XURBAN

Hume Planning Scheme – Amendment C243
Sunbury South and Lancefield Road Infrastructure Contributions Plan

Allan Wyatt – Expert Evidence Statement

For: Victorian Planning Authority

October 2020 | Final

Hume Planning Scheme – Amendment C243 Sunbury South and Lancefield Road Infrastructure Contributions Plan

Allan Wyatt – Expert Evidence Statement

Client	**Victorian Planning Authority**
Project No	15170
Version	Draft#1
Signed	
Approved by	Allan Wyatt
Date	21 October 2020

XURBAN

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ABN | 18831715013

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1. Introduction

The Victorian Planning Authority (VPA) is considering various bridge and alignment options for the proposed crossing of Jacksons Creek.

Jacksons Creek is within the Hume Shire and the subject site falls within the area being evaluated under Amendment C243.

The following report seeks to independently assess the visual impact implications of the proposed bridge crossing and offers recommendations that may improve the visual outcome.

Expert Evidence – Practice Note

I acknowledge that I have read and complied with the Guide to Expert Evidence (dated April 2019) and the Appendix to Guide to Expert Evidence. In compliance with these Guides, I provide the following information.

Name & address

Allan Wyatt – Landscape Architect
XURBAN
Suite 1103, 408 Lonsdale Street
Melbourne, Victoria, 3000.

Qualifications

I am a registered Landscape Architect with over 40 years' experience and I have a Grad.Dip.L.D. from RMIT (1980) and I am a member of the Australian Institute of Landscape Architects.

I have given expert evidence on landscape, urban design and visual impact assessment at the former Administrative Appeals Tribunal (AAT) and VCAT and provided expert evidence before planning panels in Victoria. I have also given expert evidence before Planning Appeal bodies in NSW, South Australia, Tasmania, Queensland and New Zealand.

A Curriculum Vitae is attached as Annexure 1 to this report.

Instructions

Allan Wyatt of XURBAN has been instructed by Hall & Wilcox Lawyers acting on behalf of Victorian Planning Authority via Email on the 14th September 2020 and supplementary instructions dated 14th October 2020. These instructions are appended to this report (refer Annexure 2).

Initially, instructions sought the preparation of an expert witness statement addressing the comparative visual impacts of options 1 and 2.

The supplementary instructions (14th October 2020) addressed the report of Mr Breuer (Spiire, 8 October 2020) in which alternative options for the location and design of the northern bridge crossing of Jacksons Creek (LR-BR-01) were considered. I was requested to consider and comment on the visual impact of the bridges contemplated by these alternative options.

Facts, matters and assumptions

The facts, matters and assumptions, on which the opinions expressed in this report are based, include:

- Sunbury South PSP (gazetted 5 December 2019)
- Lancefield Road PSP (gazetted 5 December 2019)
- Panel report - Hume C207 and C208 - 00 12 17
- Planning amendment photomontage 1 - 27 April 2017
- Creek crossing presentation to Wurundjeri - 27 April 2017
- ICP - Infrastructure Design and Costings Report (GHD) - Nov 19 - Appx A - LR-BR-01 ALO3Beveridge North West Precinct Structure Plan (VPA, 2019);
- ICP - Infrastructure Design and Costings Report (GHD) - Nov 19 - Appx A - LR-RD-02 ultimate layouts
- ICP - Infrastructure Design and Costings Report (GHD) - Nov 19 - Appx D - LR-BR-01 Options
- M Breuer - Expert Witness Statement (Spiire, 8 October 2020)
- Engineering drawings prepared by GHD which were used as the basis for the photomontages referenced in this report:
    - LSEC drawings, providing the vertical height of the road and bridge;
    - XC_DESN_FUNC which was the base CAD plans with the georeferenced location of all road and bridge assets;
    - 3d- Control lines which was a CAD file providing further alignment geometry; and
    - LRRD02-EXST-SURF is a CAD file which contained the ground contours.

Site inspections

I have visited the site and surrounds on the 11th October 2020. The photographs used in this report were taken during this site visit.

Remote evidence

I confirm that:

- I will be alone in the room from which I am giving evidence and will not make or receive any communication with another person while giving my evidence except with the express leave of the Panel;
- I will inform the Panel immediately should another person enter the room from which I am giving evidence;
- During breaks in evidence, when under cross-examination, I will not discuss my evidence with any other person, except with the leave of the Panel; and
- I will not have before me any document, other than my expert witness statement and documents referred to therein, or any other document which the Panel expressly permits me to view.

Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have, to my knowledge, been withheld from the Panel.

2. The bridge

The proposed road and bridge alignment are shown in ***Figure 1***.

Figure 1 *Ultimate Layout LR-RD-02 (Source: GHD, Drawing No. 2113308A-CIV-1020)*

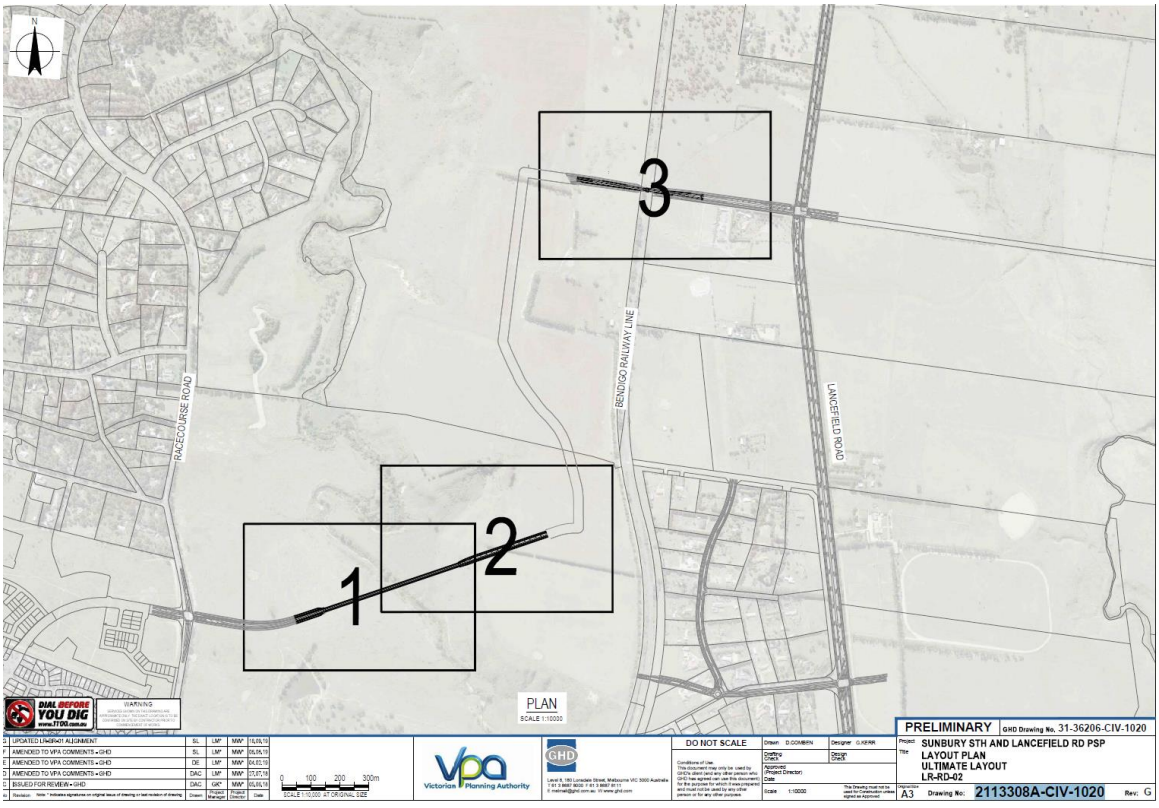
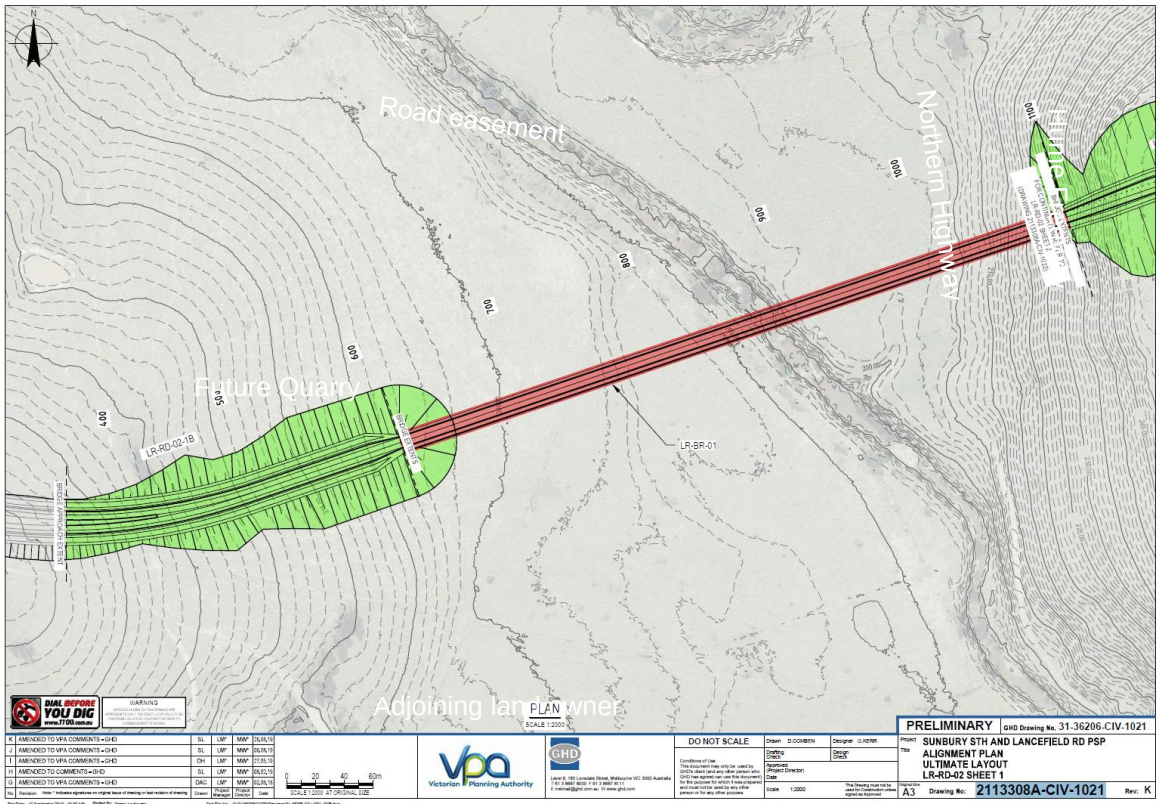


Figure 1 designates those areas where the bridge crosses the Jacksons Creek as Areas designated '1' & '2'. Area '3' is where the link will cross the Bendigo Railway line.

Figure 2 shows the bridge crossing (Area 1 and 2) in greater detail.

Figure 2 *Subject site (Source: GHD Drawing No. 2113308A-CIV-1021)*



This bridge alignment is one that was identified in consultation with the Wurundjeri and one which was preferred provided that "*the following conditions were met:*

1. *Avoid the culturally sensitive gully*
2. *Avoid fill on the eastern side of the creek, instead construct an extended bridge*
3. *Ensure pedestrian and cycling connectivity under the bridge, especially within close proximity to the creek.*
4. *Ensure consultation with Wurundjeri with the cosmetic design and naming of the bridge." (Creek crossing presentation to Wurundjeri - 27 April 2017)*

The example of a bridge design shown in these discussions is reproduced in **Figure 3**.

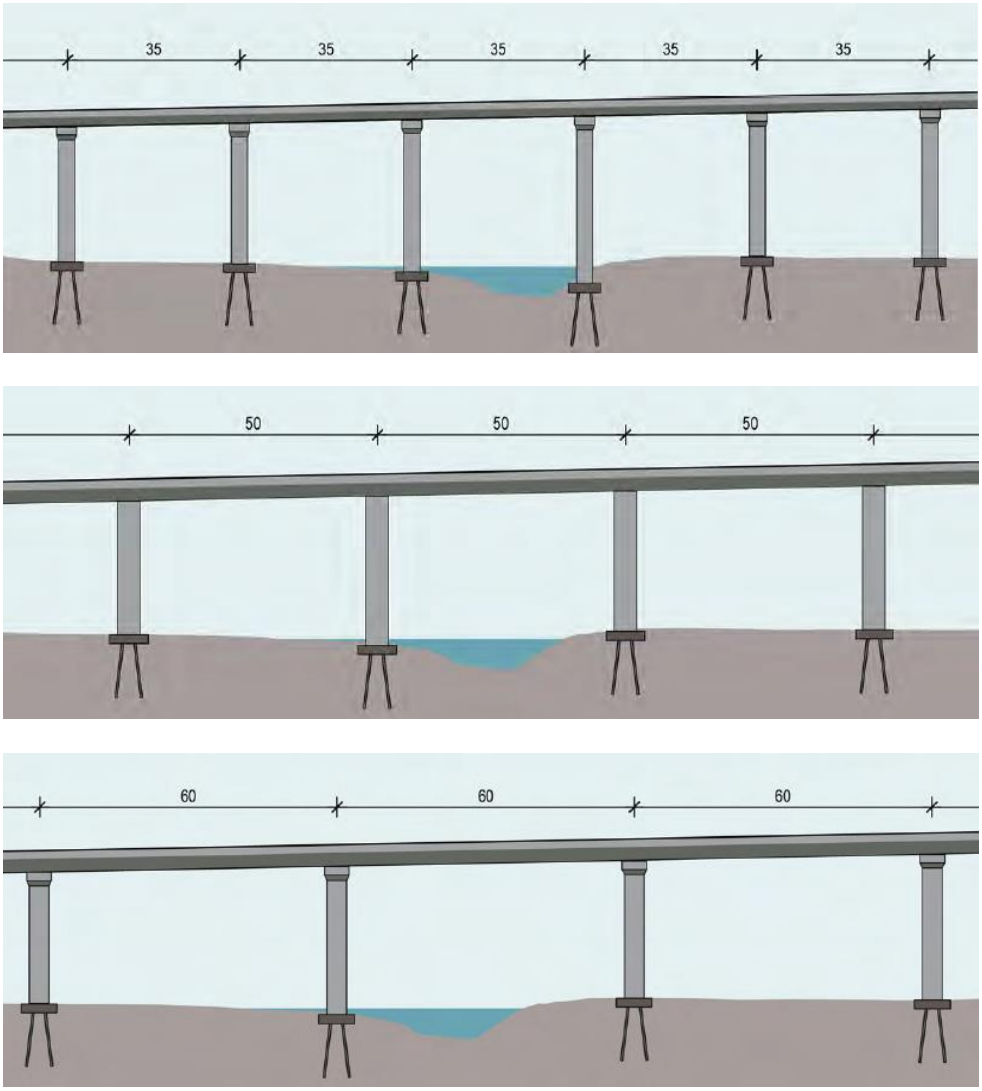
Figure 3 *Bridge example (Source: Creek crossing presentation to Wurundjeri - 27 April 2017)*

Bridge options

Several designs have been considered by GHD for the VPA. These included variation in structure (steel girders, precast super 'T' beams and a concrete box girder) as well as variations in the span distance between supporting columns (35m, 50m and 60m).

Figure 4 shows the span alternatives addressed in this GHD report.

Figure 4 *Span alternatives (Source: ICP - Infrastructure Design and Costings Report (GHD) - Nov 19 - Appx D - LR-BR-01 Options)*



All the bridge alternatives had a single support column and again the column design also varied in detail from one concept to the next and each of these alternative spans were based on differing superstructure construction.

However, the main visual difference was in the spacing of the support columns and it is this variation and its impact on visual amenity that is the focus of this statement.

Further work by GHD allowed the bridge to be modelled and this modelling was based on drawings which showed the 35m and 50m options. The elevations of these options are shown in **Figure 5** and **Figure 6**.

Figure 5 *35m span (Source: GHD Drawing No. 31-36206-SKT-0001)*

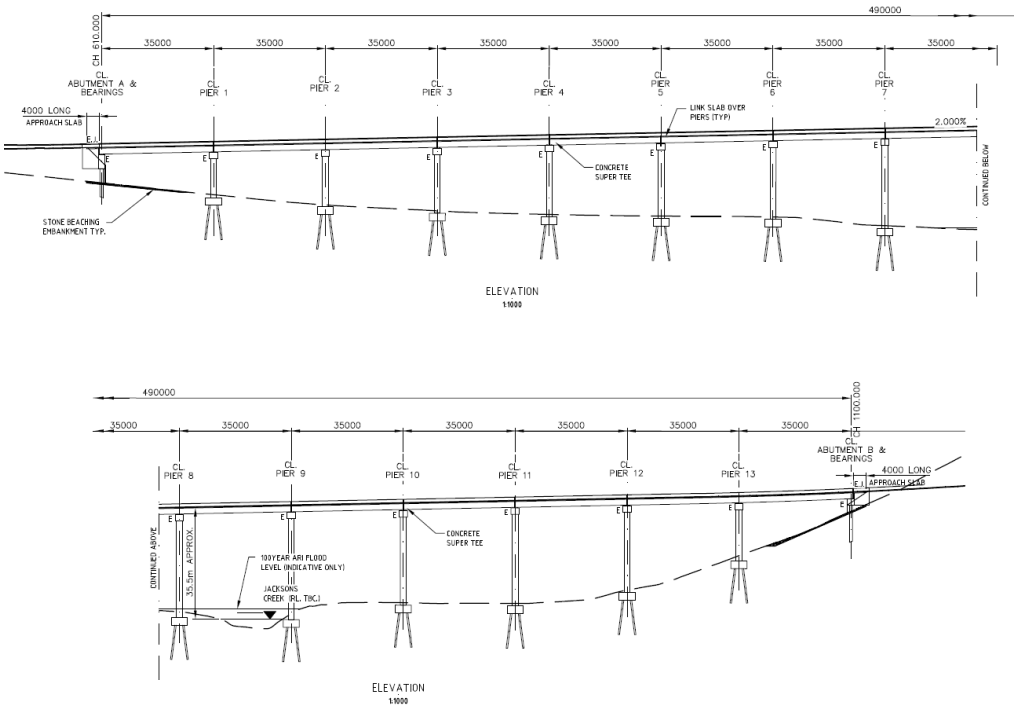
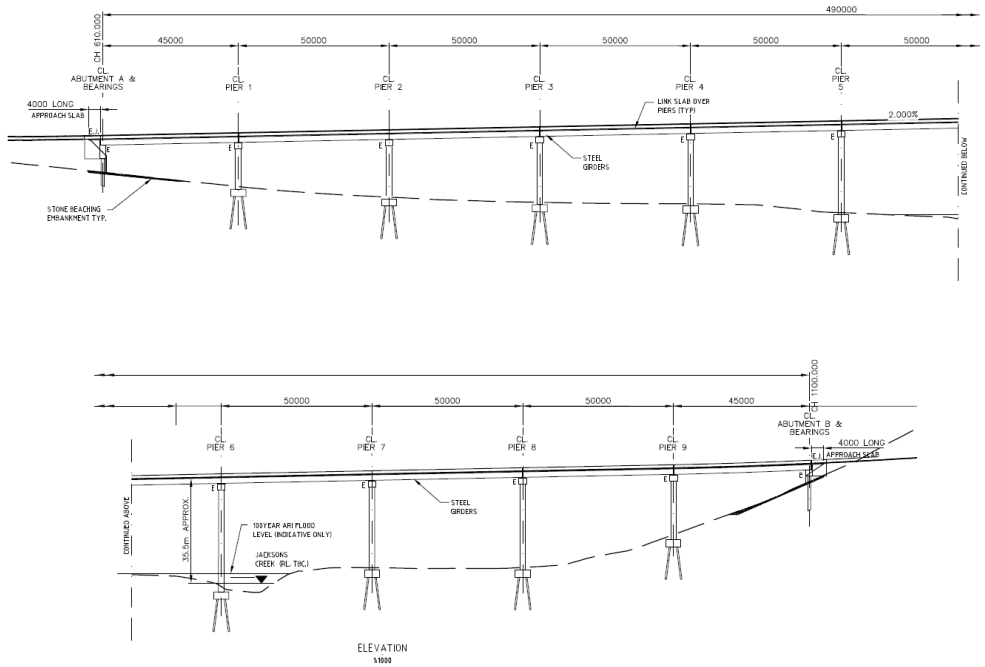
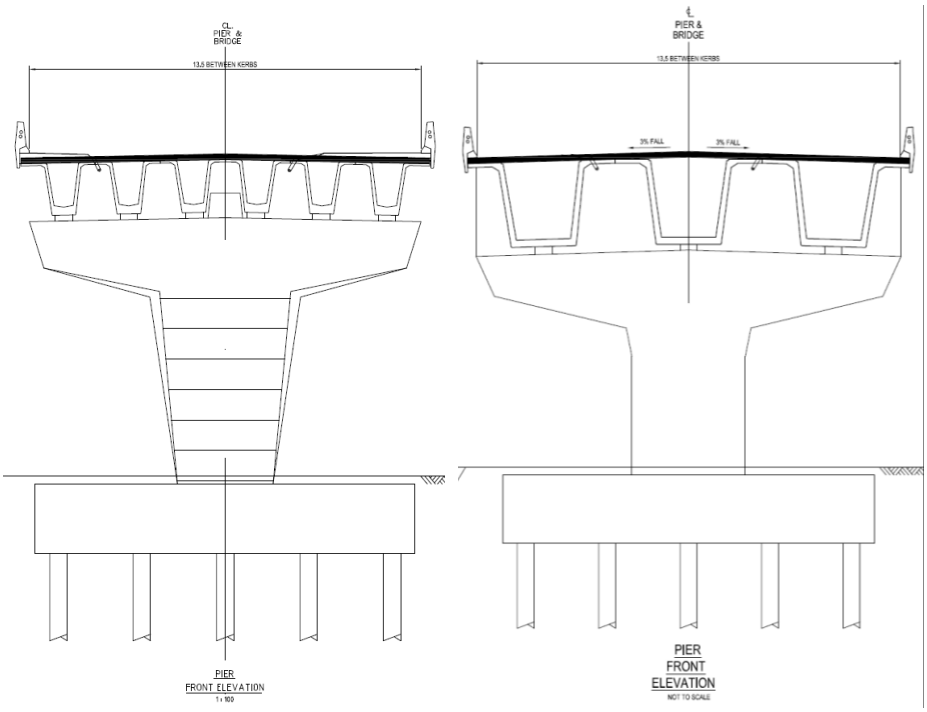


Figure 6 *50m span (Source: GHD Drawing No. 31-36206-SKT-0001)*



Two slightly different Pier designs were also provided and formed the basis for the modelling. These are reproduced in **Figure 7**.

Figure 7 *Pier elevations 35m span (LHS) and 50m span (RHS)*



These elevations were the basis for the modelling of these two options.

60m Span Option

The earlier alternatives (refer **Figure 4**) showed 35 m, 50 m and 60 m spans. A 60 m span was also modelled and this modelling was based on the elevation of the 50 m support with the spacing of the columns adjusted to 60 m. This meant that for the purpose of modelling this 60 m option the two end spans were approximately 65 m.

Alignment

The horizontal alignment was based on geo-referenced CAD drawings prepared by GHD as well as a 3D polyline of the centre of the road. The terrain information was based on a point cloud which gave terrain detail.

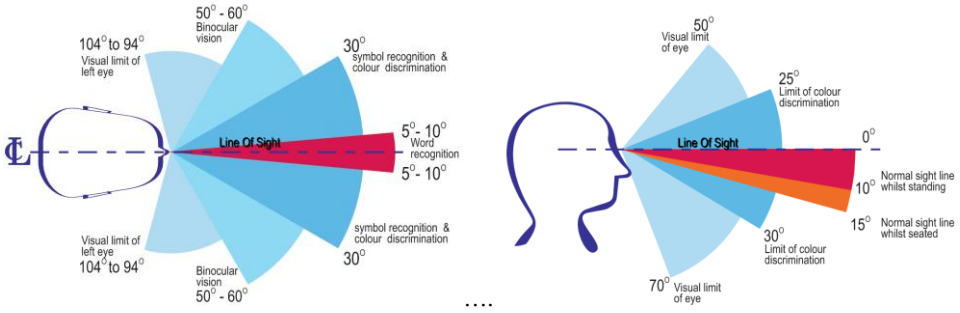
3. Photomontages

A Photomontages can assist in the assessment by illustrating the scale and location of the proposed bridge.

Photomontages show the changes in a 60^{O} horizontal field of view. This horizontal field of view represents the central cone of view in which symbol recognition and colour discrimination can occur.

The vertical field of view is between 10^{O} - 15^{O}. The field of view of human vision is shown in ***Figure 8***.

Figure 8 *Horizontal and Vertical field of view*



The figure above is based on a diagram within '*Human Dimension and Interior Space'*, *Julius Panero & Martin Zellnik, Witney Library of Design,1979*. Similar data can be found in the more recent publication entitled '*The Measure of Man and Woman, Revised Edition', Henry Dreyfuss Associates, John Whiley & Sons, 2012*.

In landscapes, it is the horizontal field of view that is important if the photomontages are to represent the change in the landscape.

One of the sheets within the photomontage set shows a wireframe view of the computer model to illustrate how the photomontages were derived. Vertical 'poles' or 'cylinders' within this wireframe are merely points on the landscape such as a group of trees, a corner of a planted hedgerow, a water tank etc., which allow the computer model and the photograph to be accurately aligned. This ensures that the proposed bridge is accurately located within the photograph and then the rest of the model is removed, and the visible portions of the bridge are then rendered into the image.

Photomontages have been prepared to assist in the assessment of the visual impact of alternative bridge spans. These photomontages are appended to this report (Refer Annexure 3 for A3 size photomontages).

It is recognised that the small photographs and the A3 photomontages included within this assessment whilst technically accurate, are not perceptually accurate, in that when they are compared with the view from the same location, the landscape appears smaller than the images referenced in the report. The A3 images, which are appended to this report (Annexure 3), are clearer than the smaller images in the text, as these are larger.

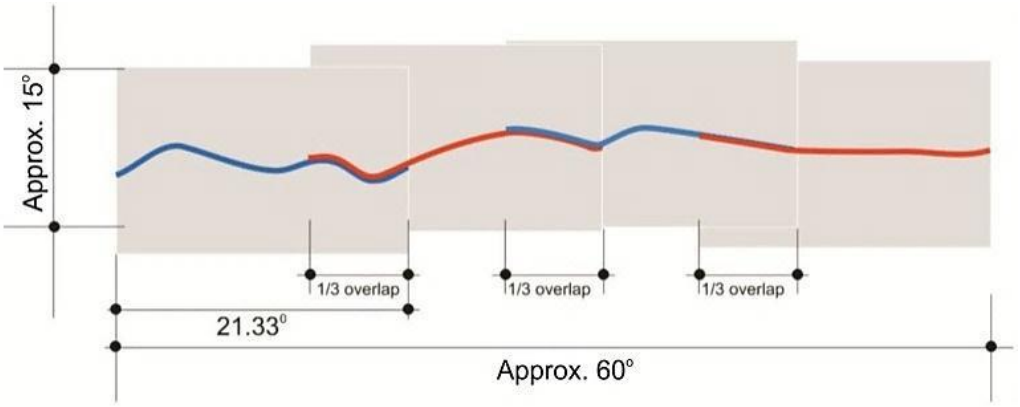
Photomontages printed at A0 provide a clear indication of the actual visual impact – these are perceptually accurate. Given Covid 19 restrictions these may not be available for the Panel.

Camera data

A 70 mm lens on a Nikon D5 digital camera has a picture angle of 26.5^{O} and a horizontal angle of view of approximately 21.3^{O}.
http://nikonimaging.com/global/products/lens/af/micro/af_micro60 mmf_28d/).

The camera is held at eye level, approximately 1.65 m above ground level. Four photographs overlapped 1/3 to create an image approximately the same as the central cone of view of human vision, i.e. 50-70^{O} horizontal and 15^{O} vertical. ***Figure 9*** demonstrates the overlap of the photographs which are used to create the panorama in the photomontage.

Figure 9 *Photomontage construction*



Computer modelling and the wireframe model

Cadastral data as well as the proposed development are modelled within a computer program (3D Max). A virtual camera is set up in the model at the GPS coordinates for each of the photographs that are being used within the panorama.

The digital model or wireframe view is then overlaid on the photographic panorama. Known points within survey information such as topography, building locations or other infrastructure such as water tanks are registered into the base photographs (or other predetermined points). For technical accuracy, these points must align. This verifies the location and apparent height and scale of the proposed bridge.

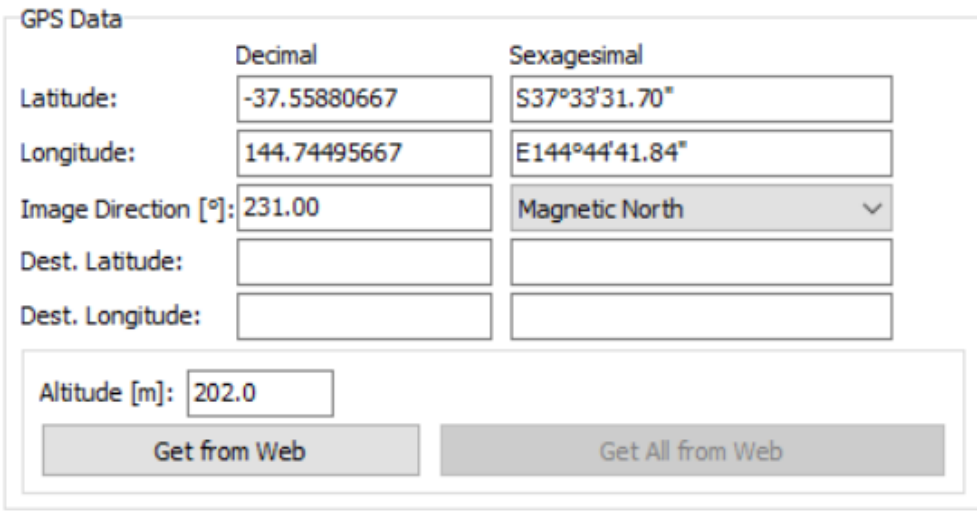
After the background reference points have been aligned, the wireframe is removed, leaving only the bridge, and then the visible portions are rendered, with the lighting angle adjusted in the model to match the light angle at the time the photographs were taken.

Wider panoramas are used to provide a greater number of reference points for the computer model. A panoramic view is shown in the wire frame view in Annexure 3.

GPS Coordinates

The Nikon D5 camera also records the GPS coordinates and bearing as part of the metadata. This attached GPS unit gives both the GPS coordinates, the altitude of the camera as well as the bearing (Magnetic North) along the centre point of each photograph.

Figure 10 *Photography meta data (Source: GeoSetter)*



The locations from which the photographs were taken are also marked on a digital map within Google Earth Pro.

Where distances and bearings are given, these were calculated using Google Earth. Google Earth provides True North (Geographic North) bearings. These bearings may be slightly different to the Magnetic North bearings provided in the camera metadata.

4. Assessment

The proposed bridge is to cross the Jacksons Creek valley from the west to the east. The western edge of the proposed road link is the roundabout at the intersection of Elizabeth Drive and Racecourse Road. The eastern end of the proposed road joins Lancefield Road, north of Raes Road, after crossing the Bendigo Railway line.

This alignment is shown in **Figure 11**. The proposed road corridor is outlined in a red line.

Figure 11 *Road alignment (Source: Google Earth & GHD georeferenced mapping)*

The Jacksons Creek Valley is an appealing landscape with a steeper escarpment face on its eastern side and more gentle slopes on the western edge of the creek. This is shown in **Figure 12**.

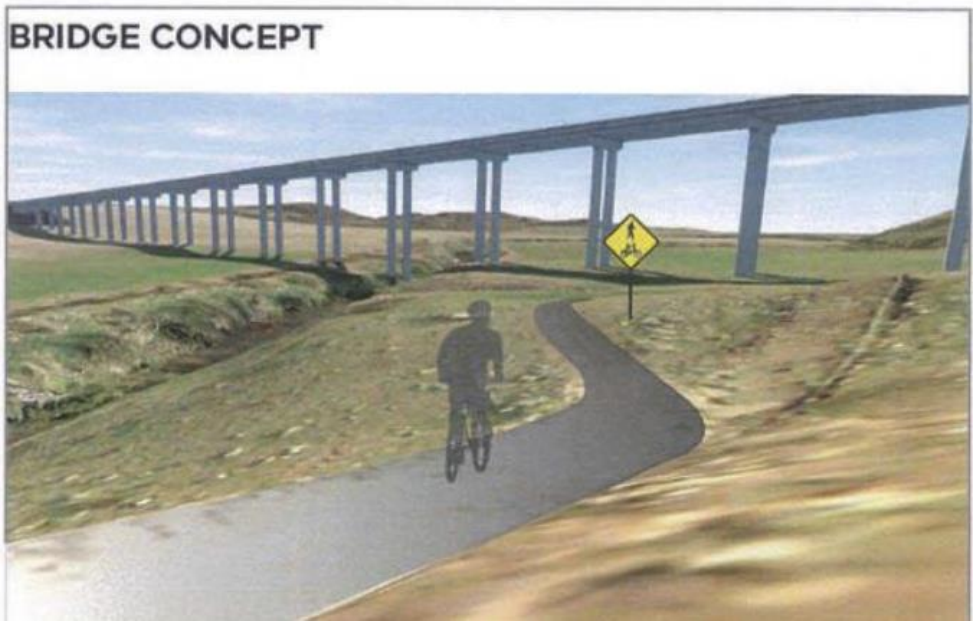
Figure 12 *Jacksons Creek viewed from the escarpment on the eastern side of the valley*

From the valley floor this contrast between the eastern and western edges is apparent as shown in **Figure 13**.

Figure 13 *Jacksons Creek viewed from an access track on the valley floor*

In In the instructions from Hall & Wilcox, the initial bridge concept was shown as a twin pier structure. This initial concept is shown in ***Figure 14.***

Figure 14 *Initial Bridge Concept*



This figure shows the originally designed structure and what appears to be a relatively flat alignment of the bridge as it crosses the Creek.

This design has been modified and the drawings on which this assessment is based have been discussed previously. The intention of this assessment is to initially compare a 35 m, 50 m and 60 m span to ascertain if there are visual or landscape benefits in the various span distances. The photomontages upon which this assessment is based are appended to this report (Refer Annexure 3).

Column visibility

The number of columns that are visible varies with the span distances, even within the narrow corridor of the walking track which is bordered on the right by the slope of the escarpment and on the left by existing vegetation.

Figure 15 *Proposed bride (35m span)*

Figure 16 *Proposed bride (50m span)*

In comparing the 35 m span (**Figure 15**) with the 50 m span (**Figure 16**) it is apparent that the larger span does appear lighter in the landscape. Three support columns are visible in the 35 m option, whilst only two are evident in the 50 m span option. One support column is hidden behind vegetation that borders the Creek in both options. The fewer support columns do make the 50 m span option less intrusive and given the sensitivity of this landscape and its future potential as a walking trail and open space network it would be desirable if built form intrusions were minimised.

It is also apparent that although the bridge infrastructure is slightly different between these two options (refer **Figure 7**), this change is not as perceptible.

A photomontage of the 60 m span option is shown in **Figure 17**. This model is based on the support infrastructure provided for the 50 m span.

Figure 17 *Proposed bride (60m span)*

Once again, a column is hidden behind existing vegetation. However, only a single column is fully visible along the walking track alignment, although one is also partially visible on the right.

The larger the span does equate to less visual intrusion into the landscape, whilst the size of the support infrastructure makes little difference.

Bridge height

Although not addressed in these photomontages it is worthwhile considering that a bridge can appear as a much more substantial visual barrier. An example is the bridge crossing on the Moonee Ponds Creek shown in **Figure 18**.

Figure 18 *Existing bridge over Moonee Ponds Creek*

This is not a design alternative under consideration for the Jacksons Creek crossing, but is shown as an example of the greater visual barrier created by a bridge that is lower, although one whose design is not unattractive.

The opposite is also true. There are many examples on the internet of picturesque bridges with minimum column supports that are well above the ground line spanning quite considerable distances.

Road alignment

Other road alignments have also been put forward to the Panel. I have reviewed the report of Mr Mark Breuer (Spiire, 8 October 2020) where two alternative options were considered.

Option A looked at reducing the bridge height. This Option is reproduced in **Figure 19**.

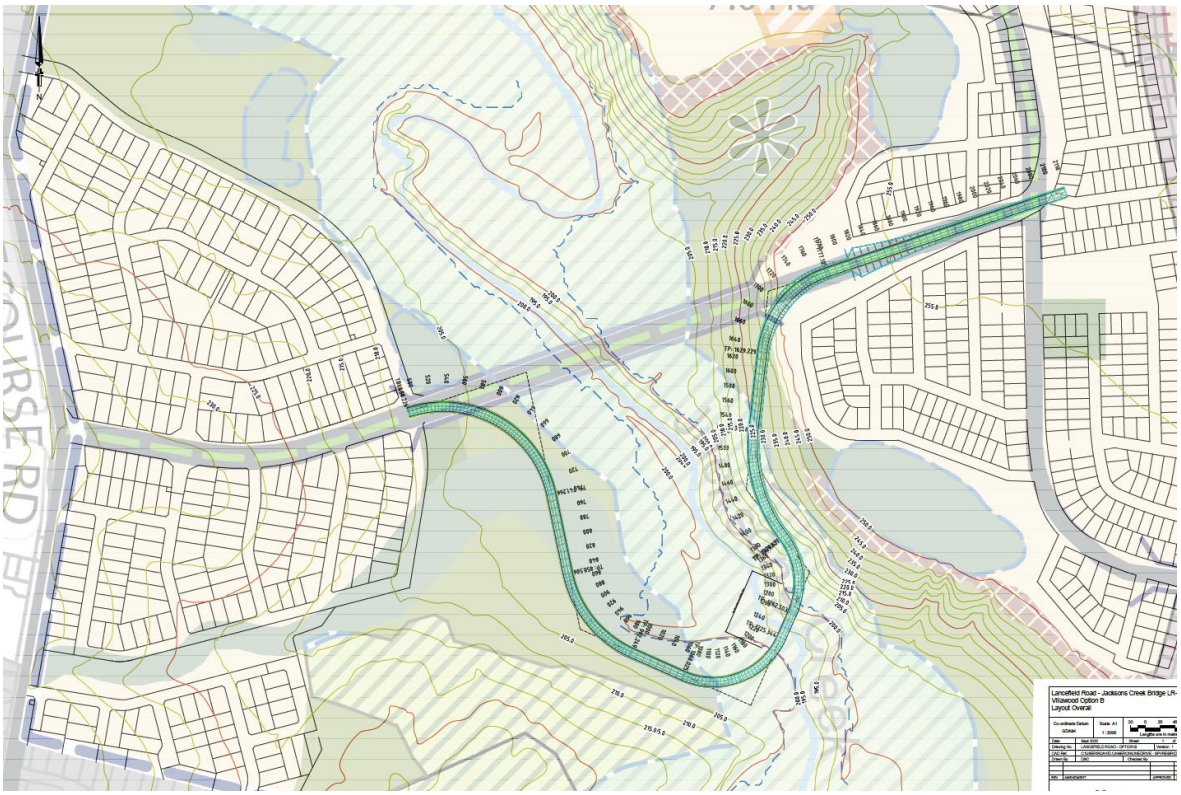
Figure 19 *Option A (Source: Spiire, Jacksons Creek Bridge LR-BR-01 Villawood Option A)*

It is acknowledged in the Spiire report that such an option would create "*additional off-bridge road length and bulk earthworks*" (Spiire, p11). Associated with the change in alignment there is also the suggestion to reduce the "*bridge height of the piers from 35.5 m to 16 m*" (Spiire, p11).

Such an option may have financial advantages, however there is no doubt that it increases the visual impact of the bridge on viewing locations in the Jacksons Creek valley.

The second option presented in the Spiire report is an alternative alignment "*which "chases" the contours down into the Jacksons Creek Valley floor"* (Spiire, p11). This option is shown in **Figure 20**.

Figure 20 Option B (Source: Spiire, Jacksons Creek Bridge LR-BR0)1 Villawood Option B)



Such a proposal would create a major landscape barrier across the valley.

Neither option, a bridge alignment which chases the contours down onto the Jacksons Creek valley floor or reduces the height of the bridge, are seen as visually beneficial.

5. Conclusion

This assessment has considered the visual implications of the Jacksons Creek crossing. Given the landscape and heritage significance of Jacksons Creek it would seem appropriate in this situation to base the bridge design on a desire to minimise built form intrusion into the creek valley.

This is best achieved by floating the bridge across the valley on a higher vertical alignment and spacing the support columns at greater distances. The 50 m and 60 m options are both advantageous in terms of reducing the visual impact of the bridge on users following the Jacksons Creek trial or viewing the creek and bridge from adjoining high points.

Annexure 1

Allan Wyatt – Curriculum vitae

Allan Wyatt - Curriculum Vitae

Allan has extensive experience in the masterplanning, detailed design documentation and contract administration of a variety of projects both in Australia and overseas.

More recently, Allan has specialised in large scale masterplanning and urban design work with major projects being undertaken for local government, boards of management as well as for private developers both in Australia and in China, Hong Kong, India and Malaysia. Much of this work has involved the integration of sustainable development principles in the masterplan. Allan has a particular interest in wetlands design which has often been a feature as well as an integral component of these masterplans.

Allan regularly appears before independent panel hearings, the Victorian Civil and Administrative Tribunal (VCAT) and other appellant bodies as an expert witness in the areas of urban design, visual assessment and landscape architecture.

2015 to present

Landscape Architect - XURBAN

1997 to 2015

Environmental Resources Management Pty Ltd Partner & Practice Leader - Urban Design and Landscape Architecture - Asia Pacific

1989 to 1996

Ratio Consultants Pty Ltd Partner

1980 to 1989

Allan Wyatt Pty Ltd - Principal

1976 to 1979

Public Works Department, Victoria - Landscape Architect

1974 to 1976

Peter Jones Architect & Landscape Consultant - Landscape Architect

Professional Affiliations and Registrations

Associate, Australian Institute of Landscape Architects

Fellow, Victorian Planning and Environmental Law Association

Fields of Competence

Urban Design

Landscape Architecture

Visual Assessments.

Education

Graduate Diploma Landscape Design (RMIT) 1979

Languages

English

Publications

Community perception studies as a means of evaluating landscape quality, NZ Wind Energy Conference.

Photomontages and perceptual accuracy, NZ WE Conference paper.

Visual assessment and environmental restoration of mine and quarry operations, paper presented to the joint VPELA and Victorian Chamber of Mines

Trees in the urban jungle and other Neighbourhood conflicts, paper represented to joint AILA/VPELA/RAPI Seminar.

Concerns regarding statutory control on tree planting in our cities, published in Victorian Planning and Environmental Law Association Newsletter.

Key Projects

Some examples of key projects are listed below.

Urban design, masterplanning & golf courses

Tai Shan Resort and town centre, China

A masterplan for a community on the edge of one of China's most sacred mountains.

Dalingshan, Dongguan Provence, China

Urban design for a city expected to grow to 3 million. As a central component of the urban planning for the revitalisation of this City, open space provided contiguous corridors for both recreational needs, flood management and pollution control.

Nanjing Lake and the Purple Mountain

The masterplanning of this central 44 km^2 area in central Nanjing involved heritage issues as well as ideas to dramatically retreat major freeways that were dividing the historic precinct in central Nanjing.

Pukou, Central China

This 21 km^2 new urban area in central China was designed around LEED ND principles and incorporated a new arterial road network as well as urban planning for a design population of 200,000 along with commercial and employment nodes.

Royal Palms, Goregaon, Mumbai, India

The masterplanning of this 90 ha precipitous quarry site in India encompassed a golf course, a 5 star and a 4 star hotel, luxury housing and condominiums set in a high quality lake and parkland setting.

Integrated Tourism Resort, Powai, India - Stage 2

Preparation of a site masterplan for a golf course, hotels, convention centre, time share and residential apartments, golf lodges, aquarium, butterfly house and cultural village. The site was on a steeply sloping volcanic ridge.

Pearl Island Golf & Country Club, Penang, Malaysia

Following the masterplanning of this site and the subsequent documentation of the golf course, ERM has been engaged to create the extensive landscape spaces which are to be an integral part of this major facility

PPH Resorts, Penang, Malaysia

Landscape and masterplanning options as well as on-going documentation and contract administration of a major 18 hole golf course and associated facilities in a mountainous region of Malaysia.

***Queenscliff Coastal Action Plan ***

Undertake a study of future land use options, pedestrian and vehicular strategies for the on-going development of one of Victoria's premier coastal resorts for the Central Coastal Board. Community and stakeholder consultation was a key component of the study.

City of Casey Planning and Urban Design

Various structure plan reviews and urban design works examining built form, streetscape, traffic and landscape improvements to increase the identity, character and pedestrian amenity of the City of Casey.

Victoria Racing Club (VRC), Melbourne, Victoria, Australia

Flood wall treatments along the Maribyrnong River were followed with the masterplanning, documentation and contract administration for the new wetlands at Flemington Racecourse, Melbourne. The entries on Flemington Road were also part of this project.

Eli Waters, Hervey Bay, Queensland

Landscape Masterplan for this large residential estate in Queensland, which focuses on an 18-hole golf course and an extensive wetlands and lakes system.

Dalian Waterfront, Dalian, China

Design team for a new waterfront including parklands and commercial facilities.

Clifton Park, Victoria

Project coordination and contract administration for the construction of a large community park in Brunswick.

HK University Ideas Competition, Hong Kong

Preparation of landscape masterplan for the existing university campus and the proposed western expansion.

Residential project, Wo Shang Wai, Hong Kong

Preparation of a Landscape Master Plan and Sustainable Landscape Design Guidelines for a confidential project near a sensitive wetland environment in Hong Kong.

Infrastructure

Urban Design Framework, North East Link, Melbourne

Undertook the landscape planning for a major infrastructure connection in Melbourne's east. This involved broad scale planting as well as integration with urban design concepts.

Urban Design Framework, East West Link, Melbourne

Undertake a study to inform tenderers on this project of the standard expected in the final urban design outcomes. These included key objectives for new 'gateways' to Melbourne, as well as for open space and wetland redesign as well as future bike and pedestrian linkages.

North East Link

Landscape and Visual assessment as well as landscape recommendations and route option assessments for a new freeway planned for Melbourne's east.

Melbourne Desalination Plant

Landscape and visual assessment for this major infrastructure project that also involved the assessment of a 220kV transmission line and a pipeline easement cutting through residential and rural landscapes.

Yarra Pedestrian Bridge

Urban design and landscape involvement on this major pedestrian link between the MCG and Birrarung Marr.

LNG Terminal, South Soko, Hong Kong

Landscape and Visual Assessment components within an EES that also included a fly through model of the proposed development on South Soko Island.

Channel Deepening Project, Port of Melbourne (POMC)

Visual assessment of this major piece of Victorian infrastructure which included an examination of the visual impacts of the plume created by dredging activities in Port Philip Bay.

Basslink

Visual assessment of proposed transmission line options and associated components for major inter-connector between Tasmania and Victoria.

Parramatta Rail

Visual assessment and the development of subsequent site design and documentation for key nodal areas on this railway line upgrade.

Wind Farm Visual Assessments

Undertake the visual assessment and the preparation of photomontages for more than 30 wind farms in Victoria, South Australia , NSW and New Zealand.

Bass Link

Strategic siting as well as detailed visual assessment of the selected route as well as landscape mitigation for this major interconnection between the electrical grids of Tasmania and Victoria.

Various Road projects

Allan has been the Project Director within ERM for various road projects which have included highway bridge duplication in NSW as well as providing visual assessment input and providing the photomontages for the Geelong Bypass and working on the Urban Design Framework for East West Link.

Airports at Cairns, Broken Hill, Alice Springs and Devonport

Site and landscape design of pedestrian and entry treatments. Typically these projects involved extensive external landscape treatment for visual amelioration and, in the case of Broken Hill, the landscape treatment was critical for dust control.

Mallacoota Boat Launching Ramp & foreshore masterplan

Responsible for the revised Masterplanning in response to a visual assessment for this foreshore redevelopment project.

Skifields

Mt Buller Local Planning Policy Framework Study and Urban Design Framework

A study examining the land use planning and urban design guidelines for Victoria's premier ski resort.

Mt Buller Village Square.

Involved in the design and documentation of the central pedestrian square for the ski resort. This has been constructed in Stages over the past five years.

Falls Creek Skifield Study

A study examining the urban design guidelines for development within a large Victorian skifield.

Open space planning

Karkarook Lake and Wetlands

The masterplanning & documentation of the lake and wetlands of the largest man-made wetlands in Melbourne and treats urban run-off as well as providing a substantial recreation resource.

Confidential project, Taiwan

Preparation of a Landscape Master Plan and Sustainable Landscape Design Guidelines for a confidential new city development in Taiwan.

Croydon Open Space Study

The City of Croydon contained many areas of open space derived from residential contributions. This study examined their ecological value and made recommendations for future development.

Tarneit Wetlands, Victoria, Australia

Masterplanning of a large new wetlands system at the head of the Werribee River to deal with stormwater retention, habitat creation and is to create community open space for the surrounding residential developments.

Botanica Springs, Melbourne, Australia
Concept and detailed design of an ornamental wetlands system associated with a large residential development.

Scotch College

Assisted in the preparation of a sporting facilities masterplan and advised the College on landscaping and associated works to re-instate the pre-Freeway widening landscape following two expansions of the City Link motorway.

Mines, quarries & landfill

Preparation of end use masterplans as well as staged rehabilitation plans for large long term mining and quarrying projects. Many of these projects have involved a broad scale landscape masterplan with the visual assessment of the proposal and integrated this visual assessment with proposed staging and rehabilitation works.

Melbourne Regional Landfill

The landfill cap had to be designed both to comply with the Landfill BPEM which stipulated maximum and minimum grades, but also to create a landform which was based upon volcanic features in the adjoining landscape such as Mt Atkinson. The concept plans also examined end use options for the future parkland created in Melbourne's west.

Chiltern Quarry

Visual assessment as well as a landscape proposal which sought to replicated the landscape pattern of the surrounding countryside.

Mount Shamrock Quarry, Pakenham

Visual and Landscape assessment for proposed Works Authority extension to existing quarry. The work involved Landscape Rehabilitation and Mitigation Planting to address environment and visual issues.

Uranium Mine, Northern Territory, Australia

Preparation of 3D modelling, photomontages based on a conceptual site layout and landscape plans for a confidential client in Australia.

Montrose Quarry

Development of end use guidelines and rehabilitation recommendations for Montrose Quarry.

Gold mine, WA

Preparation of confidential end use plans for mining tenements that were reaching completion.

Grantville Sand Quarry

Staged rehabilitation plans for this sand quarry, particularly the slimes storage areas.

Yea Sand & Gravel Quarry

Quarry rehabilitation of an area subject to flooding and adjacent to the Yea River.

Sunshine Quarry

The rehabilitation of this quarry involved the creation of a nine-hole golf course as well as special landscape treatments for the extensive battered slopes on the Maribyrnong River.

Niddrie Quarry redevelopment masterplan

Residential and recreational land use planning of the quarry.

Mt Martha Quarry redevelopment masterplan

Landscape and visual assessment. ***Victory Road, Clarinda***

Landscape masterplan and visual assessment.

Melbourne Regional Landfill, Truganina

Landscape masterplan and visual assessment of an ex-quarry site.

Annexure 2

Instructions

14 September 2020

Our ref: LGD RRO 162897

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Dear Allan

Sunbury South and Lancefield Road Infrastructure Contributions Plan Amendment C243 to the Hume Planning Scheme

1 Introduction

1.1 As you are aware, we act on behalf of the Victorian Planning Authority (**VPA**) in Amendment C243 to the Hume Planning Scheme (**Amendment C243**).

1.2 The VPA is the Planning Authority for the Amendment. The VPA received 12 submissions in respect of the Amendment (**Submissions**).

1.3 Amendment C243 makes changes to the Casey Planning Scheme to incorporate the final Sunbury South and Lancefield Road Infrastructure Contributions Plan (**ICP**). This ICP will replace the incorporated 'interim' ICP with an updated ICP and apply it to land affected by the Sunbury South Precinct Structure Plan (**Sunbury South PSP**) and Lancefield Road Precinct Structure Plan (**Lancefield Road PSP**) (together, **the PSPs**).

1.4 Specifically, Amendment C243 proposes the following changes:

Amendment	Planning scheme changed	Proposed change
C243	Hume	▪ Amend Planning Scheme Map No 6PAO and 13PAO, in the manner shown on the 2 attached maps marked 'Hume Planning Scheme, Amendment C243'. ▪ In Overlays – Clause 45.11, replace Schedule 1 with a new Schedule in the form of the attached document. ▪ In Operational Provisions – Clause 72.04, replace the Schedule with a new Schedule in the form of the attached document.

1.5 Amendment C243 incorporates a supplementary levy ICP which will be applied to the area of the PSPs by the proposed Schedule 1 to Clause 45.11 (**ICO1**).

2 Summary of submissions to Amendment C243

2.1 A summary of submissions and VPA's response has been provided to you in your brief of documents.

3 Key issue - inclusion and funding of northern bridge crossing Jacksons Creek

3.1 One of the key issues raised by submitters is the cost of the northern bridge crossing of Jacksons Creek, LR-BR-01 (**Jacksons Creek bridge**).

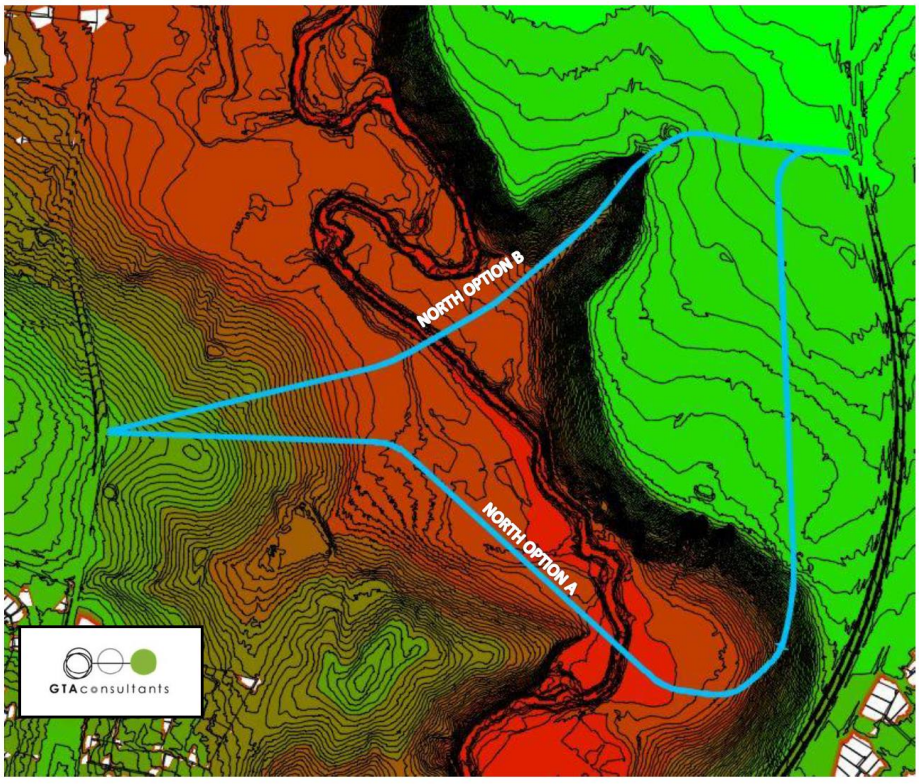
3.2 The creek crossing is identified in the Sunbury Diggers Rest Growth Corridor Plan with a note "creek crossing under investigation". The Growth Corridor Plan Managing Melbourne's Growth identifies a vision for the corridor and includes commentary on the landscape, environment and open space values of the area.

3.3 In 2014, GTA prepared a report, *Jacksons Creek Road Crossing PSP 1075 - Lancefield Road Options Assessment & Development* (October 2014) (**LR Options Report**).

3.4 The LR Options Report explains that GTA in partnership with Ecology & Heritage Partners (EHP) and specialist input from Pitt & Sherry's bridge engineering team, developed a number of feasible road crossing options and assessed them to identify the most appropriate alignment through the growth area. The supporting specialist reports are contained in appendices to the report LR Options Reports.

3.5 Two alignment options were assessed in the LR Options Report.

Figure 5.3: Feasible Alignments



3.6 The report concluded:

The relative performance of the two alignment options indicates that Option B performs better. Option B is also estimated to have some 40% lower costs and land requirements for the connector level road, and some 35% lower costs and land requirements for the arterial level road, than Option A. As such, Option B is the most appropriate road crossing alignment option within the Lancefield Road growth area.

3.7 Option B was carried forward.

3.8 As part of that background work, EHP provided an assessment of cultural heritage values and biodiversity values in relation to the proposed road alignments. (Appendices E and F to the LR Options Report). The EHP cultural heritage report notes the constraints of the report:

It should be noted that this opportunities and constraints analysis is derived from a purely archaeological perspective. It is not informed by ethnographic information or traditional ecological knowledge (TEK); information that can only be obtained during consultation with the Traditional Owners, the Wurundjeri Tribe Land and Cultural Heritage Compensation Council. As a result, this report does not account for the cultural significance that the Wurundjeri ascribe to heritage places and cultural landscapes within the study area.

3.9 In 2015, Heritage Insight undertook an Aboriginal Cultural Heritage Assessment of the Sunbury South and Lancefield Road Precincts to assist preparation of the PSP: *Aboriginal Heritage Impact Assessment. Lancefield Road Precinct Structure Plan 1075 Sunbury, Victoria* (Heritage Insight. August 2015). Heritage Insight noted that the options presented would pass through zones of high cultural heritage sensitivity. Heritage Insight provided a series of recommendations to inform the final designs for both crossings, in particular a recommendation that there be ongoing consultation with the Wurundjeri Council.

3.10 Consultation and engagement with the Wurundjeri Council (Wurundjeri) was undertaken in a parallel process to identify the cultural values and cultural landscapes associated with the area.

3.11 The Wurundjeri undertook a cultural values assessment of the Lancefield Road and Sunbury South Precincts and, amongst other things, identified Cannons Gully, the original preferred location of LR-BR-01, as containing sites of Aboriginal cultural significance (See: *Targeted Cultural Values Inspection of PSP 1074 & 1075 Sunbury,* Wurundjeri Tribe Land & Compensation Cultural Heritage Council Inc. March 2015.) The report identifies (at pp32-33) that the Wurundjeri Elders did not support the alignment of LR-BR-01 proposed at that time, with further consultation being required to confirm the preferred road alignment. Further work was then undertaken by WSP | Parsons Brinckerhoff to resolve, among other things, the bridge alignment and design.

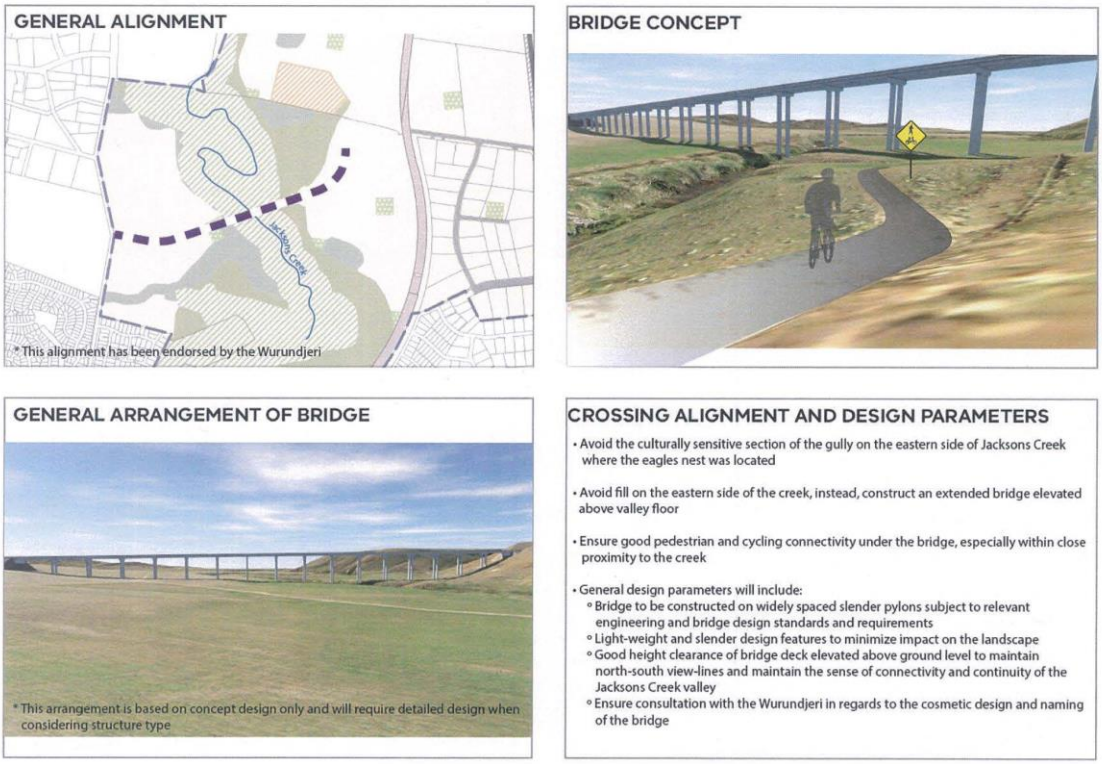
3.12 There is a record of some of the consultation between the VPA and the Wurundjeri in two letters:

(a) a letter from VPA to Wurundjeri (14 June 2017); and

(b) a letter from Wurundjeri to VPA dated 3 July 2017.

Attachment 3 to the 14 June 2017 letter included a list of proposed changes to the PSP, including that a Figure 1 be inserted into the PSP:

FIGURE 1 TO BE INSERTED INTO THE PSP



Discussion of bridges at the PSP stage

3.13 At the panel hearing of the PSPs, Craig Czarny of Hansen Partnership gave urban design and landscaping evidence on behalf of the VPA, while Barry Murphy of MDG Landscape Architects gave evidence about landscaping issues on behalf of Villawood. Mr Czarny and Mr Murphy were of the opinion that it would not possible to undertake a full visual impact assessment at the time of the panel hearing for the PSPs, as it would need to account for what the land would look like in a developed state.

3.14 The PSP Panel reported on 15 December 2017. A discussion of the Jacksons Creek Valley issues is contained at section 4.2 and considerations informing the location and alignment of the bridges is discussed at items 4.3.5 and 4.3.6 of the Panel Report for the PSPs.

The PSP

3.15 The PSP contains the following vision statements, objectives, requirements and guidelines in relation to the Jacksons Creek Valley and the crossing more generally:

- Vision statements include
    - The vision for the Lancefield Road precinct is for new neighbourhoods that sensitively and seamlessly respond to the striking twin creek corridors and associated valleys, and reinforce a sense of community for the established areas in the east of Sunbury township.
    - The Lancefield Road precinct will facilitate:

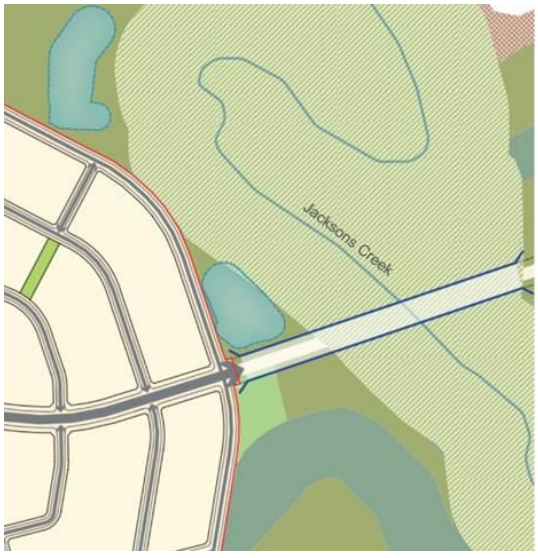
- Development that sensitively responds to, improves community access to, and protects the fragile twin creek valleys of Jacksons and Emu Creek

- Objectives include (but are not limited to):
    - O11: Facilitate urban development that responds sympathetically to the unique, high landscape values of the precinct, protecting the natural landscape qualities of the Jacksons and Emu Creek corridors and their tributaries, and the Jacksons Creek Valley, and providing a usable network of open space adjacent to the creeks and above the escarpment.

- PSP Requirements:

RACECOURSE ROAD REQUIREMENTS	
R23	Design of the Jacksons Creek road bridge must: • avoid areas of high cultural and landscape sensitivity associated with Canon Gully • provide for strong pedestrian and cycling connectivity along Jacksons Creek below the bridge. • sensitively respond to the land form of the Jacksons Creek Valley, including through the use of colours and materials
RACECOURSE ROAD GUIDELINES	
G26	Design of the Jacksons Creek road bridge should: • minimise the extent of earthworks required on the eastern and western approach to the bridge structure • maintain local street intersections with the boulevard connector • protect the amenity of any adjacent residential development

The bridge alignment is shown as follows in Figure 2 p 21:



GHD Report - 'Sunbury Sth Lancefield Rd ICP Design and Costings' (November 2019)

3.16 Section 4.3 of the GHD Costing Report November 2019 report records:

> *GHD were asked to provide a number of high level options which looked at alternative bridge styles for LR-BR-01 crossing Jacksons Creek. Three (3) options were reviewed as preliminary structures for the Jackson's Creek crossing.*

3.17 Appendix D to the GHD Costing Report November 2019 contains graphics showing three bridge options for LR-BR-01 (Precast Super-T Beams; Steel Girders and Concrete Box Girder) and comparing:

(a) Span

(b) Cost

(c) Advantages

(d) Disadvantages

3.18 Section 4.3 of the report explains the options as follows:

> *Option 1 the original base case was a Super-T span bridge, with 35m spans. The bridge piers and headstock were a revised design from the original base case, with a head stock which was tapered for a more refined profile. The piers were design to be tapering from the base of the headstock to ground level, allowing for a refined side profile. The Super-T depth is approximately 2.0m, with a headstock depth of approx. 2.6m. Both Option 1 and Option 2 are able to use precast concrete piers, which will allow for some efficiencies on site in the construction program, for cost and also quality, due to the higher quality of concrete due to the controlled conditions with casting off site.*
>
> *Option 2 proposed was a Steel Girder bridge, with 60m maximum spans. The design of the piers and headstock is the same as the Super-T design, with tapering headstock and piers to present a refined profile with shadow lines which lighten the structure. The proposed overall depth of the steel girders is 3.0m, and a headstock depth of approx. 2.6m. Option 3 was a Concrete Box Girder design, which is able to span approx. 60m also. Due to the design of the box girder and it's depth of 2.8m, a different pier type is required. This pier design does not use a headstock, and is also required to be cast on site. The overall design of the Box Girder allows for a recessed shadow line which gives box girder bridges a lighter appearance than steel girder bridges, which reveal the side profile of the girders due to the design.*
>
> *VPA feedback from presentation of the three options was that the preference was to allow for a greater span to limit the impact upon the creek line and water course given the cultural significance of the area, Option 2 or Option 3 were preferred. Option 2 the steel box girder, provided the better financial option and has been included in the overall costing.*

VPA position and next steps

3.19 Ultimately, the VPA adopted the Option 2 design but with a 50m span. This design was considered by VPA to be necessary due to the cultural, environmental and landscape significance of Jacksons Creek valley.

3.20 The design of the bridges is shown in Appendix A to the GHD report, described as Alternative Long Option 3.

VPA Presentation to Hume

3.21 In March 2019 VPA provide a presentation to Hume City Council. The presentation contains materials that you may consider, as relevant, to your evidence.

4 Hearing timetable

4.1 Following the directions hearing on 7 August 2020, the Panel issued its directions and the hearing timetable in this matter.

4.2 The hearing has been set down for Wednesday, **4 November 2020** and will continue until **Friday, 20 November**, with Thursday, 19 August 2020 currently a reserve day.

4.3 Meetings of experts in functional layout and infrastructure costings are to take place in the week commencing 21 September 2020 and 19 October 2020, respectively.

4.4 Your expert evidence is required to be filed and served by the VPA on **19 October 2020**.

5 Your instructions

5.1 Our client has instructed us to engage you to prepare an expert witness statement addressing the comparative visual impacts of options 1 and 2.

5.2 Please provide your fee proposal directly to the VPA c/- Hugh Stanford (Email: hugh.stanford@vpa.vic.gov.au).

5.3 Your expert witness report should be prepared in accordance with the enclosed Planning Panels Victoria Guide to Expert Evidence.

6 Confidentiality

6.1 This letter and enclosed documents and all future communications between us and between you are confidential (**Confidential Information**), and are subject to a claim for privilege and must not be disclosed without our consent or the consent of our client.

6.2 The duty of confidentiality will continue beyond the conclusion of your instructions.

6.3 If you are obliged by law to disclose Confidential Information, it is not a breach of this engagement if you first give written notice to us of that obligation, if you can do so without breach of any law.

6.4 You must return all documents and other media, including copies, which contain Confidential Information to us. You must delete all electronically stored material immediately when requested to do so by us.

6.5 You must take all steps necessary to maintain Confidential Information and notes in strictest confidence.

7 Change of opinion

7.1 If for some reason, you change your opinion after delivering your report, please advise us as soon as possible. If that change is material, a supplementary report will need to be prepared, which explains the reasons for the change in your opinion.

Please contact Rory O'Connor on (03) 9603 3567 should you have any queries.

Yours faithfully

Hall & Wilcox

Encl

14 October 2020

Our ref: LGD RRO 162897

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Dear Allan

Sunbury South and Lancefield Road Infrastructure Contributions Plan Amendment C243 to the Hume Planning Scheme

We refer to our previous letter of instruction dated 14 September 2020. The purpose of this letter is to provide you with the following additional instructions and supplementary material:

1 Report by Mr Mark Breuer

We attach an expert witness report dated 8 October 2020 prepared by Mr Mark Breuer of Spiire Australia Pty Ltd in relation to the bridge crossings referred to in the Sunbury South and Lancefield Road ICP. The report has been filed on behalf of Villawood Properties for the purpose of the Panel hearing in this matter.

In his report Mr Breuer proposes alternative options for the location and design of the northern bridge crossing of Jacksons Creek (LR-BR-01). As part of your report, you are requested to consider and comment on the visual impact of the bridges contemplated by these alternative options.

2 CAD drawings

We also attach the following CAD drawings, prepared by GHD on behalf of the VPA, to assist in the preparation of your report if you consider it relevant and appropriate:

- SKT001 – LR-BR-01 General Arrangement, concrete;
- SKT002 – LR BR-01 Cross Section, concrete;
- STR0402 – LR-BR-01 General Arrangement, steel;
- STR0403 – LR-BR-01 Cross Section, steel; and
- Terrain file.

Please let us know if you have any queries in relation to the above matters.

Yours faithfully

Hall & Wilcox

Encl

Annexure 3

Photomontages