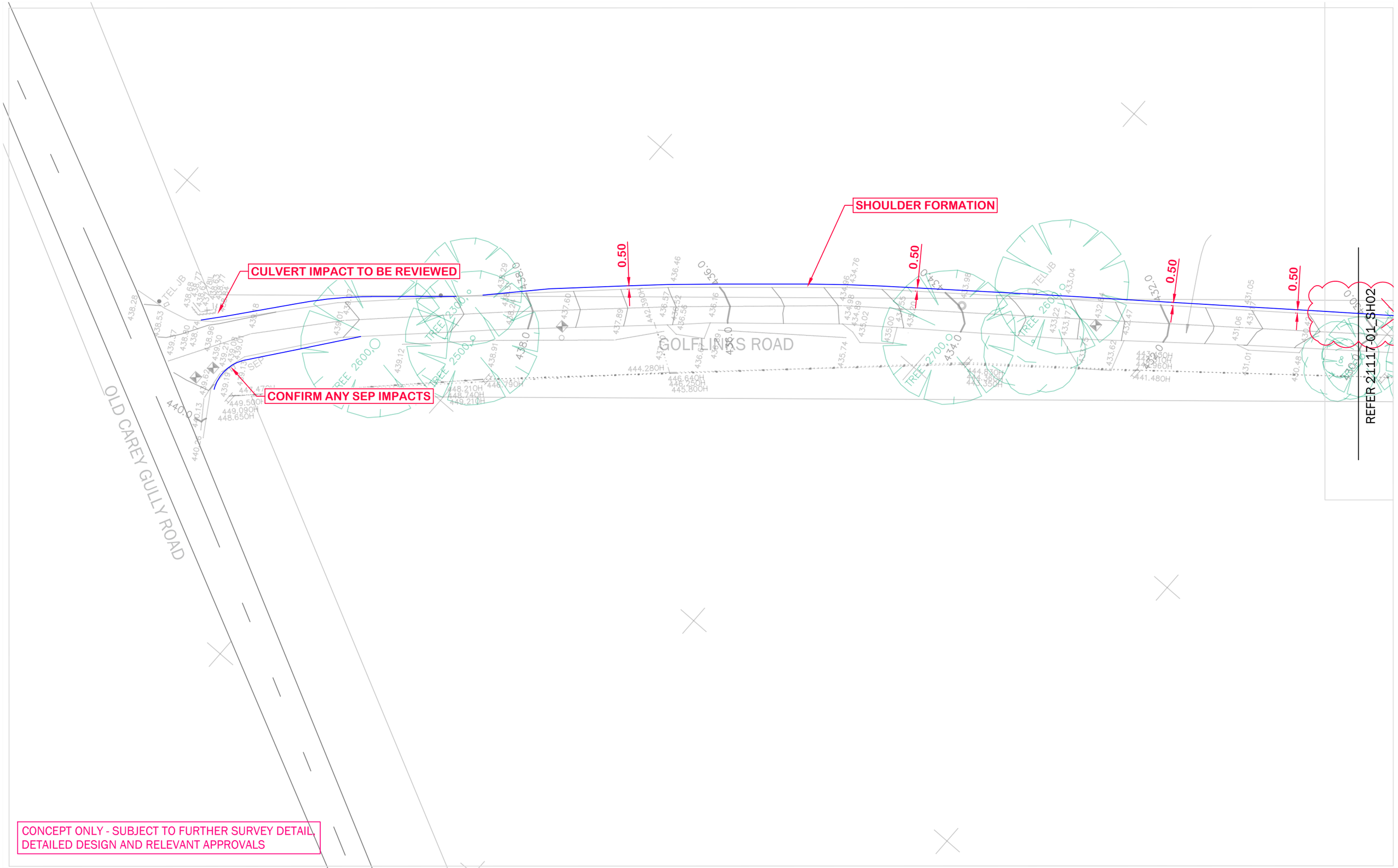
TIMBER FINS

R ARCHITECTURE

MOUNT LOFTY
Golf Estate



Attachment D1 – Proposed Golflinks Road Alterations prepared by Cirqa Traffic Engineers



CONCEPT ONLY - SUBJECT TO FURTHER SURVEY DETAIL, DETAILED DESIGN AND RELEVANT APPROVALS

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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	11/10/24		BNW	BNW
B	28/11/20	SIGNAGE ADDED	BNW	BNW

C21117_10B.DWG 28/11/2024 11:37 AM

N

1:500 @ A3

MOUNT LOFTY GOLF ESTATE

GOLFLINKS ROAD UPGRADE TREATMENT CONCEPT DESIGN

PROJECT # 21117 SHEET # 10_SH01

REPLACE EXISTING CHEVRON MARKER SIGN WITH CORRECT WIDTH MARKER [SIGN CODE: D4-3L]

APPROXIMATE LOCATION OF TRACK ACCESS (NOT SURVEYED)

EXISTING ARRANGEMENT RETAINED (INSUFFICIENT ROOM FOR TREATMENT)

INSTALL WIDTH MARKER [SIGN CODE: D4-3L] TO DELINEATE NARROWED CARRIAGEWAY AND PRESENCE OF TREE

APPROXIMATE LOCATION OF TRACK ACCESS (NOT SURVEYED)

MATCH IN BEHIND EXISTING KERB

DEAD TREE TO BE REMOVED

SHOULDER FORMATION

MATCH TO EXISTING SHOULDER TREATMENT

FURTHER SURVEY DETAIL REQUIRED TO CONFIRM ANY CULVERT IMPACT

CONCEPT ONLY - SUBJECT TO FURTHER SURVEY DETAIL, DETAILED DESIGN AND RELEVANT APPROVALS

REFER 21117-01_SH01

REFER 21117-01_SH03

GOLFLINKS ROAD

GOLFLINKS CLOSE

TBM: NAIL IN BITUMEN
E: 293811.068
N: 6125373.042
EL: 426.70m

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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	11/10/24		BNW	BNW
B	28/11/24	SIGNAGE ADDED	BNW	BNW

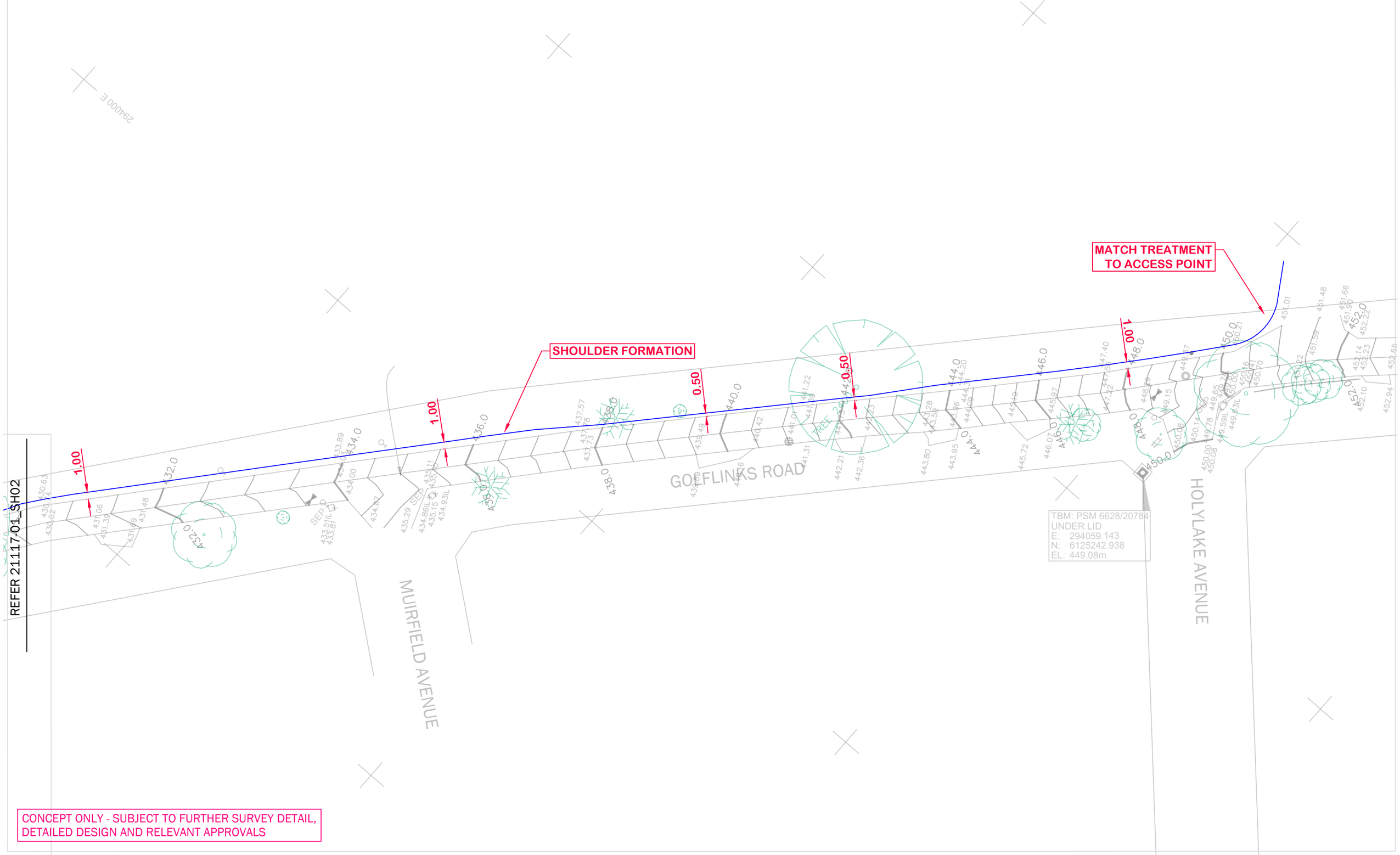
C21117_10B.DWG 28/11/2024 11:38 AM

N
1:500
@ A3

MOUNT LOFTY GOLF ESTATE

GOLFLINKS ROAD UPGRADE TREATMENT CONCEPT DESIGN

PROJECT # 21117 SHEET # 10_SH02



CONCEPT ONLY - SUBJECT TO FURTHER SURVEY DETAIL, DETAILED DESIGN AND RELEVANT APPROVALS

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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	11/10/24		BNW	BNW
B	28/11/24		BNW	BNW

C21117_10B.DWG 28/11/2024 11:38 AM

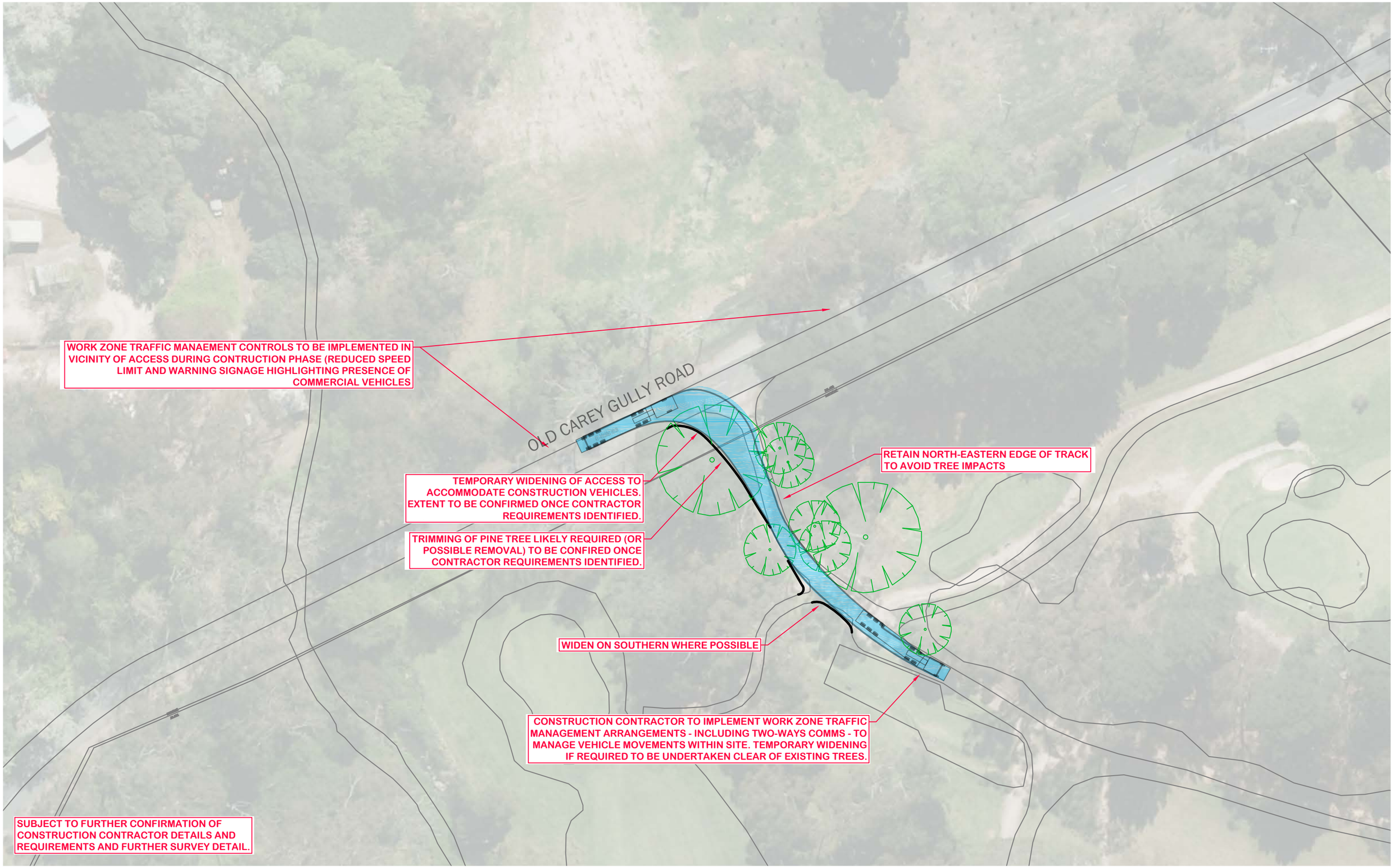
N
1:500
@ A3

MOUNT LOFTY GOLF ESTATE

GOLFLINKS ROAD UPGRADE TREATMENT CONCEPT DESIGN

PROJECT # 21117 SHEET # 01_SH03

Attachment D2 – Proposed Construction and Operational Access Old Carey Gully Road prepared by Cirqa Traffic Engineers



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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	27/11/24		BNW	BNW

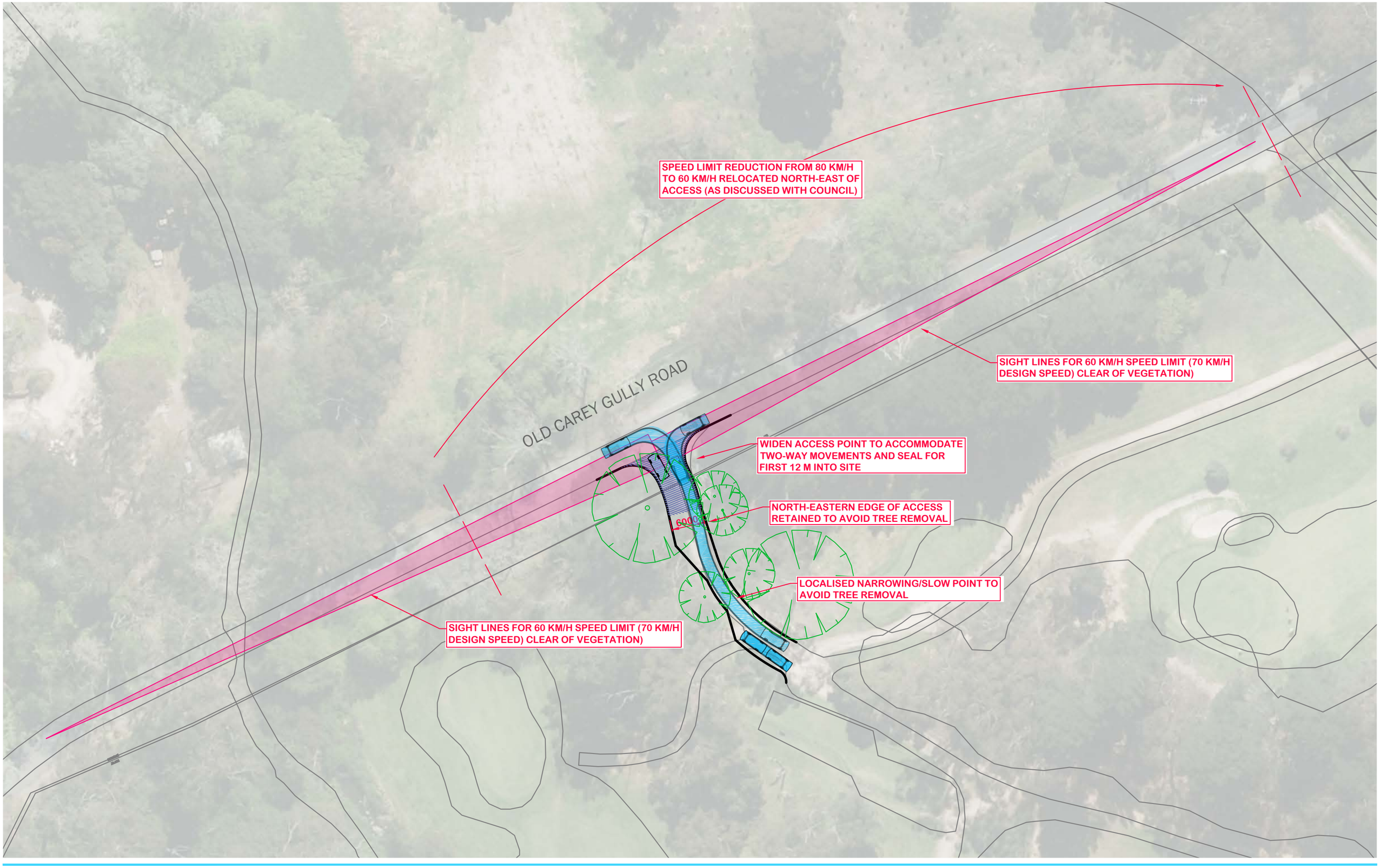
C2117_11A.DWG 28/11/2024 12:38 PM

N
1:600
@ A3

MOUNT LOFTY GOLF ESTATE

OLD CAREY GULLY ROAD ACCESS POINT
CONSTRUCTION MODE

PROJECT # 21117 SHEET # 11_SH01



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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	27/11/24		BNW	BNW

C2117_11A.DWG 28/11/2024 12:38 PM

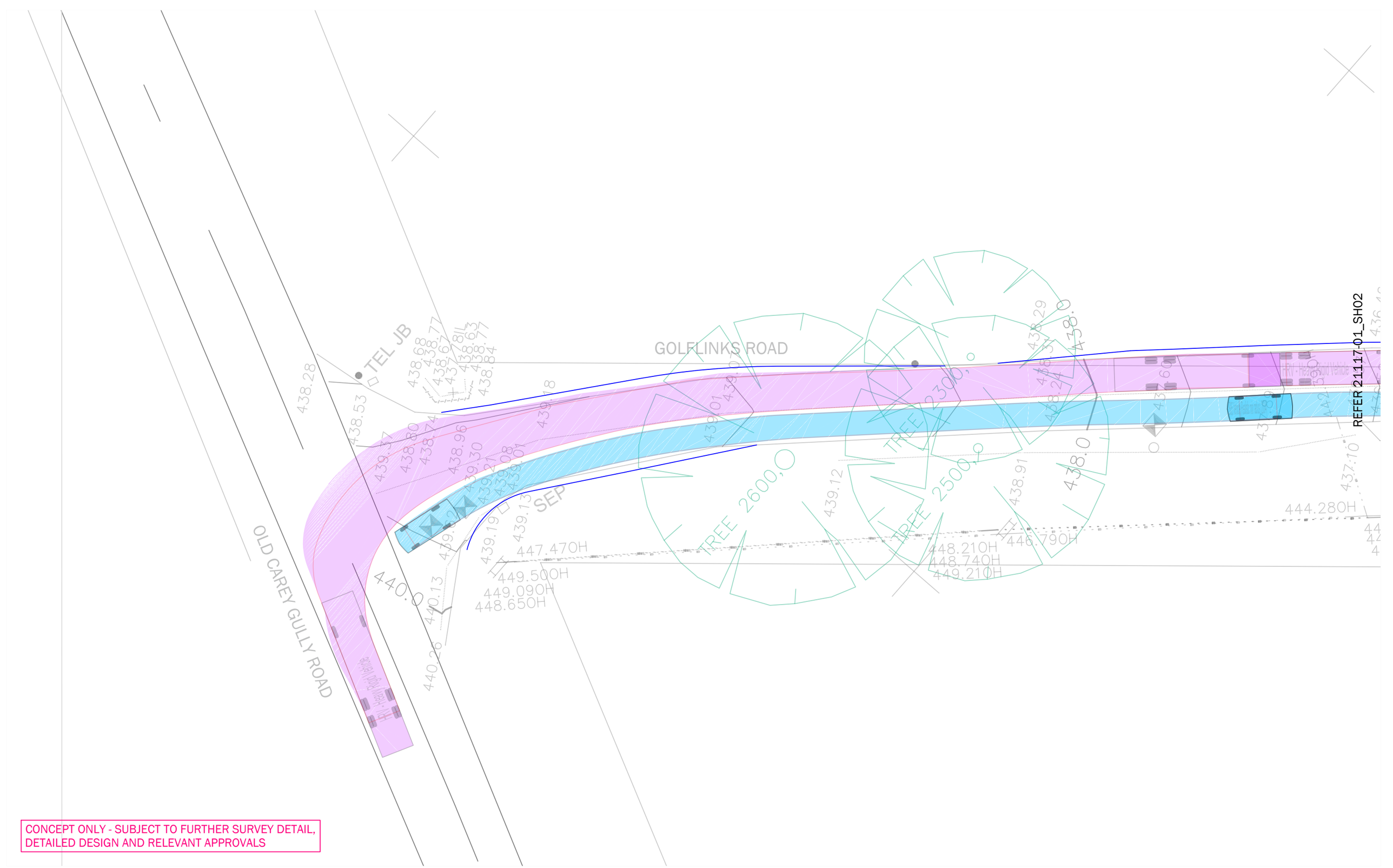
N
1:600
@ A3

MOUNT LOFTY GOLF ESTATE

OLD CAREY GULLY ROAD ACCESS POINT OPERATIONAL MODE

PROJECT # 21117 SHEET # 11_SH02

Attachment D3 – Proposed Golflinks Road 12.5 Swept Path Drawings prepared by Cirqa Traffic Engineers



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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	11/10/24		BNW	BNW
B	28/11/20	SIGNAGE ADDED	BNW	BNW

C21117_10B.DWG 18/12/2024 12:03 PM

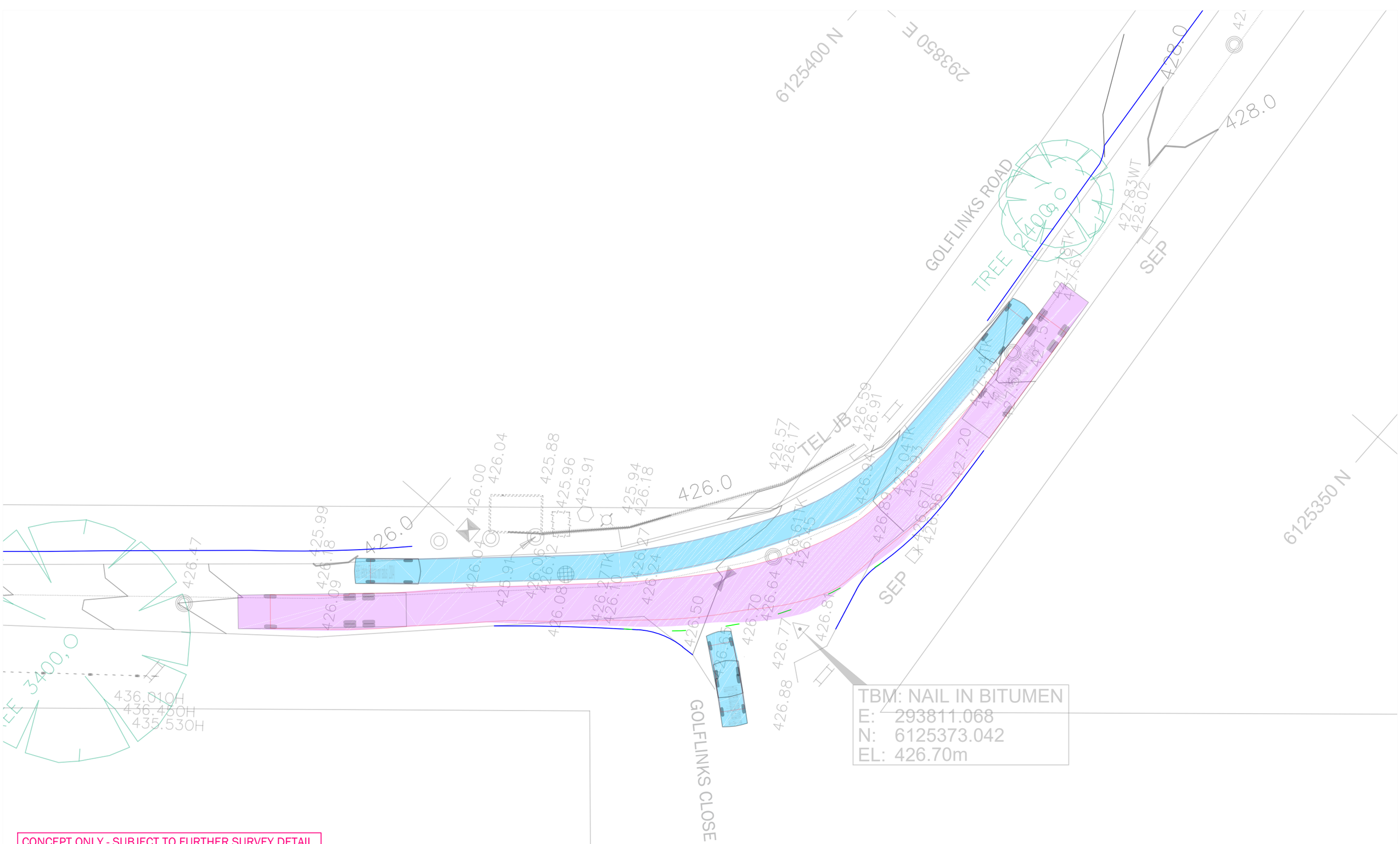
N
1:250
@ A3

MOUNT LOFTY GOLF ESTATE

GOLFLINKS ROAD

12.5 m BUS AND B85 DESIGN CAR TURN PATHS

PROJECT # 21117 SHEET # 10_SH04



CONCEPT ONLY - SUBJECT TO FURTHER SURVEY DETAIL, DETAILED DESIGN AND RELEVANT APPROVALS

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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	11/10/24		BNW	BNW
B	28/11/24	SIGNAGE ADDED	BNW	BNW

C21117_10B.DWG 18/12/2024 12:04 PM

N
1:250
@ A3

MOUNT LOFTY GOLF ESTATE

GOLFLINKS ROAD

12.5 m BUS AND B85 DESIGN CAR TURN PATHS

PROJECT # 21117 SHEET # 10_SH05

CONCEPT ONLY - SUBJECT TO FURTHER SURVEY DETAIL, DETAILED DESIGN AND RELEVANT APPROVALS

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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	11/10/24		BNW	BNW
B	28/11/24	SIGNAGE ADDED	BNW	BNW

C21117_10B.DWG 18/12/2024 12:10 PM

N
1:250
@ A3

MOUNT LOFTY GOLF ESTATE

GOLFLINKS ROAD

12.5 m BUS AND B85 DESIGN CAR TURN PATHS

PROJECT # 21117 SHEET # 10_SH06

GOLF ESTATE ACCESS

GOLFLINKS ROAD

HOWLAKE AVENUE

TBM: PSM 6628/20784
UNDER LID
E: 294059.143
N: 6125242.938
EL: 449.08m

CONCEPT ONLY - SUBJECT TO FURTHER SURVEY DETAIL, DETAILED DESIGN AND RELEVANT APPROVALS

CIRQA™
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DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	11/10/24		BNW	BNW
B	28/11/24	SIGNAGE ADDED	BNW	BNW

C21117_10B.DWG 18/12/2024 12:04 PM

N
1:250
@ A3

MOUNT LOFTY GOLF ESTATE

GOLFLINKS ROAD

12.5 m BUS AND B85 DESIGN CAR TURN PATHS

PROJECT # 21117 SHEET # 10_SH06

Attachment E – Proposed Golflinks Road Alterations and Rising Main Upgrade prepared by FMG Consulting Engineers

Ref: 282604 / S53897

20/12/2024

Venture Capital Developments Pty Ltd

Re: Request for Additional Information at 35 Golflinks Road, Stirling

With reference to correspondence by Adelaide Hills Council (Council) dated 19 August 2024, FMG Engineering has undertaken further review of civil infrastructure requirements to support the proposed Mount Lofty Golf Resort Major Development Project.

This approach has focused on matters related directly to Civil Engineering, which we have identified as item 1,5 and 6 of the Request for Additional Information within the letter. In response to these items we note the following;

Item 1

A draft Civil plan has been undertaken, outlining the civil infrastructure required to realise the requirements of the Traffic Impact Assessment prepared by CIRQA. This draft plan has been prepared over a basic engineering survey of Golflinks Road, and has overlaid ecologist tree location data supplied by Succession Ecology. The works outlined within the draft civil plan are minor in nature, and are all considered feasible, from the perspective of cost, practicality, and safety. Some areas are noted where works in the public reserve may need to extend into the golf course (i.e. battering, or supplementary storage to the pump station), and this is accepted by the developer to be resolved as an easement where necessary. It is noted that Council's existing road does not appear to remain wholly within the road reserve.

Item 5

FMG has reviewed as-constructed drawings of the existing 1700m long rising main which is specified as a DN50 PN12 pipe. Adopting the proposed 2.6L/s pumping rate, FMG has undertaken hydraulic calculations which verify that the rising main would need to be replaced with a PE100 PN20 DN90 rising main to satisfy the total stress cycles over the lifetime of 100 years.

A sketch has been prepared showing the extent of works required to achieve this replacement.

FMG notes that this proposal demonstrates one feasible infrastructure solution to managing wastewater on site, however during detailed design this may be reviewed further for alternative arrangements to the satisfaction of the relevant wastewater authorities (Council and / or SA Water).

Item 6

SA Water has provided confirmation (email, 9/12/2024 - attached) that the existing SA Water sewerage network can accommodate an increase in receiving flow rate from the Adelaide Hills Golflinks CWMS to 2.6 L/s. FMG understands that SA Water has also responded to the Major Projects referral confirming this position.

Concern regarding on-site wastewater has also been noted by the EPA;

"It is of concern to the EPA that wastewater management has not yet been fully resolved and advises that the EPA may not be able to support the proposal if wastewater cannot be managed through off-site systems. This issue should be carefully addressed as part of any conditions should the proposal be approved"

FMG confirms that on site wastewater is not considered a viable solution on this project, and has not been considered in the integrated water management plan. The project will rely on offsite disposal of wastewater (via Council CWMS / SAW)

In summary, we have not identified any matters which cannot be feasibly resolved through additional infrastructure or modifications to existing infrastructure. The solutions provide within this letter are conceptual in nature and are subject to variation during detailed design.

Yours sincerely

Jordan Colbert

National Civil Manager
FMG Engineering

Attached:
Draft Civil Works Plan
Rising Main upgrade sketch
SAW confirmation of Sewer

CULVERT TO BE EXTENDED (APPROX 1.5m) & NEW HEADWALL INSTALLED. POST AND RAIL FENCING TO BE RELOCATED TO NEW HEADWALL LOCATION

BATTER INTO GOLF COURSE LAND AT APPROX 1:10 SLOPE (MAX1:6) WHERE ROAD HIGHER THAN ADJACENT LAND

PROPOSED SHOULDER FORMATION.

0.50

0.50

GOLFLINKS ROAD

OLD CAREY GULLY ROAD

RECONSTRUCT EXISTING SIDE ENTRY PIT LID TO MATCH NEW ROAD NEATLY

DCDB BOUNDARY.

MATCH LINE

PROPOSED SHOULDER FORMATION. ONLY MINOR VERGE ALTERATIONS REQUIRED DUE TO LEVEL VERGE IN THIS AREA.

EX. CULVERT TO BE PROTECTED AND RETAINED (NO REQUIRED WORKS IDENTIFIED)

MATCH TO EXISTING SHOULDER TREATMENT

PROPOSED SWALE BEYOND SHOULDER EXTENSION TO MATCH INTO EXISTING SWALE.

MODIFICATIONS TO PUMP STATION TO FACILITATE INCREASED WASTEWATER LOAD TBC DURING DETAILED DESIGN. ADDITIONAL SPACE TO BE GRANTED AS EASEMENT OVER GOLF COURSE LAND AS DICTATED BY INFRASTRUCTURE REQUIREMENTS.

0.50

0.50

0.50

1.00

GOLFLINKS ROAD

GOLFLINKS CLOSE

DEAD TREE TO BE REMOVED.

EXISTING HEAVILY VEGETATED ROADSIDE SWALE TO BE PROTECTED AND RETAINED (NO REQUIRED WORKS IDENTIFIED)

MATCH LINE

TBM: NAIL IN BITUMEN
E: 293811.068
N: 6125373.042
EL: 426.70m

SCALE 0 2 4 6 8 10 METRES

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	INIT	APP
C	INDICATIVE PUMP STATION EXTENSION REVISED	19.12.2024	CC	JTC
B	REMOVAL OF DEAD TREE TO IMPROVE TRAFFICABILITY	4.11.2024	CC	JTC
A	PRELIMINARY ISSUE	31.10.2024	CC	JTC

FMG 50 YEARS
ENGINEERING FORWARD THINKING
ADELAIDE MELBOURNE SYDNEY BRISBANE
P 1300 975 878 ABN 58 083 071 185
fmgengineering.com.au
ISO 9001 Quality Management System | ISO 45001 OH&S Management System

SQUARTHRE

CLIENT: THE MOUNT LOFTY GOLF ESTATE PTY LTD
PROJECT TITLE: STIRLING GOLF CLUB REDEVELOPMENT
SITE ADDRESS: 35 GOLFLINKS ROAD, STIRLING SA 5152
DRAWING TITLE: PROPOSED GOLF LINKS ROAD ALTERATIONS - SHEET 1 OF 3

DESIGNED	DRAWN
CC	CC
CHECKED	No. OF SHEETS
JTC	3
SCALE	DATE STARTED
1:500 @ A1	1.10.2024
SITE ID & JOB No.	REV.
S53897-282604	
DRAWING No.	
C101	C

MATCH IN BEHIND EXISTING KERB

VEGETATION TO BE TRIMMED AS REQUIRED TO ACHIEVE 300mm OFFSET FROM EDGE OF NEW SHOULDER

APPROXIMATE LOCATION OF TRACK ACCESS (NOT SURVEYED)

EXISTING ARRANGEMENT RETAINED (INSUFFICIENT ROOM FOR TREATMENT). IF COUNCIL PREFER TREES TO BE REMOVED ACCESS TRACK LEVELS CAN BE LIFTED TO AMELIORATE RISK OF DROPOFF ADJACENT ACCESS ROAD. DROPOFF RISK IS NEGLIGABLE IF TREE'S REMAIN.

GOLFLINKS ROAD

1.00

1.00

1.00

0.50

0.50

2m

TBM: NAIL IN BITUMEN
E: 293811.068
N: 6125373.042
EL: 426.70m

MATCH LINE

MATCH LINE

MATCH LINE

MATCH LINE

CULVERT TO BE EXTENDED (APPROX 2m) & NEW HEADWALL INSTALLED MIN 2m FROM NEW SHOULDER

PROPOSED SHOULDER FORMATION. ONLY MINOR VERGE ALTERATIONS REQUIRED DUE TO LEVEL VERGE IN THIS AREA.

APPROXIMATE LOCATION OF TRACK ACCESS (NOT SURVEYED)

MUIRFIELD AVE

SCALE 0 2 4 6 8 10 METRES

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	INIT	APP
A	PRELIMINARY ISSUE	31.10.2024	CC	JTC

FMG 50 YEARS ENGINEERING FORWARD THINKING
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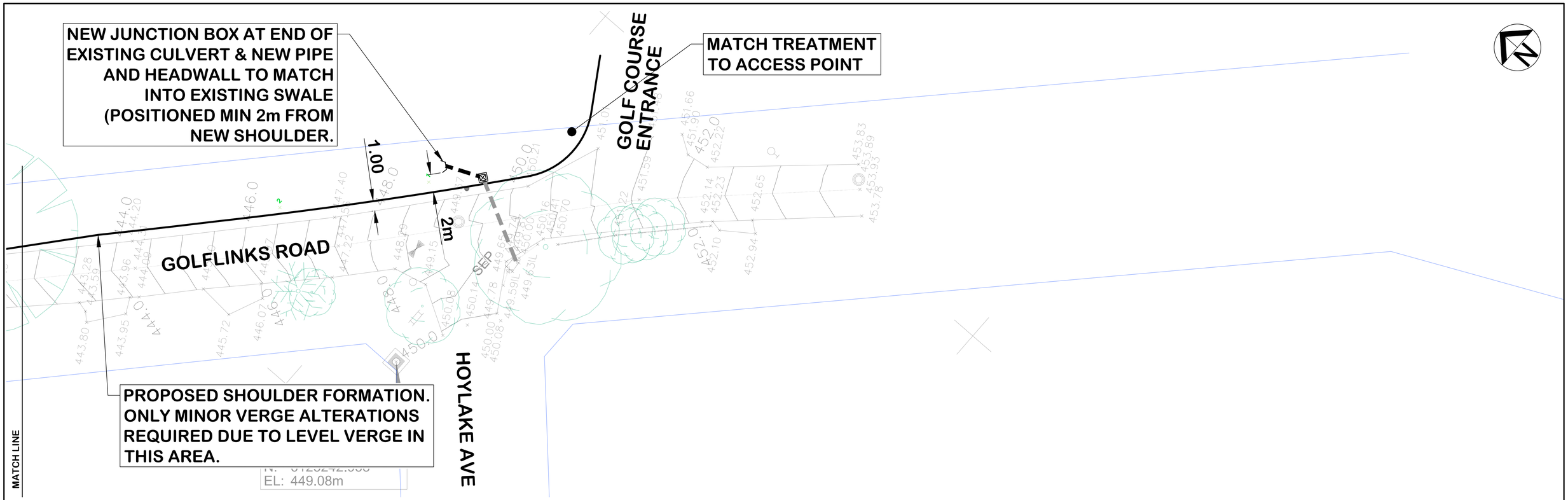
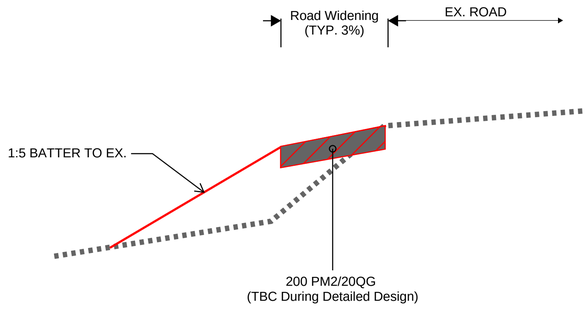
ISO 9001 Quality Management System | ISO 45001 OH&S Management System
SIGMA QRE

CLIENT	THE MOUNT LOFTY GOLF ESTATE PTY LTD
PROJECT TITLE	STIRLING GOLF CLUB REDEVELOPMENT
SITE ADDRESS	35 GOLFLINKS ROAD STIRLING SA 5152
DRAWING TITLE	PROPOSED GOLF LINKS ROAD ALTERATIONS - SHEET 2 OF 3
DESIGNED	CC
DRAWN	CC
CHECKED	JTC
No. OF SHEETS	3
SCALE	1:500 @ A1
DATE STARTED	1.10.2024
SITE ID & JOB No.	S53897-282604
DRAWING No.	C102
REV.	A





TYPICAL SECTION OF PROPOSED ROAD WIDENING

SCALE 0 2 4 6 8 10 METRES

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	INIT	APP
A	PRELIMINARY ISSUE	31.10.2024	CC	JTC

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fmgengineering.com.au | P 1300 975 878 | ABN 58 083 071 185
ISO 9001 Quality Management System | ISO 45001 OH&S Management System

SIGNATURE

CLIENT	THE MOUNT LOFTY GOLF ESTATE PTY LTD
PROJECT TITLE	STIRLING GOLF CLUB REDEVELOPMENT
SITE ADDRESS	35 GOLFLINKS ROAD STIRLING SA 5152
DRAWING TITLE	PROPOSED GOLF LINKS ROAD ALTERATIONS - SHEET 3 OF 3

DESIGNED	CC
DRAWN	CC
CHECKED	JTC
No. OF SHEETS	3
SCALE	1:500 @ A1
DATE STARTED	1.10.2024
SITE ID & JOB No.	S53897-282604
REV.	A
DRAWING No.	C103

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	INIT	APP
A	PRELIMINARY ISSUE	31.10.2024	CC	JTC

FMG 50 YEARS
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ISO 9001 Quality Management System | ISO 45001 OH&S Management System

SIGNATURE

CLIENT: THE MOUNT LOFTY GOLF ESTATE PTY LTD

PROJECT TITLE: STIRLING GOLF CLUB REDEVELOPMENT

SITE ADDRESS: 35 GOLFLINKS ROAD, STIRLING SA 5152

DRAWING TITLE: PROPOSED RISING MAIN REPLACEMENT

DESIGNED	CC
DRAWN	CC
CHECKED	JTC
No. OF SHEETS	3
SCALE	1:500 @ A1
DATE STARTED	1.10.2024
SITE ID & JOB No.	S53897-282604
REV.	A
DRAWING No.	C104

Jordan Colbert

From: Pearce, Aaron <Aaron.Pearce@sawater.com.au>
Sent: Monday, 9 December 2024 1:24 PM
To: Jordan Colbert
Cc: Majorld
Subject: H01143986 - Stirling Golf Course

OFFICIAL

Hi Jordan,

I apologise for the delayed response by SA Water on this one.

SA Water has completed assessment on the Council request to increase discharge to the SA Water network to enable the Stirling Golf Course development via a private Council owned pumping station.

SA Water has investigated the existing network capacity and ascertained that the SA Water network can accommodate an increase in flow rate to 2.6L/s. We understand this would be enabled by upgrading the Council private pump station to discharge at the rate of 2.6L/s and installation of emergency storage as well.

To accept the flows, Council, as the service provider to Stirling Golf Course development, will need to apply to SA Water for a trade waste discharge permit. I have emailed the Adelaide Hills Council accordingly to action this.

SA Water does not reserve capacity in the network and as such this capacity assessment is valid for a period of 12 months.

Regards,

Aaron Pearce
Account Manager

Aaron.Pearce@sawater.com.au • **0439 813 843**
250 Victoria Square/Tarntanyangga ADELAIDE SA 5000

sawater.com.au

Attachment F – Amended Native Vegetation Clearance Report prepared by Succession Ecology

succession ecology

Native Vegetation Clearance

Mount Lofty Golf Estate

Data Report

Clearance under the *Native Vegetation Regulations 2017*

19 December 2024

Prepared by Dr C. E. Timothy Paine, Rachael Coggan, and Luisa Gonzalez

Document Specification

Client:	URPS
Client contact:	Chelsea Jurek
Client email:	cjurek@urps.com.au
Succession Ecology contact:	Dr C. E. Timothy Paine
Succession Ecology email:	tim@successionecology.com.au
Prepared by:	Luisa Gonzalez, Rachael Coggan and Dr C.E. Timothy Paine
Document #:	ES0324-03
Citation:	Succession Ecology (2024). Native Vegetation Clearance Mount Lofty Golf Estate Data Report. Succession Ecology report ES0324-03, prepared for URPS.

DOCUMENT HISTORY

Version	Issue Date	Prepared By	Reviewed By	Status
1	24/03/2024	Luisa Gonzalez and Rachael Coggan	Dr. Briony Horner and Doreen Marchesan	Draft
2	26/03/2024	Luisa Gonzalez and Abhishek Gopalakrishnan	Dr. Briony Horner	Draft
3	02/04/2024	Luisa Gonzalez	Dr. Briony Horner	Final
4	19/12/2024	Dr C. E. Timothy Paine	Dr C. E. Timothy Paine	Final

Acknowledgement of Country

Succession Ecology acknowledges and pays respect to the past, present and future Traditional Custodians and Elders of this nation and the continuation of cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander peoples.

Glossary

AoLA	Atlas of Living Australia
BAM	Bushland Assessment Method
BDBSA	Biological Database of South Australia (maintained by DEW)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEW	Department of Environment and Water (South Australia)
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
IBRA	Interim Biogeographical Regionalisation of Australia
MNES	Matters of National Environmental Significance
NVC	Native Vegetation Council
PMST	Protected Matters Tool
SAM	Scattered Tree Assessment Methodology
SAPPA	South Australian Property and Planning Atlas
SEB	Significant Environmental Benefits
TEC	Threatened Ecological Community
VA	Vegetation Association
MLR	Mount Lofty Ranges
AMLR	Adelaide Mount Lofty Ranges

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1. Application information

1.1 Application details

Applicant:	URPS on behalf of Mount Lofty Golf Estate Pty Ltd		
Key contact:	Chelsea Jurek cjurek@urps.com.au 0408 888 827		
Landowner:	Mount Lofty Golf Estate Pty Ltd.		
Site Address:	Stirling Golf Club, 35 Golflinks Road, Stirling South Australia, 5152		
Local Government Area:	Adelaide Hills Council	**Hundred:**	Onkaparinga
Title ID:	CT/5891/805	**Parcel ID:**	D59212 A53

1.2 Summary of proposed clearance

Purpose of clearance	Clearance is required for the construction of a new multistorey hotel and associated infrastructure. Other development, including the adaptive reuse of the existing "Perfumery", new carparking facilities, and roadways will use the existing footprint and not impact native vegetation.
Native Vegetation Regulation	Schedule 1, Part 6 – other activities (Regulation 12), clause 34, Infrastructure.
Description of the vegetation under application	Clearance of native vegetation is proposed within the following: Seven scattered trees One Vegetation Association - VA1: *Eucalyptus obliqua* open forest over open shrub and sparse native grasses, tussocks and weed species.
Total proposed clearance – area (ha) and number of trees	The proposed clearance is 0.431 ha (VA1) and seven scattered trees.
Level of clearance	Level 3
Overlay (Planning and Design Code)	Native Vegetation Overlay Although close to the site, the State Significant Vegetation Overlay is not impacted by the development.
Mitigation hierarchy	The design has been largely restricted and purposely planned in areas of existing infrastructure and exotic vegetation to minimise the removal of native vegetation.
SEB Offset proposal	A payment into the fund of $98,499.49 (includes admin fee)

2. Purpose of clearance

2.1 Description

Succession Ecology have been engaged by URPS, on behalf of Mount Lofty Golf Estate Pty Ltd, to undertake a native vegetation assessment for clearance associated with the proposed redevelopment of the Stirling Golf Course. This redevelopment will include a new multistorey hotel, the adaptive reuse of the existing Perfumery, new carparking facilities and access, and associated infrastructure. The design has been finalised and is not expected to change. Any further updates will be provided.

2.2 General location

The Project Area is the located within the Stirling Golf Course at 35 Golflinks Road, Stirling, which is located approximately 2.5 km northwest of Bridgewater and approximately 15 km southeast of Adelaide, SA (Figure 1). The Project Area is adjacent to Mount George Conservation Park (MGCP).

2.3 Background

The redevelopment of the Stirling Golf Course and Club intends to rebrand it as the Mount Lofty Golf Estate, which was the original name of the golf course when it first opened in 1925. The redevelopment aims to improve the tourism market in the area, as well as improving access and drawing more visitors and tourists to the club.

2.3.1 Administrative Boundaries

The Project Area is sited within the Adelaide Hills Local Government Area and is in the Hills and Fleurieu Landscape Board Region. The Project lies within the Uraidla Association, the Mount Lofty Ranges Sub-region, and the Flinders Lofty Block Region, as defined by the Interim Biogeographical Regionalisation of Australia (IBRA).

2.3.2 Local and Regional Land Use

Land use in the surrounding locality to the Project Area includes Mount George Conservation Park (northeast, east and southeast to the Project Area) residential, and agricultural land uses. The Southern Expressway is located south of the Project Area. Cox Creek traverses the wider Project Area, however this creek is not within the proposed development's impact area.

2.3.3 Native Vegetation Remnancy

The Project lies within the Uraidla Association, the Mount Lofty Ranges Sub-region, and the Flinders Lofty Block Region, as defined by the Interim Biogeographical Regionalisation of Australia (IBRA). Approximately 15% (46,342 ha) of the Mount Lofty Ranges IBRA Subregion, and approximately 26% (3,674 ha) of the Uraidla IBRA Environmental Association is mapped as remnant vegetation. Of this, 27% (12,706 ha) and 20% (749 ha) is formally conserved and protected, respectively (DCCEEW 2022). A review of NatureMaps indicates the native vegetation remnancy within 5 km of the Project Area is 28%. The Mount Lofty Ranges has undergone significant vegetation clearance over time.

The vegetation present within the Project Area includes remnant patches of native vegetation, large remnant scattered trees and planted vegetation. Exotic vegetation is associated with the golf course.

2.3.4 Associated Development

This application pertains to the development of a new multi-storey hotel building and associated infrastructure, as well as the redevelopment of the existing Perfumery building, as detailed in section 2.4. Earlier design iterations included the development of accommodation known as 'pods'. However, the pods have since been removed from the scope of works due to the impact to native vegetation.

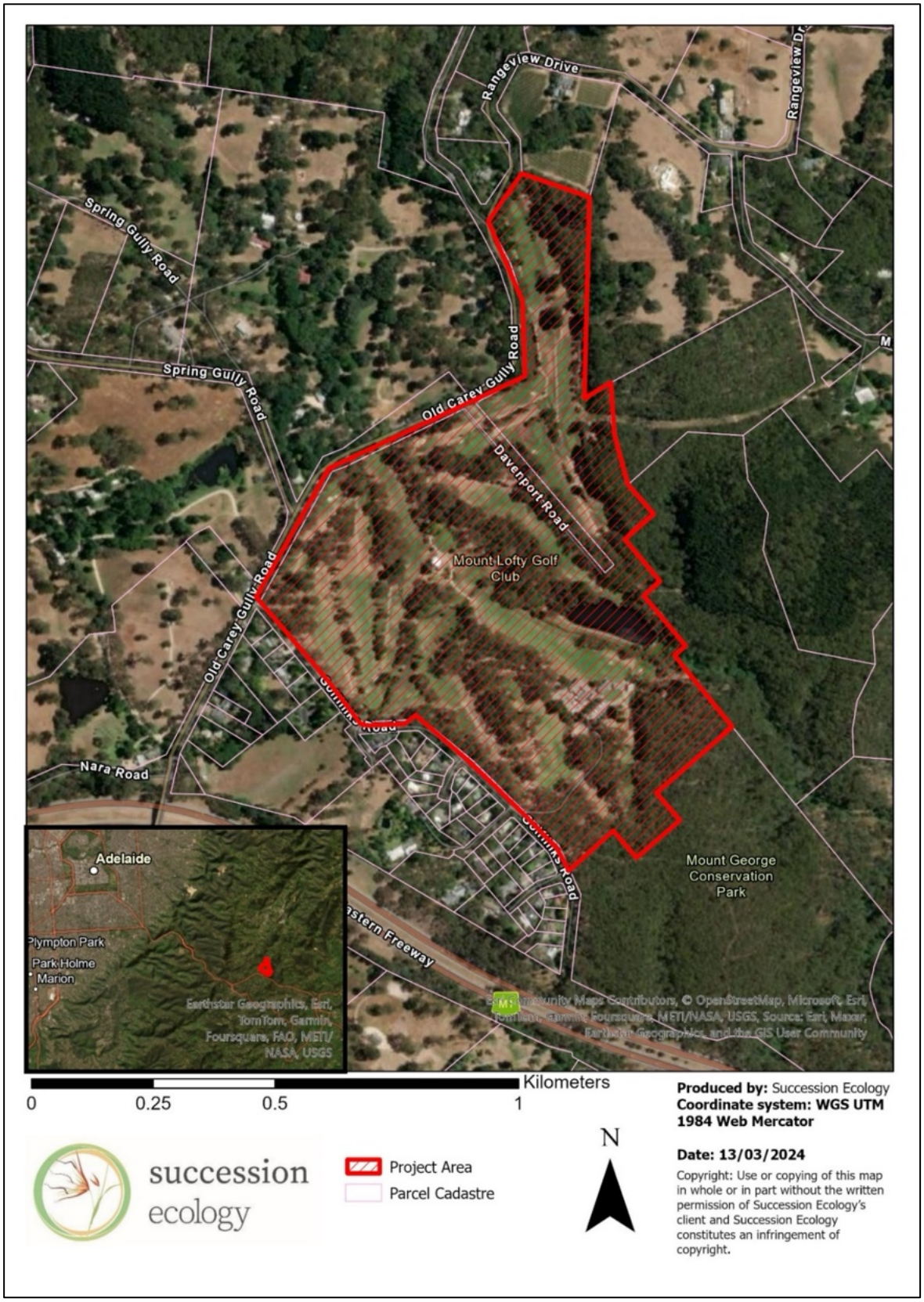

Figure 1: The Project Area (outlined and hatched in red).

2.4 Details of the proposal

This assessment relates to Stage 1 of the proposed development, which includes:

- Demolish the existing clubrooms and ancillary infrastructure.
- Construction of a new multi-story hotel (clearance calculations have included a 35 metre CFS buffer)
- Upgrades to the existing golf course
- Construction of two new carparking areas providing a total of approximately 200 car parking spaces.
- Adaptive reuse of the existing "Perfumery", an existing local heritage building.

The adaptive reuse of the perfumery will include a refurbishment, which will provide a multipurpose space for use as a café, retail, or function events. The extension of the Perfumery will include a covered outdoor dining area, the planting of garden species and the addition of an orchard. The Perfumery is set to temporarily house the golf club during the construction phase of the new hotel. The golf course will retain the 18-hole course, and undergo improvements, along with the facilities building and the refurbishment of the function facilities and golf cart storage areas. The redevelopment will also include a clubhouse in the new building, along with a new pro-shop, administration area, gym, change rooms and two new car parking areas.

Emergency vehicle access will be located via the western entrance from Golflinks Road, with the main access point located via Golflinks Road. A designated service bay for service vehicles and waste collection will be developed, along with a *porte cochere* and valet areas for buses and guests. This report has been developed in line with the scope above and the Landscape Site Masterplan Rev06 (28/03/2024) (Figure 2).

Project designs have gone through several iterations that have reduced the extent of impacts on the environment. These revisions included:

- Removal of accommodation pods. Early designs included as many as 50 free-standing accommodation 'pods', in addition to the multi-storey hotel, which would have had a substantial impact on native vegetation. The current design has eliminated the proposed accommodation pods.
- Retention of internal access roads. Early designs had included revisions of internal access roads, which may have had a substantial impact on native vegetation. The current design retains the current design of access roads, reducing the scope of environmental impact.
- Re-alignment of a car park. The car park to the north of the Perfumery has been moved to an open area to the north to avoid impacts to native vegetation.
- Re-alignment of the Perfumery Gardens and Orchard. This will be moved to the northwest to avoid native vegetation impacts and be-redesigned to integrate with existing amenity vegetation.
- Redesign of the hotel. The proposed multi-storey hotel has been subject to multiple design iterations to reduce the impact footprint and reduce native vegetation removal as far as possible.

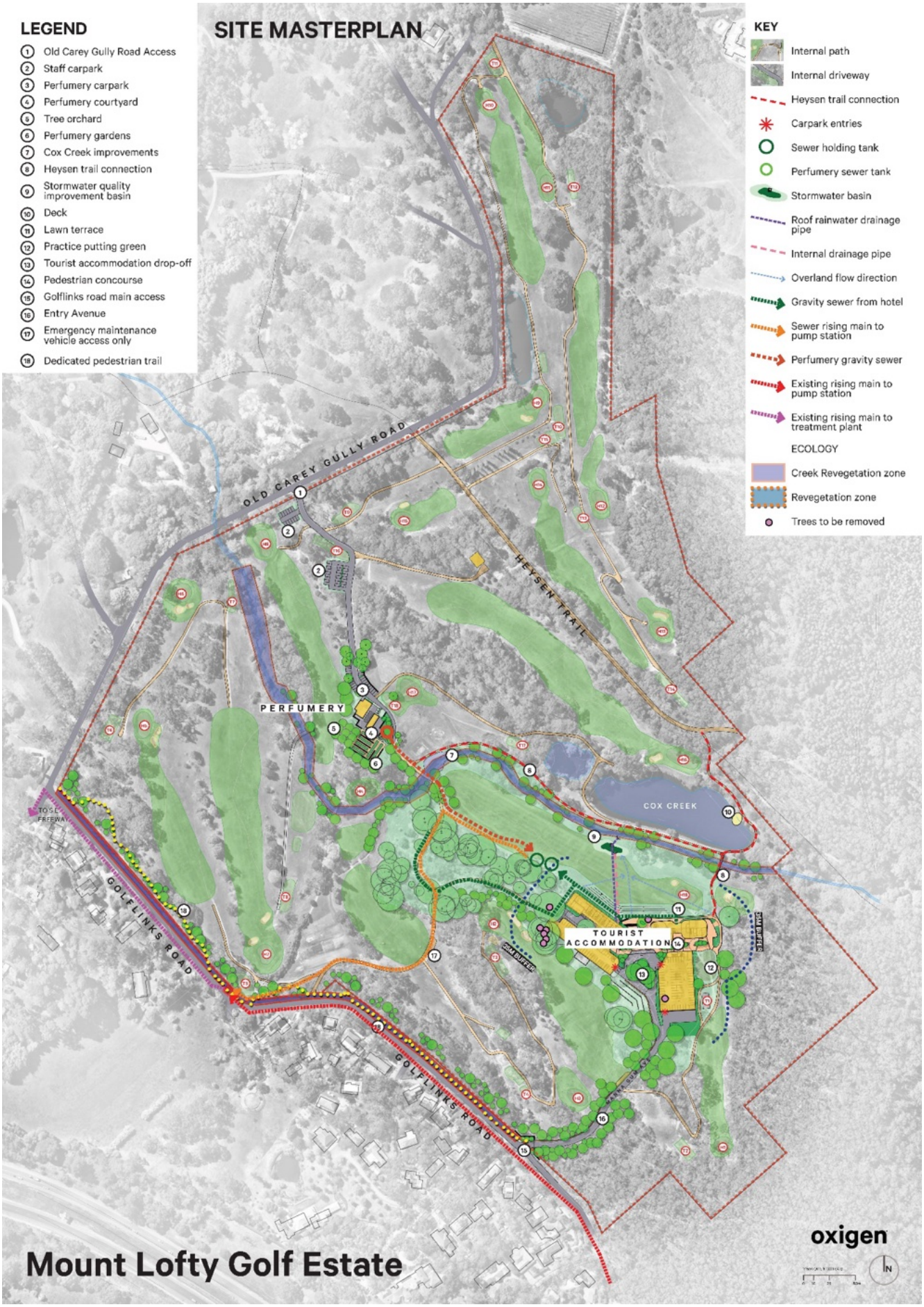

Figure 2: Masterplan of the Mount Lofty Golf Estate redevelopment (Rev06, 28/03/2024).

2.5 Approvals required or obtained

This Project is subject to the *Planning, Development and Infrastructure Act 2016 (PDI Act)*, and the *Native Vegetation Act 1991* (*NV Act*; Figures 3 and 4). An *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* Self-assessment has been undertaken for the Project. It was determined that the Project will result in no significant impacts to Matters of National Environmental Significance (MNES). As such, the Project will not require referral under the *EPBC Act*.

2.6 Native vegetation regulation

The proposed clearance will be assessed under the *NV Regulations*:

- Schedule 1, Part 6 – other activities (Regulation 12), clause 27, Major projects

2.7 Development Application Information

A review of the South Australian Property and Planning Atlas (SAPPA) indicated the Project Area falls within the Recreation Zone, in which the Native Vegetation Overlay applies. The State Significant Native Vegetation partly applies to the Project Area, but not to the impact footprint. A Development Application (Performed Assessed) was lodged on the 9 August 2023 by Mount Lofty Golf Estate Pty Ltd (Application Number 473/D024/23) and is currently under assessment.

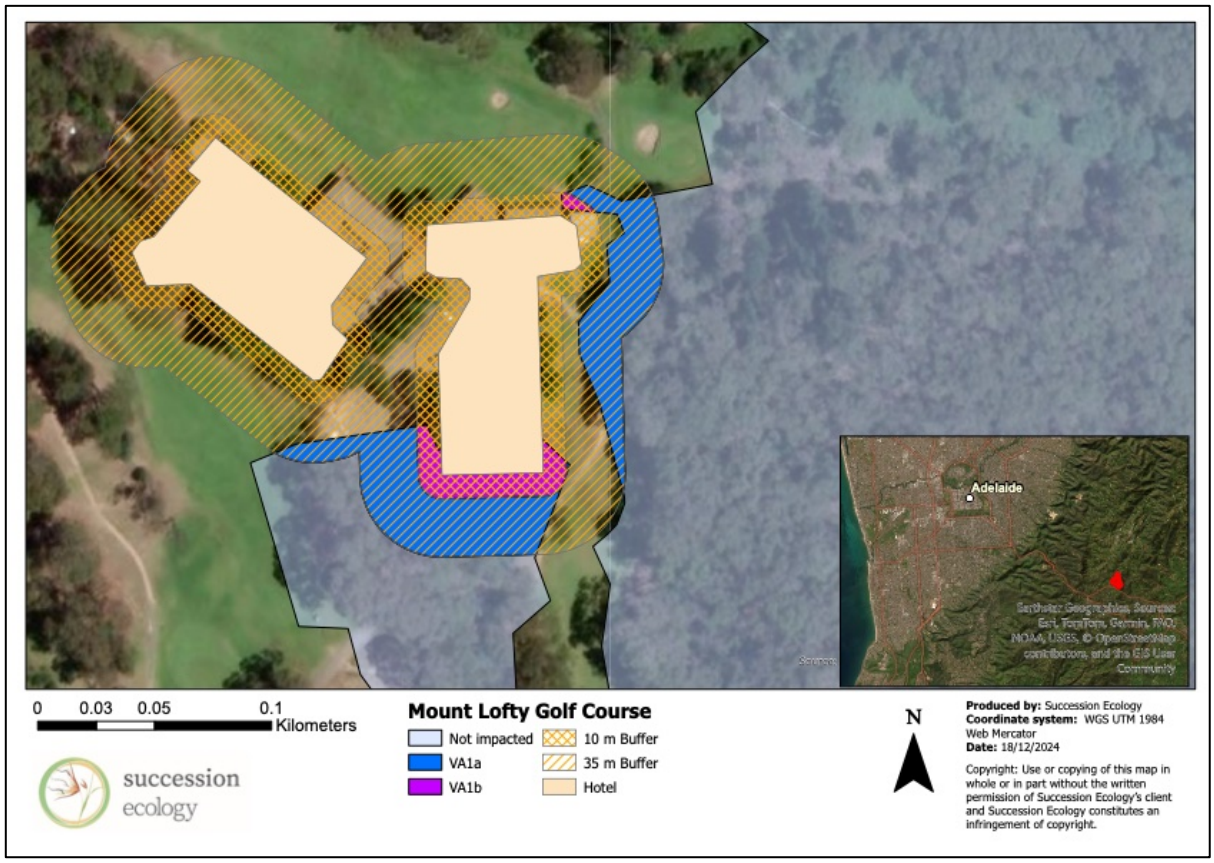

Figure 3: Locations of developmental footprint for the hotel infrastructure (indicated in peach), 10 m buffer indicated with cross hatch, 35-m County Fire Service (CFS) indicated with single hatch. VA1a, which is the area of direct impact on VA 1 is indicated in purple, whereas VA1b, the area of single-stratum impact, is indicated in royal blue.

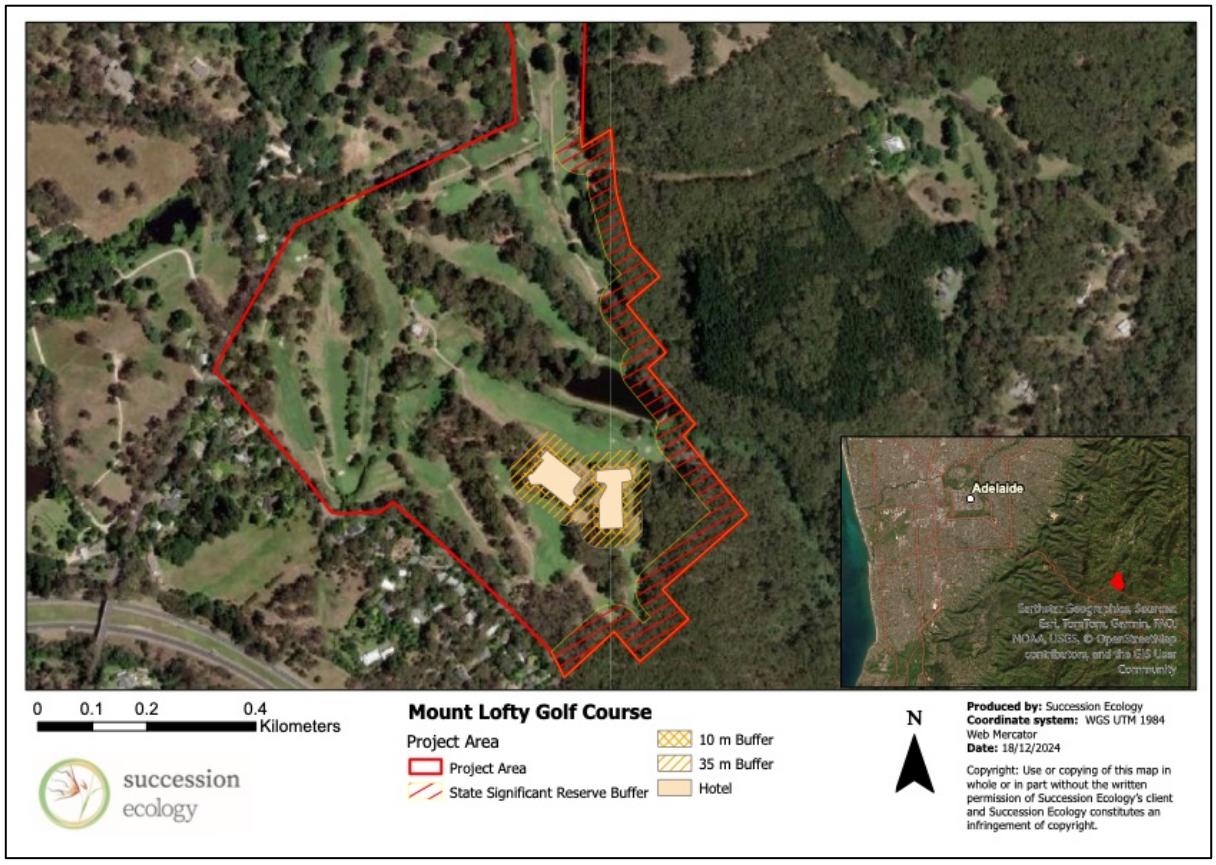

Figure 4: Project area is outlined in red, with a 50-m buffer around the State Significant Reserve Overlay shown in red hatching. The impact area (orange) lies narrowly outside the buffer around the State Significant Reserve Overlay.

3. Method

3.1 Flora and Fauna assessment

3.1.1 Desktop assessment

A desktop assessment was conducted to undertake preliminary mapping of native vegetation protected under the *NV Act* via the NatureMaps tool. This mapping was used to plan the assessment and inform the field methodology.

The desktop assessment was also undertaken to determine the threatened ecological communities, flora species, and fauna species that potentially occur in the area. Communities and species were evaluated as threatened if they were listed under the *National Parks and Wildlife Act 1972 (NPW Act)* and/or the *EPBC Act*, as outlined below:

- ***NPW Act***
  - Schedule 7 – Endangered Species
  - Schedule 8 – Vulnerable Species
  - Schedule 9 – Rare Species
- ***EPBC Act***

Part 13 – Species and communities – Division 1- Listed threatened species and ecological communities – Subdivision A – Listing – 178 Listings of threatened Species.

  - Section 178 (c) – Critically Endangered
  - Section 178 (d) – Endangered
  - Section 178 (e) – Vulnerable

Threatened communities and species were evaluated if they had been recorded within 5 km of the project site since 1995 or were considered 'known' to occur within the search area via the Protected Matters Search Tool.

Databases searched during the desktop assessment included:

- Protected Matters Search Tool (PMST): to identify Matters of National Environmental Significance (MNES) under the *EPBC Act,* including nationally threatened species and ecological communities, 'known' to occur in the search area.
- NatureMaps: to identify records of threatened flora and fauna listed under either the *NPW Act* or *EPBC Act*, recorded since 1995 within the search area.
- BDBSA data extract: a Biological Databases of South Australia (BDBSA) search was obtained from the Department of Environment and Water (DEW) to identify threatened flora and fauna species that have been recorded within 10 km for the Project Area (data extracted 14/02/2024). The BDBSA is comprised of an integrated collection if species records from the South Australian Museum, conservation organisations, private consultancies, Birds SA, Birdlife Australia, and the Australasian Wader Study Group. Only species with records since 1995 and a spatial reliability of less than 1 km were assessed for their likelihood of occurrence.
- Atlas of Living Australia (AoLA): to identify threatened flora and fauna listed under either the *NPW Act* or *EPBC Act*, recorded since 1995 within the search area. Records from 'citizen science' initiatives are excluded from results.
- Appendices in the NVC Bushland and Scattered Tree Assessment Manuals: to determine scattered trees species that provide suitable habitat for threatened fauna and threatened ecological communities protected under *NPW Act*.

- DEH (in progress) unpublished and provisional list of Threatened Ecosystems: to identify threatened and rare ecosystems.

A likelihood of occurrence/habitat use assessment was carried out for threatened communities, fauna and flora species identified during the Desktop Assessment. The likelihood of these species using the site following the metric described in Table 1.

The distribution of vegetation associations was assessed using satellite imagery and vegetation community data obtained through NatureMaps. All maps were generated using ArcGIS Pro.

Table 1: Criteria for the likelihood of occurrence/habitat use of species within the survey area.

Likelihood	Criteria
Highly Likely/Known	Recorded in the last 10 years, the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution or The species was recorded as part of field surveys.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species, but the area provides limited habitat or feeding resources for the species. Recorded within 20–40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded within 20–40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort.

3.1.2 Field Survey

Vegetation surveys were conducted on 13 February and 19 March 2024. Ground truthing of vegetation communities identified in the desktop assessment was carried out and the vegetation subject to clearance was surveyed using the Bushland Assessment Methodology (Native Vegetation Council 2020a) and Scattered Tree Assessment Methodology (Native Vegetation Council 2020b), as appropriate. Careful inspection was undertaken to identify any threatened flora and threatened fauna species known to occur in the region.

A formal fauna assessment was not undertaken for this site. However, an opportunistic observation-based survey was conducted to identify any fauna species using the vegetation as habitat. Opportunist observations included incidental records of non-target species observed while conducting the specified survey technique, or while walking to/from or around the project site.

4. Assessment outcomes

4.1 Vegetation assessment

4.1.1 General description of the vegetation, the site and matters of significance.

IBRA Regions

The Project Area falls within the IBRA Region of Flinders Lofty Block, Sub-Region of Mount Lofty and association of Uraidla (Table 2).

The Flinders Lofty Block bioregion is in the southeast of South Australia and also includes the Flinders and Olary Ranges. The climate within this region varies from north to south, with the northern section having a semi-arid to arid climate with hot dry summers, and cool mild winters. In comparison, the southern part of the bioregion hosts a Mediterranean climate with cool moist winters and warm to hot summers. The region in general receives 250 to 650 mm of rainfall per year, however areas in the higher parts of the Mount Lofty Ranges can receive over 1000 mm annually. Rainfall is most common in winter; it is more reliable in the south. Mountain ranges and wide flat plains largely make up this bioregion. Large areas in the south have been previously cleared for agriculture during the early days of European settlement. Vegetation types within the region vary, as they include chenopod and samphire shrublands, tussock grasslands, *Callitris and Eucalyptus* forests and woodlands, A*cacia* forests and woodlands, mallee woodlands and shrublands, and hummock grasses.

Table 2: Flinders Lofty Block Description.

Feature	Description
Land type	Erosional / depositional
Landscape	Low hills
Landform	Ranges and hills with extensive rock outcrop and shallow soils; stony pediments and small basin plains; some remnants of stony downs; narrow valleys, some with gorges. Ranges and hills in form of hogback ridges in quartzite
Geology	Bare rock; some alluvium & colluvium (sand, silt & clay); less common dune sand & some sand mantles. Calcreted gravels derived from silcreted deposits & probably equate with Ripon Calcrete. Younger Telford gravels (Middle Pleistocene).
Soil	Loamy soils with weak pedologic development; crusty loamy soils with red clayey subsoils.
Vegetation	Chenopod Shrub, Samphire Shrub and Forbland.
Climate	Semi-arid climate that is too dry to support field crops. Soil moisture tends to be greatest in winter.

Vegetation Overview

Vegetation present within the Project Area consists of pockets of remnant open forest vegetation scattered throughout the golf course, along with large native and non-native scattered trees. Planted exotic amenity vegetation is associated with the golf course and the clubhouse. Areas of remnant vegetation are dominated by species of *Eucalyptus obliqua (*Messmate Stringybark), *E. viminalis* ssp. *viminalis* (Manna Gum)*, Acacia melanoxylon* (Blackwood) and *Exocarpos cupressiformis,* with pockets of *Pteridium esculentum* ssp. *esculentum* (Bracken Fern). The areas of remnant vegetation within the Project Area, but not directly associated with the golf course, appeared to be heavily degraded with a dense understorey dominated by introduced flora species such as *Genista monspessulana* (Montpellier Broom), *Cytisus scoparius* (English Broom) and *Hedera helix* (English Ivy). Across the whole Project Area, the dominant weed species identified was *Rubus fruticosus* (Blackberry), a Declared Plant. No flora species listed under the *EPBC Act* were recorded during the field survey. Two species listed under the NPW Act as Rare (*Eucalyptus viminalis* ssp. *viminalis* and *Pultenaea graveolens*) were recorded within the Project Area. One vegetation association (VA) was identified and mapped within the Project Area, listed below:

- VA1 – *Eucalyptus obliqua* open forest over open shrub and sparse native grasses, tussocks and weed species. VA1 is stratified in this data report by the extent of impact that it will undergo. In VA1a, only one strata will be impacted, whereas all strata of VA1b will be impacted

A total of 35 scattered trees were surveyed. These trees included 23 *Eucalyptus viminalis* ssp. *viminalis* (Manna Gum) listed as Rare under the *NPW Act,* seven *Eucalyptus obliqua* (Messmate Stringybark) and five *Acacia melanoxylon* (Blackwood). As a result of design changes since the field surveys, only seven scattered trees will be impacted by the construction of the new multi-story hotel. The remaining 28 trees will not be impacted. The seven scattered trees identified for impacts are summarised below and further detailed in the consecutive tables.

- T1 - Manna Gum (*Eucalyptus viminalis ssp. viminalis)* *NPW Act* Rare
- T2 – Manna Gum (*Eucalyptus viminalis ssp. viminalis*) *NPW Act* Rare
- T3 – Messmate Stringybark (*Eucalyptus obliqua*)
- T4 – Messmate Stringybark *(Eucalyptus obliqua*)
- T5 – Messmate Stringybark (*Eucalyptus obliqua*)
- T6 – Manna Gum (*Eucalyptus viminalis ssp. viminalis*) *NPW Act* Rare
- T7 – Manna Gum (*Eucalyptus viminalis ssp. viminalis)* *NPW Act* Rare

Landscape context.

The Project Area is situated in Stirling in the Adelaide Hills, amongst an undulating landscape. It features flat, modified landscapes as part of the golf course green and amenities, with the native vegetation remaining on gentle slopes. Cox Creek traverses throughout the Project Area to the north of the development footprint. Positioned adjacent to Cox Creek are two artificial dams. The Project Area abuts the Mount George Conservation Park along the eastern boundary. In the wider locality several other conservation reserves occur, including Cleland National Park (3 km west) and Kenneth Stirling Conservation Park (2.5 km east). The rainfall in the Project Area averages 918 mm annually.

4.1.2 Details of the vegetation associations and scattered trees proposed to be impacted

Vegetation Association	**VA1: *Eucalyptus obliqua* open forest over open shrub and sparse native grasses, tussocks and weed species.**

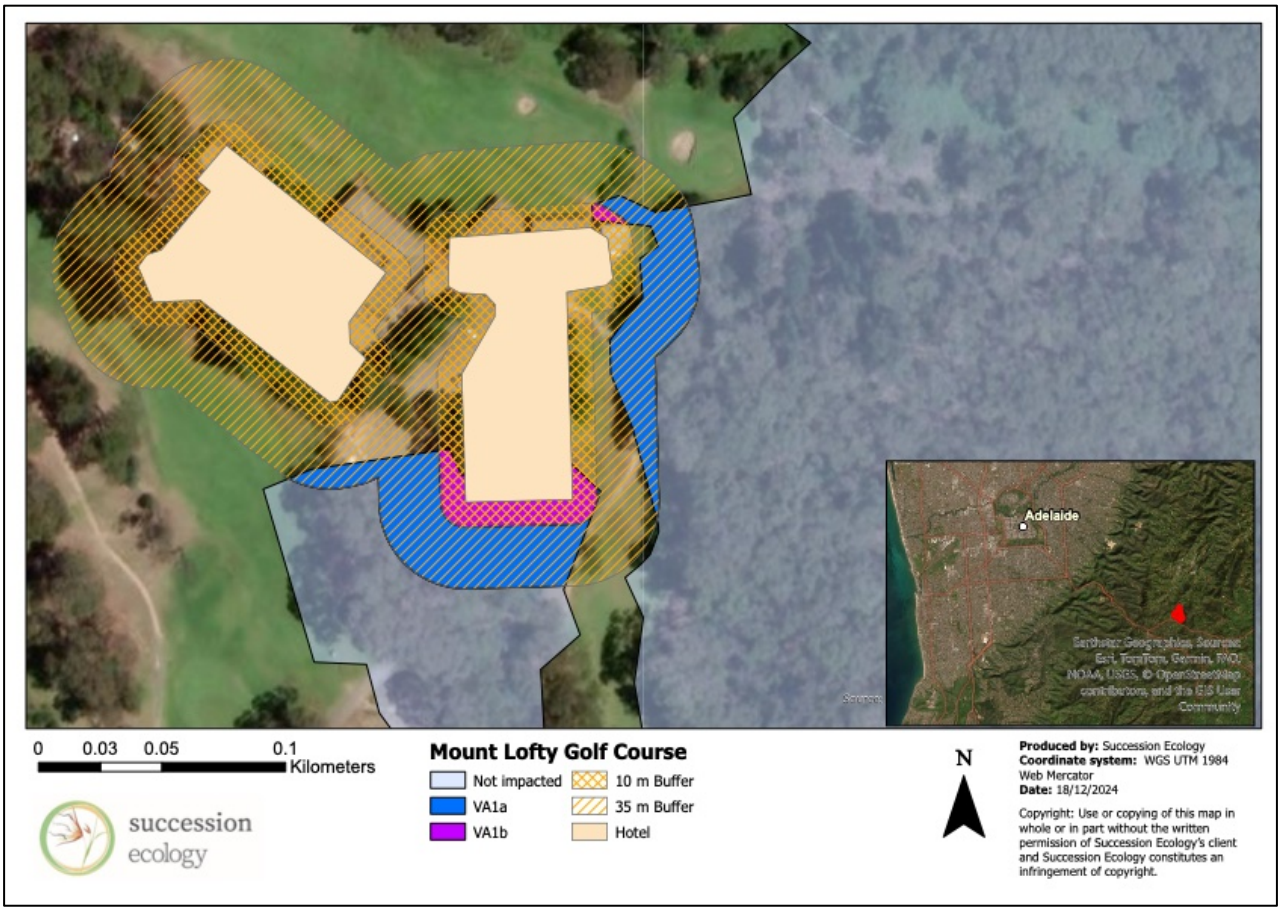

Figure 5: Bushland Assessment sites (VA1a and VA1b) within the proposed impact area are shown in royal blue and purple, respectively. The area of VA1 that is not impacted is indicated in pale blue.

A

B

Vegetation Association	**VA1: *Eucalyptus obliqua* open forest over open shrub and sparse native grasses, tussocks and weed species.**

Figure 6: Vegetation within VA1. Multiple Tall Eucalyptus obliqua *are present (Image A and B).* Cytisus scoparius*, a Declared Plant was observed throughout (Image D).* Exocarpos cupressiformis *scattered throughout VA1 (Image B and C) and* Vinca major *trailed throughout VA1 (Image C).*

General description	Vegetation within VA1 consists of an open forest of tall *Eucalyptus obliqua* and sparse *E. viminalis ssp. viminalis*, (Rare). The midstorey largely consisted of *Exocarpos cupressiformis* and *Acacia melanoxylon* and few scattered *Bursaria spinosa*, with an understorey of *Lomandra micrantha*, *Dianella revoluta*, *Pteridium esculentum* ssp. *esculentum* and sparse *Rytidosperma* sp. and *Austrostipa* sp. Other native species in VA1 include *Pultenaea graveolens* (*NPW Act: Rare*), *Acrotriche fasciculiflora* and *Hibbertia exutiacies*. Leaf litter was dense and continuous throughout, and some fallen timber and debris was observed. Fox Tail (*Alopecurus* sp.), Plantain (*Plantago* sp.), Blue Periwinkle (*Vinca major*), Flax-leaf Broom (*Genista linifolia*), and English Broom (*Cytisus scoparius*) were the dominant weeds recorded during the 2024 survey. Overall, VA1 was in good condition. VA1 provides dense tree canopy cover, fallen timber and tree hollows. However, Declared Plants and other weeds persist within the VA.
Threatened species or community	**Threatened Ecological Communities** No threatened ecological communities were identified within the Project Area during the desktop assessment, nor identified during the field visit. **Threatened Fauna** The desktop search identified 38 threatened fauna species listed under the *EPBC Act* and *NPW Act* as previously recorded within the search area. Of these, eight are considered Likely, Highly Likely or Known to occur within VA1. They include: • *Petroica boodang boodang (Scarlet Robin) NPW Act: (R)* – **Likely** • *Isoodon obesulus obesulus (Southern Brown Bandicoot) EPBC Act: (EN), NPW Act (V):* **Likely** • *Zanda funerea whiteae* (Yellow-tailed Black Cockatoo) *NPW Act:* (V) – **Known** • *Trichosurus vulpecula* (Common Brushtail Possum) *NPW Act:* (R) – **Highly Likely** • *Zoothera lunulata halmaturina* (Bassian Thrush*) EPBC Act: (EN), NPW Act (R)* – **Highly Likely** • *Pteropus poliocephalus* (Grey-headed Flying-fox) EPBC Act (VU), *NPW Act: (R)*- **Likely** • *Corcorax melanorhamphos* (White-winged Chough) *NPW Act: (R)* - **Likely** • *Antechinus flavipes* (Yellow-footed Antechinus) *NPW Act: (V)* - **Highly Likely**

Vegetation Association	**VA1: *Eucalyptus obliqua* open forest over open shrub and sparse native grasses, tussocks and weed species.**
	These species are discussed further in section 4.2.2. One threatened fauna species *Zanda funerea whiteae* (Yellow-tailed Black Cockatoo) was identified during the field surveys. **Threatened Flora** A desktop search identified 83 threatened flora species listed under the *EPBC Act* and *NPW Act* as previously recorded within the search area. Of these, six are considered Likely, Highly Likely or Known to occur within VA2. They include: • *Acacia gunnii* (Ploughshare Wattle) *NPW Act: (R)* **Likely** • *Deyeuxia densa* (Heath Bent grass) *NPW Act: (R)* **Likely** • *Gastrodia sesamoides* (Bell Orchid) *NPW Act: (R)* **Likely** • *Eucalyptus viminalis ssp. viminalis* (Manna Gum) - *NPW Act: (R)* **Known** • *Gleichenia microphylla* (Coral Fern) *NPW Act: (R)* **Likely** • *Pultenaea graveolens* (Scented bush Pea) *NPW Act: (R)* **Known** • *Rytidosperma tenuius* (Short-awn Wallaby-grass) - *NPW Act: (R)* **Likely** These species are discussed further in section 4.2.3. One threatened flora species (*Pultenaea graveolens)* was identified during the field survey.
Impacts	Impacts to this vegetation association will occur in two forms: VA1a – Only one strata of the association will be impacted in this area. VA1b – All strata in this association will be impacted.

VA1a (Loss factor 0.8)					
Landscape context score	1.18	**Vegetation Condition Score**	32.82	**Conservation significance score**	1.18
Unit biodiversity Score	45.70	**Area (ha)**	0.323	**Total biodiversity Score**	14.76
VA1b (Loss factor 1.0)					
Landscape context score	1.18	**Vegetation Condition Score**	32.82	**Conservation significance score**	1.18
Unit biodiversity Score	45.70	**Area (ha)**	0.108	**Total biodiversity Score**	4.94

NPW Act; E= Endangered, V = Vulnerable, R= Rare
EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable

Figure 7: The seven scattered trees impacted by the Project are shown with green points.

Tree T1 (Site: Mount Lofty Golf Estate)	*Figure 8: Tree T1, Manna Gum (*Eucalyptus viminalis ssp. viminalis*), facing south.*
Manna Gum *(Eucalyptus viminalis ssp. viminalis)*	
Number of trees – 1	
Height (m) – 18.6	
Diameter (cm) – 83 (1 stem)	
Hollows – #S:0, #M:0, #L:0	
Canopy dieback (%) – 10	
Total Biodiversity Score – 4.24	

Description

Eucalyptus viminalis ssp. viminalis is listed as Rare under the *NPW Act*. This large tree appears to be in good condition, with minor dieback. Together with nearby trees, it would provide habitat for small birds, small reptiles, bats and invertebrates, in the form of shelter, perching/roosting, feeding, and nesting. In particular, *E. viminalis ssp. viminalis* provides a food resource for koalas (Nicolle 1997, pg. 135).

No Threatened Ecological Communities were present at the site. However, six fauna species listed as threatened under the *NPW Act* have been identified within 5 km since 1995 and the native scattered tree considered suitable for the threatened species including:

- *Petroica boodang boodang (Scarlet Robin) NPW Act: (R) – Likely*
- *Zanda funerea whiteae (Yellow-tailed Black Cockatoo) NPW Act: (V) – Known*
- *Trichosurus vulpecula (Common Brushtail Possum) NPW Act: (R) – Highly Likely*
- *Zoothera lunulata halmaturina (Bassian Thrush) EPBC Act: (EN), NPW Act (R) – Highly Likely*
- *Pteropus poliocephalus (Grey-headed Flying-fox) EPBC Act (VU), NPW Act: (R)- Likely*
- *Corcorax melanorhamphos (White-winged Chough) NPW Act: (R) - Likely*

Tree T2 (Site: Mount Lofty Golf Estate)	*Figure 9: Tree T2, Manna Gum (*Eucalyptus viminalis ssp. viminalis*), facing south.*
Manna Gum (*Eucalyptus viminalis ssp. viminalis*)	
Number of trees – 1	
Height (m) – 28.2	
Diameter (cm) – 166 (1 stem)	
Hollows – #S:2, #M:2, #L:0	
Canopy dieback (%) – 5	
Total Biodiversity Score – 11.59	

Description

Eucalyptus viminalis ssp. viminalis is listed as Rare under the *NPW Act*. This large tree appears to be in good condition, with minor dieback. It contains a total of four hollows and together with nearby trees, would provide habitat for small birds, small reptiles, bats and invertebrates, in the form of shelter, perching/roosting, feeding, and nesting. *E. viminalis ssp. viminalis* provides a food resource for koalas (Nicolle 1997, pg. 135).

No Threatened Ecological Communities were present at the site. However, six fauna species listed as threatened under the *NPW Act* have been identified within 5 km since 1995 and the native scattered tree considered suitable for the threatened species including:

- *Petroica boodang boodang (Scarlet Robin) NPW Act: (R) – Likely*
- *Zanda funerea whiteae (Yellow-tailed Black Cockatoo) NPW Act: (V) – Known*
- *Trichosurus vulpecula (Common Brushtail Possum) NPW Act: (R) – Highly Likely*
- *Zoothera lunulata halmaturina (Bassian Thrush) EPBC Act: (EN), NPW Act (R) – Highly Likely*
- *Pteropus poliocephalus (Grey-headed Flying-fox) EPBC Act (VU), NPW Act: (R)- Likely*
- *Corcorax melanorhamphos (White-winged Chough) NPW Act: (R) - Likely*

Tree T3 (Site: Mount Lofty Golf Estate)	*Figure 10: Tree 3, Messmate Stringybark (*Eucalyptus obliqua*), facing south.* 
Messmate Stringybark (*Eucalyptus obliqua*)	
Number of trees – 1	
Height (m) – 13.8	
Diameter (cm) – 75 (1 stems)	
Hollows – #S:0, #M:0, #L:0	
Canopy dieback (%) – 10	
Total Biodiversity Score – 3.28	

Description

This tree appears to be in good condition, with minor dieback. While no hollows were recorded, together with nearby trees, would provide habitat for small birds, small reptiles, bats and invertebrates, in the form of shelter, perching/roosting, feeding, and nesting.

No Threatened Ecological Communities were present at the site. However, six fauna species listed as threatened under the *NPW Act* have been identified within 5 km since 1995 and the native scattered tree considered suitable for the threatened species including:

- *Petroica boodang boodang (Scarlet Robin) NPW Act: (R) – Likely*
- *Zanda funerea whiteae (Yellow-tailed Black Cockatoo) NPW Act: (V) – Known*
- *Trichosurus vulpecula (Common Brushtail Possum) NPW Act: (R) – Highly Likely*
- *Zoothera lunulata halmaturina (Bassian Thrush) EPBC Act: (EN), NPW Act (R) – Highly Likely*
- *Pteropus poliocephalus (Grey-headed Flying-fox) EPBC Act (VU), NPW Act: (R)- Likely*
- *Corcorax melanorhamphos (White-winged Chough) NPW Act: (R) - Likely*

Tree T4 (Site: Mount Lofty Golf Estate)	*Figure 11: Tree T4, Messmate Stringybark (*Eucalyptus obliqua*), facing south.* 
Messmate Stringybark (*Eucalyptus obliqua*)	
Number of trees – 1	
Height (m) – 14.1	
Diameter (cm) – 75 (1 stem)	
Hollows – #S:0, #M:0, #L:0	
Canopy dieback (%) – 10	
Total Biodiversity Score – 4.06	

Description

This tree appears to be in good condition, with minor dieback observed. While no hollows were recorded, together with nearby trees, would provide habitat for small birds, small reptiles, bats and invertebrates, in the form of shelter, perching/roosting, feeding, and nesting.

No Threatened Ecological Communities were present at the site. However, six fauna species listed as threatened under the *NPW Act* have been identified within 5 km since 1995 and the native scattered tree considered suitable for the threatened species including:

- *Petroica boodang boodang (Scarlet Robin) NPW Act: (R) – Likely*
- *Zanda funerea whiteae (Yellow-tailed Black Cockatoo) NPW Act: (V) – Known*
- *Trichosurus vulpecula (Common Brushtail Possum) NPW Act: (R) – Highly Likely*
- *Zoothera lunulata halmaturina (Bassian Thrush) EPBC Act: (EN), NPW Act (R) – Highly Likely*
- *Pteropus poliocephalus (Grey-headed Flying-fox) EPBC Act (VU), NPW Act: (R)- Likely*
- *Corcorax melanorhamphos (White-winged Chough) NPW Act: (R) - Likely*

Tree T5 (Site: Mount Lofty Golf Estate)	*Figure 12: Tree T5, Messmate Stringybark (*Eucalyptus obliqua*), facing south.*
Messmate Stringybark (*Eucalyptus obliqua*)	
Number of trees – 1	
Height (m) – 19.8	
Diameter (cm) – 84 (1 stems)	
Hollows – #S:0, #M:0, #L:0	
Canopy dieback (%) – 10	
Total Biodiversity Score – 4.57	

Description

This tree appears to be in good condition, with minor dieback. While no hollows were recorded, together with nearby trees, would provide habitat for small birds, small reptiles, bats and invertebrates, in the form of shelter, perching/roosting, feeding, and nesting.

No Threatened Ecological Communities were present at the site. However, six fauna species listed as threatened under the *NPW Act* have been identified within 5 km since 1995 and the native scattered tree considered suitable for the threatened species including:

- *Petroica boodang boodang (Scarlet Robin) NPW Act: (R) – Likely*
- *Zanda funerea whiteae (Yellow-tailed Black Cockatoo) NPW Act: (V) – Known*
- *Trichosurus vulpecula (Common Brushtail Possum) NPW Act: (R) – Highly Likely*
- *Zoothera lunulata halmaturina (Bassian Thrush) EPBC Act: (EN), NPW Act (R) – Highly Likely*
- *Pteropus poliocephalus (Grey-headed Flying-fox) EPBC Act (VU), NPW Act: (R)- Likely*
- *Corcorax melanorhamphos (White-winged Chough) NPW Act: (R) - Likely*

Tree T6 (Site: Mount Lofty Golf Estate)	*Figure 13: Tree T7, Manna Gum (Eucalyptus viminalis ssp. viminalis), facing south.* 
Manna Gum (*Eucalyptus viminalis ssp. viminalis*)	
Number of trees – 1	
Height (m) – 32.4	
Diameter (cm) – 141 (1 stems)	
Hollows – #S:3, #M:2, #L:1	
Canopy dieback (%) – 5	
Total Biodiversity Score – 10.69	

Description

Eucalyptus viminalis ssp. viminalis is listed as Rare under the *NPW Act*. This tree appears to be in good condition, with minor dieback. The tree contained a total of six hollows and together with nearby trees, would provide habitat for small birds, small reptiles, bats and invertebrates, in the form of shelter, perching/roosting, feeding, and nesting. *E. viminalis ssp. viminalis* provides a food resource for koalas (Nicolle 1997, pg. 135).

No Threatened Ecological Communities were present at the site. However, six fauna species listed as threatened under the *NPW Act* have been identified within 5 km since 1995 and the native scattered tree considered suitable for the threatened species including:

- *Petroica boodang boodang (Scarlet Robin) NPW Act: (R) – Likely*
- *Zanda funerea whiteae (Yellow-tailed Black Cockatoo) NPW Act: (V) – Known*
- *Trichosurus vulpecula (Common Brushtail Possum) NPW Act: (R) – Highly Likely*
- *Zoothera lunulata halmaturina (Bassian Thrush) EPBC Act: (EN), NPW Act (R) – Highly Likely*
- *Pteropus poliocephalus (Grey-headed Flying-fox) EPBC Act (VU), NPW Act: (R)- Likely*
- *Corcorax melanorhamphos (White-winged Chough) NPW Act: (R) - Likely*

Tree T7 (Site: Mount Lofty Golf Estate)	*Figure 14: Tree T10, Manna Gum (*Eucalyptus viminalis ssp. viminalis*), facing south.*
Manna Gum *(Eucalyptus viminalis ssp. viminalis)*	
Number of trees – 1	
Height (m) – 31.2	
Diameter (cm) – 142 (1 stems)	
Hollows – #S:2, #M:0, #L:0	
Canopy dieback (%) – 5	
Total Biodiversity Score – 9.71	

Description

Eucalyptus viminalis ssp. viminalis is listed as Rare under the *NPW Act*. This tree appears to be in good condition, 5% mistletoe dieback was observed. The tree contained a total of two small hollows and together with nearby trees, would provide habitat for small birds, small reptiles, bats and invertebrates, in the form of shelter, perching/roosting, feeding, and nesting. *E. viminalis ssp. viminalis* provides a food resource for koalas (Nicolle 1997, pg. 135).

No Threatened Ecological Communities were present at the site. However, six fauna species listed as threatened under the *NPW Act* have been identified within 5 km since 1995 and the native scattered tree considered suitable for the threatened species including:

- *Petroica boodang boodang (Scarlet Robin) NPW Act: (R) – Likely*
- *Zanda funerea whiteae (Yellow-tailed Black Cockatoo) NPW Act: (V) – Known*
- *Trichosurus vulpecula (Common Brushtail Possum) NPW Act: (R) – Highly Likely*
- *Zoothera lunulata halmaturina (Bassian Thrush) EPBC Act: (EN), NPW Act (R) – Highly Likely*
- *Pteropus poliocephalus (Grey-headed Flying-fox) EPBC Act (VU), NPW Act: (R)- Likely*
- *Corcorax melanorhamphos (White-winged Chough) NPW Act: (R) - Likely*

Photo log

Photos of the vegetation community and scattered trees are provided in the descriptions above with additional photos provided within Appendix B.

4.2 Threatened species assessment

4.2.1 Threatened ecological communities.

No threatened ecological communities were present at this site.

4.2.2 Threatened fauna

The desktop search identified a total of 38 threatened fauna species within the search area. Seven species listed under the *EPBC Act 1999* as 'known, or have habitat known to occur' and 31 further species listed as threatened under the *NPW Act 1972*. The 38 species have been included in the likelihood of use assessment, using the metric described in Table 1. Species which likelihood of use was assessed as 'unlikely' are listed in Appendix C. One of the threatened fauna species (*Zanda funerea whiteae* (Yellow-tailed Black Cockatoo) identified within the desktop search was observed within the Project Area at the time of the field surveys.

Table 3: A summary of the fauna species observed on site or recorded within 5 km of the application area since 1995, or those listed as known to occur in the PMST.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
AMPHIBIA						
Pseudophryne bibronii (Brown Toadlet)	R		3, 2	2009	Dry forest, woodland, shrubland and grassland. They shelter under leaflitter and other debris in moist soaks and depressions (Frogs of Australia, 2020).	**Possible –** Recorded previously within the past 20 years, with the nearest record of occurrence approximately <1 km from the Project Area. Limited suitable habitat is present.
AVES						
Anhinga novaehollandiae novaehollandiae (Australasian Darter)	R		3, 2	2018	Found in wetlands and sheltered coastal waters, mainly in the Tropics and Subtropics. Most often seen inland, around permanent and temporary water bodies. Prefer smooth, open waters for feeding, with tree trunks and branches for drying. Can be seen in calm seas near shore (Birdlife, 2022).	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 2 km from the Project Area. Limited suitable habitat is present.
Aphelocephala leucopsis (Southern Whiteface)		VU	5		Lives in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands,	**Possible –** Recorded previously within the past 5 years, with the nearest record of occurrence located approximately 5 km from the Project Area. Some suitable habitat is present.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
					and plains (Birdlife Australia 2023).	
Cereopsis novaehollandiae novaehollandiae (Cape Barren Goose)	R		2	2022	Found on offshore islands, usually granite, in areas of pasture, tussock grass or low heathy scrub (Australian Museum, 2022).	**Possible** – Recorded previously within the past 5 years, with the nearest record of occurrence approximately 5 km from the Project Area (within a conservation park). Suitable habitat is limited, restricted to the golf greens.
Climacteris affinis (White-browed Treecreeper)	R		3	2021	Usually inhabit shrublands and woodlands in arid and semi-arid regions. Mostly occur in tall shrubland and low woodland dominated by acacias (Birdlife Australia 2022).	**Possible** – Recorded previously within the past 5 years, with the nearest record of occurrence approximately 3 km from the Project Area. Some suitable habitats such is shrublands and woodlands are present.
Corcorax melanorhamphos (White-winged Chough)	R		3, 2	2023	Woodland and tall mallee, with a preference for wetter areas with leaf-litter for feeding and mud for building nests (DEH, 2014).	**Likely** – Recorded previously within the past 5 years, with the nearest record of occurrence approximately 1 km from the Project Area. Some suitable habitat is present such as woodlands and wetter areas with leaf litter.
Falco peregrinus macropus (Peregrine Falcon)	R		3	2006	Use a broad range of habitats from rainforest to arid. Need abundant prey and secure nest sites (DEH 2009).	**Possible –** Recorded previously within the past 20 years, with the nearest record of occurrence approximately 2 km from the Project Area. As this species uses a broad range of habitat, some suitable habitat may be present.
Hieraaetus morphnoides (Little Eagle)	V		3	2019	Seen over woodland, forested land and open country. Avoids heavy forest (Birdlife Australia, 2021).	**Possible –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 5 km from the Project Area. Some suitable habitat is available.
Hirundapus caudacutus caudacutus (White-throated Needletail)	V	V	3, 2	2023	Almost exclusively aerial, however, certain preferences of habitat are exhibited by the species. Although they	**Possible –** Recorded previously within the last 2 years, with the nearest record of occurrence approximately 1 km from the

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
					occur over most types of habitats, they are most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. They also commonly occur over heathland (Australian Museum 2022).	Project Area. Surrounding records of occurrence predate 1995, however some suitable habitat is available.
Hylacola pyrrhopygia parkeri (Chestnut-rumped Heathwren	E	EN	5, 3, 2	2020	Inhabits heathlands and woodlands with dense shrub and ground-layer vegetation, most commonly found in rocky areas. (DEH Threatened Species Profile, 2008).	**Possible –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 2 km from the Project Area. Some suitable habitat is available; however, majority of nearby occurrences are located within the surround Conservation Parks which offer suitable habitat.
Lophoictinia isura (Square-tailed Kite)	E		3, 2	2019	Mainly inhabits open eucalypt forests and woodlands, often dominated by stringybarks, peppermints or box-ironbark eucalypts. Also occur along edges of dense forests and along road verges with remnant or planted trees (Birdlife Australia, 2022).	**Possible –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 5 km from the Project Area. Some suitable habitat is available.
Melithreptus gularis gularis (Black-chinned Honeyeater)	V		3	2002	Occupy dry Eucalypt woodland with an annual rainfall range of 400-700 mm, particularly associations containing ironbark and box. Favoured habitats incorporate a mixture of mature and regenerating woodland Eucalypts,	**Possible –** Recorded previously within the past 25 years, with the nearest record of occurrence approximately 4 km from the Project Area. Limited suitable habitat is available.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
					although adjacent scattered paddock trees are also used (DEH, 2008).	
Microeca fascinans fascinans (Jacky Winter (MLR, SE))	R		3	2018	Prefers open woodland (Eucalypt and mallee) with an open shrub layer and bare ground. Often seen in farmland and Parks. Within the AMLR the preferred broad vegetation groups are Grassy Woodland and Mallee (DEH 2008a).	**Possible –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 4 km from the Project Area. Although some suitable habitat is available, occurrence records are very scarce.
Neophema elegans elegans (Elegant Parrot)	R		3	2019	Wide range of open habitats, including grasslands, shrublands, mallee, woodlands and thickets, bluebush plains, heathlands, saltmarsh, and farmland (Birdlife Australia, 2021).	**Possible –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 1.5 km from the Project Area. Suitable habitat may be present due to the species using a wide range of habitats.
Petroica boodang boodang (Scarlet Robin)	R		3	2023	Eucalypt forests and woodlands (DEW, 2019).	**Likely –** Recorded previously within the past 2 years, with the nearest record of occurrence approximately <1 km from the Project Area. Suitable habitat is available, with numerous records of occurrences located nearby.
Strepera versicolor plumbea (Grey Currawong)	E		3	2023	Known to occur in the far NW corner of the State (Atlas of Living Australia, 2021).	Unlikely – Subspecies occurs only in far northwest of SA..
Zanda funerea whiteae (Yellow-tailed Black Cockatoo)	V		3, 2	2024	Inhabits a variety of habitats, favours eucalypt woodland and pine plantations. (Birdlife Australia, 2021)	**Known –** Observed during the field survey. Nearest record of occurrence approximately 1 km from the Project Area. Suitable habitat is available as this species uses a variety of habitats.
Zoothera lunulata halmaturina (Bassian Thrush)	R	EN	3	2022	Throughout its range, suitable habitat is mostly confined to creek lines or dune swales. Preferring areas of dense leaf litter. (DAWE, 2022).	**Highly Likely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately < 1 km from the Project Area. This species is found with the

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
						Mount Lofty Ranges, with records observed in the adjacent Conservation Parks. The Project Area does not offer suitable nesting habitat; however, this species may be seen travelling through this area.
MAMMALIA						
Antechinus flavipes (Yellow-footed Antechinus)	V		3, 2	2022	Occupies a variety of habitats, including dry arid scrubland and sclerophyll forest (Menkhorst, 2001)	**Highly likely –** Recorded previously within the past years, with the nearest record of occurrence approximately < 1 km from the Project Area. This species has been recorded in adjacent Conservation Parks.
Isoodon obesulus obesulus (Southern Brown Bandicoot)	V	EN	3	2021	Prefers dense vegetation, including wetland fringes and heathland. (Woinarski, 2014)	**Likely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 1 km from the Project Area. This species has been recorded in adjacent Conservation Parks.
Pteropus poliocephalus (Grey-headed Flying-fox)	R	VU	3, 2	2020	Typically roost in tall dense trees next to a water source. They will move up to 20km from their roost site to forage (DEW, 2020).	**Likely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately <1 km from the Project Area. There is limited suitable habitat present, however the area does have a permanent water source.
Trichosurus vulpecula (Common Brushtail Possum)	R		3, 2	2023	Inhabits woodland, forests, heath, and urban areas using trees with hollows for nesting (Australian Museum 2020).	**Highly Likely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 2 km from the Project Area. Suitable habitat is present for this species.
Sources 1- BDBSA, 2- AoLA, 3- NatureMaps, 4- Observed/recorded in the field, 5- Protected matters search tool, 6- Other *NPW Act*: E- Endangered, V- Vulnerable, R- Rare *EPBC Act*: Ex- Extinct, CR- Critically endangered, EN- Endangered, VU- Vulnerable						

Figure 15 depicts the location of threatened fauna records for Likely, Highly Likely and Known species within 5 km of the Project Area.

***Petroica boodang boodang* (Scarlet Robin) – Likely - Rare**

Scarlet Robin occurs in Australia as well as several islands of the south Pacific. This species occurs primarily in the central higher rainfall area of the Mount Lofty Ranges and is considered less common on the Adelaide Plains and eastern Flanks. This species is known to predominantly occur in woodlands and forests, where there is good leaf litter, and fallen logs as they are an important component of habitat for this species. They are known to breed in *Eucalypt* forests, however not in adjacent grasslands despite individuals occupying these areas during the non-breeding season. Within the Adelaide Mount Lofty Region, the preferred broad vegetation groups this species occupies includes heath woodlands and forests, and grassy woodlands.

The Project Area provides suitable habitat for this species, as both robin species forage extensively on *Eucalyptus viminalis* ssp. *viminalis* (Manna Gum), which was observed during the field survey, however, this bird species was not identified at the time of the survey.

***Isoodon obesulus obesulus* (Southern Brown Bandicoot)- Likely – Vulnerable**

The AMLR distribution of the species is distinct, as it is isolated from other extant occurrences within South Australia. Within the AMLR, this species' relative area of occupancy is classified as 'Extremely Restricted'.

Southern Brown Bandicoot within the Adelaide Mount Lofty Ranges (AMLR) is 'known to occur' immediately north of the River Torrens, through the Adelaide Hills, and in the northern and southern Fleurieu Peninsula regions. This species occupies a range of woodlands, forest, scrubland, and heathland communities, as well as some grassland communities. Predominantly, they occur in open forests, tall shrublands and woodlands containing key flora species such as Eucalyptus obliqua (Messmate), E. fasciculosa (Pink Gum), Leptospermum juniperinum (Prickly Trea-tree), Leptospermum myrsinoides (Heath Tea-tree), Banksia marginata (Silver Banksia), Pultenaea daphnoides (Large-leaf Bush-pea), Pteridium esculentum (Bracken), Platylobium obtusangulum (Common Flat-pea), Xanthorrhoea semiplana (Yacca), Lepidosperma semiteres (Wire Rapier-sedge), and Acacia pycnantha (Golden Wattle). In accordance with known habitat preferences, the presence of dense vegetation, exotic or native, has been found to be a common attribute of corridors used by bandicoots. For example, in areas where native habitat has been degraded or diminish, exotic vegetation such as Rubus fruticosus (Blackberry) provides an alternative and important habitat for the Southern Brown Bandicoot can utilise thickets of Blackberry for nesting, travel corridors and protection from predators (Department of Sustainability, Environment, Water, Population and Communities 2011). Completely removing the blackberry all at once increases the risk of exposing the species to predators. Rubus fruticosus is a Weed of National Significance and a Declared Plant in South Australia, where Rubus fruticosus has been recorded in the Project Area it will need to be managed appropriately to minimise impact on potential Southern Brown Bandicoot habitat, while also meeting the Declared Plant Policy requirements.

***Trichosurus vulpecula* (Common Brushtail Possum) – Highly Likely - Rare**

The common Brushtail Possum is one of the most abundant, widely distributed and frequently encountered of all Australian marsupials. They are found in many types of habitats and have adapted well to living with humans, commonly encountered in urban areas, suburban backyards, campgrounds and sometimes in the ceilings of houses. *Eucalyptus* leaves are a significant part of the animal's diet. The Project Area provide suitable habitat such as hollows and foraging resources. However, at the time of the field surveys the species was not observed.

Zanda funerea whiteae (Yellow-tailed Black Cockatoo) – Known - Vulnerable

Yellow-tailed Black-Cockatoo is found in south-eastern Australia, from the Eyre Peninsula, South Australia to south and central Queensland. This species inhabits a variety of habitat types, but favours *Eucalypt* woodland and pine plantations. It is common for small to large flocks to be seen in these areas, either flying slowly or perched. In recent years there has been a rapid decline due to native habitat clearance, with a loss of nesting sites and food resources. The Project Area provides some suitable habitat for perching and potentially feeding, as this species was observed during the field survey.

Zoothera lunulata halmaturina (Bassian Thrush) – Highly Likely - Rare

The AMLR distribution of Bassian Thrush species is distinct, as it is isolated from other extant occurrences within South Australia. This subspecies has been described as 'probably declining' within the AMLR, with the relative area of occupancy classified as 'Very Restricted'.

The South Australian Bassian Thrush favours damp, densely forested areas and gullies, and areas which provide a thick canopy overhead and dense leaf-litter below. Within the AMRL the preferred broad vegetation habitat groups are heathy woodland and grassy woodlands.

The Project Area provides suitable habitat for this species, especially given the high density of leaf-litter, canopy cover, and flora species such as blackberry, which are known to be utilised by this species. However, this species was not identified during the field survey.

4.2.3 Threatened flora

The desktop search identified a total of 88 threatened flora species within the search area; seven listed under the *EPBC Act* as 'known', or 'have habitat known to occur' and 81 further flora listed as threatened under the *NPW Act*. No species listed under the *EPBC Act* or further species listed under the *NPW Act* have been excluded in the likelihood of use assessment. However, species which likelihood of use was assessed as 'unlikely' are listed in Appendix C.

Owing to the time of the year in which the survey was conducted, majority of the threatened orchid were not flowering. Suitable habitat for orchid species is limited by the presence of a dense weedy understorey. No threatened orchid species were identified during the field survey, however, this may be due to the field survey occurring outside of the species flowering period, as such, the species could possibly occur within the Project Area. owing to the time of year of study, difficult to rule out that orchids may be present within the Project Area.

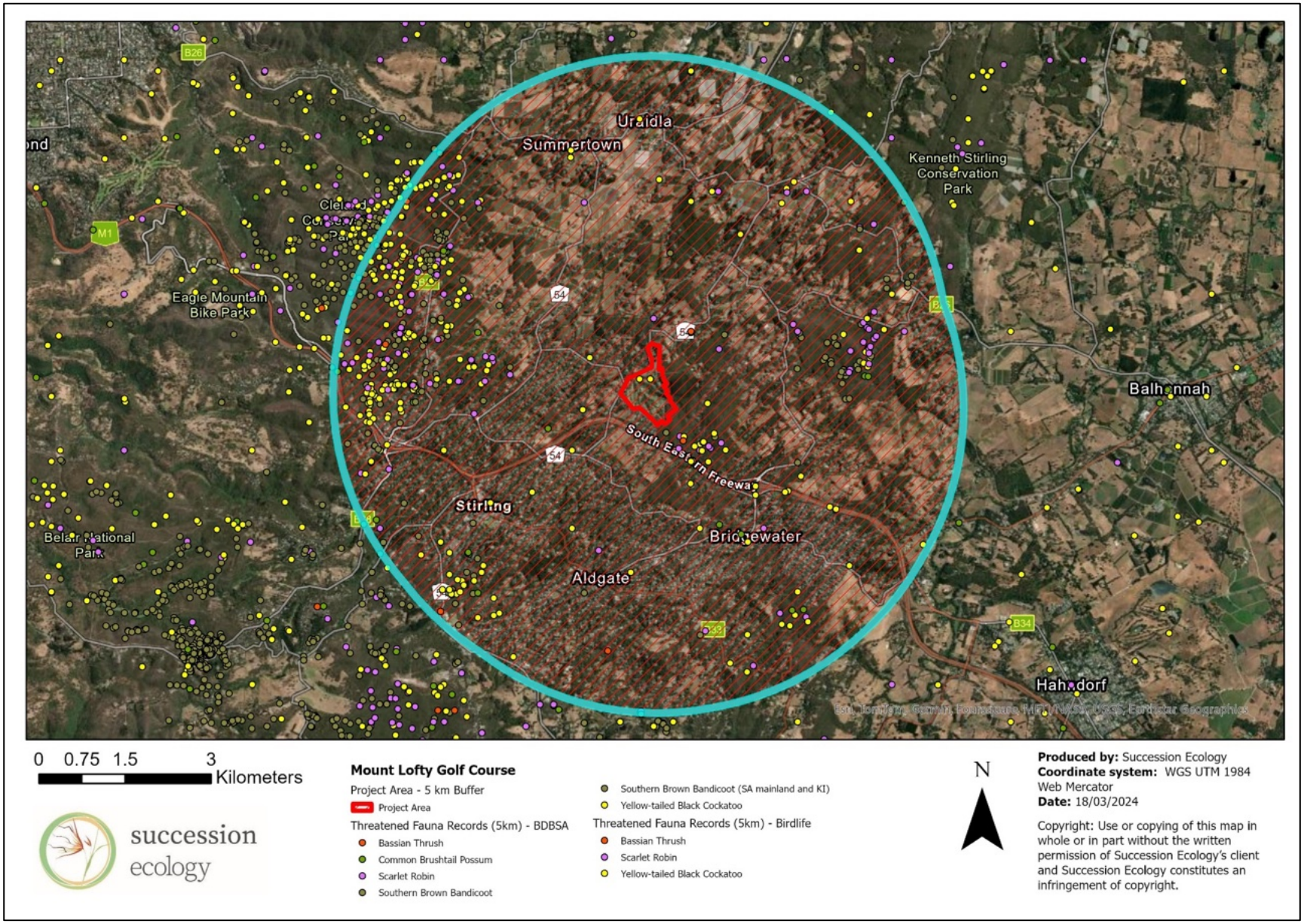

Figure 15: Threatened Fauna Records for Likely, Highly Likely and Known species within a 5 km buffer of the Project Area.

Table 4: A summary of the flora species observed on site or recorded within 5 km of the application area since 1995, or those listed as known to occur in the PMST.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
Acacia gunnii (Ploughshare Wattle)	R		3, 2	2022	In the Southern Lofty region mainly in the Adelaide Hills area. Usually on rocky hillsides and amongst rocky outcrops in open forest, associated with *Eucalyptus obliqua* and *Eucalyptus baxteri*.	**Likely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately <1 km from the Project Area. Limited suitable habitat is present, as *E. obliqua* is present within the Project Area, however, surrounding records occur within the adjacent Mount George Conservation Park.
Amphibromus archeri (Pointed Swamp Wallaby Grass)	R		2	2018	Occurs in damp areas such as lagoons, waterholes, and swamps, often on predominantly sandy soils (Weiller et al. 2022).	**Possible –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 2 km from the Project Area. Some suitable habitat is present for this species such as permanent water sources; however, this habitat is not located within the direct impact area.
Boronia nana var. hyssopifolia (Dwarf Boronia)	R		3	2022	Occurs in scattered woodland and forest communities (Flora of Victoria 2023a).	**Possible –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 1 km from the Project Area. Some suitable habitat is present for this species.
Caladenia behrii (Pink-lipped Spider-orchid)	E	EN	2	2010	Occurs on loamy soils in association with *Eucalyptus goniocalyx*, *E. obliqua*, *E. fasciculosa* or *E. microcarpa* woodland, usually on moderate slopes. Very sensitive to grazing by native and introduced herbivores and does not persist in weed infested areas (DEH 2008b).	**Possible –** The nearest record of occurrence is approximately 7.5 km from the Project Area, with majority of records located greater than 10 km from the Project Area. The Project Area falls within the known distribution of this species and suitable habitat is present including *E. obliqua*. However, suitable habitat is limited by the presence of a dense weedy understorey Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (August - September). Whereafter, it dies back to its perennial tuber. As such

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
						the species could possibly have occur within the Project Area.
Caladenia pusilla (Tiny Fingers)	R		2	2013	Occurs in clumps or small groups in clay or gravel soils in exposed sites in open forest, often in soils which are boggy in winter but bake hard in summer (Electronic Flora of SA, 2022).	**Possible –** Recorded previously within the past 15 years, with the nearest record of occurrence approximately 4 km from the Project Area. Some suitable habitat is present for this species.
Caladenia rigida (Stiff White Spider-orchid)	E	EN	2	2020	Occurs in *Eucalyptus obliqua, E. fasciculosa, E. leucoxylon, E. goniocalyx, E. microcarpa* open forests with a relatively open shrub layer. This habitat type has been extensively cleared or degraded in the Southern MLR since European settlement, but intact tracts exist in native forest reserves, water reserves, and reserves in the Kersbrook area (DEH 2008c).	**Possible**. The nearest record of occurrence approximately 4 km from the Project Area. The Project Area falls within the known distribution of this species, some associated flora species are present, such as *E. obliqua*. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (August - October). Whereafter, it dies back to its perennial tuber. As such, the species could possibly occur within the Project Area.
Glycine latrobeana (Clover Glycine)	V	VU	5		*Eucalyptus viminalis* woodland and open woodland with *E. leucoxylon*, and understoreys ranging from mid-dense to very sparse and dominated by either *Leptocarpus brownii*, or *Acacia pycnantha*, *Leptospermum myrsinoides*, *Gonocarpus elatus*, and *Themeda triandra*; or *Pteridium esculentum*, *Acaena* sp., and *Ajuga* sp. and *Eucalyptus goniocalyx* grassy woodland, and *E. fasciculosa* low open forest (DEH 2008d).	**Possible**. Some suitable habitat is present within the Project Area for this species, as there is an associated species present within the Project Area, *Eucalyptus viminalis* ssp. viminalis. However, suitable habitat is limited by the presence of a dense weedy understorey. Nearest record of occurrence is <1 km from the Project Area, dated 1990. All other records occur greater than 7 km from the Project Area.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
Cardamine paucijuga (Annual Bitter-cress)	R		2	2011	Found on Kangaroo Island, southern Mount Lofty Ranges and the lower South-east in South Australia, growing in rich soils in most to dry habitats (Seeds of SA 2023a).	**Possible.** Recorded within the past 5 years, the nearest record of occurrence is approximately 2 km from the Project Area, dated 2011. Limited suitable habitat is present within the Project Area.
Deyeuxia densa (Heath Bent-grass)	R		2	2019	Endemic. Tas., Vic. and S.A. Commonly in heaths, sedgelands and on-stream banks in damp, open to lightly shaded sites, but in rocky sites at high altitudes in the Grampians, Vic. Flowers Oct.–Jan. (AusGrass, 2022).	**Likely –** The nearest record of occurrence is <1 km from the Project Area. Some suitable habitat is present for this species such as permanent water sources; however, this habitat is not located within the direct Project Area.
Deyeuxia minor (Small Bent-grass)	V		2	2020	Found on Kangaroo Island, southern Mount Lofty Ranges and the lower-South-east growing in damp areas under light *Eucalypt* cover or margins of wet sclerophyll forest (Seeds of SA 2023b).	**Likely –** The nearest record of occurrence is < 1 km from the Project Area, dated 2020. Some suitable habitat is present for this species such as permanent water sources and associated *Eucalyptus* species present in the Project Area.
Dianella longifolia var. grandis (Pale Flax-lily)	R		3	2022	Grassy woodland (Seeds of SA, 2021).	**Possible –** The nearest record of occurrence is approximately 3 km from the Project Area. Some suitable habitat is present.
Dipodium pardalinum (Spotted Hyacinth-orchid)	V		2	2014	Grows in wet forests with an open understorey, also heathy forest on well-drained soil. In AMLR, grows in loam and ironstone gravels, in stringybark woodland and with *Eucalyptus obliqua*, *Acacia myrtifolia*, *Xanthorrhoea semiplana* ssp. *tateana* and *Pteridium esculentum* (DEH 2008e).	**Possible –** The nearest record of occurrence is < 2 km from the Project Area. Some suitable habitat is present for this species such as permanent water sources and associated *Eucalyptus* species present in the Project Area.
Dipodium punctatum (Hyacinth Orchid)	E		2	2015	Occurs singly or in small groups in *Eucalyptus obliqua* or *E. baxteri* forest (DEH 2008f).	**Possible –** Recorded in the previous 20 years, the nearest record is < 2 km from the Project Area. Some suitable habitat is present, particularly where *E. obliqua* is

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
						recorded within the Project Area, however associated understoreys species were not present.
Diuris behrii (Golden Cowslips)	V		2	2022	Occurs in native grassland, open woodland, and grassy forest; grows on more fertile soils, especially amongst Kangaroo Grass and *Triodia* on gentle slopes and flats (DEH, 2008).	**Possible –** The nearest record of occurrence is approximately 5 km form the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (September - November). As such, the species could possibly occur within the Project Area.
Diuris brevifolia (Late Donkey-orchid)	E		2	2020	Found in the southern Flinders Ranges and the Mount Lofty Ranges with a few records of the Eyre Peninsula, growing in native grassland, open woodland, and grassy forest; grows on more fertile soils; especially amongst Kangaroo Grass (DEH 2008g).	**Possible –** The nearest record of occurrence is approximately 3 km form the Project Area. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (October - December). As such, the species could possibly occur within the Project Area.
Drosera binata (Forked Sundew)	R		2	2017	Found in the southern Mount Lofty Ranges, on the western end on Kangaroo Island, and in the lower South-east in South Australia, growing in wet sand and sandy peat in swamps, on creek banks, and seepage lines in rock faces (Seeds of SA 2023c)	**Possible –** The nearest recent record occurs approximately 4 from the Project Area, dated 2017. Some suitable habitat is present for this species such as permanent water sources; however, this habitat is not located within the direct impact area.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
Eryngium vesiculosum (Prickfoot)	R		2	2009	Found scattered in South Australia, from the Lake Eyre region to the lower South-east, growing in sandy flats in low-lying damp areas (Seeds of SA 2023d).	**Possible –** Recorded in the past 20 years, the nearest recent record of occurrence is approximately 5 km from the Project Area. Some suitable habitat is present within the Project Area.
Eucalyptus dalrympleana ssp. dalrympleana (Candle bark Gum)	R		3	2021	Found in grassy or sclerophyll woodland or forest on loamy or sandy soils at higher elevations (NSW Flora Online, 2022).	**Possible –** Recorded previously within the past 5 years, the nearest record of occurrence is located within Mount George Conservation Park, approximately <1 km from the Project Area. Some suitable habitat and associated species are present within the Project Area.
Eucalyptus fasciculosa (Pink Gum)	R		3, 2	2021	Found in woodlands, low shrublands, in well-drained sandy soils (Seeds of SA, 2018).	**Possible –** A collection of this species was recorded in the past 20 years. The nearest record of occurrence is <1 km from the Project Area, dated 2017. Some suitable habitat is present within the Project Area.
Eucalyptus viminalis ssp. viminalis (Manna Gum)	R		3	2018	Found in the southern Mount Lofty Ranges in South Australia, growing in high rainfall areas on well-drained soils in open forest vegetation (Seeds of SA 2018a).	**Known –** A total of 24 individuals were recorded in the Project Area during the field survey. The habitat is present and falls within the known range of the species distribution.
Gastrodia sesamoides (Bell Orchid)	R		2	2023	Found growing in areas of high rainfall in wet sclerophyll forests, dry sclerophyll forests, woodlands and riparian areas (Seeds of SA 2023e).	**Likely –** Recorded in the past year, the nearest recent record is located approximately 3 km from the Project Area. Some suitable habitat is present and falls within the species known distribution. The species was not detected during the field survey; however, the field survey was not conducted during the species flowering period (October – November). As such, the species may have been present within the Project Area.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
Gleichenia microphylla (Coral Fern)	R		2	2022	It can form dense thickets to 1.5 m tall in sclerophyll forest but occurs as dense low mounds in open swamps (Electronic flora of South Australia, 2022).	**Likely –** Recorded in the previous 5 years with records of occurrence approximately 2 km from the Project Area. The Project Area provides some suitable habitat and is within the known distribution of the species.
Juncus amabilis (Beautiful Rush)	V		3	2009	Found in the southern Mount Lofty Ranges and the south-east in South Australia, growing in damp sites (Electronic Flora of SA 2007).	**Possible –** The nearest recent record is <1 km from the Project Area, dated 2009. While some suitable habitat is present along permanent watercourses, this is not within the direct impact area.
Luzula flaccida (Pale Wood-rush)	V		2	2020	Found in the southern Mount Lofty Ranges and the South-east in South Australia, growing in moist rather shady sites in grassy woodland or open grassland (DEH 2008h).	**Possible –** Recorded in the past 5 years, the nearest recent record occurs approximately 3 km from the Project Area. The Project Area provide limited suitable habitat.
Mentha diemenica (Slender Mint)	R		2	2011	Grows in damp locations, clay to sandy soils in montane woodland and grasslands (Atlas of Living Australia 2023).	**Possible –** The nearest record of occurrence is approximately 4 km from the Project Area. Some suitable habitat is present within the Project Area.
Montia fontana ssp. *chondrosperma* (Waterblinks)	V		3	2022	Found mainly in the southern Mount Lofty Ranges in South Australia, growing in moist areas along stream margins and wetlands (Seeds of SA 2023f).	**Possible –** The nearest record of occurrence is approximately 3 km from the Project Area. Some suitable habitat is present for this species such as permanent water sources; however, this habitat is not located within the direct impact area.
Prasophyllum pallidum *(*Pale Leek-orchid)	R	VU	2	2013	Fertile soils of woodland and well-grassed open forests (Seeds of SA, 2019).	**Possible –** Nearest record of occurrence is located approximately 9.5 km from the Project Area The Project Area is within the known distribution of this species. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
						period (September - November). As such, the species could possibly occur within the Project Area.
Prasophyllum pruinosum (Plum Leek-orchid)	E	EN	5, 2	2012	Found in the Adelaide and Mount Lofty Ranges Region, recorded in a range of open woodland habitats, usually with an overstorey of Eucalyptus fasciculosa and/or Eucalyptus leucoxylon (DCCEEW 2010).	**Possible –** Nearest record of occurrence is approximately 3 km from the Project Area, with majority of records occurring greater than 10 km from the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (September - November). As such, the species could possibly occur within the Project Area.
Pterostylis cucullata (Leafy Greenhood)		VU	2	2013	Occurs in Eucalyptus leucoxylon open forest, often with E. viminalis, E. camaldulensis, or E. obliqua. Within the AMLR, the preferred broad vegetation group is grassy woodland (DEH 2008i).	**Possible –** Limited suitable habitat is present for this species given the presence of *Eucalyptus obliqua* and *E. viminalis*, however the habitat is not an open forest, and a dense weedy understorey dominates the habitat. There are no recent records for this species within 10 km of the Project Area. This species may be present during its flowering period (August – December). As such, the species could possibly occur within the Project Area.
Pultenaea graveolens (Scented Bush-pea)	R		3, 2	2023	Dry sclerophyll woodland (Seeds of SA, 2021).	**Known –** This species was recorded within VA1. The nearest record of occurrence is < 1 km from the Project Area. The Project Area falls within the species known distribution. Suitable habitat is present.
Ranunculus glabrifolius (Shining Buttercup)	V		2	2000	occurs in damp ground in depressions or beside watercourses (Atlas of Living Australia 2024a).	**Possible –** Found only in Mount George Conservation Park in South Australia and only one record of occurrence.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
R*ytidosperma laeve* (Smooth Wallaby-grass)	R		2	2017	Grows in open woodland and grasslands, often in seasonally damp habitats (PlantNET NSW 2008).	**Possible –** Some suitable habitat present. Nearest records of occurrence approximately 3 km from the Project Area.
Rytidosperma tenuius (Short-awn Wallaby-grass)	R		3, 2	2022	Found in dry sclerophyll forest on sandy soils (National Herbarium of NSW, 2021).	**Likely –** Several records <500 m from the Project Area. Some suitable habitat present. The species is known to grow in disturbed sites.
Senecio pinnatifolius var. *pinnatifolius* (Variable Groundsel)	R		3	2015	Found in areas with moist soil such as around lakes and wetlands. Also forest, woodlands and grassy areas (B Wood 2022).	**Possible –** Some suitable habitat such as such as permanent water sources; however, this habitat is not located within the direct impact area. Nearest recent record of occurrence is approximately 4 km from the Project Area.
Thelymitra aristata (Scented Sun Orchid)	E		2	2008	Occurs singly or in small groups in clay or gravel soils in forest or scrubland or in the SE in damp sand around swamp margins. (Electronic Flora of South Australia, 2022)	**Possible –** Nearest record of occurrence is approximately 3 km from the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (September - January). As such, the species could possibly occur within the Project Area.
Thelymitra batesii (Bates Sun-orchid)	R		3	2014	Heathy woodlands and heathy open forest on sandy and gravelly clay loam soils (Seeds of SA, 2021).	**Possible –** Nearest record of occurrence is <500 m from the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
						may be due to the field survey occurring outside of the species flowering period (September - December). As such, the species could possibly occur within the Project Area.
Thelymitra grandiflora (Great Sun Orchid)	R		2	2019	Occurs singly or in small groups, in clay or gravel soils in forest or scrubland, or in the SE in damp sand around swamp margins (Electronic Flora of SA, 2022).	**Possible –** Nearest record of occurrence is approximately 2.5 km from the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (September - December). As such, the species could possibly occur within the Project Area.
Thelymitra inflata (Inflated Sun-orchid)	V		2	2008	Occurs only in the ranges, mostly on ridges and slopes, in woodland sites that may be wet in winter, especially along tracks and other disturbed sites (DEH 2008j).	**Possible –** Nearest record of occurrence is approximately 3 km from the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (late September – early December). As such, the species could possibly occur within the Project Area.
Thelymitra ixioides (Dotted Sun Orchid)	E		2	2013	Occurs singly or in small numbers in sandy or gravelly loams in forest in areas receiving greater than 750 mm mean annual rainfall (Electronic flora of South Australia, 2022)	**Possible –** Nearest record of occurrence is approximately 4 km from the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
						understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (August – January). As such, the species could possibly occur within the Project Area.
Thelymitra latifolia (Blue Star Sun-orchid)	R		2	2000	In South Australia, found from the southern Flinders Ranges southward through the Mount Lofty Ranges to the South-east. Occur in woodlands in various soil types, from leached pale sands to yellow gravelly clays and may occur near swamps (Atlas of Living Australia 2024b).	**Possible –** Nearest record of occurrence is approximately 4 km from the Project Area. The Project Area falls within the known distribution of this species. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. Despite this species not being identified during the field survey, this may be due to the field survey occurring outside of the species flowering period (mid-September – early November). As such, the species could possibly occur within the Project Area.
Xanthosia tasmanica (Southern Xanthosia)	R		2	2015	Found on Kangaroo Island and the southern Mount Lofty Ranges in South Australia, growing in shallow sand on rocky coastal heath and in woodland (Seeds of SA 2023g).	**Possible –** The Project Area falls within the distribution of the species. Some suitable habitat, nearest record of occurrence approximately 4.5 km from the Project Area.

Sources 1- BDBSA, 2- AoLA, 3- NatureMaps, 4- Observed/recorded in the field, 5- Protected matters search tool, 6- Other
NP&W Act: E- Endangered, V- Vulnerable, R- Rare
EPBC Act: Ex- Extinct, CR- Critically endangered, EN- Endangered, VU- Vulnerable

4.3 Cumulative impact

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must consider the potential cumulative impact, both direct and indirect, that is reasonably likely to result from a proposed clearance activity.

The cumulative impact of clearing is the gradual reduction of remnant vegetation in the area, a loss of connectivity between remnant patches and reduction of available habitat to threatened flora and fauna. Patches of remnant vegetation provide important habitat for native flora and fauna and are at high risk of degradation from clearance and other impacts such as weed incursion. This data report considers all sources of impact to native vegetation posed by the Project, including direct clearance for development of infrastructure, the potential impacts on root zones of vegetation due to compaction or construction, and any clearance required by the SA Country Fire Service. This report also considers the indirect impacts such as hydrological impacts, weed infestations, dust emissions, native vegetation pruning for path/road maintenance and development works, and any future planned works for this project.

A review of NatureMaps indicated the native vegetation remnancy within 5 km of the Project Area is 28 %. The Mount Lofty IBRA sub-region has 15 % remnancy. The proposed clearance will have minor impact on the vegetation within the Block, with clearance to be restricted to the direct footprint and CFS buffer. Within the 35 m CFS buffer, only understorey vegetation will be cleared. There is also the opportunity to manage the Declared Plants present at this site, to the benefit of the vegetation. While the proposed development will result in the direct clearance of seven large, scattered trees, through design the Project has successfully retained other remnant scattered trees and patches of native vegetation.

Potential indirect or offsite impacts of infrastructure construction projects can include the alteration of hydrological processes, weed invasion or spread, dust impacts on neighbouring vegetation, and contamination from waste. Weed species tend to be specialists at colonising disturbed soils. Any disturbance caused by construction activities is susceptible to weed invasion, which can impact habitat for fauna and flora, and may spread to neighbouring habitat. Management actions will be implemented to ensure no new weed infestations occur within the Project Area, and project activities do not cause a spread of weeds to neighbouring habitat.

Construction activities are likely to cause an increase in dust levels in the local area, for the duration of earthworks and vehicular travel on un-surfaced tracks. Dust can coat vegetation, potentially interfering with plant growth and reproduction. Dust emissions will be confined to construction activities only, and as such any impacts will be temporary. Further, dust suppression activities will be employed during all stages of construction to assist in limiting dust impacts on neighbouring vegetation.

Construction activities can generate waste products, both hazardous and non-hazardous, that can impact flora and fauna or their habitat within and adjacent to the Project Area. Such impacts may include soil contamination and smothering by litter or other waste materials. Management actions will be implemented to ensure all waste is appropriately managed on-site and disposed of in accordance with regulatory requirements.

4.4 Address the mitigation hierarchy

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations (NV) 2017, the NVC must have regard to the mitigation hierarchy. The NVC will also consider, with the aim to minimize, impacts on biological diversity, soil, water and other natural resources, threatened species or ecological communities under the EPBC Act or listed species under the NPW Act.

The following paragraphs describes how the Project has addressed the mitigation hierarchy with reference to the NV Regulations Section 5 – Mitigation hierarchy (a) – (d):

a) Avoidance – outline measures taken to avoid clearance of native vegetation

The Project has implemented design changes and realignments to reduce the area of impact to vegetation, specifically the removal of the proposed accommodation pods. The accommodation pods underwent several iterations including the reduction, and then removal of the proposed accommodation pods, which in early design phases included as many as 50 pods.

This has reduced impact and direct clearance of vegetation and scattered trees substantially, including retaining the vegetation that was previously expected to be impacted due to being within the CFS buffer zone clearance area. The proposed addition new vehicle access to the golf club, located in the southern part of the Project Area has been designed to utilise a partially cleared and existing unofficial walking entrance, which will avoid impacts to vegetation in this area. The majority of works for this project have been designed to fit within the current infrastructure footprint, or use open areas or areas of exotic/planted vegetation species for the development of the carparks and the refurbishment of the existing perfumery.

b) Minimisation – if clearance cannot be avoided, outline measures taken to minimize the extent, duration and intensity of impacts of the clearance on biodiversity to the fullest possible extent (whether the impact is direct, indirect or cumulative).

The Project's design leverages the current footprint of existing infrastructure, as well as utilising open areas or areas of exotic/planted vegetation species for the development of the carparks and the refurbishment of the existing perfumery. Impacts to the vegetation at the southeastern edge of the hotel building will be minimised by clearing just one vegetation stratum and retaining the trees. This will allow the retention of key habitat features utilised by many of the threatened species identified in Section 4.2.2.

Signage and exclusion fencing will be implemented to limit the impacts of clearing to vegetation and aid in minimising disturbance within the Project Area. Additionally, where practicable and feasible, measures to prevent the pollution of drainage lines and waterways in the areas located downstream of the proposed works will be implemented during the construction phases of the project.

c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.

Some areas that are proposed to be impacted by the clearance of native vegetation will undergo revegetation. Revegetation of the Project Area will have a preference for species that are endemic to the AMLR region. Due to CFS constraints, some areas will not be rehabilitated as they need to be maintained for specific bushfire attack level ratings. In conjunction with these efforts, a weed management plan will also be developed to maintain the Project Area to support natural regeneration of native species.

d) Offset – any adverse impact on native vegetation that cannot be avoided or further minimized should be offset by the achievement of a significant environmental benefit that outweighs that impact.

Mount Lofty Golf Estate Pty Ltd will contribute a SEB payment into the Native Vegetation fund to support restoration and conservation works in South Australia.

The NVC will only consider an offset once avoidance, minimization and restoration have been documented and fulfilled. The NVC *Policy for Significant Environmental Benefit* (Native Vegetation Council 2020c) explains the biodiversity offsetting principles that must be met.

4.5 Principles of clearance (*Schedule 1, Native Vegetation Act 1991*)

The NVC will consider Principles 1(b), 1(c) and 1(d) when assigning a level of Risk under Regulation 16 of the NV Regulations. The NVC will consider all the principles of clearance of the *NV Act* as relevant, when considering an application referred under the *Planning, Development and Infrastructure Act (PDI) 2016*.

Principle of clearance	**Considerations**
Principle 1(a) - it comprises a high level of diversity of plant species	Relevant information VA1 (a and b) has a total of 31 species. Of these, 14 are native and 17 introduced. Native Plant Diversity Score = 12
	Assessment against the principles At Variance – VA1a VA1b
	Moderating factors that may be considered by the NVC Only a very small area of vegetation will be impacted relative to the amount of vegetation in the local vicinity (approximately 0.00033% of the native vegetation within 5 km of the site).
Principle 1(b) - significance as a habitat for wildlife	Relevant information Threatened species identified in this area since 1995 that are likely, highly likely or known to use the site: • *Petroica boodang boodang* (Scarlet Robin) • *Zanda funerea whiteae* (Yellow-tailed Black Cockatoo) • *Zoothera lunulata halmaturina* (Bassian Thrush) • *Isoodon obesulus obesulus* (Southern Brown Bandicoot) • *Trichosurus vulpecula* (Common Brushtail Possum) • *Pteropus poliocephalus* (Grey-headed Flying-fox) • *Corcorax melanorhamphos* (White-winged Chough) • *Antechinus flavipes* (Yellow-footed Antechinus) Only one threatened species was observed within the Project Area, *Zanda funerea whiteae* (Yellow-tailed Black Cockatoo) and did not occur with VA1a / VA1b. Non threatened species observed within planted amenity vegetation included *Gymnorhina tibicen* (Australian magpie). Patch VA1a and VA1b: Threatened Fauna Score: = 0.1 Unit Biodiversity Scores: = 45.70 Scattered Trees Fauna Habitat Score: = 1.8 for all 7 scattered trees Total Biodiversity Scores: = T1 = 4.24 T2 = 11.59 T3 = 3.28 T4 = 4.06 T5 = 4.57 T6 = 10.69 T7 = 9.71

	Assessment against the principles Seriously at Variance VA1a, VA1b, T1, T2, T3, T4, T5, T6, T7
	Moderating factors that may be considered by the NVC The removal of this small area of bushland and removal of the seven scattered trees is not expected to have a significant impact on these fauna species as: • Records of occurrence of the species assessed within this report were largely located in nearby Belair National Park, Mount George Conservation Park, or Cleland Conservation Park, implying that the species are likely to preferentially utilise these areas of native vegetation and other undistributed areas in the region, rather than the relatively small and relatively disturbed Project Area. • Additionally, a number of other scattered trees and patches of remnant native vegetation within the Project Area will be retained and not impacted. These unaffected areas are likely to provide habitat corridors. The clearance is not expected to impact: • population size, extent, structure, continuity, or survivability • the area of occupancy of a species • habitat critical to the survival of a species • recovery of a species.
Principle 1(c) - plants of a rare, vulnerable or endangered species	Relevant information Threatened species identified in VA1a and VA1b since 1995 have been assessed as known, highly likely or likely to use the site: • *Acacia gunnii (Ploughshare Wattle)* • *Deyeuxia densa* (Heath Bent-grass) • *Deyeuxia minor* (Small Bent-grass) • *Gastrodia sesamoides* (Bell Orchid) • *Gleichenia microphylla* (Coral Fern) • *Senecio pinnatifolius* var. *pinnatifolius* (Variable Groundsel) • *Pultenaea graveolens* (Scented Bush-pea) • *Eucalyptus viminalis ssp. viminalis* (Known) VA1a and VA1b Threatened Flora Score = 0.08 Scattered trees Threatened Flora Score = All *Eucalyptus viminalis ssp. viminalis* (T1, T2, T6, T7) scored 0.3
	Assessment against the principles At Variance VA1a, VA1b, T1, T2, T3, T7, T8
	Moderating factors that may be considered by the NVC One individual *Pultenaea graveolens* was identified within VA1a / VA1b, no important populations occur within the area identified for clearance in VA1a / VA1b, records of this species occur mainly within the Mount George Conservation Park, Kenneth Stirling Conservation Park and Cleland Wildlife Park, with few scattered records in the wider MLR that provide patches of vegetation. A total of 24 *Eucalyptus viminalis ssp. viminalis* were surveyed and initially identified for impacts. However, through Project design reiterations, of these only five individuals will require complete clearance. The remaining 21 individuals will be retained. As such, clearance is not expected to impact: • population size, extent, structure, • continuity, or survivability • the area of occupancy of a species

	• habitat critical to the survival of a species • recovery of a species
***Principle 1(d) - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered*:**	Threatened communities. No threatened communities under the *EPBC Act* or threatened ecosystems under the DEW Provisional list of threatened ecosystems are present within VA1. Threatened Community Score = 1
	Assessment against the principles Not at Variance VA1a, VA1b and all seven scattered trees.
	Moderating factors that may be considered by the NVC. The EPBC PMST identified that two Threatened Ecological Communities (TECs) could potentially be present within the Project Area: • Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia. This TEC occurs within a small portion inside the buffer area only, approximately 9 km north from the Project Area. • Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and derived Native Grasslands of South-eastern Australia. This TEC occurs within the buffer area only within Cleland Conservation Park and Belair National Park (approximately 8 km from the Project Area). Neither of the TECs were identified during the field survey. As such the TECs were determined absent from the Project Area.
Principle 1(e) - it is significant as a remnant of vegetation in an area which has been extensively cleared.	Relevant information Remnancy % Uraidla IBRA Association = 26 % Mount Lofty Sub-region = 15 % Total Biodiversity Score VA1a = 14.76 Total Biodiversity Score VA1b = 4.94 Total Biodiversity Score Scattered Trees (inclusive of all seven) = 48.16
	Assessment against the principles At Variance VA1 and all seven scattered trees
	Moderating factors that may be considered by the NVC VA1a / VA1b is dominated a high percentage of weedy understorey which contributions to the degradation of this VA. The scattered trees are generally in good condition with dieback ranging from 5 % to 20 %.
Principle 1(f) – it is growing in, or in association with, a wetland environment.	Relevant information The vegetation is not associated with a wetland.
	Assessment against the principles Not at Variance.
	Moderating factors that may be considered by the NVC N/A
Principle 1(g) - it contributes significantly to the	Relevant information The Project Area is approximately 2.5 km north of Bridge and 2 km east of Stirling. The Stirling Golf Course is tucked besides the Mount George Conservation Park in which the tall forest towers in the backdrop to the Stirling Golf Course (north and east) The golf course is encapsulated by tall trees and non-native vegetation, which borders the perimeter of 35 Golflinks Road. The clearance

amenity of the area in which it is growing or is situated.	of VA1 and the seven scattered trees is unlikely to be a detriment to the amenity values in the area considering the prevalence of tall forest in the surrounding landscape.
	N/A
	Moderating factors that may be considered by the NVC Revegetation along Golflinks Road and Cox Creek may offset the visual impact from removing vegetation.

Principles of Clearance (h-m) will be considered by comments provided by the local Landscape Board or relevant Minister. The Data Report should contain information on these principles where relevant and where sufficient information or expertise is available.

4.6 Risk assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	7
	Area (ha)	0.431
	Total biodiversity Score	Total Biodiversity Score VA1a = 14.76 Total Biodiversity Score VA1b = 4.94 Total Biodiversity Score Scattered Trees (inclusive of all seven) = 48.16 Combined total: 67.86
Seriously at variance with principle 1(b), 1(c) or 1 (d)		VAs and Scattered Trees that are seriously are variance are: **1(b)** - VA1a, VA1b T1, T2, T3, T4, T5, T6, T7
Risk assessment outcome		Level 3

4.7 NVC guidelines

Provide any other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity.

N/A

5. Clearance summary

Clearance area(s) summary table

Block	Site	Species diversity	Threatened Ecological community	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
A	VA1a	12	1	0.08	0.1	45.70	0.323	14.76	0.8	0	0	12.40	$16,987.32	$934.30
A	VA1b	12	1	0.08	0.1	45.70	0.108	4.94	0.1	0	0	5.18	$7,099.96	$390.50
						Total	**0.431**	**19.70**				**17.58**	**$24,087.28**	**$1,324.80**

Scattered trees summary table

Tree or Cluster ID	Number of trees	Fauna Habitat score	Threatened flora score	Total Biodiversity score	Loss factor	SEB Points required	SEB Payment (inc. Admin Fee)
T1	1	1.8	0.3	4.24	1.0	4.46	$6,439.78
T2	1	1.8	0.3	11.59	1.0	12.17	$17,594.93
T3	1	1.8	0.0	3.28	1.0	3.45	$4,984.99
T4	1	1.8	0.0	4.06	1.0	4.26	$6,160.82
T5	1	1.8	0.0	4.57	1.0	4.80	$6,933.82
T6	1	1.8	0.3	10.69	1.0	11.23	$16,231.89
T7	1	1.8	0.3	9.71	1.0	10.20	$14,741.19
TOTAL				**48.16**		**50.56**	**$73,087.42**

Fee breakdown *SEB Payment* *$69,277.17* *Admin Fee* *$3,810.24*

Total summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	67.86	65.74	$93,364.45	5,135.04	$98,499.49

Economies of Scale Factor	0.5
Rainfall (mm)	918

NOTE: The minimum payment for this clearance will be $500.

6. Significant Environmental Benefit

A Significant Environmental Benefit (SEB) is required for approval to clear under Division 5 of the *Native Vegetation Regulations 2017*. The NVC must be satisfied that as a result of the loss of vegetation from the clearance that an SEB will result in a positive impact on the environment that is over and above the negative impact of the clearance.

ACHIEVING AN SEB

Indicate how the SEB will be achieved by ticking the appropriate box and providing the associated information:

☐ Establish a new SEB Area on land owned by the proponent.

☐ Use SEB Credit that the proponent has established. Provide the SEB Credit Ref. No. _____

☐ Apply to have SEB Credit assigned from another person or body. The application form needs to be submitted with this Data Report.

☐ Apply to have an SEB to be delivered by a Third Party. The application form needs to be submitted with this Data Report.

☒ Pay into the Native Vegetation Fund.

7. References

Atlas of Living Australia. 2020a. Blechnum wattsii (Hard Water-fern).
Atlas of Living Australia. 2020b. Caladenia necropylla (Late Spider-orchid).
Atlas of Living Australia. 2023. Mentha diemenica (Slender Mint).
Atlas of Living Australia. 2024a. Ranunculus glabrifolius (Shining Buttercup).
Atlas of Living Australia. 2024b. Species Profile: Thelymitra latifolia (Blue Star Sun-orchid).
Atlas of Living Australia. 2024c. Agile Antechinus (Antechinus agilis).
Atlas of Living Australia. 2024d. Goodenia brunnea.
Atlas of Living Australia. 2024e. Species Profile: Melaleuca armillaris ssp. akineta (Needle-leaf Honey-myrtle).
Atlas of Living Australia. 2024f. Species Profile: Nymphoides crenata (Wavy Marshwort).
Atlas of Living Australia. 2024g. Species Profile: Pterostylis setifera (Bristly Greenhood).
Ausgrass2. 2010. Species Profile: Poa umbricola (Shade Tussock-grass).
Australian Museum. 2020. Species Profile: Common Brushtail Possum.
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Australian Museum. 2022. Species profile: Hirundapus caudacutus; White-throated Needletail.
Australian Museum. 2023. Species profile: Geryone olivacea oliveacea (White-troated Gerygone).
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Birdlife Australia. 2023. Southern Whiteface.
DCCEEW. 2010. Approved Conservation Advice: Prasophyllum pruinosum (Plum Leek-orchid).
DEH. 2008a. Threatened Species Profile: Jacky Winter (Microeca fascinans fascinans).
DEH. 2008b. Threatened Species Profile: Caladenia behrii, Pink-lipped Spider-orchid.
DEH. 2008c. Threatened Species Profile: Caladenia rigida, Stiff White Spider-orchid.
DEH. 2008d. Threatened Species Profile: Glycine latrobeana, Clover Glycine.
DEH. 2008e. Species Profile: Dipodium pardalinum (Leopard Hyacinth-orchid). DEH.
DEH. 2008f. Species Profile: Dipodium punctatum (Hyacinth Orchid).
DEH. 2008g. Threatened Species Profile: Diuris behrii, Behr's Cowslip Orchid.
DEH. 2008h. Luzula flaccida (Pale Wood-rush).
DEH. 2008i. Pterostylis cucullata ssp. sylvicola (Leafy Greenhood).
DEH. 2008j. Species Profile: Thelymitra inflata (Inflated Sun-orchid).
DEH. 2008k. Threatened Species Profile: Lewinia pectoralis pectoralis (Lewin's Rail (eastern)).
DEH. 2008l. Threatened Species Profile: Caladenia valida (Robust Spider-orchid). DEH.
DEH. 2008m. Species Profile - Caleana major (Duck orchid).
DEH. 2008n. Threatened Species Profile: Leionema hillebrandii, Mount Lofty Phebalium.
DEH. 2008o. Species Profile: Schizaea fistulosa (Narrow Comb-fern).
DEH. 2008p. Threatened Species Profile: Schoenus latelaminatus (Medusa Bog-rush).
DEH. 2008q. Species Profile: Thelymitra circumsepta (Naked Sun-orchid).
DEH. 2008r. Species Profile: Thelymitra mucida (Plum Sun-orchid).
DEH. 2008s. Species Profile: Todea barbara (King Fern).
DEH. 2009. Threatened Species Profile: Falco peregrinus, Peregrine Falcon.
Department of Sustainability, Environment, Water, Population and Communities. 2011. Environment Protection and Biodiversity Conservation Act 1999 draft referral guidelines for the endangered southern brown bandicoot (eastern), Isoodon obesulus obesulus. Australian Government.
Electronic Flora of SA. 2007. Fact sheet for Juncus amabilis. http://www.flora.sa.gov.au/cgi-bin/speciesfacts_display.cgi?form=speciesfacts&name=Juncus_amabilis.
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Flora of Victoria. 2022. Species Profile: Grevillea aquifolium, Holly Grevillea.
Flora of Victoria. 2023a. Species Profile: Boronia nanna var hyssopifolia.
Flora of Victoria. 2023b. Species Profile: Dicksonia antarctica (Soft Tree-fern).
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Seeds of SA. 2018c. Boronia parviflora (Swamp Boronia).
Seeds of SA. 2018d. Brachyscome diversifolia (Tall Daisy).
Seeds of SA. 2018e. Diuris chryseopsis (Snake Orchid).
Seeds of SA. 2018f. Luzula ovata (Oval Wood-rush).
Seeds of SA. 2023a. Cardamine paucijuga (Annual Bitter-cress).
Seeds of SA. 2023b. Deyeuxia minor (Small Bent-grass).
Seeds of SA. 2023c. Species Profile: Drosera binata (Forked Sundew).
Seeds of SA. 2023d. Species Profile: Eryngium vesiculosum (Prostrate Blue Devil).
Seeds of SA. 2023e. Species Profile: Gastrodia sesamoides (Potato Orchid).
Seeds of SA. 2023f. Species Profile: Montia fontana ssp. chondrosperma (Waterblinks).
Seeds of SA. 2023g. Xanthosia tasmanica (Southern Xanthosia).
Seeds of SA. 2023h. Species Profile: Caladenia parva (Small Spider-orchid). Seeds of SA.
Seeds of SA. 2023i. Callistemon brachyandrus (Prickly Bottlebrush).
Seeds of SA. 2023j. Species Profile: Coronidium gunnianum (Pale Everlasting).
Seeds of SA. 2023k. Species Profile: Gonocarpus micranthus ssp. micranthus (Creeping Raspwort).
Seeds of SA. 2023l. Species Profile: Lycopodium deuterodensum (Bushy Clubmoss).
Seeds of SA. 2023m. Species Profile: Paracaleana minor (Small Duck-orchid).
Seeds of SA. 2023n. Sprengelia incarnata (Pink Swamp-heath).
Seeds of SA. 2023o. Species Profile: Xyris operculata (Tall Yellow-eye).
Seeds of SA. 2024a. Acacia stricta (Hop Wattle).
Seeds of SA. 2024b. Bauera rubioides (Dog Rose).
Seeds of SA. 2024c. Baumea acuta (Pale Twig-rush).
Seeds of SA. 2024d. Baumea gunnii (Slender Twig-rush).
Seeds of SA. 2024e. Species Profile: Lycopodiella lateralis (Slender Clubmoss).
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Weiller, C. M., S. W. L. Jacobs, and I. R. Thompson. 2022. Amphibromus archeri. Page Flora of Australia. Australian Biological Resources Study. Department of Climate Change, the Environment and Water, Canberra.

8. Appendices & Attachments

Appendices

Appendix A: Complete species lists of species recorded during field surveys.

Appendix B: Additional site photos.

Appendix C: Threatened fauna and flora species excluded from assessment.

Attachments

Attachment 1: Bushland/Scattered tree assessment scoresheets associated with the proposed clearance.

Attachment 2: Site maps as shape files.

Appendix A – Complete list of flora and fauna species identified within the Project Area.

SPECIES NAME	COMMON NAME	SITE
Native Flora		**VA1 and the Project Area**
Acacia melanoxylon	Blackwood	
Acrotriche fasciculiflora	Mount Lofty ground berry	
Austrostipa sp.	Spear Grass	
Bursaria spinosa ssp.	Christmas Bush	
Dianella revoluta var.	Flax Lily	
Eucalyptus obliqua	Messmate Stringybark	
Eucalyptus viminalis ssp. viminalis	Manna Gum	
Exocarpos cupressiformis	Native Cherry	
Hibbertia exutiacies	Prickley Guinea Flower	
Lomandra micrantha ssp.	Small-flower Mat-Rush	
Lomandra sp.	Mat-Rush	
Pteridium esculentum ssp. esculentum	Bracken Fern	
Pultenaea graveolens	Scented Bush Pea	
Rytidosperma sp.	Wallaby Grass	
Exotic Flora		
Agapanthus praecox ssp. orientalis	Agapanthus	
Alopecurus sp.	Foxtail	
Chondrilla juncea	Skeleton weed	
Cotoneaster sp.	Cotoneaster	
Cupressus macrocarpa	Monterey Cypress	
Cytisus scoparius	English Broom	
Erica arborea	Tree Heath	
Genista linifolia	Flax-leaf Broom	
Genista monspessulana	Montpellier Broom	
Hedera helix	English Ivy	
Ilex aquifolium	Holly Bush	
Iris sp.	Iris	
Piptatherum miliaceum	Rice Millet	
Plantago sp	Plantain	
Rubus fruticosus	Blackberry	
Senecio pterophorus	African Daisy	
Ulex europaeus	Gorse	
Vinca major	Blue Periwinkle	
Native Fauna		
Zanda funerea whiteae	Yellow-tailed Black Cockatoo	

Appendix B: Additional site photos

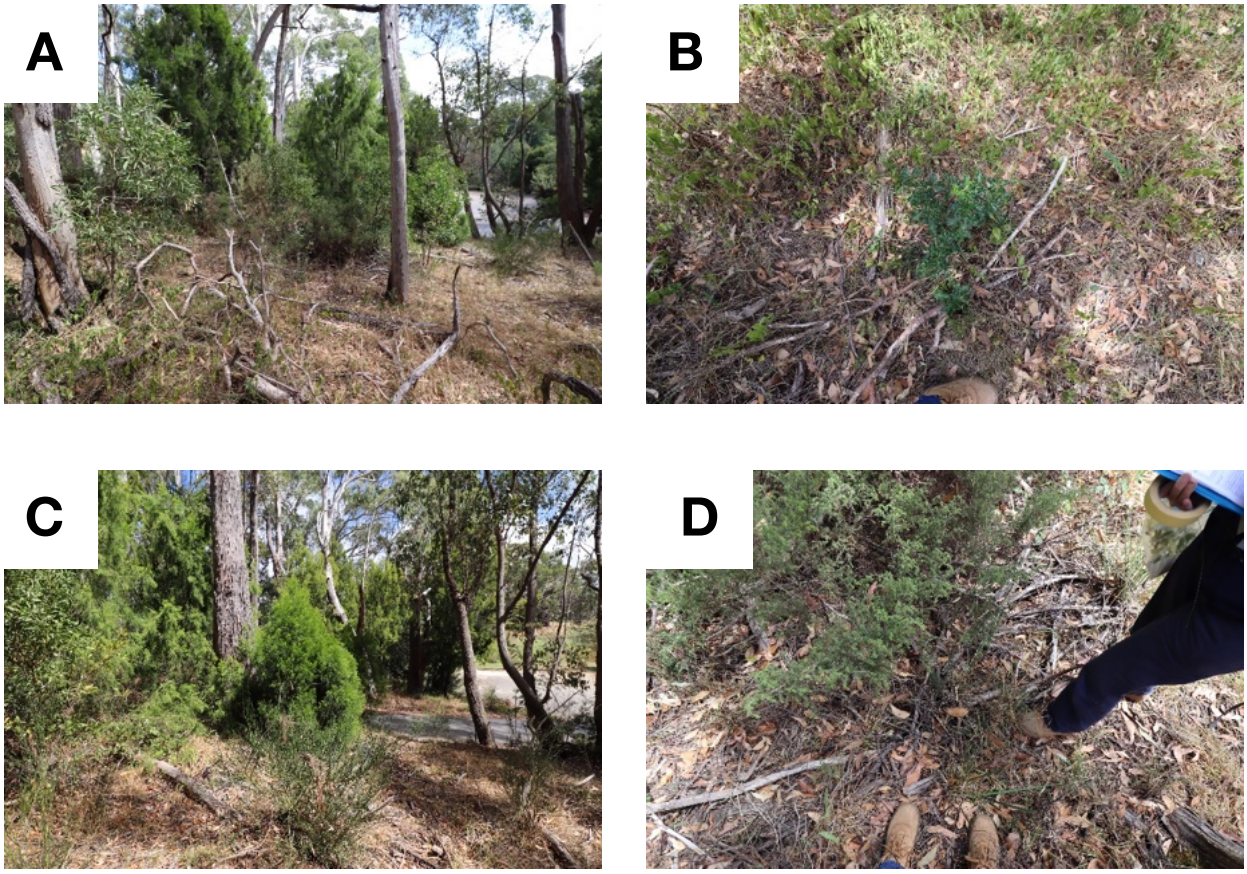

Figure 16: Vegetation Association 1 (VA1), structure and understorey.

Appendix C – Threatened fauna and flora species which likelihood of use was assessed as 'unlikely'.

Table 5: A summary of the fauna species observed on site or recorded within 5 km of the application area since 1995, or those listed as known to occur in the PMST which the likelihood of use was assessed as 'unlikely.'

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
AVES						
Falcunculus frontatus frontatus (Eastern Shrike-tit)	R		3, 2	2006	Found in a variety of habitats, including woodlands, scattered trees, forested gullies. Rarely feeds near the ground (Australian Museum, 2020).	**Unlikely –** Recorded previously within the past 20 years, with the nearest record of occurrence approximately 2 km from the Project Area. Although there is suitable habitat present on site, previous occurrence records predate 1995.
Gerygone olivacea olivacea (White-throated Gerygone)	R		2	2007	Its natural habitats are temperate forests and subtropical or tropical moist lowland forests (Australian Museum 2023).	**Unlikely –** Recorded previously within the past 20 years, with the nearest record of occurrence approximately 3 km from the Project Area. Previous record predates 1995, with limited suitable habitat available.
Lewin pectoralis pectoralis (Lewin's Rail)	V		3	2010	Inhabit permanent to ephemeral, fresh to saline wetlands with dense emergent or fringing vegetation. Also use artificial habitats with similar structural features (DEH 2008k).	**Unlikely** – Recorded previously within the past 20 years, with the nearest record of occurrence approximately 4 km from the Project Area. Limited suitable habitat is available.
Biziura lobata menziesi (Musk Duck)	R		3, 2	2015	Deep freshwater lagoons with dense reed beds (Australian Museum 2021).	**Unlikely** – Recorded previously within the past 10 years, with the nearest record of occurrence approximately 2.5 km from the Project Area. Limited suitable habitat is present.
Oxyura australis (Blue-billed Duck)	R		2	2018	Almost wholly aquatic, deep water in large permanent wetlands and swamps with dense aquatic vegetation (DEH, 2022)	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 3 km from the Project Area, in Cleland National Park.
Plectorhyncha lanceolata (Striped Honeyeater)	R		3, 2	2020	Found in forests and woodlands often along rivers (Birdlife Australia, 2021).	**Unlikely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 2 km from the Project Area. Limited suitable habitat is available, with scarce records of occurrence located nearby.
Podiceps cristatus australis (Great Crested Grebe)	R		3, 2	2023	Inhabits rivers, lakes, estuaries, and sheltered bays, but favours large, deep, open bodies of fresh water (Birdlife Australia, 2021).	**Unlikely –** Recorded previously within the past 2 years, with the nearest record of occurrence approximately 5 km from the Project Area. Despite there being a recent record of occurrence it is the only record within 5 km of the Project Area.
Stagonopleura guttata (Diamond Firetail)		VU	5		Occurs in a wide range of Eucalypt dominated habitat with a grassy understorey (DEW, 2019).	**Unlikely –** Recorded previously within the last 20 years, with the nearest record of occurrence 4 km from the Project Area. Limited suitable habitat is available for this species, with sparse records.
Stictonetta naevosa (Freckled Duck)	V		2	2014	Prefers permanent freshwater swamps and creeks with heavy growth of bullrushes, lignum or tea-tree. During drier times, it moves to waters such as lakes	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 3 km from the Project Area, in Cleland Conservation Park. Suitable habitat is not present for this species.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
					and sewerage ponds. (Australian Museum, 2021).	
Turnix varius varius (Painted Buttonquail)	R		3	2018	Various Eucalypt habitats, with a preference for areas with leaf litter (DEW, 2019).	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 4 km from the Project Area. Limited suitable habitat is present for this species as it is known to prefer dense canopies.
Zapornia tabuensis (Spotless Crake)	R		3	2010	Inhabits wetlands where there is dense vegetation surrounding the water (eBird, 2021).	**Unlikely –** Recorded previously within the past 25 years, with the nearest record of occurrence approximately 3 km from the Project Area. Limited suitable habitat is not present for this species.
MAMMALIA						
Antechinus agilis (Agile Antechinus)	E		2	2021	Inhabits wet or moist forest in the southeastern corner of Australia (Atlas of Living Australia 2024c).	**Unlikely –** Recorded previously within the past 5 years, with the nearest occurrence record approximately 4 km from the Project Area. Suitable habitat is not present for this species.
REPTILIA						
Egernia cunninghami (Cunningham's Skink)	E		3, 2	2017	Forests and Woodland with Rocky Outcrops (Australian Museum, 2021).	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 2 km from the Project Area. Limited suitable habitat is present for this species.
Varanus rosenbergi (Heath Goanna)	V		3, 2	2014	Prefers sandy heathland, open woodland, or sclerophyll forest, although the species is known to occur in other vegetation types (Landscape SA, 2020)	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 1 km from the Project Area. There are only two recorded occurrences for this species within 5 km of the Project Area, with limited suitable habitat available.
Varanus varius (Lace Monitor)	R		3, 2	2013	Occurs in a wide range of habitats from temperate to semi-arid. Habitat preferences tend towards areas with sandy soils for burrowing (DEW, 2019).	**Unlikely –** Recorded previously within the past 15 years, with the nearest record of occurrence approximately 1 km from the Project Area. Suitable habitat is not available for this species.
Sources 1- BDBSA, 2- AoLA, 3- NatureMaps, 4- Observed/recorded in the field, 5- Protected matters search tool, 6- Other NP&W Act: E- Endangered, V- Vulnerable, R- Rare EPBC Act: Ex- Extinct, CR- Critically endangered, EN- Endangered, VU- Vulnerable						

Table 6: summary of the flora species observed on site or recorded within 5 km of the application area since 1995, or those listed as known to occur in the PMST which the likelihood of use was assessed as 'unlikely'.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
Acacia iteaphylla (Flinders Ranges Wattle)	R		2	2022	Found in hills on rocky outcrops or in valleys along rocky creeks (Flora of Australia, 2021).	**Unlikely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 2 km from the Project Area. Limited suitable habitat is present for this species.
Acacia stricta (Hop Wattle)	R		2	2005	Found in a small, localised area in the South-east in South Australia. Grows with	**Unlikely –** Recorded preciously within the past 20 years, with the nearest record of occurrence approximately

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
					Eucalyptus baxteri with heath understorey, often in damp areas (Seeds of SA 2024a).	2.5 km from the Project Area. This species is confined to the South-east.
Austrostipa tenuifolia (Long-awn Spear-grass)	R		2	2018	Found in sandy soils in grassland or grassy woodland associated with *Callitris* or *Allocasuarina* species (Seeds of SA, 2022).	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 4 km from the Project Area. There is only one record of occurrence within 5 km of the Project Area since 1995, and suitable habitat is not present within the Project Area.
Baloskion tetraphyllum ssp. *tetraphyllum* (Tassel Cord-rush)	R		3	2012	Permanently moist peaty sand, near streams and the edges of lagoons, swampy places, riverbanks, in oligotrophic soils. Very limited occurrences in the lower South-east of South Australia (Flora of Australia 2021).	**Unlikely –** Recorded previously within the past 25 years, with the nearest record of occurrence approximately 3 km from the Project Area. Suitable habitat is not present for this species.
Bauera rubioides (Dog Rose)	R		2	2011	Found on Kangaroo Island and in the southern Mount Lofty Ranges in South Australia, growing in damp heathland and heathy forests (Seeds of SA 2024b).	**Unlikely –** Recorded previously within the past 25 years, with the nearest record of occurrence approximately 3 km from the Project Area. Limited suitable habitat is available for this species, however there is only one record of occurrence for this species within 5 km of the Project Area.
Baumea acuta (Pale Twig-rush)	R		2	2001	Found on Kangaroo Island, southern Mount Lofty Ranges and the lower South-east in South Australia, growing in swamps and damp heath on open sandy soils (Seeds of SA 2024c).	**Unlikely –** Recorded previously within the past 25 years, with the nearest record of occurrence approximately 2 km from the Project Area. This species is confined to the lower South-east, and suitable habitat is not available.
Baumea gunnii (Slender Twig-rush)	R		2	2018	Found on Kangaroo Island, southern Mount Lofty Ranges, and the lower South-east in South Australia, growing in wet heathlands and swampy woodlands (Seeds of SA 2024d).	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 1.5 km from the Project Area. Suitable habitat is not present for this species within the Project Area directly. Surrounding records occur in Cleland National Park.
Blechnum nudum (Fishbone Water Fern)	R		2	2022	Found on Kangaroo Island and southern Mount Lofty Ranges in South Australia, growing along stream banks in shaded gullies (Seeds of SA 2018b).	**Unlikely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 1 km from the Project Area. Some suitable habitat is present, however not within the areas of proposed developmental impact.
Blechnum wattsii (Hard Water-fern)	R		2	2010	Often forms large colonies in deep moist soil and occasionally on rock faces in wet sclerophyll forest and rainforest (Atlas of Living Australia 2020a).	**Unlikely –** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 1 km from the Project Area. Some suitable habitat is present, however not within the areas of proposed developmental impact.

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
Boronia parviflora (Swamp Boronia)	R		2	2018	Found on the western on of Kangaroo Island, southern Mount Lofty Ranges and the lower South-east in South Australia, growing in wet heath and swampy areas (Seeds of SA 2018c).	**Unlikely –** Recorded previously within the past 10 years, with the nearest record of occurrence approximately 4 km from the Project Area. There is only one record within 5 km of the Project Area for this species.
Brachyscome diversifolia (Tall Daisy)	E		2	2010	Found in a few sites in the southern Mount Lofty Ranges in South Australia, growing in forests and along gullies (Seeds of SA 2018d).	**Unlikely –** Recorded previously within the past 15 years, with the nearest record of occurrence approximately 4 km from the Project Area. This is an isolated record.
Caladenia leptochila ssp. *leptochila* (Narrow-lip Spider Orchid)	R		2	2000	Occurs singly or in small groups in clay or gravelly soils in open to dense forest. Not uncommon in the Adelaide Hills. Vic. (very rare). (Electronic Flora of South Australia species, 2022)	**Unlikely –** Recorded previously within the past 25 years, with the nearest record of occurrence approximately 4 km from the Project Area. Records of this species occur in Cleland National Park.
Caladenia necrophylla (Late Spider-orchid)	R		2	2008	Occurs in the South-east of South Australia, growing in mallee woodland (Atlas of Living Australia 2020b).	**Unlikely –** Recorded previously within the past 20 years, with the nearest record of occurrence approximately 2 km from the Project Area. This is an isolated record of occurrence. This species is also confined to the South-east area of SA.
Caladenia parva (Small Greencomb Spider Orchid)	R		2	1997	Found in the southern Mount Lofty Ranges and the lower South-east in South Australia, growing in heath and heathy woodlands, often in damper sites (Seeds of SA, 2023).	**Unlikely –** Recorded previously within the past 30 years, with the nearest record of occurrence approximately 4 km from the Project Area. There are no new records of occurrence for this species.
Caladenia valida (Robust Spider-orchid)	E		2	2009	Mainly coastal in heathy forest and scrub. On various soil types including sand and laterite in scrubby woodland and heath, preferring small clearings, often in the protection of grass trees (*Xanthorrhoea* spp.). (DEH 2008l).	**Unlikely**. The nearest record of occurrence approximately 8.5 km from the Project Area and is an isolated record. It is the only record within a 10 km buffer of the Project Area. There is no suitable habitat present and no associated species are present.
Caleana major (Bee Orchid)	V		2	2017	Forms sparse vegetative colonies in open forest and heathland (*Eucalyptus baxteri* forest and often associated with *Banksia ornata*), usually on sandy or gravelly soils. (DEH 2008m).	**Unlikely**. The nearest record of occurrence approximately 4.5 km from the Project Area, all other records occur are greater than 7 km from the Project Area. There is limited suitable habitat present and no associated species are present.
Callistemon brachyandrus (Prickly Bottlebrush)	R		3	2019	Found along the Murray River in South Australia mainly between Swan Reach and Waikerie growing in the sandy soils of alluvial flats (Seeds of SA 2023i).	**Unlikely.** Recorded previously within the past 5 years, with the nearest record of occurrence approximately 4 km from the Project Area. This is an isolated record.
Coronidium gunnianum	E		2	2009	Southern Mount Lofty Ranges, Burra Gorge and a	**Unlikely.** There nearest record of occurrence is approximately 6.5 km

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
(Pale Swamp Everlasting)					single record from the lower South-east in South Australia, growing in grasslands and riverine woodlands on soils that are prone to inundation (Seeds of SA 2023j).	from the Project Area. The suitable habitat within the Project Area is restricted by the presence of a dense weedy understorey.
Dicksonia antarctica (Tree Fern)	E		2	2012	Occurring mostly in forested areas of high rainfall, particularly in shaded gullies and near streams and waterfalls, ranging from near sea-level to the sub alps (Flora of Victoria 2023b).	**Unlikely.** Nearest record of occurrence approximately 5 km from the Project Area, dated 1970. Only two other records exist within the wider locality (approximately 4 km and 11 km from the Project Area. Limited suitable habitat is provided.
Diuris chryseopsis (Snake Orchid)	E		2	2003	Presumed extinct in the Mount Lofty Ranges (but may have been rediscovered in Kuitpo Forest Reserve), and found only between Naracoorte and Mount Gambier in South Australia, growing in damper grassy patches in woodland and waterholes, along creeks, on cooler slopes in rich, most soils (Seeds of SA 2018e).	**Unlikely**. The nearest record of occurrence is approximately 10 km form the Project Area. All other records occur greater than 10 km from the Project Area. While some suitable habitat is present along permanent watercourses, this is not within the direct impact footprint. This species is generally confined to the southeast side of the State.
Drosera stricticaulis (Erect Sundew)	V		2	1998	Sandy clay loam along watercourses and granite outcrops (Seeds of SA, 2019).	**Unlikely**. Recorded in the previous 25 years, the nearest record of occurrence is located approximately 3 km from the Project Area. However, no suitable habitat is present.
Euphrasia collina subsp. osbornii (Osborn's Eyebright)		EN	5		Generally found in moist open habitat, in mallee scrub but also in woodlands and coastal heath (DEH, 2010).	**Unlikely.** While some suitable habitat is present, there are no recent records of occurrence.
Gonocarpus micranthus ssp. *micranthus* (Creeping Raspwort)	R		3	2018	Found on Kangaroo Island, southern Mount Lofty Ranges, and the lower South-east in South Australia, growing on wet, peaty soils (Seeds of SA 2023k).	**Unlikely**. The most recent record of occurrence is restricted to Cleland National Park, approximately 3.5 km from the Project Area. While the species distribution covers the Project Area, no suitable habitat is present.
Goodenia brunnea	R		3	2018	This *Goodenia* grows in rocky situations and near watercourses in the far north-west of South Australia (Atlas of Living Australia 2024d).	**Unlikely**. An isolated record of this species is located approximately 3.8 km from the Project Area. This species is generally confined to the far north-west of SA.
Grevillea aquifolium (Prickly Grevillea)	R		2	1997	On calcareous sand in sclerophyllous woodland, and in heath on sands, limestone pavements and sandstone outcrops (Flora of Victoria 2022)	**Unlikely**. Despite some suitable habitat present within the Project Area, the nearest record of occurrence is approximately 3.6 km from the Project Area, dated 1997.
Hypolepis rugosula ssp. rugosula (Ruddy Ground Fern)	R		2	2020	Found on Kangaroo Island, southern Mount Lofty Ranges, and the lower South-east in South Australia, growing	**Unlikely**. Recorded in the previous 20 years, the nearest recent record of occurrence is approximately 3 km from the Project Area. While some suitable habitat is present along

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
					along shady streams or open wetter areas (VicFlora 2018a).	permanent watercourses, this is not within the direct impact footprint.
Leionema hillebrandii (Mount Lofty Phebalium)	R		2	2023	Endemic to South Australia and found only in the Southern Mount Lofty Ranges, growing in heathy woodland and forest gullies, often in open rocky habitat along steep gullies (DEH 2008n).	**Unlikely.** Recorded in the past year the nearest recent record occurs approximately 4 km from the Project Area. There is limited suitable habitat present.
Luzula ovata (Clustered Wood-rush)	R		3, 2	1996	Found in the Mount Lofty Ranges and the lower South-east in South Australia, growing in swampy areas (Seeds of SA 2018f).	**Unlikely**. The nearest record is approximately 1 km from the Project Area, dated 1996. While some suitable habitat is present for this species such as permanent water sources; however, this habitat is not located within the direct Project impact footprint.
Lycopodiella lateralis (Slender Clubmoss)	R		2	2017	Found on Kangaroo Island and the southern Mount Lofty Ranges, growing in wet boggy areas (Seeds of SA 2024e).	**Unlikely**. The nearest recent record occurs approximately 4 km from the Project Area. While some suitable habitat is present for this species such as permanent water sources; however, this habitat is not located within the direct Project impact footprint.
Lycopodium deuterodensum (Bushy Clubmoss)	E		2	2009	Found in the southern Mount Lofty Ranges in South Australia, growing on steep hill slopes over sandstone and quartzite on the edge of a gully swamp within open stringybark forest with a dense understorey of bracken, sedges, shrubs, herbs and grasses (Seeds of SA 2023l).	**Unlikely**. The nearest recent record occurs approximately 4 km from the Project Area. Some suitable habitat is present for this species; however, associated species are minimal.
Melaleuca armillaris ssp. *akineta* (Needle-leaf Honey-myrtle)	R		3	2008	Subspecies *akineta* is only found in the Gawler Ranges of South Australia (Atlas of Living Australia 2024e).	**Unlikely**. The nearest recent record occurs approximately 3 km from the Project Area. Suitable habitat does not occur within the Project Area and is not within the known distribution of the species.
Nymphoides crenata (Wavy Marshwort)	R		2	1995	Grows on floodplains, in swamps, lagoons, irrigation channels, and in temporarily inundated depressions, and in slow-flowing streams where the depth of the water is up to about 1.5 m deep (Atlas of Living Australia 2024f).	**Unlikely**. The nearest record of occurrence is approximately 2.5 km from the Project Area. This is an isolated record, dated 1995. Some suitable habitat is present for this species such as permanent water sources; however, this habitat is not located within the direct impact area.
Paracaleana minor (Small Duck-orchid)	V		3	2010	Found in the southern Mount Lofty and the South-east in South Australia, growing in a variety of habitats, in forested ridges and slopes, in coastal scrub and more open areas on sand and gravelly soil (Seeds of SA 2023m).	**Unlikely**. The nearest record is approximately 4 km from the Project Area from within the past 15 years. The first field survey was conducted during its flowering season (September – February), did not encounter the species. Suitable habitat is limited by the presence of a

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
						dense weedy understorey. As such, it is unlikely to occur at the Project Area.
Poa umbricola (Shade Tussock-grass)	R		2	2018	Grasslands, meadows, and open woodlands. Often straggling among rocks (Ausgrass2 2010).	**Unlikely**. The nearest record of occurrence is approximately
Pterostylis setifera (Bristly Greenhood)	E		2	2018	Grows in a variety of habitats including among rocks and in mallee vegetation (Atlas of Living Australia 2024g).	**Unlikely**. There is no mallee habitat present within the Project Area. No recent records.
Schizaea fistulosa (Narrow Comb-fern)	V		2	2008	Occurs on raised soil mounds in swamps or under vegetation in moist situations. Often found associated with Schizaea bifida (DEH 2008o).	**Unlikely**. The nearest record of occurrence is approximately 4.5 km from the Project Area. Some suitable habitat such as such as permanent water sources; however, this habitat is not located within the direct impact area and the riparian vegetation is infested with exotic vegetation.
Schoenus latelaminatus (Medusa Bog-rush)	V		2	2012	Occurs in freshwater boggy, swampy areas, drainage lines, and temporarily wet places, including swampy valley sites under River Red Gum with *Myriophyllum amphibium* and damp depressions amongst *Juncus holoschoenus*, *Gratiola pumi*la and *Myriophyllum* sp. within the AMLR the preferred broad vegetation groups are wetland and riparian (DEH 2008p).	**Unlikely**. Some suitable habitat such as such as permanent water sources; however, this habitat is not located within the direct impact area and the riparian vegetation is infested with exotic vegetation. Nearest record of occurrence is approximately 3 km from the Project Area, dated 2012.
Schoenus lepidosperma ssp. *Lepidosperma* (Slender Bog-rush)	R		3	2018	Usually on damp sandy soils, in heath or woodland (VicFlora 2018b).	**Unlikely**. Some suitable habitat such as such as permanent water sources; however, this habitat is not located within the direct impact area and the riparian vegetation is infested with exotic vegetation. Nearest record of occurrence is approximately 4 km from the Project Area.
Scutellaria humilis (Dwarf Skullcap)	R		2	2021	Various habitats, often in moist sheltered areas, particularly along creeks or gullies (National Herbarium of NSW, 2021).	**Unlikely**. Some suitable habitat such as such as permanent water sources; however, this habitat is not located within the direct impact area and the riparian vegetation is infested with exotic vegetation. Nearest record of occurrence is approximately 4.5 km from the Project Area. Limited records of occurrence occur within the Mount Lofty Ranges.
Sprengelia incarnata (Pink Swamp-heath)	R		2	2017	Found on Kangaroo Island, southern Mount Lofty Ranges, and the lower South-east in South Australia, growing in wet heathland, sedgeland and other swampy vegetation on	**Unlikely**. Some suitable habitat such as such as permanent water sources; however, this habitat is not located within the direct impact area and the riparian vegetation is infested with exotic vegetation. Nearest record of

Species (common name)	NPW Act	EPBC Act	Data source	Year of last record	Species known habitat preferences	Likelihood of use
					peaty or sandy soils (Seeds of SA 2023n).	occurrence is approximately 4.5 km from the Project Area.
Swainsona behriana (Behr's Swainson-pea)	V		2	2013	Usually found in grassland and grassy woodland, in fertile soil (Royal Botanic Gardens of Victoria, 2021).	**Unlikely**. The nearest record of occurrence is approximately 7.5 km from the Project Area. While the Project Area falls within the species known distribution, it provides limited suitable habitat due to the weedy understory.
Thelymitra circumsepta (Naked Sun Orchid)	E		2	2018	Rediscovered in 2008 in Cleland CP. Recorded in perched swamps with Coral Fern, Tea Tree, and Cutting Grass. Found among low shrubs in open forest or in open rocky sites on well-drained and moisture retentive soils (DEH 2008q).	**Unlikely.** Nearest record of occurrence is approximately 4 km from the Project Area, this is a single isolated record. Some suitable habitat is present. However, suitable habitat is limited by the presence of a dense weedy understorey. The species was not observed during the field survey, which occurred just within its flowering period (December - February).
Thelymitra mucida (Plum Sun-orchid)	R		2	2000	Grows in moist to wet depressions, swamp margins and other low-lying sites in coastal and near coastal heathland, heathy forest and shrubland in dark sandy or peaty soils. In the AMLR, restricted to low heath in sandy peat swamp margins where (DEH 2008r).	**Unlikely**. Suitable habitat absence in the Project Area. Nearest record of occurrence approximately 30 km from the Project Area, all other records are confined to Kangaroo Island.
Thysanotus tenellus (Grassy Fringe-lily)	R		2	2015	Known to occur in heavier or sandy loamy soils, and among rocks in association with *Casuarina stricta* (Flora of Australia, 2022).	**Unlikely**. Nearest record of occurrence is approximately 4.5 km form the Project Area. Habitat within the Project Area is unsuitable.
Todea barbara (King Fern)	E		2	2018	Recorded habitat in the AMLR includes swamps, swampy gullies and creek beds. All extant populations occur adjacent to permanent water, springs, or soaks. Habitat is typically shrubland of *Leptospermum lanigerum* and *Acacia provincialis.* (DEH 2008s).	**Unlikely**. Some suitable habitat such as such as permanent water sources; however, this habitat is not located within the direct impact area and the riparian vegetation is infested with exotic vegetation. Nearest record of occurrence is approximately 4 km from the Project Area
Xyris operculata (Tall Yellow-eye)	R		2	2008	Found on Kangaroo Island, southern Mount Lofty Ranges and the lower South-east in South Australia, growing in wet heathlands and swampy areas (Seeds of SA 2023o).	**Unlikely**. Absence of suitable habitat within the Project Area. Nearest record of occurrence is 5 km from the Project Area, all other records occur greater than 20 km from the Project Area.

Sources 1- BDBSA, 2- AoLA, 3- NatureMaps, 4- Observed/recorded in the field, 5- Protected matters search tool, 6- Other
NP&W Act: E- Endangered, V- Vulnerable, R- Rare
EPBC Act: Ex- Extinct, CR- Critically endangered, EN- Endangered, VU- Vulnerable

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