


# DESIGN GUIDELINES HOBART MOUNTAIN WATER SUPPLY SYSTEM

Prepared for Hobart City Council and Wellington Park Management Trust

30th August 2013



A photograph of a dirt path with stone steps winding through a dense forest. The path is covered in fallen leaves and moss. The forest is lush with green foliage and tall trees. The path leads uphill on the right side of the image.

*...From the beginning the Pipeline was built with pride and its major sites, - the reservoirs, Gentle Annie Falls, Fern Tree Bower, the Wishing Well - all quickly became popular with the locals.....*

*its structures were seen as social, as well as engineering achievements, something that all people could and ought take pride in.....*

R Flanagan 1996,

*'On the Mountain'* West Wind Press, Hobart Tasmania.

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Damian Devlin, Senior Asset Management Engineer, Taswater;

*The Project Steering Group would like to thank the members of the Fern Tree Community Association and members of the community who attended the consultation meeting and submitted comments on the Draft MWSS Guidelines.*



### Photos:

**Left:** Pipeline Track - Fern Tree to Waterworks Reserve. Photo by Matthew Newton.

**Right:** Pipeline Track - Fern Tree to Wellington Falls. Photo by Eddie Safarik.

PLAN OF  
THE WATER SUPPLY OF  
HOBART TOWN AND SUBURBS



A part of Plan Buckingham 115, 1875, source – DPIPWE.

# PART A DESIGN PRINCIPLES

# THE DESIGN PRINCIPLES

## MOUNTAIN WATER SUPPLY SYSTEM

### 1. BACKGROUND

**The Mountain Water Supply System Design Guidelines have been prepared to guide the presentation, interpretation and recreational management of the 'Mountain Water Supply System', a largely 19th Century heritage water supply system.**

Management of this heritage entity is guided primarily by the Hobart Mountain Water Supply System Conservation Management Plan which recognises the heritage listed water supply system and provides up to date advice on its heritage management. It is intended that the Conservation Management Plan will be endorsed by Council in late 2013.

#### 1.1 The Hobart Mountain Water Supply System

The Hobart Mountain Water Supply System (MWSS) is a highly significant cultural heritage complex. It has historic importance as an early water supply system for Tasmania's oldest and largest city, and it has scientific importance as a well preserved historic system. The complex also has aesthetic values given its bushland setting, views and older construction; and it has social value as a heritage item, as a recreational resource and for the bushland access it provides.

Its intactness and integrity are important aspects of its significance, and it is unique amongst the water supply systems for major Australian cities as the system is still largely intact.

The MWSS was the second water supply to be established in Hobart following British settlement in 1804. The first part of the system was established in 1866; this was augmented in the 1880s and then again in the 1910s, creating the present day MWSS. Today the system still contributes 15% of Greater Hobart's water supply, as well as being recognised as a significant heritage complex.

The system is over 20km long with its furthest intake on North West Bay River. It runs around the south side of Mount Wellington to Fern Tree, then via Halls Saddle into the Sandy Bay Rivulet catchment and the Waterworks Reserve where the two main reservoirs are located. The historic MWSS consists of water intakes, in-ground pipes, in ground sandstone troughing, and three reservoirs. Associated features include standard water supply features of the time such as valve, sluice and receiving houses and basins, mixing and flow reduction wells, intake wells, weirs, aqueducts, a siphon, culverts, and remnant piers for the early wooden troughing. The majority of early structures were constructed using sandstone, including over three kilometres of sandstone masonry troughing, a cliff face channel and various intake wells. This is a distinctive feature of the system.

There is also significant public recreational interest in the MWSS due to the popularity of the Pipeline Track as a recreational corridor, and strong local community interest in the management of the system.

The MWSS is listed on the Tasmanian Heritage Register.

#### 1.2 Towards Design Guidelines for the Hobart Mountain Water Supply System

**The need for Design Guidelines has arisen through the refocusing of management on the full MWSS, and the desire to understand, manage, interpret and present the system as a single entity while also recognising key aspects of the cultural significance of the system and its bushland setting.**

The Guidelines will be used by management agencies (primarily Hobart City Council and TasWater) to guide the on-ground management of existing MWSS infrastructure and the construction of new infrastructure.

The Design Guidelines are a major recommendation of Hobart Mountain Water Supply System Conservation Management Plan.

**The key objectives of the recommendation are:**

1. To present the MWSS as a recognisable single heritage entity; and
2. to better present the MWSS.

# DESIGN PRINCIPLES

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## MOUNTAIN WATER SUPPLY SYSTEM

**Specifically the recommendation for, ‘Improving Interpretation and Presentation’ (recommendation 14) incorporates the following directions;**

- 14.1 *The System should be presented to the public in a consistent fashion, which acknowledges the links between the different components, emphasises the function of the System as a whole and has a consistent style and quality of interpretive, safety and visitor infrastructure along the route of the System.*
- 14.2 *Develop an overall Interpretation Plan for the System. This Plan should identify key historic themes and messages, key locations for interpretation and the audiences for different interpretive media. It should consider, in detail, both on site and off site interpretation of the System.*
- 14.3 *Develop a logo and/or “brand” for the System which is used consistently by all constituent groups on the Steering Committee and on signage and publications, to provide a unified feel to the interpretive media and the presentation.*
- 14.4 *Develop consistent styles of interpretive media which are approved by the Steering Committee and can be used in appropriate locations along the System. These media should adhere to the general recommendations about “look and feel” and appropriate materials outlined above.*

The Conservation Management Plan also recommends the retention of the Mountain Water Supply Heritage Working Group to implement the recommendations of the Hobart Mountain Water Supply System Conservation Management Plan.

### 1.3 Design Guidelines Project

**This project is a joint initiative of the Hobart City Council and the Wellington Park Management Trust. It has been funded through a grant from the Tasmanian Government Urban Renewal and Heritage Fund.**

The project has been managed by the Hobart City Council, with the assistance of a Project Steering Group. The Project Steering Group comprises membership from the affected management agencies;

- Hobart City Council,
- Wellington Park Management Trust
- TasWater

The Hobart City Council commissioned the Design Guidelines following an invited competition of short listed consultants to prepare a conceptual design in response to the Project Brief.

In addition the grant has also funded the reconstruction of the Twin Bridges located 2.7 km from Fern Tree along the Pipeline Track. The Guidelines include a concept design for the Bridges as a Case Study.

**For the purposes of this project, the Study Area is the Hobart Mountain Water Supply System (MWSS) as shown in Figure 1.**

In effect, the study area extends from North West Bay River Weir to the Waterworks Reserve, and incorporates Ridgeway Reservoir. It includes all heritage elements of the MWSS within Wellington Park, the Waterworks Reserve and Ridgeway Park.

The study area does not include infrastructure that is not part of/or associated with the MWSS and other historical sites in the Waterworks Reserve, Ridgeway Reserve, Wellington Park or elsewhere.

# PROJECT SITE KEY MAP

## WELLINGTON PARK AND MOUNTAIN WATER SUPPLY SYSTEM



The Study Area extends 20 kilometres from the intakes at North West Bay River on Mt Wellington to the Waterworks Reserve near Hobart.

Map Source: Mountain Water Supply System Conservation Management Plan.

Photo: Twin Bridges on Pipeline Track.  
Photo by Urban Initiatives.



# DESIGN PRINCIPLES

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## MOUNTAIN WATER SUPPLY SYSTEM

### 2. DESIGN GUIDELINES FOR THE MOUNTAIN WATER SUPPLY SYSTEM

The objectives of the MWSS Design Guidelines are to:

- Develop detailed Design Guidelines for recreational and interpretive infrastructure for the MWSS (in particular along the Pipeline Track) to ensure such infrastructure is in keeping with, and sympathetic to, the heritage values of the MWSS).
- Ensure consistency and sensitivity in the establishment of new infrastructure and interpretive elements for the MWSS.
- Present the MWSS as a recognisable single heritage entity.

The Design Guidelines are designed to outline fundamental approaches to infrastructure design, which:

- are consistent with those of Wellington Park, and Hobart City Council Parks and Reserves
- present the significant cultural heritage of the MWSS effectively and distinctly.

The Design Guidelines therefore:

- retain a respect for Hobart City Council managed bushland reserves, Wellington Park and the heritage features
- reduce the range and clutter of facilities on the System by comprising a concise suite of elements
- are distinct and discreet, so that they do not assume prominence over the cultural or natural features of the surrounding environment.

Additionally the MWSS Design Guidelines;

- **nest within a hierarchy of design elements comprising;**
  - *Wellington Park Design and Infrastructure Manual 2nd edition 2006,*
  - *Hobart City Council Open Space furniture suite (an informal suite of elements subject to ongoing review).*
- **utilize the graphic structure of the existing;**
  - *Wellington Park Sign Manual 2004,* and,
  - *Hobart City Council Parks Sign Manual 2004.*

Key to the development of these design guidelines is an understanding that the MWSS has a range of uses and users including:

- the local community, the broader Hobart community, and other Tasmanian, interstate and overseas visitors
- providing the residential water supply for Hobart residents,
- an important recreational resource for walkers, bike riders, picnickers, enthusiasts and clubs,
- as a scenic visitor attraction
- as an 'outdoor museum' to interpret the European heritage, and social history of Hobart City.



# DESIGN PRINCIPLES

## MOUNTAIN WATER SUPPLY SYSTEM

### 3. DESIGN PRINCIPLES

The Design Guidelines are based upon the principles outlined in the *MWSS Conservation Management Plan*. In summary the principles define that introduced elements should:

- *be functional and informal rather than decorative; robust in appearance and function.*
- *reflect the rural, natural and industrial character of the System*
- *be low-key and harmonious with the character of the System*
- *recognise that the character of the MWSS is variously rural and industrial/functional, sitting within a larger natural bushland area*
- *use appropriate materials (for example rough-cut sandstone, bush rock, iron, undressed timber) and modern materials (for example dressed timber, colour bonded metal, stainless steel, glass) should be avoided.*

#### 3.1. Design Approach

The design approach has been strongly informed by the heritage of the Hobart MWSS, the vision and requirements of the Conservation Management Plan, and other relevant documents – including the *Wellington Park Design and Infrastructure Manual*.

The integration of a distinct material and design palette for the MWSS sources design influence from a more *specific* set of inspiration, which largely derives from the materials used in the MWSS and its natural environmental setting. For example:

- *local stone*
- *timber (naturally weathered finish)*
- *concrete (rough finish, exposed aggregate, minimum cement content to reduce lightness of colour)*
- *steel (galvanized)*
- *steel (matte finishes, dark colours, refer to Sign Strategy)*
- *recycled composite plastic. (as per Sign Strategy).*

#### ...robust simplicity

The over-riding approach of the resultant design concept is robust simplicity.

The approach draws upon basic 'rolled' steel sections as would be utilized in engineering-based construction, as both a robust and simple approach to constructing a limited and materially concise suite of Park elements. It also references the importance of the engineering of the MWSS to the development of the City of Hobart and the cultural significance of the system.

A system of rolled steel sections utilize similar sections as the existing *Wellington Park Design and Infrastructure Manual*, with the inclusion of a signage 'armature' of 'UB' Universal Beam, section to replace the recycled plastic extrusion.

The dimensions of the 'UB' (Universal Beam) signage pillars adopt the specifications from the signage elements from the *Design and Infrastructure Manual* and *Hobart City Council Parks Sign Manual* providing a consistent approach. It recognises that the system must utilize fewer materials in order to be visually distinct.

The MWSS wayfinding map, symbol and 'blue-line' define the MWSS for the users.

# DESIGN PRINCIPLES

## MOUNTAIN WATER SUPPLY SYSTEM

At a very basic level, this design concept recognises that much of the experience of the cultural significance of the MWSS comes from experiencing it within the natural landscape of Mt Wellington and its tributaries flowing toward the River Derwent. The chosen structural elements are steel, in its natural unfinished state, rust sealed with preservative 'Penetrol', reflecting the oxidised iron of the dominant exposed dolerite rock. 'UB' Universal Beam, sections and angle sections reflect the engineering and use of steel within many of the catchment sites. Other selected material elements, such as the recycled plastic handrail extrusion recognise the MWSS Design Guidelines need to be practical and consistent with those of the *Wellington Park Design and Infrastructure Manual*.



Penetrol finish on mild steel



250 x 100 x 28  
MS Universal Beam



100 x 100 x 28  
MS Universal Beam



100 x 100 x 10  
MS Equal Angle  
76 x 76 x 8  
MS Equal Angle



100 x 10  
MS Flat bar  
50 x 10  
MS Flat bar



16mm MS rod



Dark grey re-cycled  
plastic extrusion

# DESIGN PRINCIPLES

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## MOUNTAIN WATER SUPPLY SYSTEM

### 3.2 Material Precedents

**The *Mountain Water Supply System Design Guidelines* respond to the recommendations of the CMP in the creation of consistent design:**

- *for new fabric for interpretation and visitation management within the System.*
- *the Design Guidelines should prescribe a suite of suitable materials sympathetic to the heritage significance of the system,*
- *within this widespread system, the MWSS design elements define a discrete culturally/historically significant suite of elements,*
- *as a discreet system, durability and material quality assume a greater relevance and importance in the presentation of the system.*

### Continuity with Established Materials

- Re-cycled plastic used in posts, handrails and seat battens, forms an effective, durable, visually neutral and cost effective element of the *Wellington Park Design and Infrastructure Manual* system.
- This materials dominance within the material suite for Wellington Park is not as appropriate for the visual presentation of the culturally significant sites of the MWSS.
- As an element the recycled plastic is durable and cost-effective structural material when utilized across a very large land and asset base where elements are widespread and numerous.

### Structural Materials

- Use of mild steel sections complement existing high quality details of the existing Wellington Park and Hobart City Council system, but with fewer elements and a simpler palette of finishes that are evocative of the water supply heritage in order to maintain the integrity of the existing system, but present the MWSS as a significant, discrete element.

### Finishes and Signage Substrate

- Aluminium-based graphic panels utilise the existing fabrication systems of the *Wellington Park Design and Infrastructure Manual*, while adapting a compatible, but distinct colour palette.
- Steel, in its natural unfinished state, rust sealed with preservative 'Penetrol', reflects the oxidised iron of the dominant exposed dolerite rock and the use of 'black' steel and cast iron in the structural design heritage of elements of the MWSS.

# DESIGN PRINCIPLES

## MOUNTAIN WATER SUPPLY SYSTEM

### 3.3 Graphic Precedents

Existing design requirements from the *Wellington Park Sign Manual* are applied to the signage system conforming to specifications and guidelines outlined. The MWSS graphic signage system maintains Hobart City Council existing colours but also corresponds to the design and layout of the *Wellington Park Sign Manual*. Although the sign size changes to fit the signage structure, all other specifications such as fonts, colours and layout remain the same.

#### Information Hierarchy

Each sign caters for a particular type of communication. The necessary signage system can be customised to suit individual sites and their requirements. Once the level of content has been determined the quantity of signs can be resolved, for example 3 or 4 graphic inserts into the one sign. When this has been established the appropriate signage structure can be selected.

This signage system allows for interpretive elements such as historical extracts, stories, sketches, maps, photos and illustrations to be easily integrated.

#### Mountain Water Supply System Icon

A simple bold icon is to be used across all applications of MWSS signage. The icon creates an identity for the system while uniting it with existing accessibility symbols and logos used in the *Wellington Park Sign Manual* and *Hobart City Council Parks Sign Manual*.

The icon is clean and modern while being sympathetic to the history and significance of the system's architecture. This is achieved through representation of an aqueduct which forms part of the system. The MWSS Pipeline icon is to be used on Signage System A, B and C only and is not to be used on restriction signage.

#### Management Authority logos

There are three management authority logos that are relevant to the MWSS Design Guidelines signage system;

- Hobart City Council,
- Wellington Park Management Trust
- TasWater

Hobart City Council and Wellington Park Management Trust logos are to be used on Signage System A only at key entrances into the system. The Management Authority logos including TasWater may be used on Restriction signage using Signage System B and D. The TasWater logo can be used where access restrictions apply. The siting of these signs will be determined by the responsible authorities in consultation with one another.

#### Brand Continuity

Light blue and dark blue have been used as primary colours throughout the graphic application. These colours are bold, representative of water and complementary to the existing colour palette of Wellington Park and Hobart City Council. Navy blue and orange have been used as secondary colours.

#### Way-finding Map

A simplified version of the track map has been created to be used across the system to inform visitors of their current location, upcoming points of interest and distances. The system has been represented in its simplest form; establishing clear orientation and identification. The colours are used to reinforce recognition of the system as an entity.

#### Typography

The fonts Futura and Officina Sans, specified in the *Wellington Park Sign Manual*, have been used in the MWSS signage. This aids in the integration of the two signage systems. The system has its own identity through the use of colour and icon however aligns with the Wellington Park signage in its composition, fonts and layout. When applied to each signage system the information must be clear, concise and unified.



Wellington Falls. Photo by Matthew Newton.



*Fern Tree Bower, Hobart.*

300,132. J.V.

Fern Tree Bower, Mt. Wellington.

# PART B DESIGN GUIDELINES

# DESIGN GUIDELINES

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## MOUNTAIN WATER SUPPLY SYSTEM

### 4. DESIGN SCOPE

The following elements comprise the design guidelines for the MWSS. Broadly the Guidelines comprise recreational infrastructure, Way-finding and graphic elements and site specific design for The Twin Bridges.

#### 4.1. Park Infrastructure Elements

- raised walkways, bridges/viewing decks
- barriers and balustrades (greater than 1000mm - 700mm fall)
- handrails and barriers (vert gradient but no fall-zone requirement)
- steps
- gateways and fencing
- outdoor seats/tables
- chicanes, bicycle barrier/ @ pedestrian /road approach.

#### 4.2 Way-finding and Interpretive Signage Elements

- 'icon' element - MWSS 'Pipeline' icon
- track Marker / Information
- track Map/ Orientation
- track Marker / Directional
- point of Interest Panel
- interpretation panel
- direction, Distance and Accessibility.

#### Heritage Fabric

Specific changes to the heritage fabric of MWSS is beyond the scope of the MWSS Design Guidelines. Any future adaptation of heritage infrastructure must be preceded by further heritage investigations, research, documentation and design brief development.



McDermott's saddle, Pipeline Track. Photo by Urban Initiatives.



# DESIGN GUIDELINES

## MOUNTAIN WATER SUPPLY SYSTEM

### 5. PARK INFRASTRUCTURE AND SIGNAGE DESCRIPTIONS

These schedules identify the elements of the Mountain Water Supply System Design Guidelines. For full description, use, material and fabrication information, refer to the following Sections plus Materials Index for detailed specifications.

#### Park Infrastructure Description

Code	Description	Footing Type
PI-1	Bridges / Raised Walkways / Viewing / Decks	4
PI-2	Handrail <700mm	4
PI-3	Barriers / Handrail >700mm	4
PI-4	Handrail retro-fit	
PI-5	Steps	
PI-6	Gate and restraint fence	4
PI-7	Furniture seats and tables	3
PI-8	Chicanes, Bollards	2

#### Signage Structure Description

Code	Description	Footing Type
Signage A	Entry + Interpretation	1
Signage B	Primary Directional + Interpretation	1
Signage C	Secondary Directional	1
Signage D	Track Marker	1

#### Signage Insert Description

Code	Description
WF-1	Place Marker
WF-2	Wayfinding Map
WF-3	Directional Marker
WF-4	Interpretive Marker (Text)
WF-5	Interpretive Marker (Image)
WF-6	Direction, Accessibility, Restrictions and Cautions

#### Footing Types

Code	Description
1	Consolidated Earth
2	Concrete Pad Footings
3	Consolidated Gravel, Levelled
4	Concrete Pier Footing, (where structural support required).
5	Chemset Steel Embedment, (where element placed to natural rock)

**Note:** Footing placement and design subject to Geotech and Heritage advice.

# PIPELINE INFRASTRUCTURE

## BRIDGES + RAISED WALKWAYS + VIEWING DECKS CONCEPT

PI - 1

### Concept

UB' Universal Beam, sections and angle sections reflect the engineering and use of steel within many of the catchment sites as well as the use of former tramway rails when some of the sites were established. Utilitarian and reflective of earlier Longhill Gully aqueduct in the emphasis of structural 'box-truss' form.

### Use

- Limited to when existing recreational and visitor element/s require replacement and
- practical viewing of elements poses a fall-risk or,
- when the presentation or use of the heritage fabric poses no other feasible restraint/protective option.

### Materials

- Recycled plastic handrail extrusions are utilised as a consistent element that is practical and consistent with the over arching *Wellington Park Design and Infrastructure Manual*.
- Mild Steel Structure.
- Metal rod 16mm infills.
- Maximum gap spacings to comply with BCA/AS 1170.1.
- Local stone - where existing features need to be conserved, repaired or extended.
- Site specific designs are required for viewing platforms and bridges; to comply with AS5100.

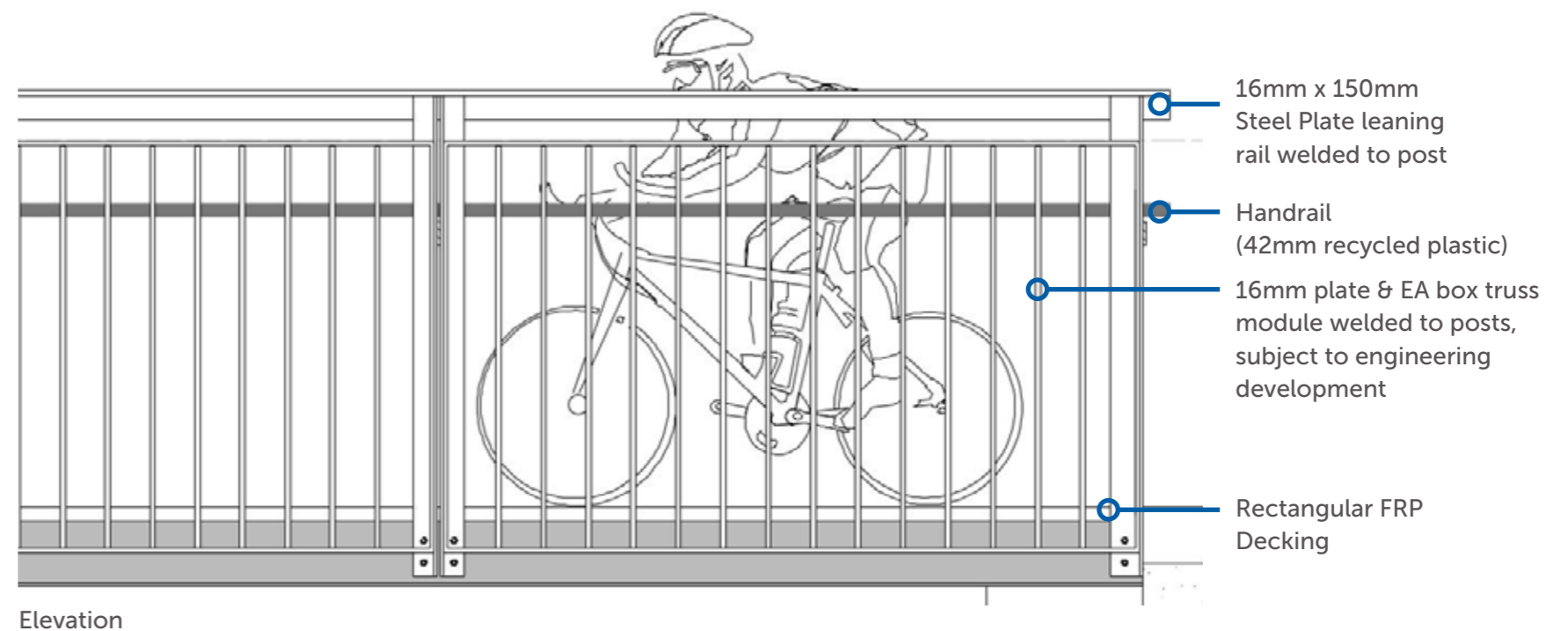
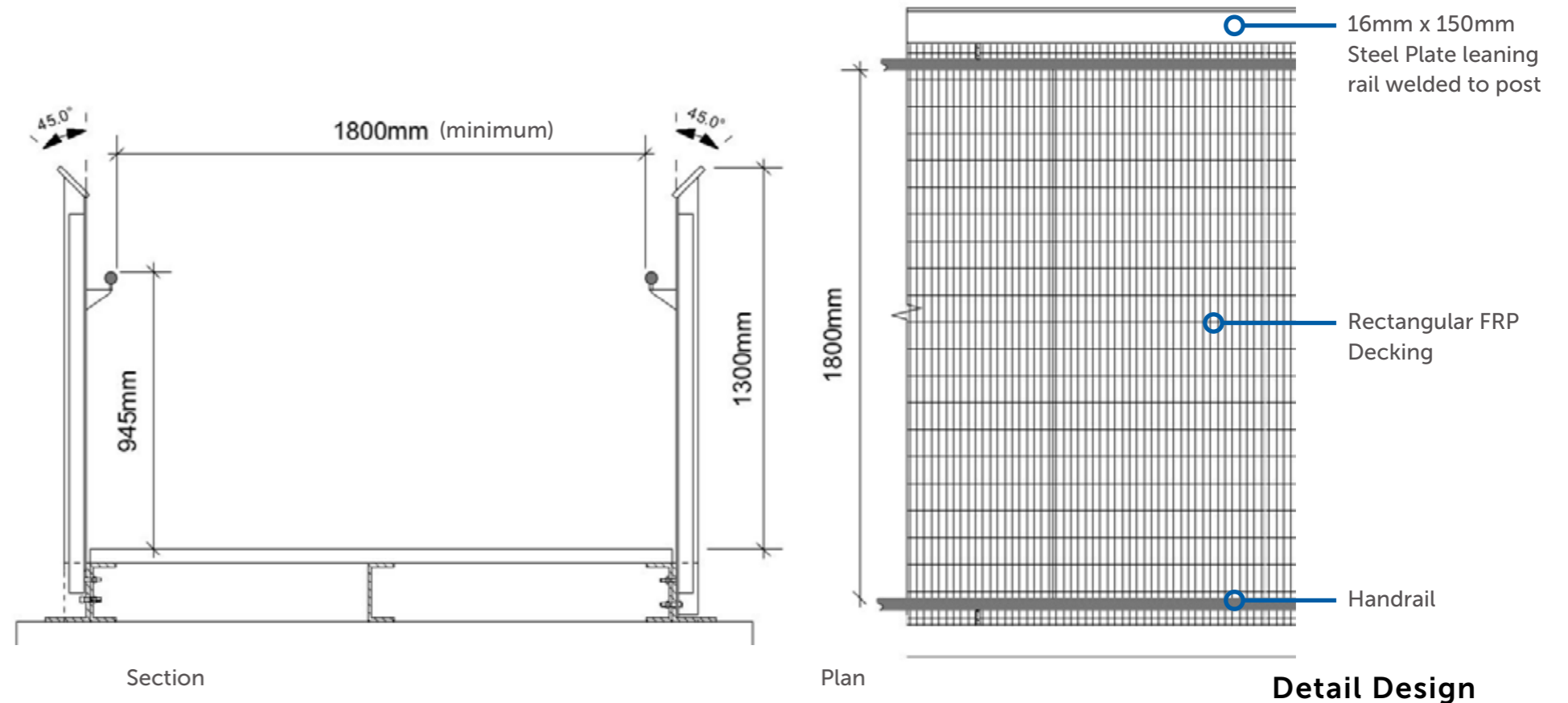
### Precedent Image



Glass fibre reinforced plastic mesh



Recycled plastic handrail & mild steel components



# PIPELINE INFRASTRUCTURE

## HANDRAIL CONCEPT > 700MM

PI - 2

### Concept

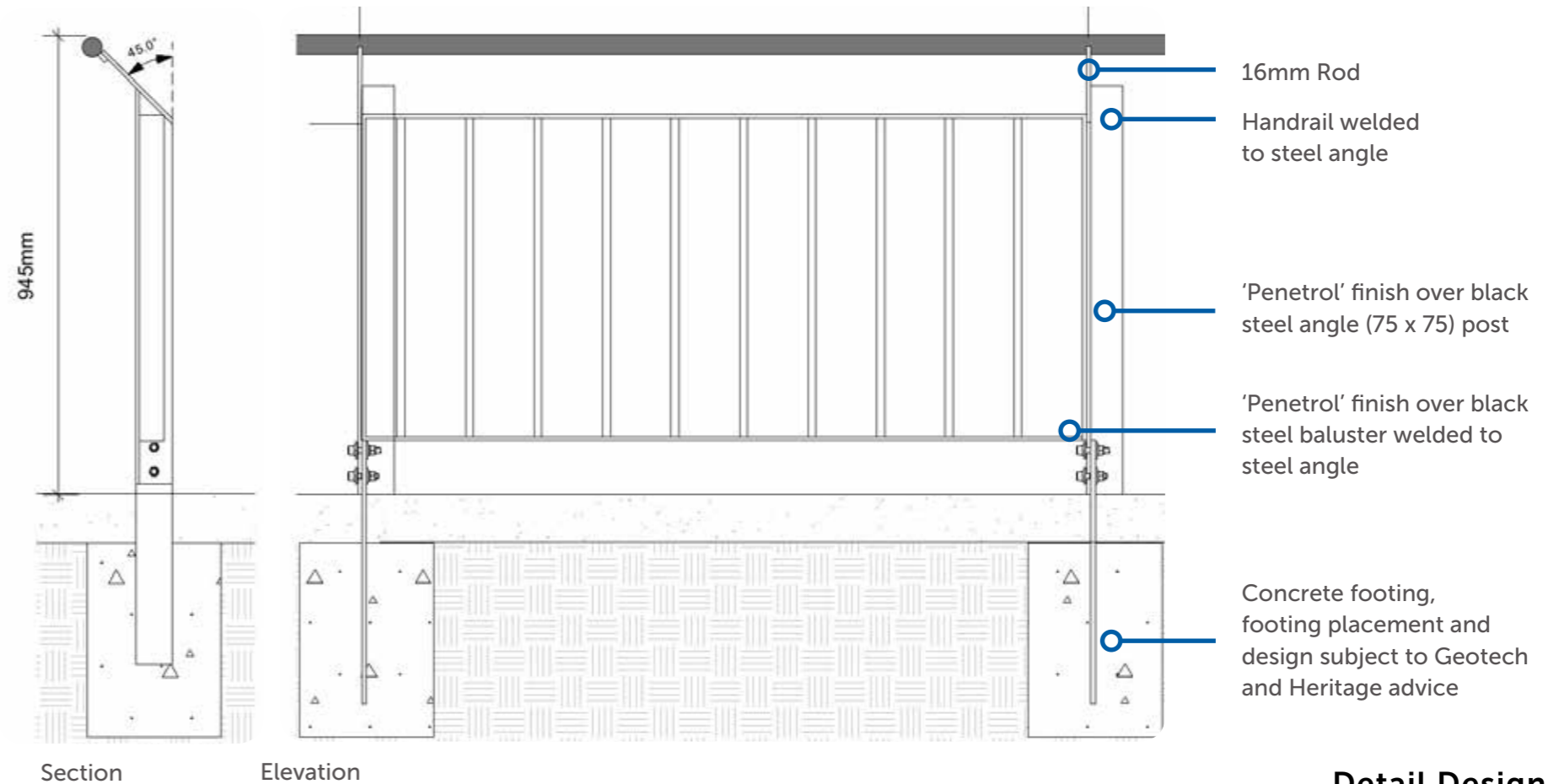
- Handrail construction, materials and finishes utilise a refined suite of components from the existing *Wellington Park Design and Infrastructure Manual* for continuity and practicality,

### Use

- Elements to be consistent where practical with the over arching *Wellington Park Design and Infrastructure Manual*.

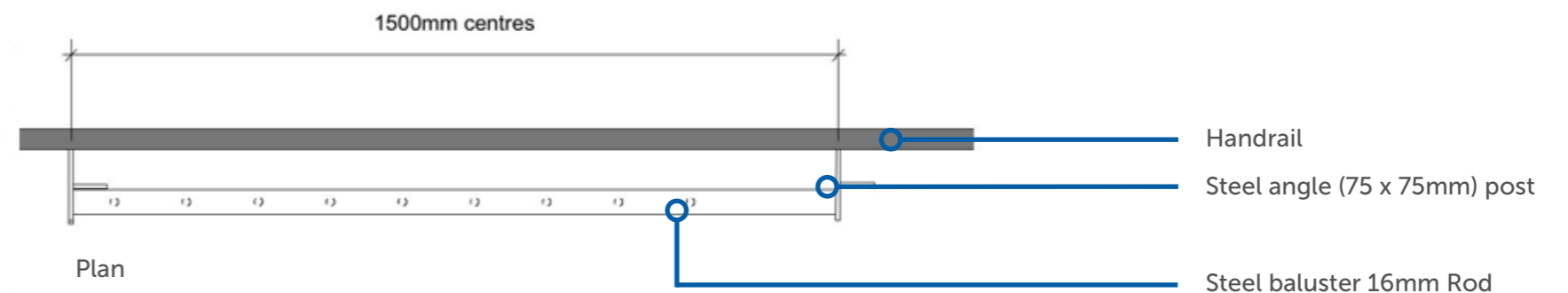
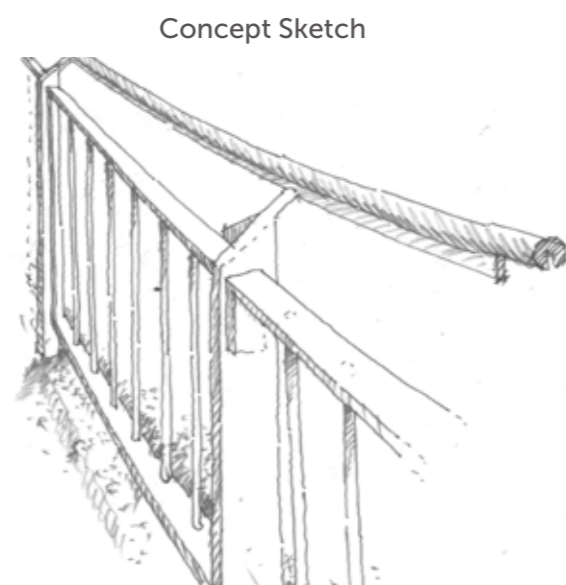
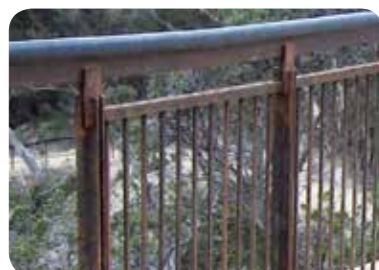
### Materials

- Recycled plastic handrail extrusions.
- Mild Steel Structure ('Penetrol' finish over black steel).
- Metal rod 16mm infills.
- Maximum gap spacings to comply with BCA/ AS1170.1.
- Elements to be consistent where practical with the over arching *Wellington Park Design and Infrastructure Manual*.



### Detail Design

### Precedent Image



# PIPELINE INFRASTRUCTURE

## BARRIERS / HANDRAILS < 700MM

PI - 3

### Concept

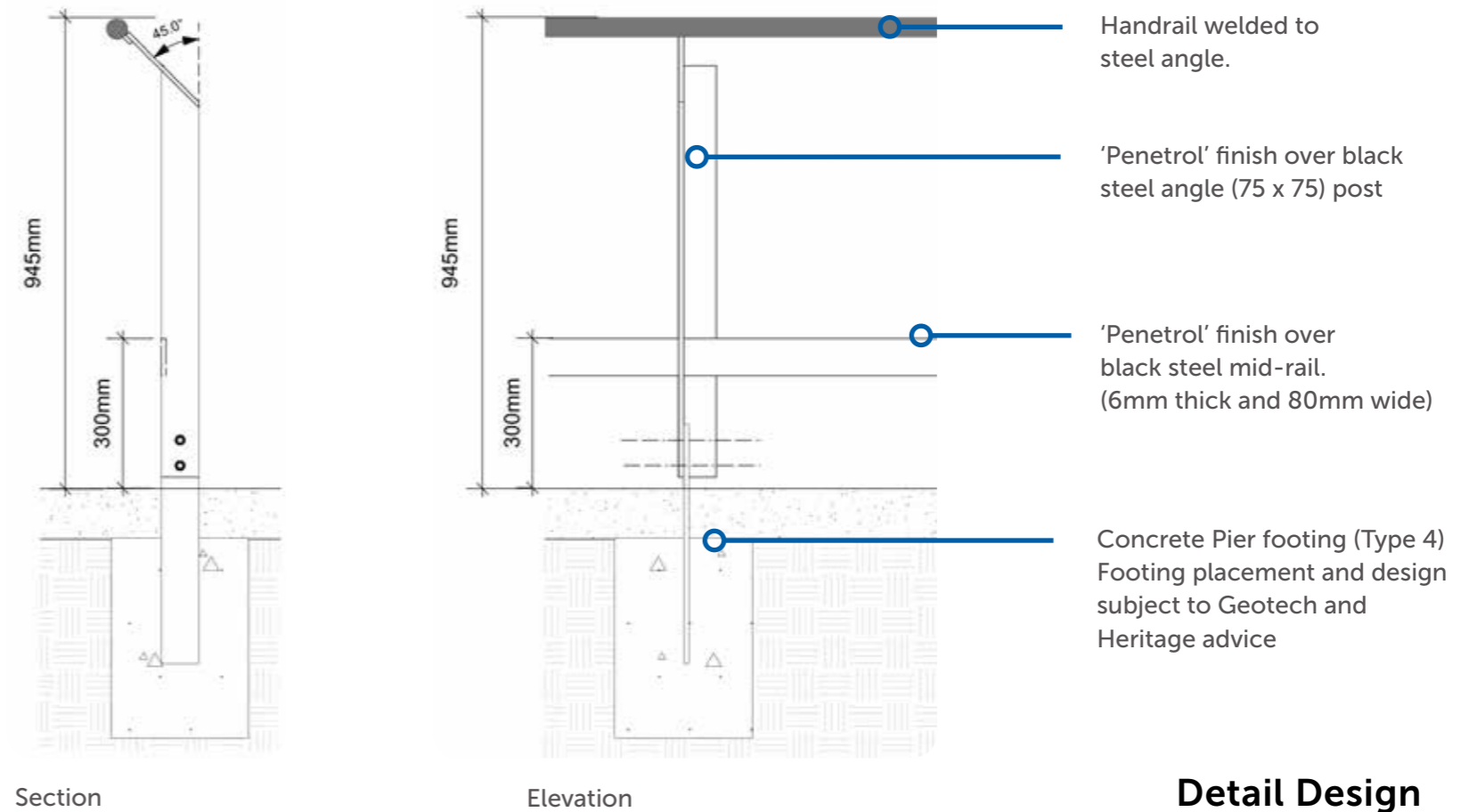
- Handrail construction, materials and finishes utilise a refined suite of components from the existing *Wellington Park Design and Infrastructure Manual* for continuity and practicality.

### Use

- Elements to retro-fit exiting locations and where needed in new locations.

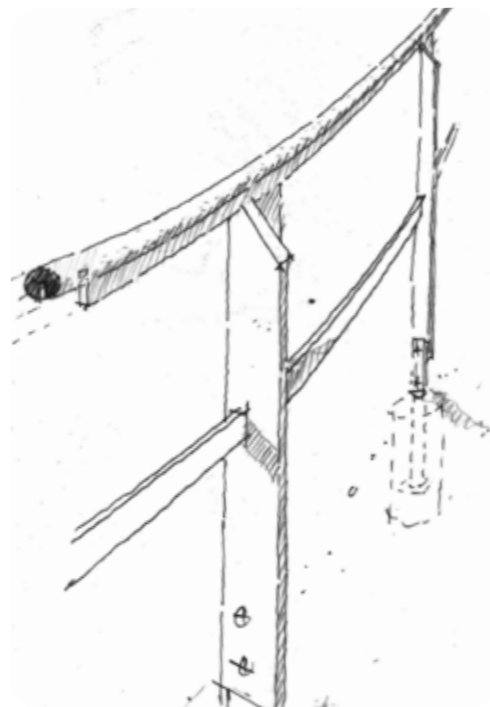
### Materials

- Recycled plastic handrail extrusions.
- Mild Steel Structure ('Penetrol' finish over black steel).
- Maximum gap spacings to comply with BCA/ AS1170.1.
- Elements to be consistent where practical with the over arching *Wellington Park Design and Infrastructure Manual*.



### Detail Design

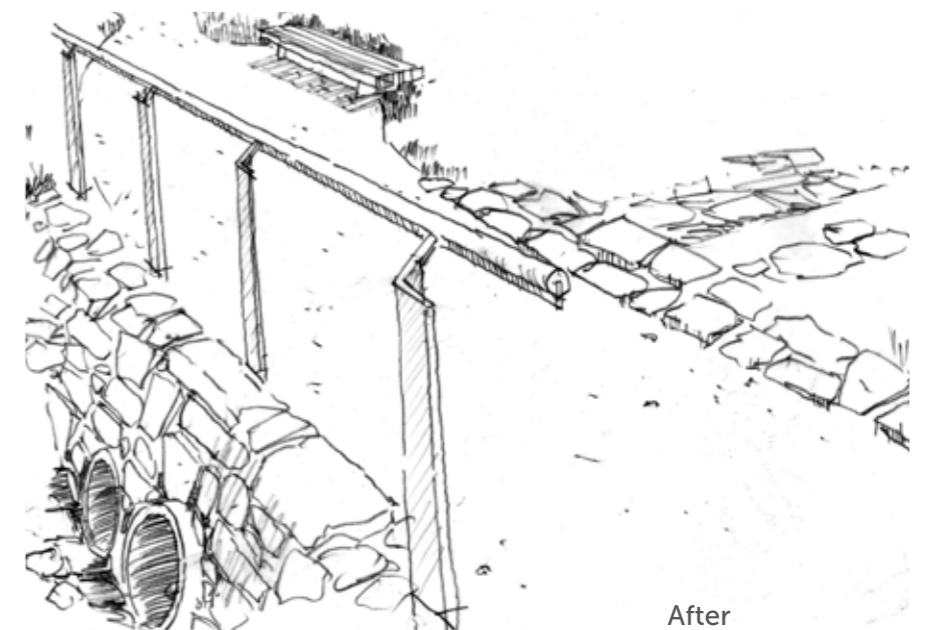
### Precedent Image



Concept Sketch



Before



After

# PIPELINE INFRASTRUCTURE

## HANDRAILS RETROFIT

PI - 4

### Concept

- Handrail construction, materials and finishes utilise a refined suite of components from the existing *Wellington Park Design and Infrastructure Manual* for continuity and practicality.

### Use

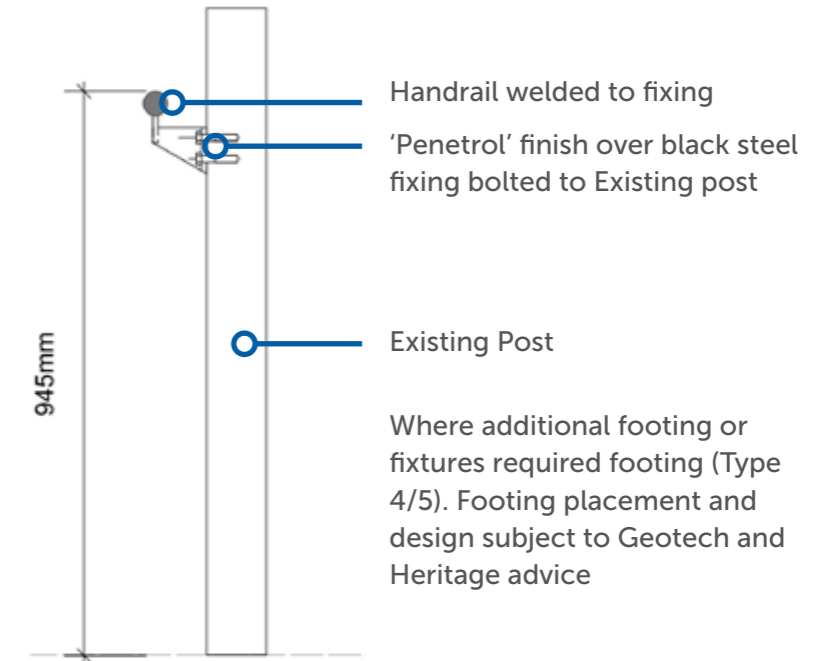
- In locations where the timber or metal post and rail occur.

### Materials

- Recycled plastic handrail extrusions.
- Mild Steel Structure ('Penetrol' finish over black steel).



Precedent Image



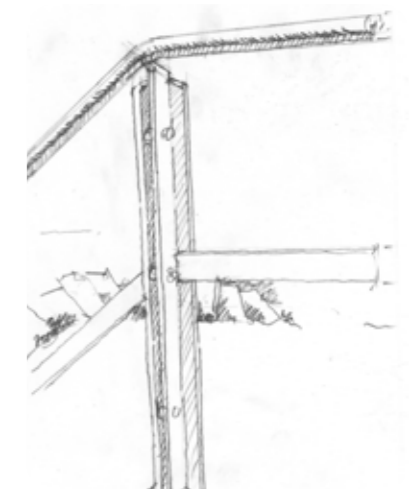
Barrier - Retro-fit (eg; Pipeline Track, Fern Tree to Aqueducts)

Detail Design

Specific changes to the heritage fabric of MWSS such as amendments to the handrails 'before/after' example here is beyond the scope of the MWSS Design Guidelines. Any future adaptation of heritage infrastructure must be preceded by further heritage investigations, research, documentation and design brief development.



Before (example)



After (example)

# PIPELINE INFRASTRUCTURE

## STEPS (DRY STONE CONSTRUCTION)

PI - 5

### Concept

- Step construction, materials and finishes utilise a refined suite of components from the existing *Wellington Park Design and Infrastructure Manual* for continuity and practicality.

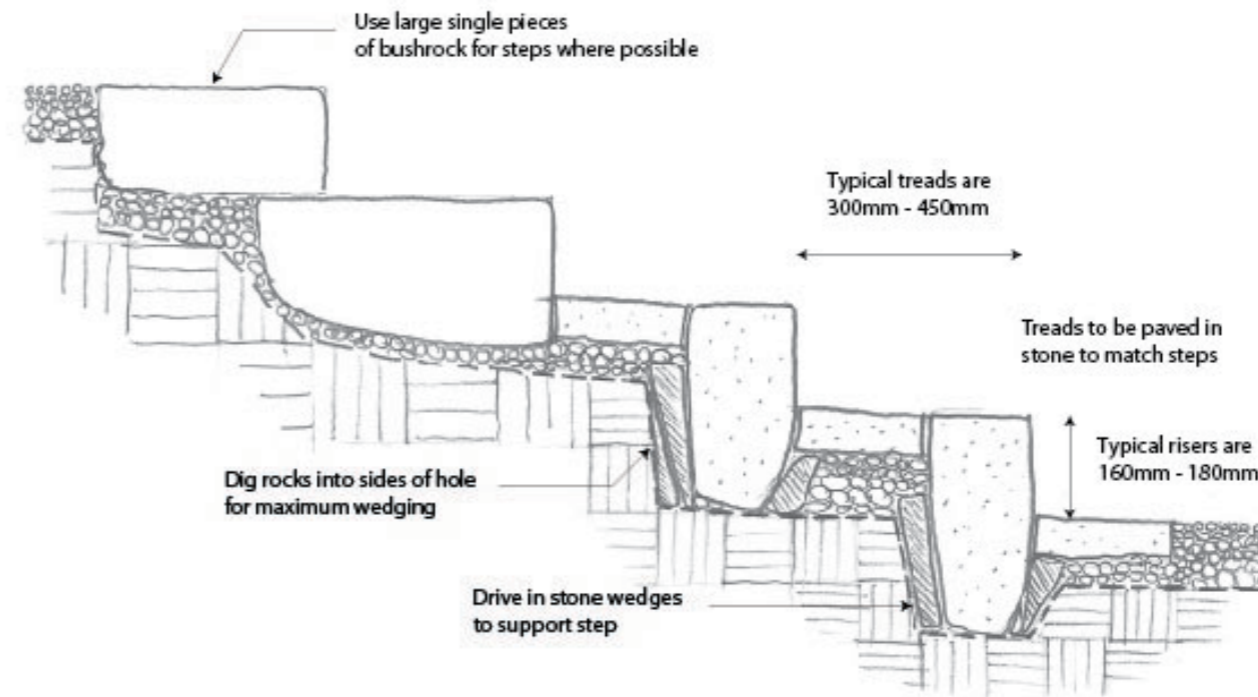
### Use

- To be use in existing locations and where needed in new locations, stone preferable to timber.
- To be used where grade exceeds 1:8.
- Use with PI-2/PI-3/PI-4.

### Materials

- Use stone from local geology factoring in availability, durability and heritage issues.
- Elements to be consistent where practical with the over arching *Wellington Park Design and Infrastructure Manual*.

### Precedent Image



STONE STEPS  
Typical Detail

Detail Design

# PIPELINE INFRASTRUCTURE

## GATEWAY & FENCE-LOW PROFILE

PI - 6

### Concept

- Gateway and fence construction, materials and finishes utilise a refined suite of components from the existing *Wellington Park Design and Infrastructure Manual* for continuity and practicality.
- Visually discreet.

### Use

- Where asset may need to be protected of access restricted, eg: active TasWater assets.
- Where required to inhibit public access.
- If fences are on or adjacent to MWSS heritage features, or are highly visible, a site specific solution is required.

### Materials

- Black chain-wire fence with black powder coated paint to minimise visual impact.
- SHS section and/or Angle steel section posts.
- Avoid fence lines above 1.2 m.

### Precedent Image



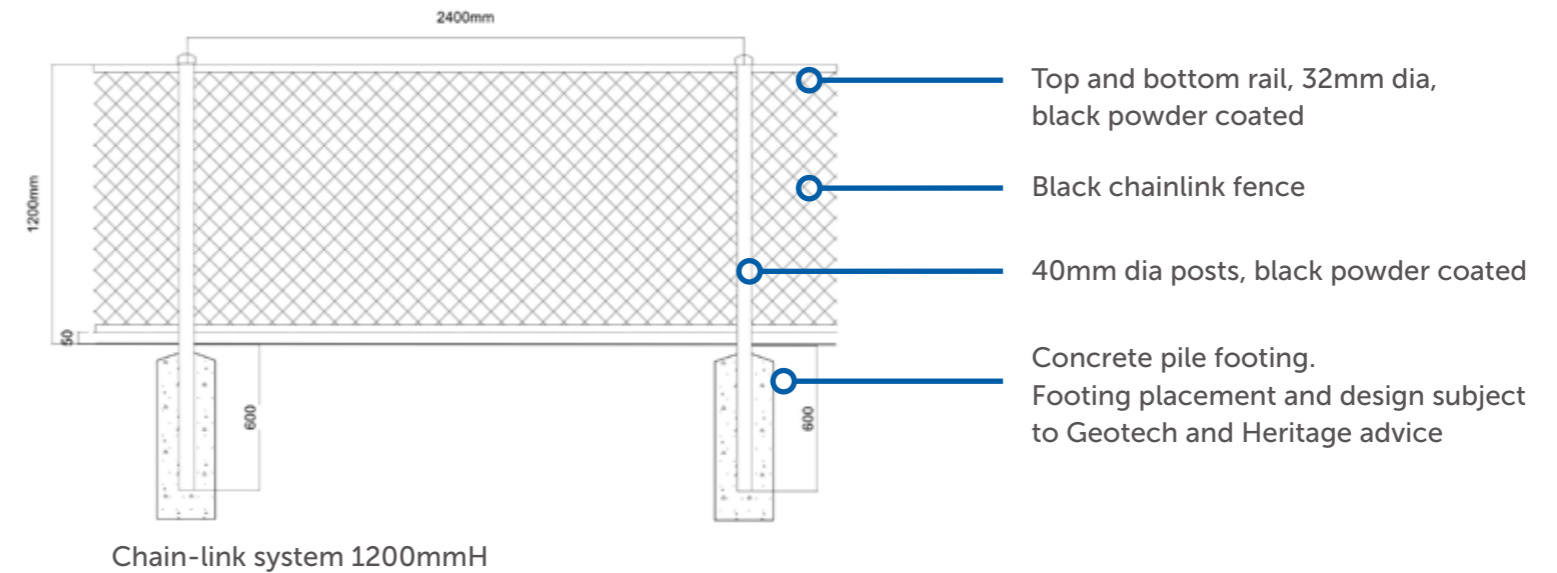
Existing Fencing



Early Fencing, Fern Tree Bower



Dulux Raku PG2.C7



### Detail Design

# PIPELINE INFRASTRUCTURE

## FURNITURE - SEATING + TABLES

PI - 7

### Concept

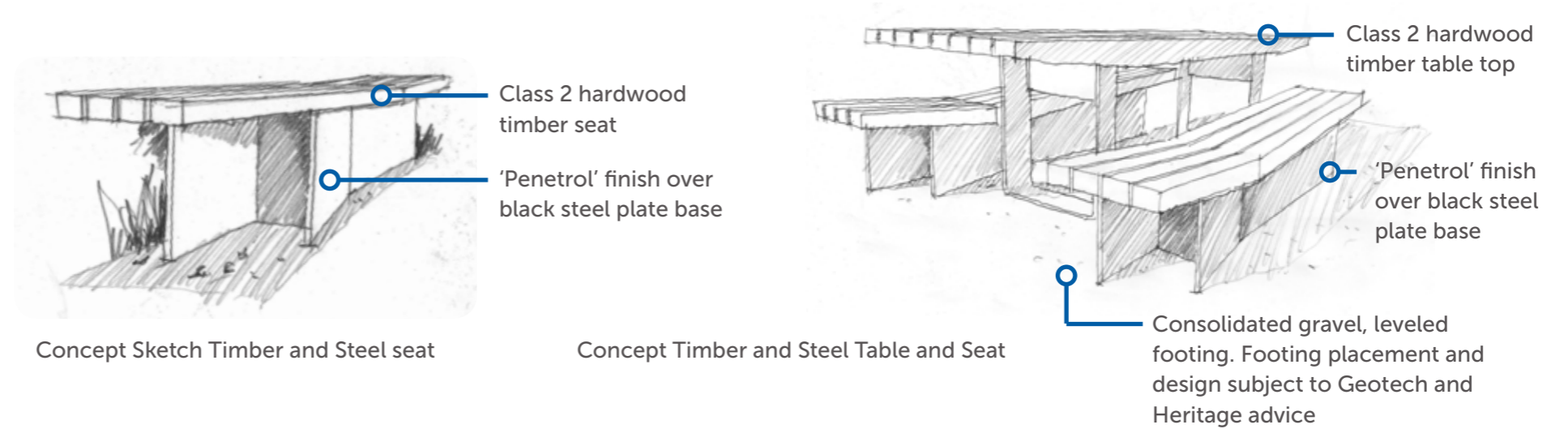
- Every outdoor seat in the MWSS should reflect the particular location and be positioned to take advantage of views, sun or shade.
- All existing generic outdoor seats should be progressively phased out, and replaced with site specific interventions.
- A new custom seat + table element drawing upon features on an existing HCC suite, adopted to remote/trail use.
- Large 'bearing-surface' area and solid robust and heavily 'weighted' construction requires no in-ground footings.

### Use

- Use natural stone where possible where there is exposed rock or sandstone constructed features.
- Custom timber + steel bench - Neika to Fern Tree and Fern tree to Waterworks Reserve in sunlight, on prepared gravel.
- Tables at limited sites (eg nodes).

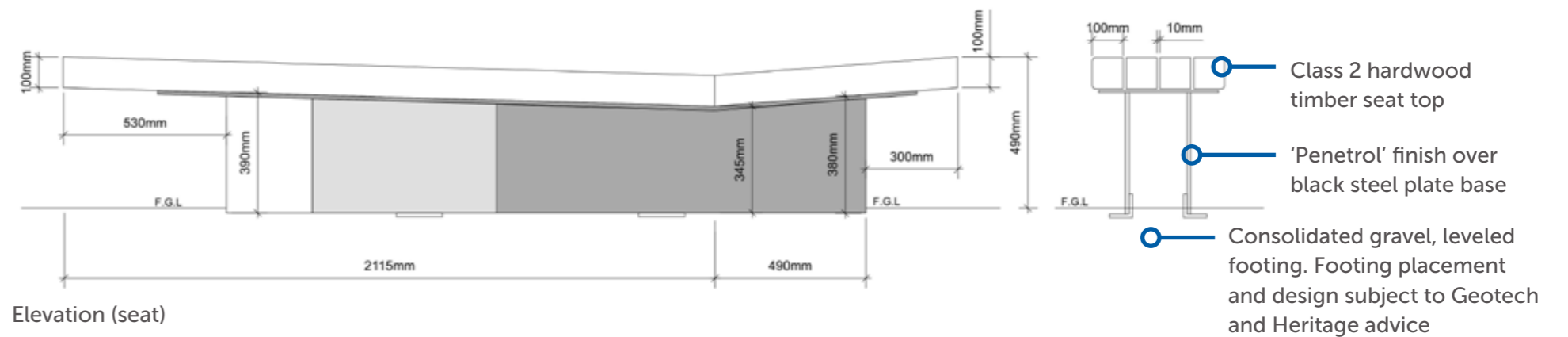
### Materials

- Seating opportunities to be constructed of natural stone.
- Timber and Steel Table & Seat, Class 2 hardwood top with 'Penetrol' finish over black steel base plate.
- At appropriate seating sites a simplified version of the recycled plastic extrusion could be utilised instead of timber.



Concept Sketch Timber and Steel seat

Concept Timber and Steel Table and Seat



Elevation (seat)

Detail Design

### Precedent Image



Natural Stone seating



Existing 'Tram' seat, (retained)



Existing seat St Crispins Well, (retained)



Features of existing HCC suite, adopted to remote/trail use



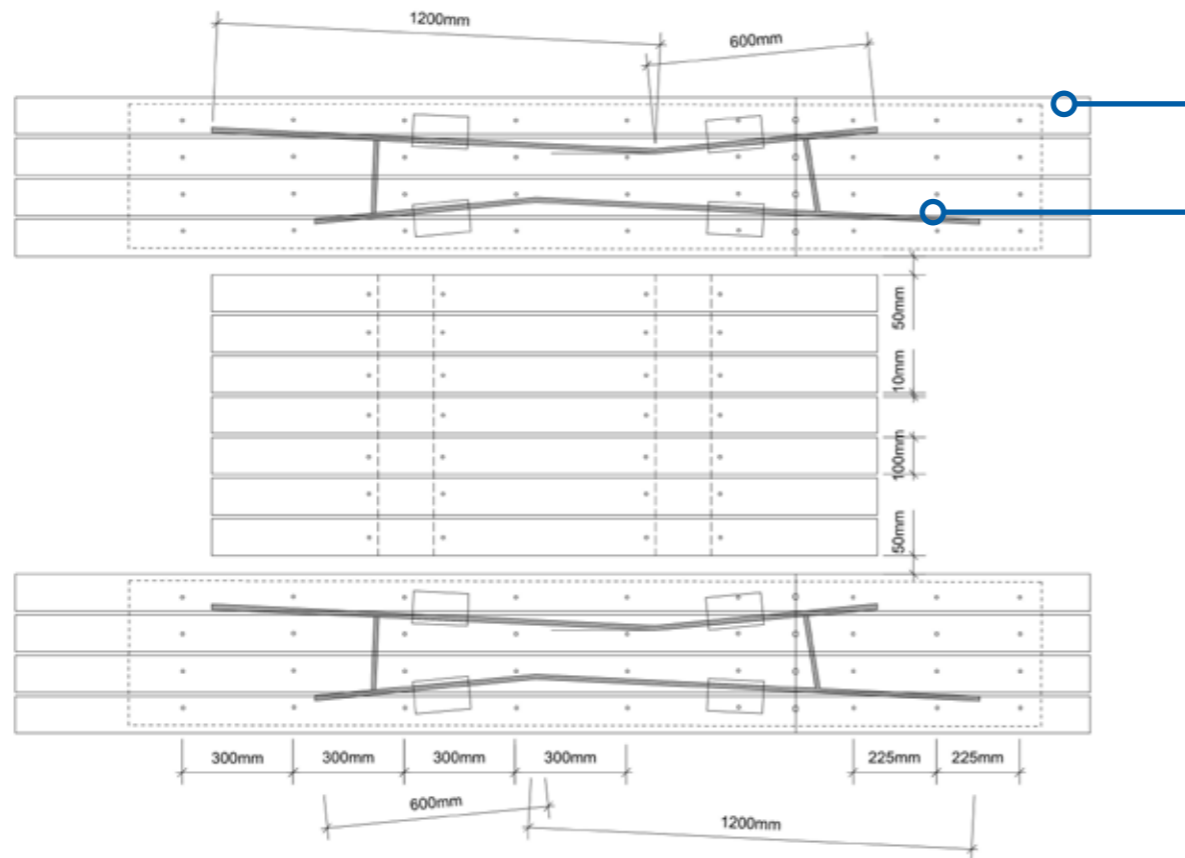
'Penetrol' on natural steel



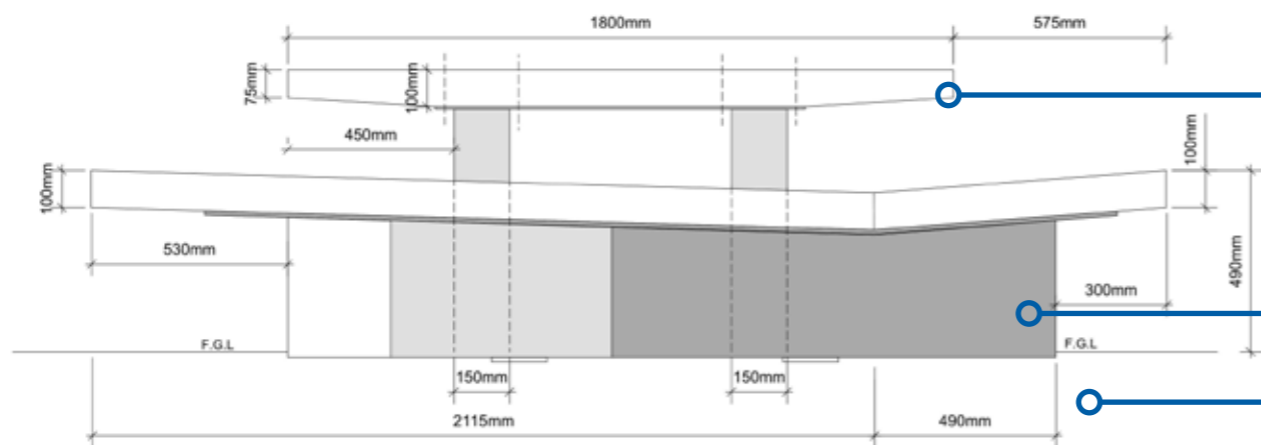
# PIPELINE INFRASTRUCTURE

## FURNITURE - SEATING + TABLES

PI - 7

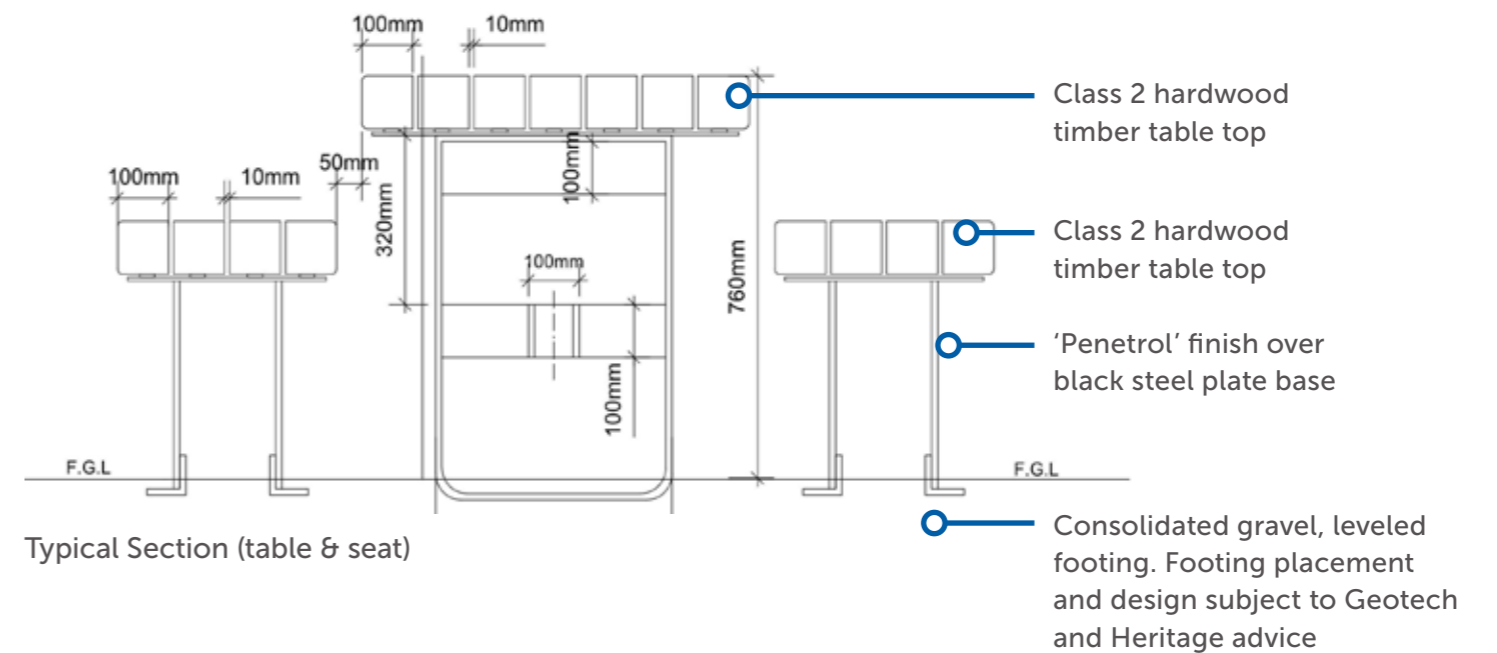


Plan (table & seat)



Elevation (table & seat)

Class 2 hardwood timber table top  
'Penetrol' finish over black steel plate base



Typical Section (table & seat)

Class 2 hardwood timber table top

'Penetrol' finish over black steel plate base

Consolidated gravel, leveled footing. Footing placement and design subject to Geotech and Heritage advice

Class 2 hardwood timber table top

Class 2 hardwood timber table top

'Penetrol' finish over black steel plate base

Consolidated gravel, leveled footing. Footing placement and design subject to Geotech and Heritage advice

Detail Design

# PIPELINE INFRASTRUCTURE

## CHICANES / BICYCLE BARRIERS / BOLLARDS

PI - 8

### Concept

- The existing large CHS steel chicanes represent a robust solution. Ideally mismatched barriers would either be updated to this style or painted in the colour listed in the *Wellington Park Design and Infrastructure Manual*.
- Option to retrofit existing chicanes with a themed 'water pipe' connection.

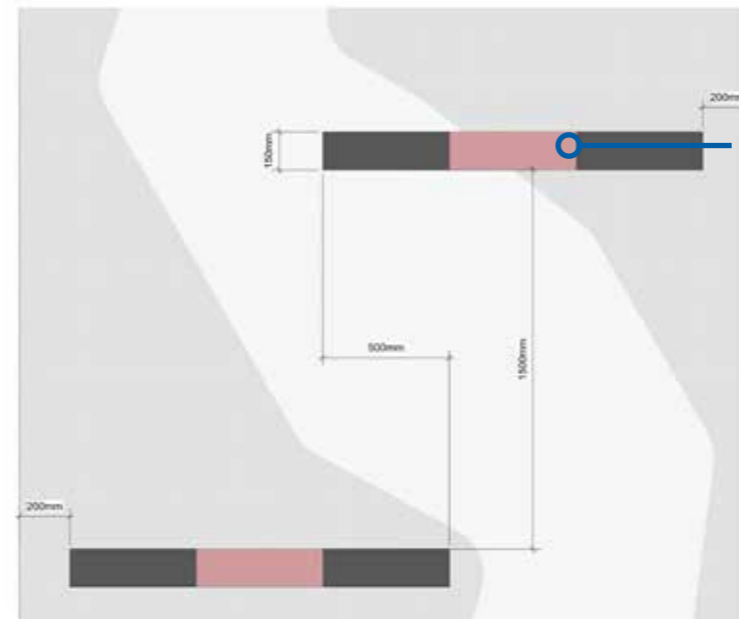
### Use

- At locations where chicanes occur.

### Materials

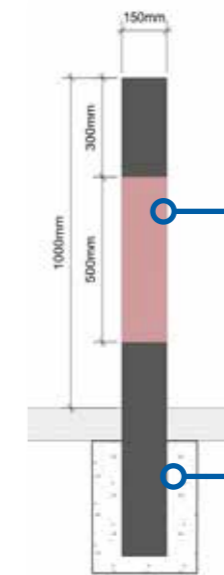
- CHS Steel.
- Preference for chicane to be painted in a matt finish dark grey colour.
- (Dulux Raku PG2.C7)

### Precedent Image



Plan

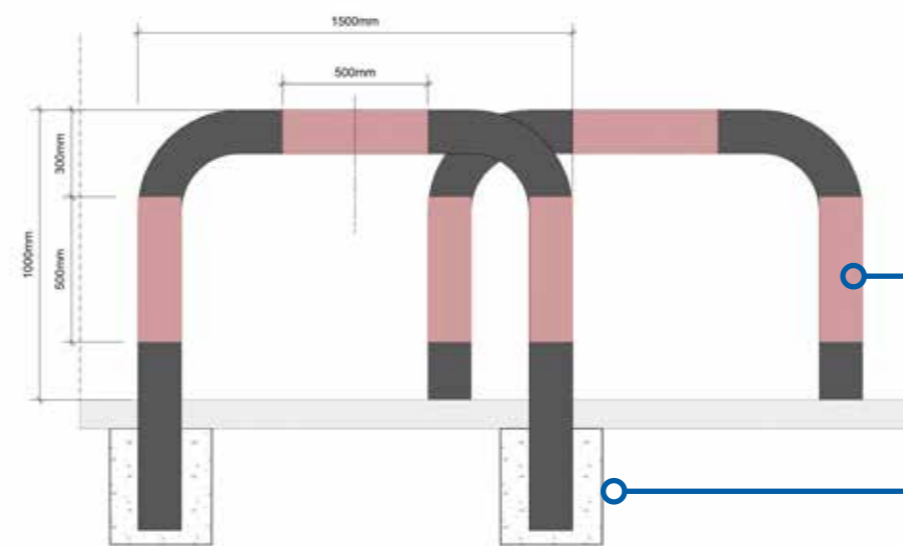
150mm CHS Chicanes, reflective '3M' hazard identification tape



New Bollard, 150mm CHS, reflective '3M' hazard identification tape.

Concrete pad footing as per HCC specifications

Elevation



150mm CHS Chicanes, reflective '3M' hazard identification tape

Concrete pad footing as per HCC specifications

Elevation

Detail Design



Regan's Gully Bridge, Waterworks Reserve. Photo by Eddie Safarik.

# WAYFINDING & INTERPRETIVE SIGNAGE

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## TYPOGRAPHY

The fonts: Futura and Officina Sans, specified from the *Wellington Park Sign Manual*, have been used in the Mountain Water Supply System signage to integrate the two signage systems. The Mountain Water Supply System has its own identity through the use of colour and icon, however it aligns with the Wellington Park signage in its composition, fonts and layout of content. When applied to each signage system the information must be clear, concise and unified. The following rationale has been included from the *Wellington Park Sign Manual*:

*The primary typeface, Futura Condensed, is inspired by early foundry typefaces found on commemorative signs for the Pinnacle Road. It is a bold, easily read typeface at all sizes and being condensed allows more characters per line than standard roman faces.*

*The secondary typeface, Officina Sans, is utilised for its readability, subtle quirks and harmony with the primary face. It appears throughout the signage system in various forms: Book, Book Italic, Bold and Bold Italic.*

*Arrows specified throughout come from the typeface Info Display, designed specifically for signage purposes. Its modern, clean lines work well with both Futura and Officina.*

*Guidelines relating to type size and leading are specified for each sign type and must be closely followed in order to create a balanced and communicative message.*

**ABC abc 123**

---

Futura Condensed

ABC abc 123

---

Officina Sans Book

*ABC abc 123*

---

Officina Sans Book Italic

**ABC abc 123**

---

Officina Sans Bold

***ABC abc 123***

---

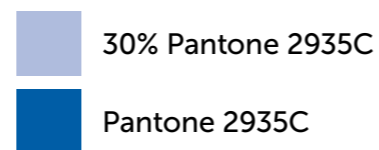
Officina Sans Bold Italic

# WAYFINDING & INTERPRETIVE SIGNAGE

## COLOURS AND ICONS

### The Mountain Water Supply System Pipeline icon

- This simple bold icon is to be used across all applications of Mountain Water Supply System signage. The icon creates an identity for the System, while uniting it with existing accessibility symbols and logos used in the *Wellington Park Sign Manual* and *Hobart City Council Parks Sign Manual*.
- The icon is clean and modern, while being sympathetic to the history and significance of the system's architecture. This is achieved through representation of an aqueduct which forms part of the system.
- This example shows how the icon should appear when displayed on a white background, and when reversed out on the dark blue background (Pantone 2935 C).
- Light blue and dark blue have been used as primary colours throughout the graphic application. These colours are bold, representative of water and complementary to the existing colour palettes of Wellington Park and Hobart City Council.
- Navy blue and orange have been used as secondary colours.



Icon reversed on Pantone 2935 C blue background as applied to signage.



The MWSS Pipeline icon is a representation of this aqueduct which forms part of the system.

#### Primary Colours



Pantone 2935 C  
C100 m53 y0 k0



Pantone 2985 C  
C60 m0 y3 k0

#### Secondary Colours



Pantone 655 C  
c100 m79 y12 k59



Pantone 159 C  
c1 m72 y100 k7

# WAYFINDING & INTERPRETIVE SIGNAGE

## MANAGEMENT AUTHORITY LOGOS

### How to use authority logos in the Mountain Water Supply System Signage Hierarchy

There are three management authority logos that are relevant to the MWSS Design Guidelines signage system;

- Hobart City Council
- Wellington Park Management Trust
- TasWater

Management authority logos are to be used on Signage System A with the MWSS 'Pipeline' Icon at key access points into the MWSS. Only the relevant management authority logos should be used at these locations.

The Management Authority logos including TasWater may be used on Restriction signage using Signage System B and D. The TasWater logo can be used where access restrictions apply. The siting of these signs will be determined by the responsible authorities in consultation with one another. The MWSS icon is not to be used on restriction signage.

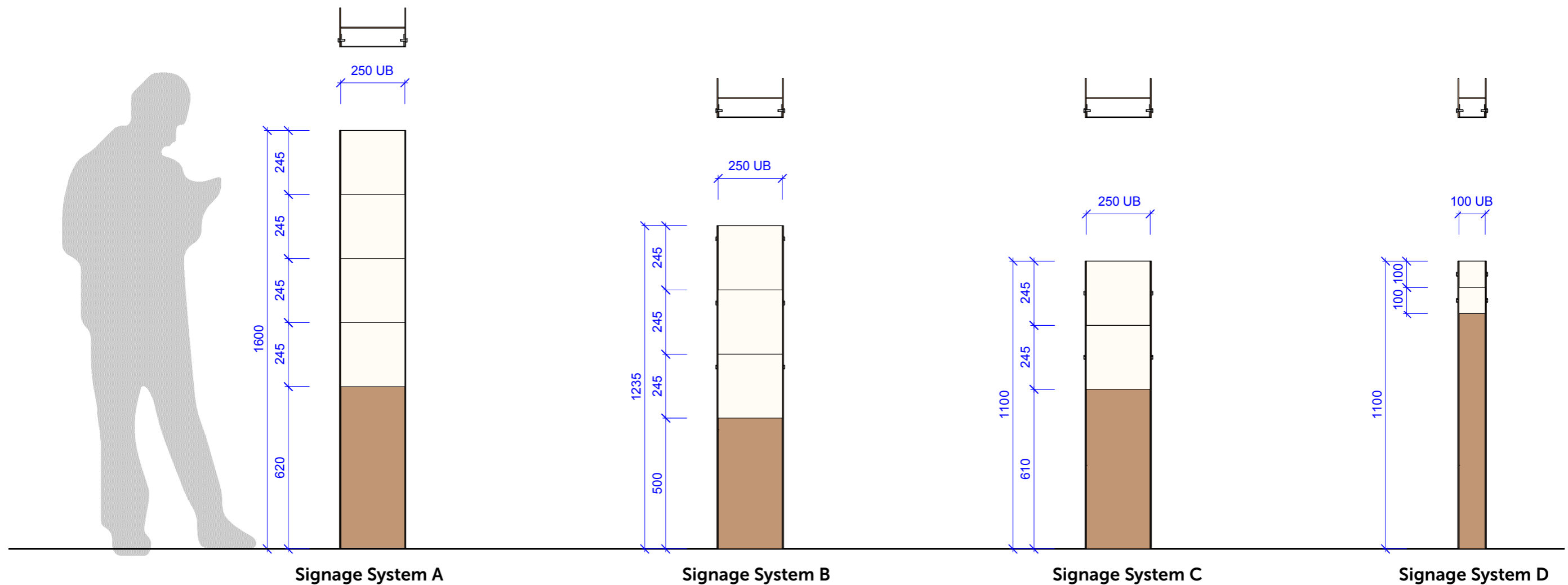


Management authority logos should be white (reversed out) when placed on the dark blue background of the sign.

# WAYFINDING & INTERPRETIVE SIGNAGE

## SIGNAGE FAMILY: DETAILED 3D DESIGN

**PLEASE NOTE:** The content and information displayed on the signs to follow (pages 34 - 49) are indicative and for the purpose of these guidelines only.



**Signage Systems A B C D** are intended to be installed in compacted earth foundations to minimise impact on natural conditions. Care is to be taken in the siting and installation to avoid impacts on heritage fabric and natural conditions. Heritage advice must be sought prior to installing sign elements in vicinity of Mountain Water Supply System elements.

**Signage System A** allows for 4 signs and is to be used as an entry marker identifying the System and providing wayfinding through the use of the map. It can also include important information about the System and it's use.

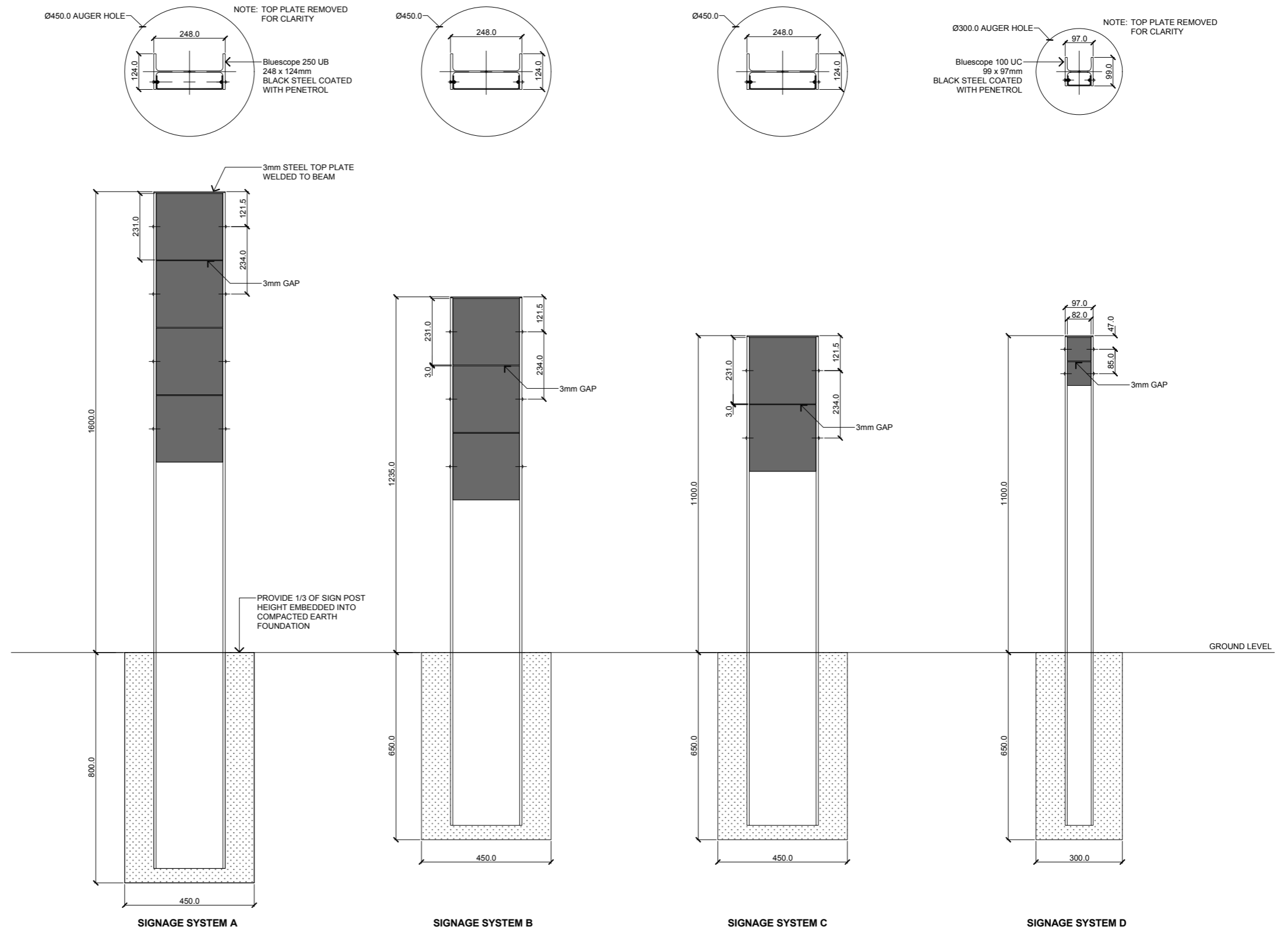
**Signage System B** allows for 3 signs and is to be used as primary directional signage with interpretation information.

**Signage System C** allows for 2 signs and is to be used as secondary directional and wayfinding signage.

**Signage System D** allows for 1-2 signs. It is to be used as a Track Marker providing information on direction, distance, accessibility and facilities.

# WAYFINDING & INTERPRETIVE SIGNAGE

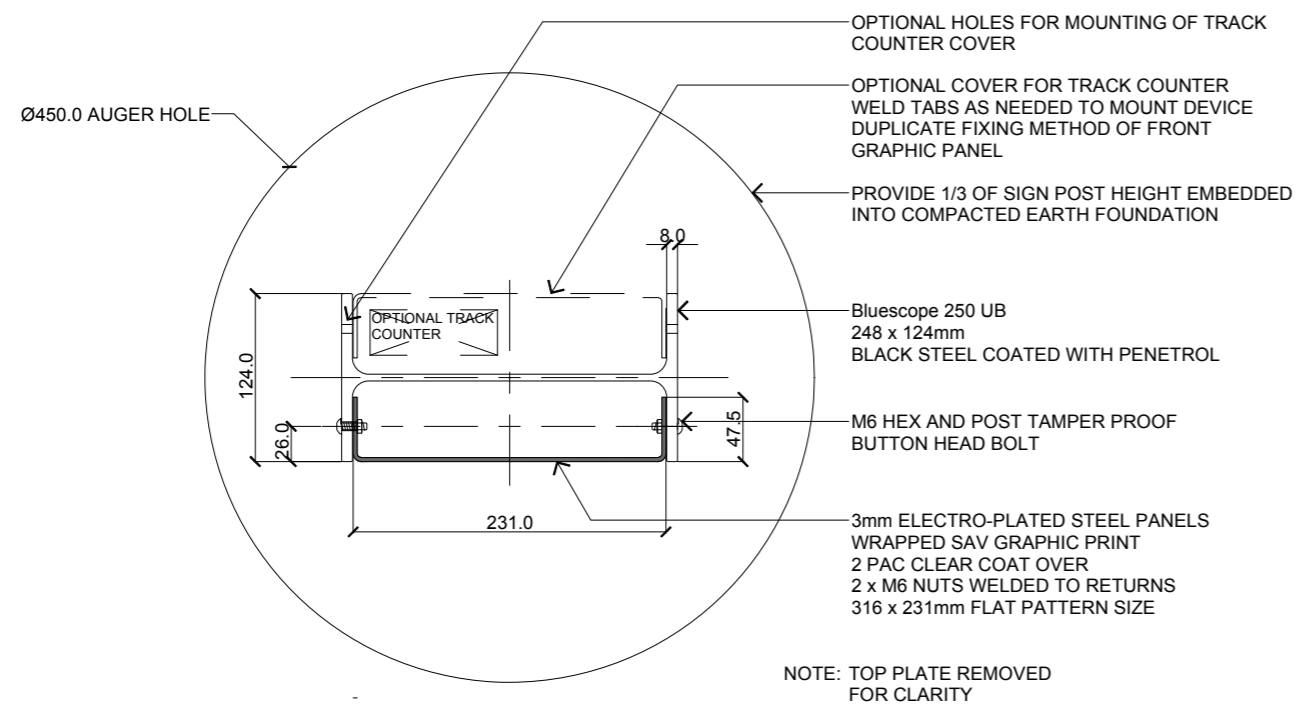
## SIGNAGE FAMILY: DETAILED 3D DESIGN



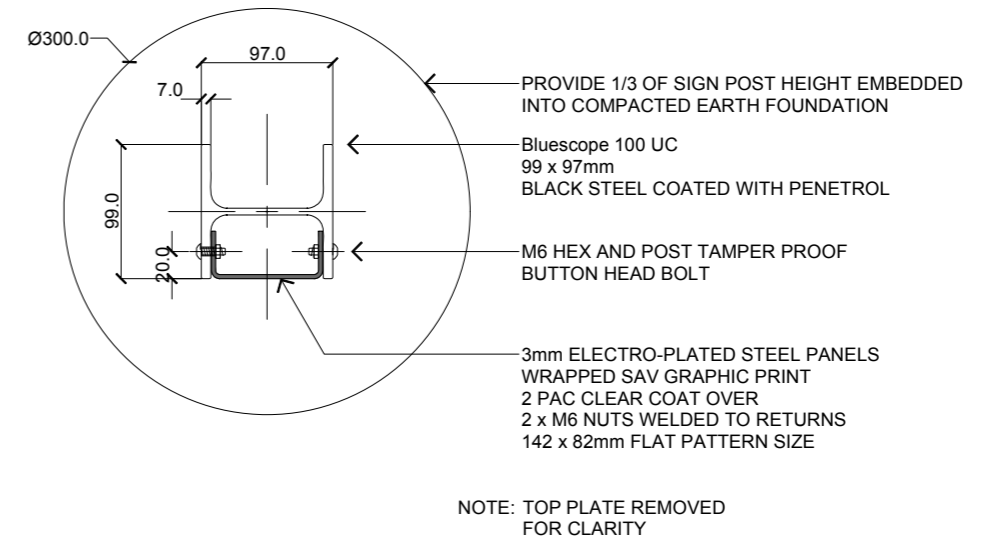


# WAYFINDING & INTERPRETIVE SIGNAGE

## SIGNAGE FAMILY: DETAILED 3D DESIGN



**SIGNAGE SYSTEM A B & C  
PLAN VIEW**



**SIGNAGE SYSTEM D  
PLAN VIEW**

# WAYFINDING & INTERPRETIVE SIGNAGE

## SIGNAGE FAMILY: GRAPHIC RENDER ISOMETRIC ELEVATION



# WAYFINDING & INTERPRETIVE SIGNAGE

## SIGNAGE FAMILY: GRAPHIC RENDER FRONT ELEVATION



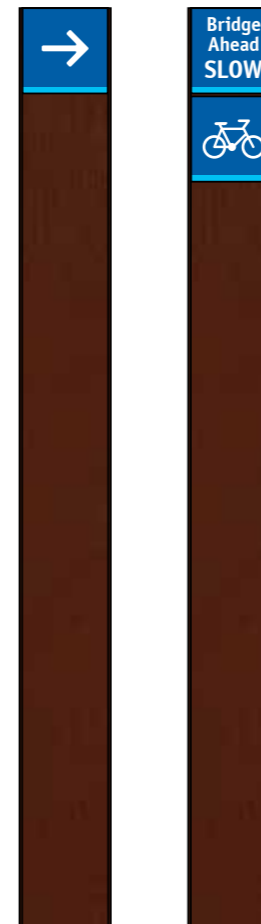
Signage System A  
Entry + Interpretation



Signage System B  
Primary Directional + Interpretation



Signage System C  
Secondary Directional



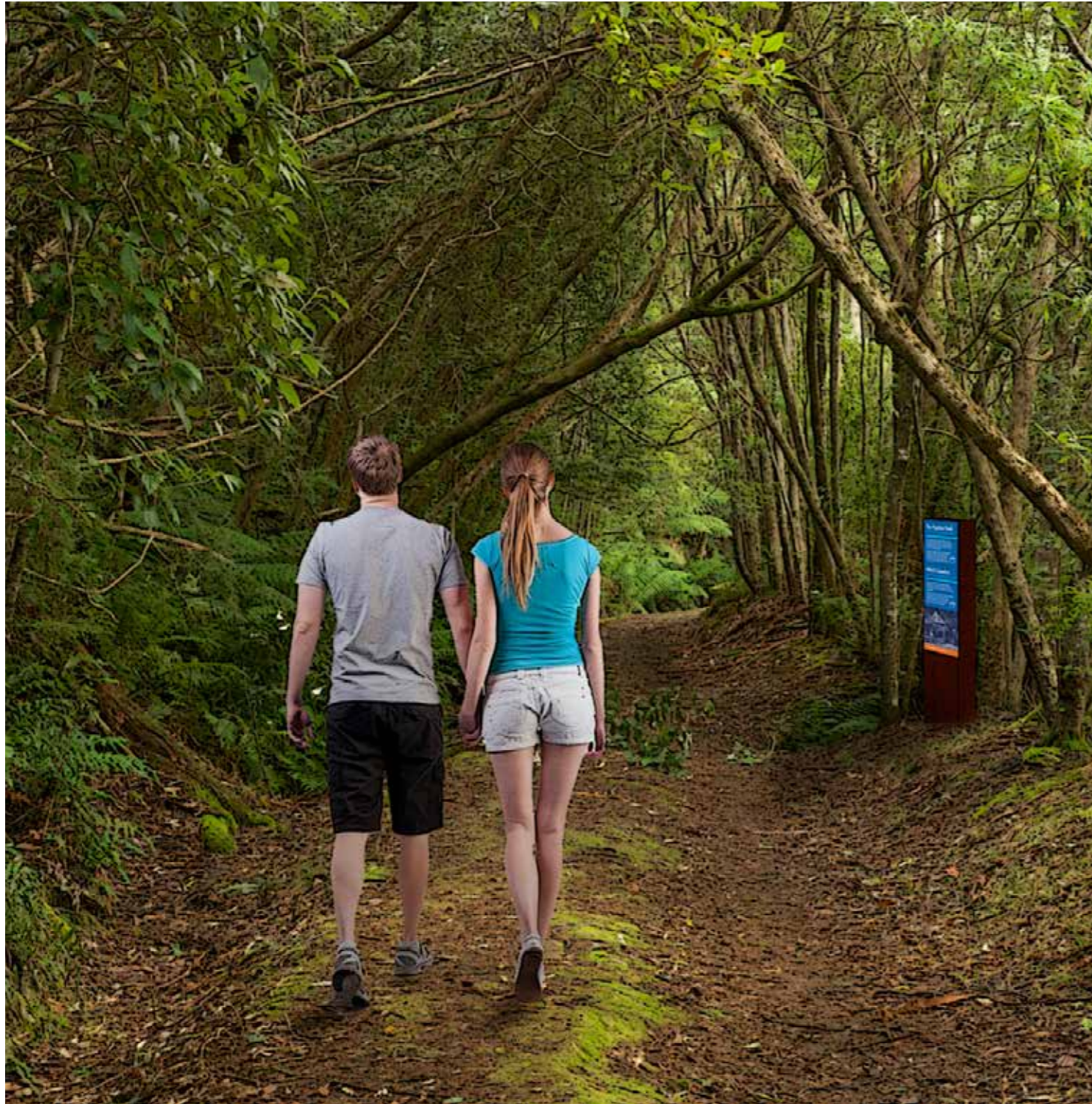
Signage System D  
Marker



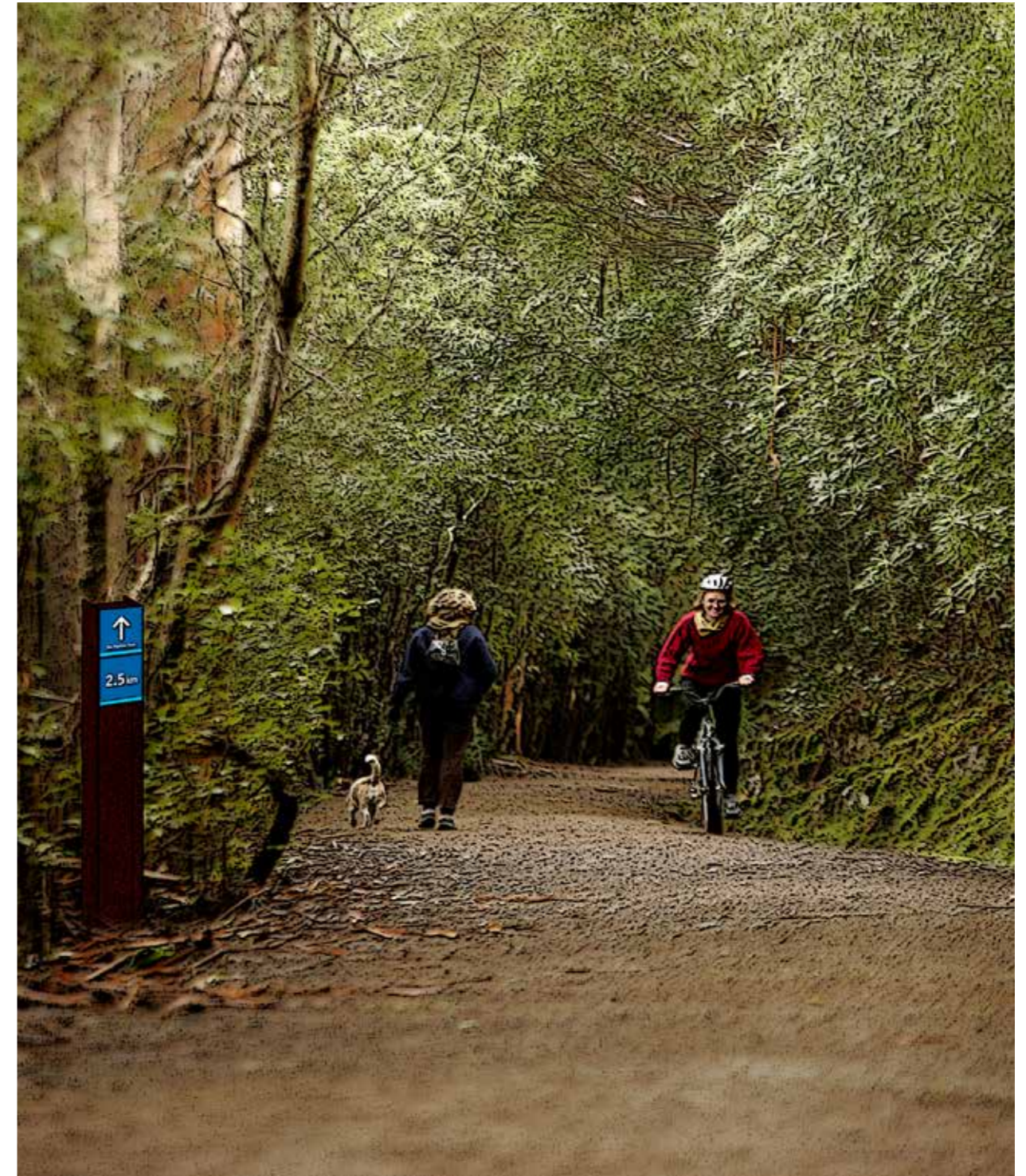
# WAYFINDING & INTERPRETIVE SIGNAGE

## SIGNAGE APPLICATION RENDER

These examples are indicative and suggest how the signage could appear on site.



Signage System B



Signage System D

# WAYFINDING & INTERPRETIVE SIGNAGE

## SIGNAGE TYPES: PLACE MARKER, WAYFINDING AND INTERPRETATION

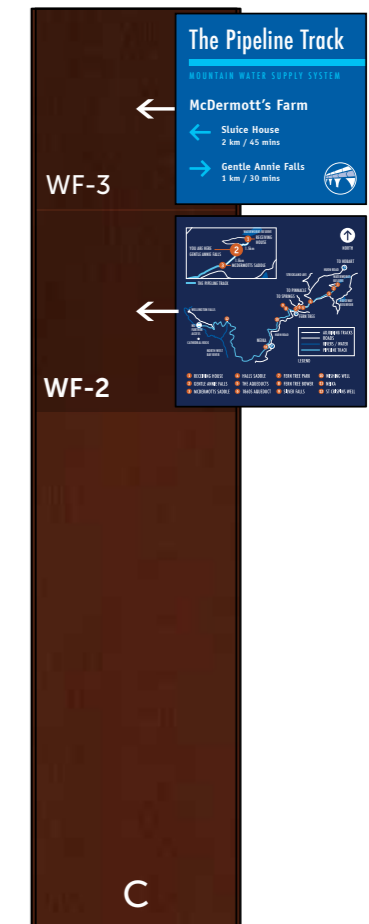
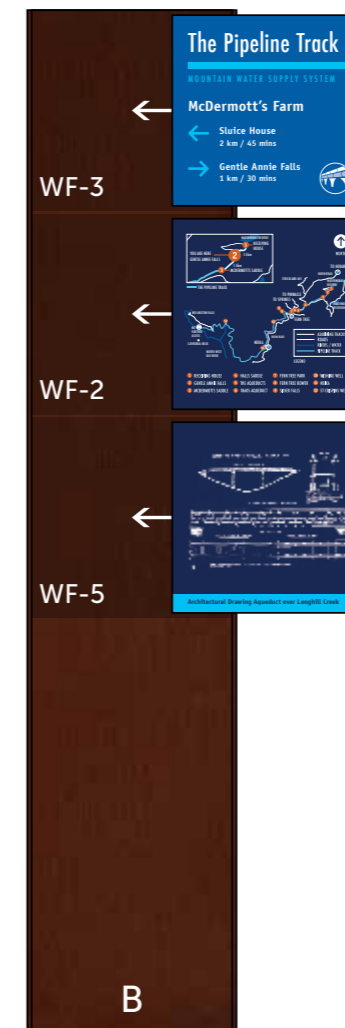
This signage system is simple and versatile.

Signage A, B, C and D (or a combination thereof) can be allocated to individual sites depending on content and wayfinding requirements.

It is recommended that informational sign inserts such as the map and those that are predominantly text, be assigned to the higher positions of the signage system, as this is where they will be most easily viewed. Photographs and imagery are better assigned to the lower positions.

The sign inserts dimensions are 231mm x 231mm. They have been organised into the following five categories:

SIGN	CONTENT
WF-1	PLACE MARKER
WF-2	WAYFINDING MAP
WF-3	DIRECTIONAL MARKER
WF-4	INTERPRETATIVE MARKER (TEXT)
WF-5	INTERPRETATIVE MARKER (IMAGE)
WF-6	DIRECTION, ACCESSIBILITY, RESTRICTIONS AND CAUTIONS



# WAYFINDING & INTERPRETIVE SIGNAGE

## SIGNAGE TYPES: (WF-1 WF-2 WF-3) PLACE MARKER AND WAYFINDING

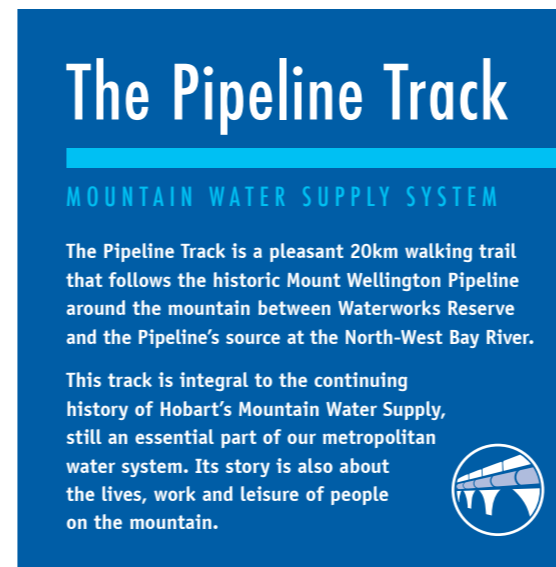
Each sign caters for a particular type of communication. The necessary signage system can be customised to suit each individual site and its requirements. The MWSS colours and icon are used to reinforce recognition and identification.

A simplified version of the track map has been created to be used across the track to inform the visitor of their current location, upcoming points of interest and distances. The track has been represented in its simplest form to establish clear orientation and identification. The MWSS colours and icon are used to reinforce recognition.

Please note: The distances displayed on the map and other information is for visual reference only. Correct distances and interpretive information would need to be supplied.

Interpretive elements such as historical extracts, stories, sketches, maps, photos and illustrations can be integrated into the signage system to enhance visitors' experience.

The interpretive signage can use all colours from the colour palette for headers and footers. However text blocks should be kept to the two colour scheme, as for those shown in WF-1 and WF-3.



### WF-1: PLACE MARKER

Informs visitors they are on the MWSS 'Pipeline Track'. It can also provide a brief synopsis.



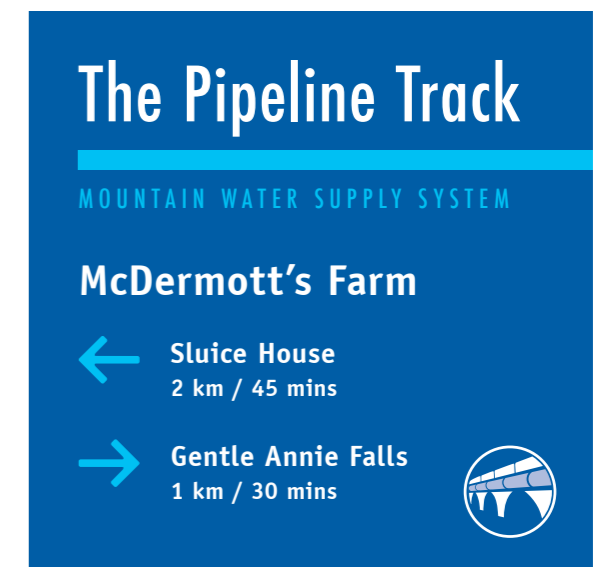
### WF-2: WAYFINDING MAP

A simplified map of the MWSS 'Pipeline Track' inform the visitor of their current location, upcoming points of interest and distances.



### WF-6: RESTRICTION MARKER

Informs visitors they are on part of the MWSS and can provide user information and restrictions.

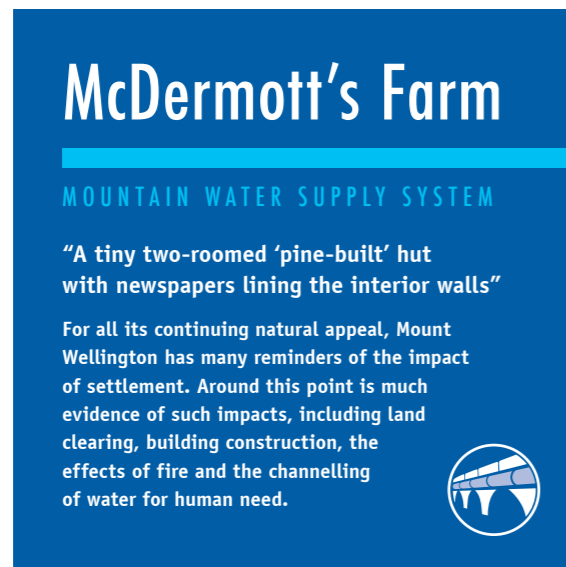


### WF-3: DIRECTIONAL MARKER

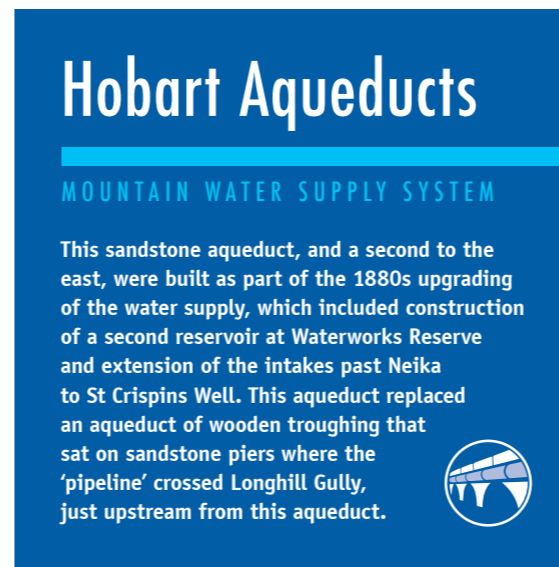
Informs visitors that they have arrived at a point of interest and also provides distances to adjoining points of interest.

# WAYFINDING & INTERPRETIVE SIGNAGE

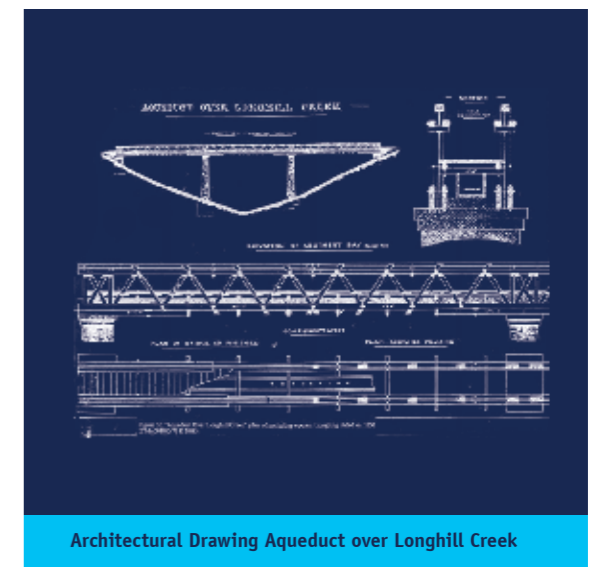
## SIGNAGE TYPES: (WF-4 - WF-5) INTERPRETIVE MARKER TEXT AND IMAGE



**WF-4: INTERPRETIVE MARKER (TEXT)**  
 Informs visitors that they have arrived at a point of interest, and provides information about the location.



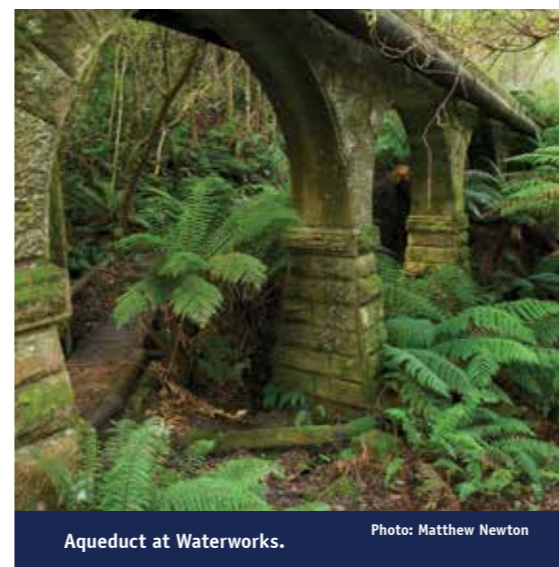
**WF-4: INTERPRETIVE MARKER (TEXT)**  
 This example depicts historical information about the aqueduct.



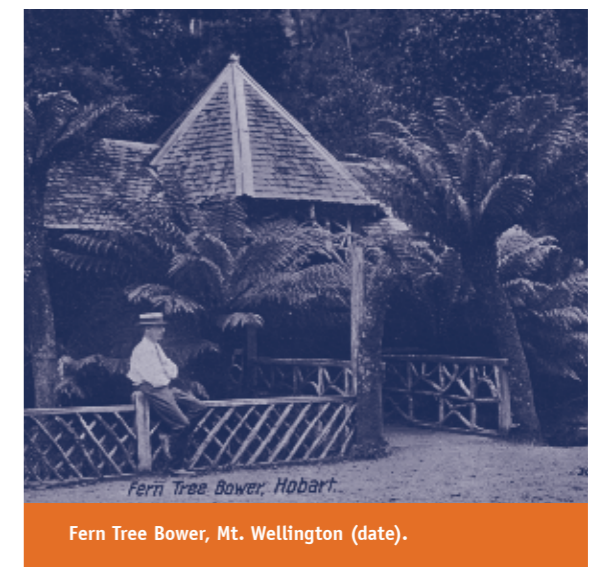
**WF-5: INTERPRETIVE MARKER (IMAGE)**  
 This example depicts historical architectural drawings.



**WF-5: INTERPRETIVE MARKER (IMAGE)**  
 This example depicts the Mountain Water Supply System topographic map.



**WF-5: INTERPRETIVE MARKER (IMAGE)**  
 This example shows a photograph of a point of interest.



**WF-5: INTERPRETIVE MARKER (IMAGE)**  
 This example depicts a historical photograph.

# WAYFINDING & INTERPRETIVE SIGNAGE

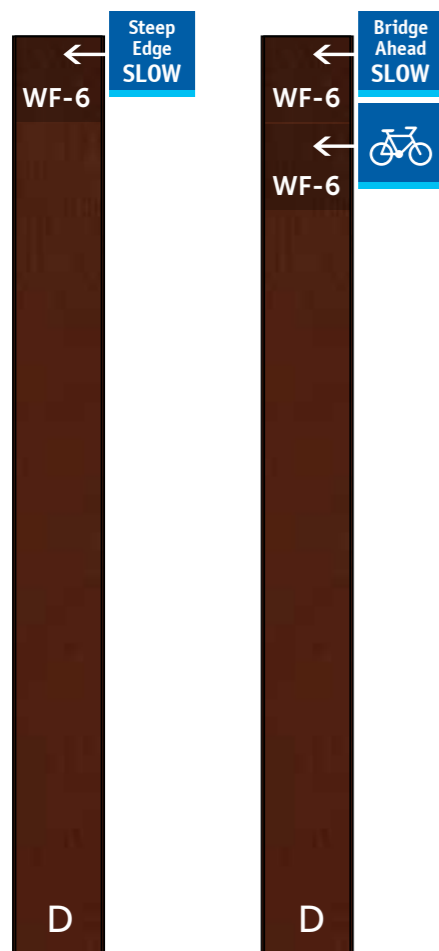
## SIGNAGE TYPE: WF-6 DIRECTION, ACCESSIBILITY, RESTRICTIONS AND CAUTIONS

### Signage System D is for WF-6

This signage system provides information on direction, accessibility, restrictions and warnings in the form of clear simple symbols.

The sign insert dimensions are 82mm x 82mm. A combination of 1 - 2 signs can be applied, depending on individual site requirements.

The following are examples of the different kinds of symbols and information which can be shown.



**WF-6: DRINKING WATER CATCHMENT**  
No access for water quality purposes.



**WF-6: DIRECTIONAL MARKER**  
Directional arrow symbol to point of interest.



**WF-6: RESTRICTIONS**  
Track accessibility information.



**WF-6: ACCESSIBILITY**  
Track accessibility information.



**WF-6: TRACK CAUTION**  
Track cautions and warnings.



**WF-6: TRACK CAUTION**  
Track cautions and warnings.



# SIGNAGE LAYOUT SPECIFICATIONS

## WF-1: PLACE MARKER

The content and information displayed on these signs is indicative and for illustrative purposes only.

Sign dimensions: 231mm x 231mm



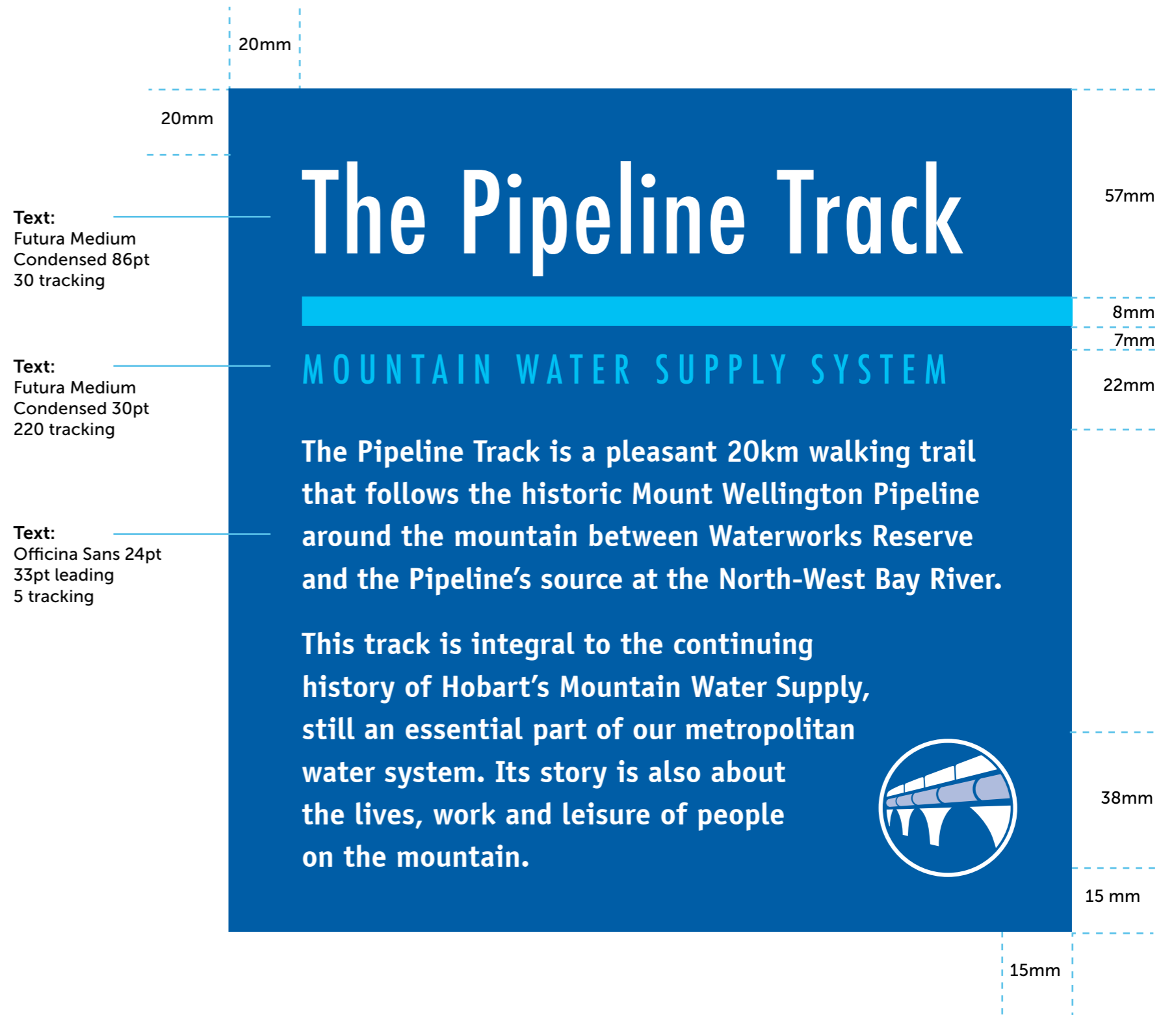
Background colour

PMS 655 C



Highlight colour

PMS 2985 C

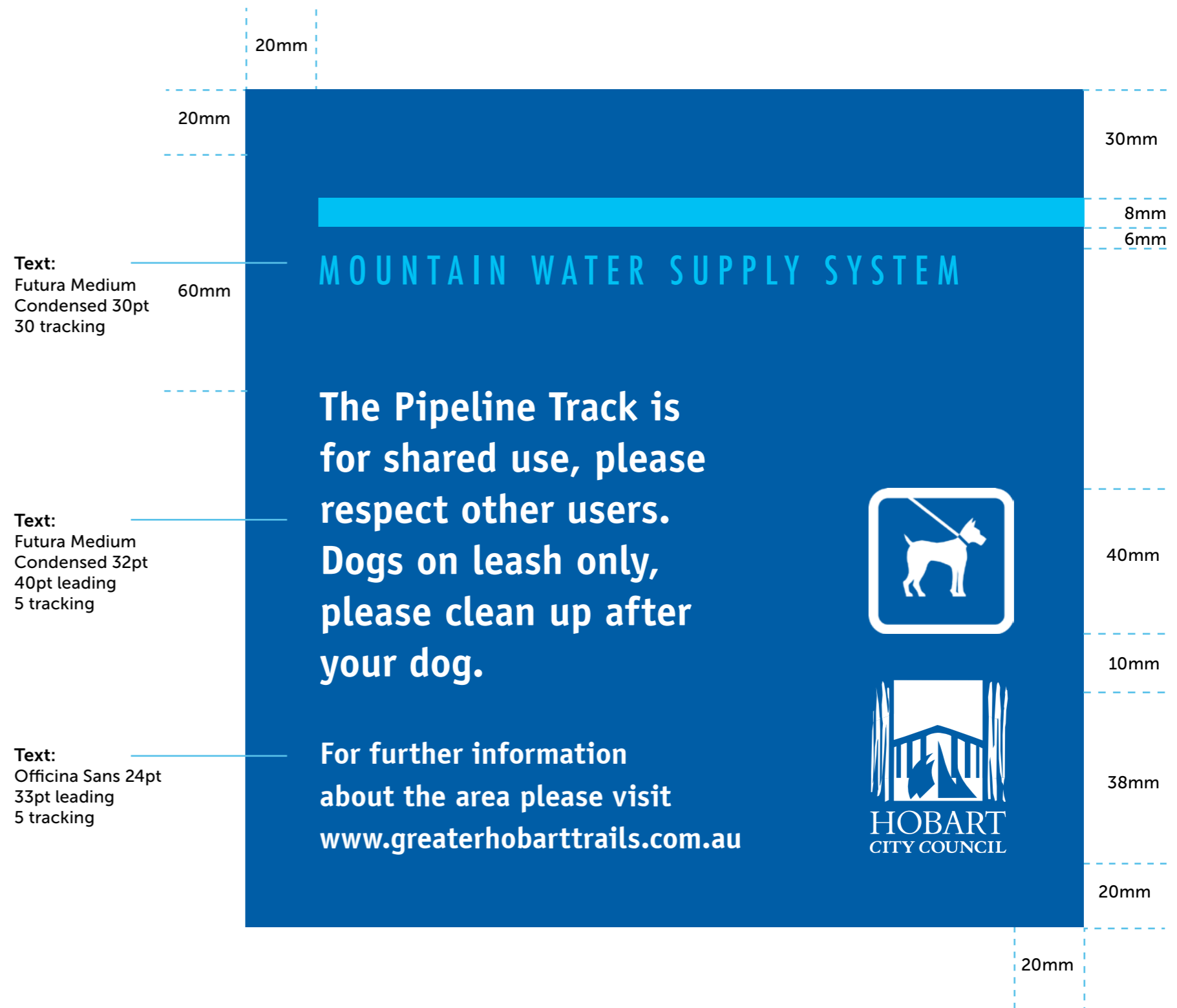


# SIGNAGE LAYOUT SPECIFICATIONS

## WF-6: DIRECTION, ACCESSIBILITY, RESTRICTIONS AND CAUTIONS

The content and information displayed on these signs is indicative and for illustrative purposes only.

Sign dimensions: 231mm x 231mm



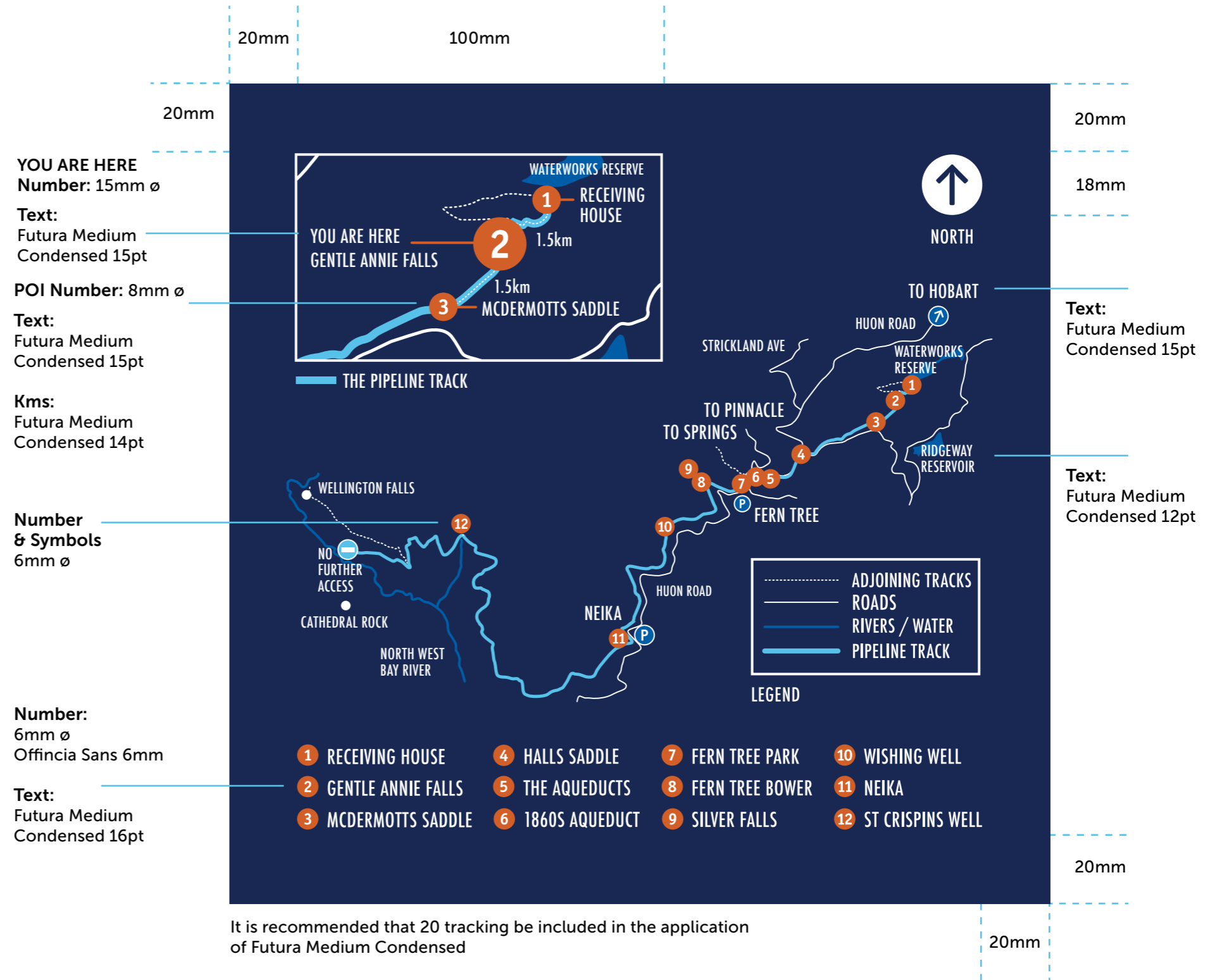
# SIGNAGE LAYOUT SPECIFICATIONS

## WF-2: WAYFINDING MAP

Map information including locations and distances to be confirmed.

Sign dimensions: 231mm x 231mm

- Background colour  
**PMS 655 C**
- The Pipeline track  
**PMS 2985 C**
- Numbers, arrows and points of interest  
**PMS 159 C**
- Rivers  
**PMS 2935 C**



# SIGNAGE LAYOUT SPECIFICATIONS

## WF-3: DIRECTIONAL MARKER

The content and information displayed on these signs is indicative and for illustrative purposes only.

Sign dimensions: 231mm x 231mm



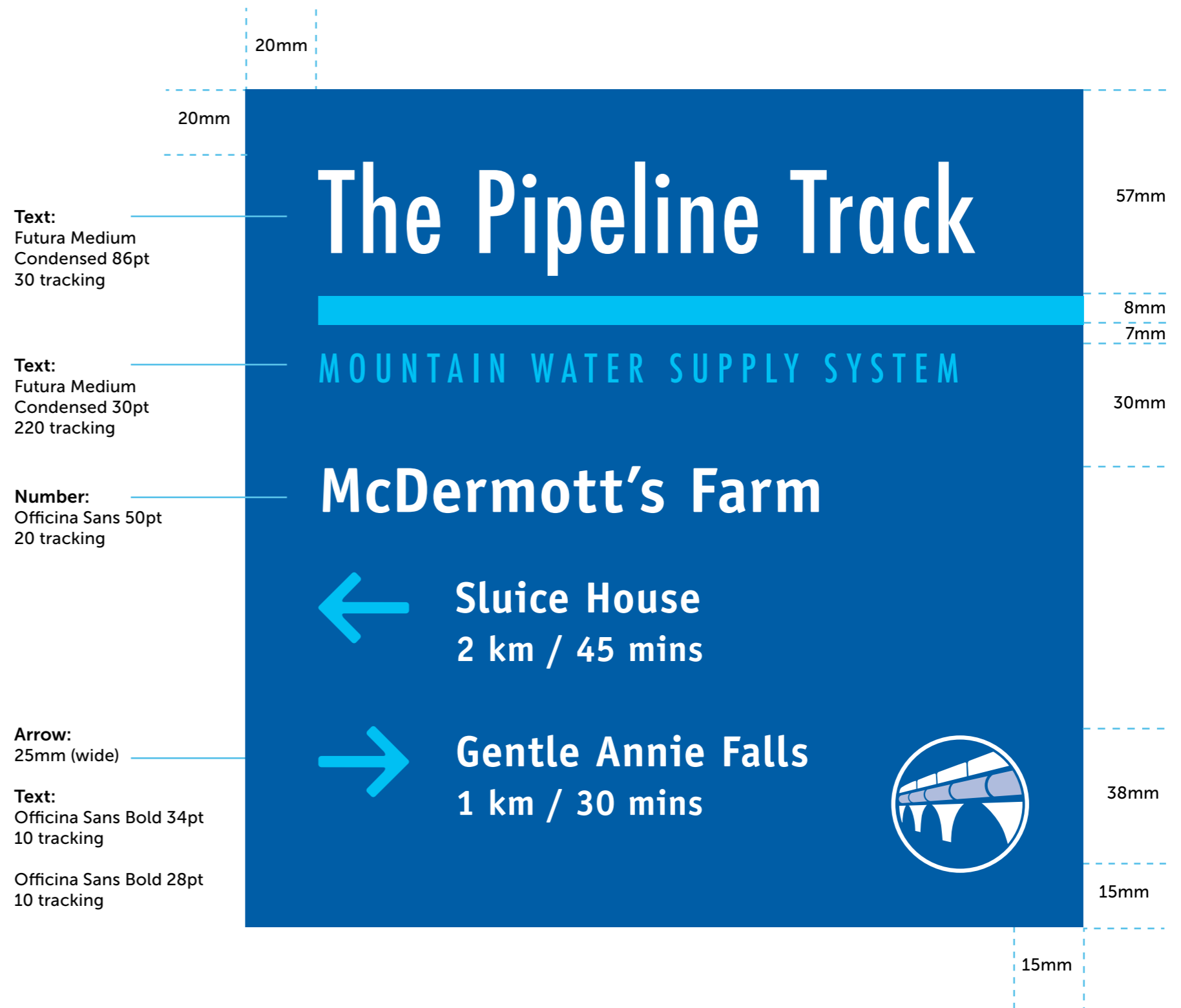
Background colour

PMS 655 C



Highlight colour

PMS 2985 C



# SIGNAGE LAYOUT SPECIFICATIONS

## WF-4: INTERPRETATIVE MARKER (TEXT)

The content and information displayed on these signs is indicative and for illustrative purposes only.

Sign dimensions: 231mm x 231mm



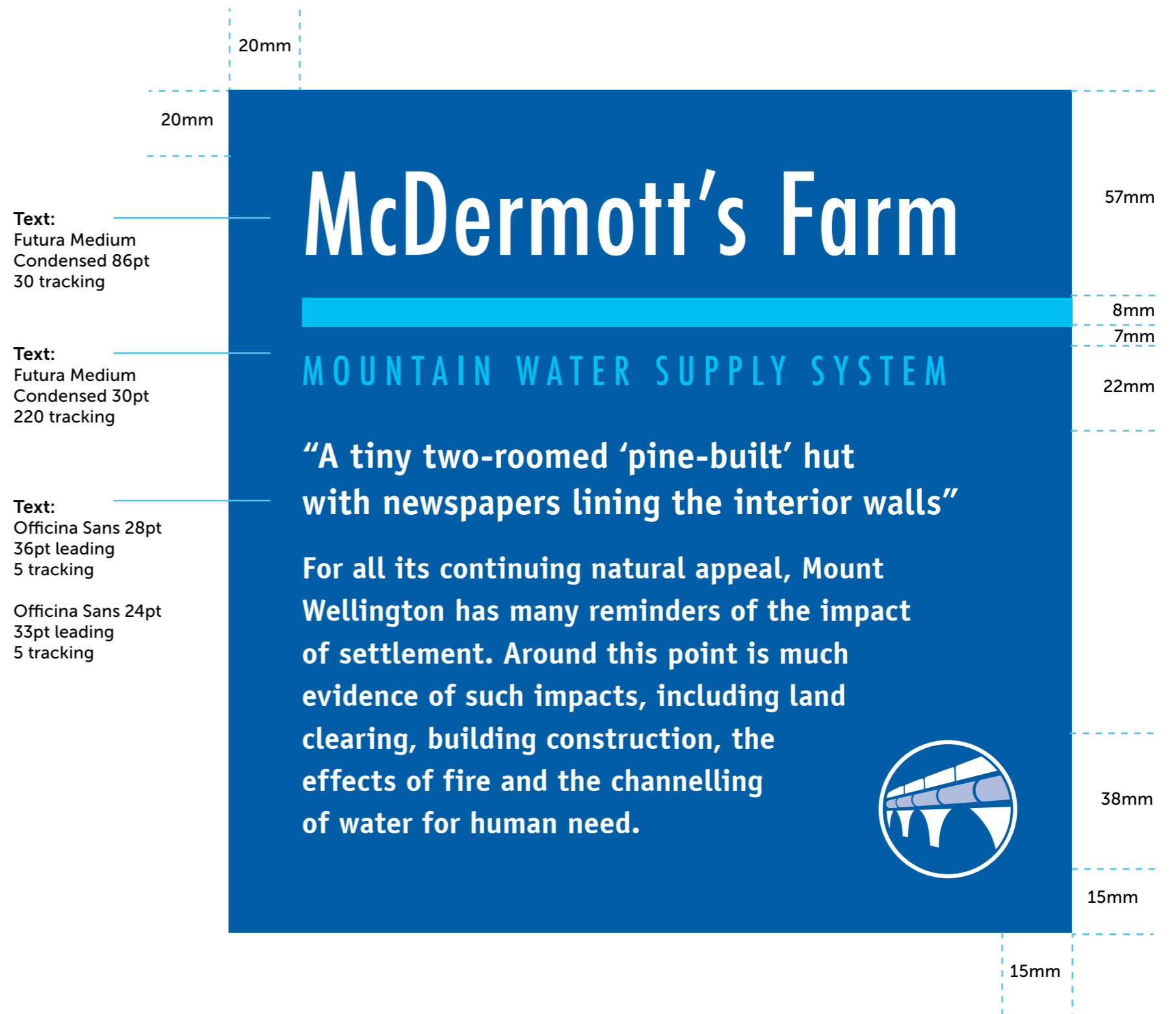
Background colour

PMS 655 C



Highlight colour

PMS 2985 C



# SIGNAGE LAYOUT SPECIFICATIONS

## WF-5: INTERPRETIVE MARKER (IMAGE)

The content and information displayed on these signs is indicative and for illustrative purposes only.

Sign dimensions: 231mm x 231mm



Background colour

PMS 655 C



Highlight colour

PMS 2985 C



Highlight colour

PMS 159 C



Highlight colour

PMS 2935 C



**Caption:**  
Officina Sans  
Bold 18pt

**Text:**  
Officina Sans Bold 24pt

**Aqueduct at Waterworks.**

**Photo: Matthew Newton**

25mm

# SIGNAGE LAYOUT SPECIFICATIONS

## WF-6: DIRECTION, ACCESSIBILITY, RESTRICTIONS AND CAUTIONS

The content and information displayed on these signs is indicative and for illustrative purposes only.

Sign Dimension: 82mm x 82mm



Background colour

PMS 655 C



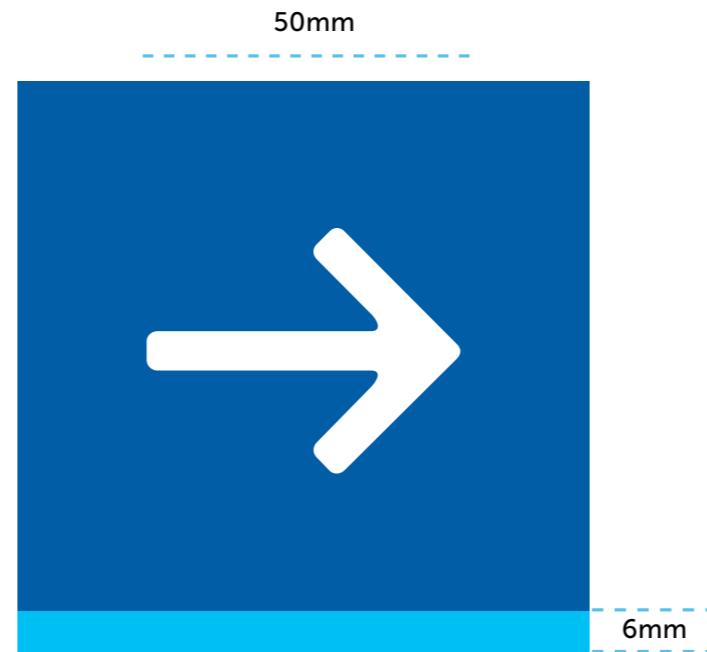
Highlight colour

PMS 2985 C



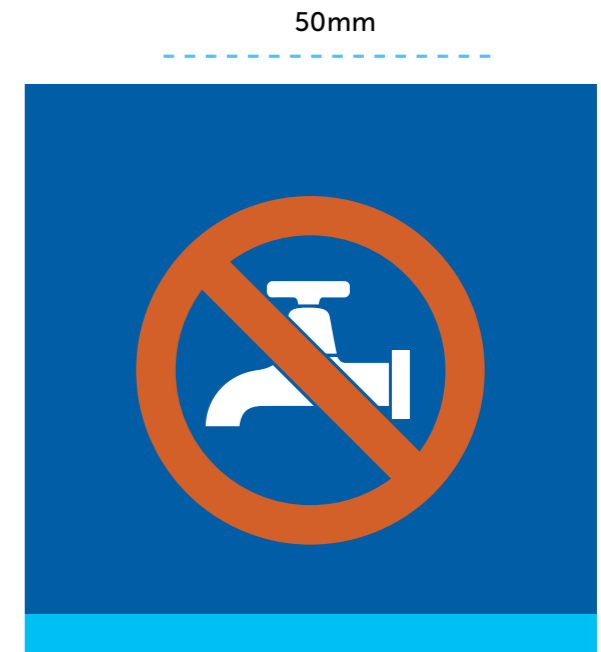
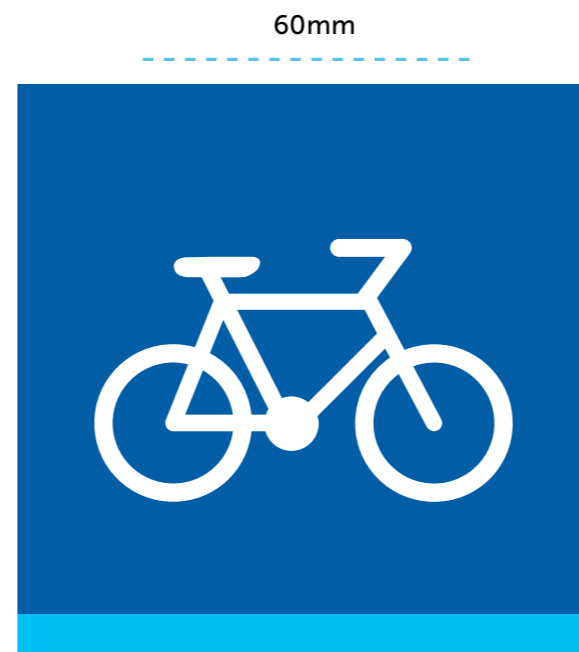
Cross colour  
(ie not drinking water)

PMS 159 C



Text:  
Officina Sans  
Bold 55pt

Text:  
Officina Sans  
Bold 70pt



# SIGNAGE LAYOUT SPECIFICATIONS

## WF-6: DIRECTION, ACCESSIBILITY, RESTRICTIONS AND CAUTIONS (CONTINUED)

The content and information displayed on these signs is indicative and for illustrative purposes only.

Sign size: 82mm x 82mm



Background colour

PMS 655 C



Highlight colour

PMS 2985 C



Cross colour (i.e. no cars)

PMS 159 C



Text:  
Officina Sans  
Bold 24pt



Text:  
Officina Sans  
Bold 55pt

Text:  
Officina Sans  
Bold 70pt



Text:  
Officina Sans  
Bold 24pt



Text:  
Officina Sans  
Bold 24pt



# SIGNAGE LAYOUT SPECIFICATIONS

SYMBOLS: DIRECTION, ACCESSIBILITY, RESTRICTIONS AND CAUTIONS



# CASE STUDY NO: 1

## TWIN BRIDGES

CS - 1

### Concept

- UB' Universal Beam, sections and angle sections reflect the engineering and use of steel within many of the catchment sites as well as the use of former tramway rails when some of the sites were established as sites for visitation and recreation. Utilitarian and reflective of the earlier Longhill Gully aqueduct in the emphasis of structural 'box-truss' form.
- Substructure is to be determined through detailed engineering assessment and design.

### Materials

- Recycled plastic handrail extrusions.
- MS plate, angle and UB structural sections
- Metal rod 16mm infills.
- Maximum gap spacings to comply with BCA/AS 1170.1.
- Local stone - where existing features need to be conserved, repaired or extended. In this case, the abutments.
- Site specific designs are required for viewing platforms and bridges. To comply with AS5100.
- This design is specific to the Twin Bridges.

### Precedent Image



Glass fibre reinforced plastic mesh



Recycled plastic handrail & mild steel components



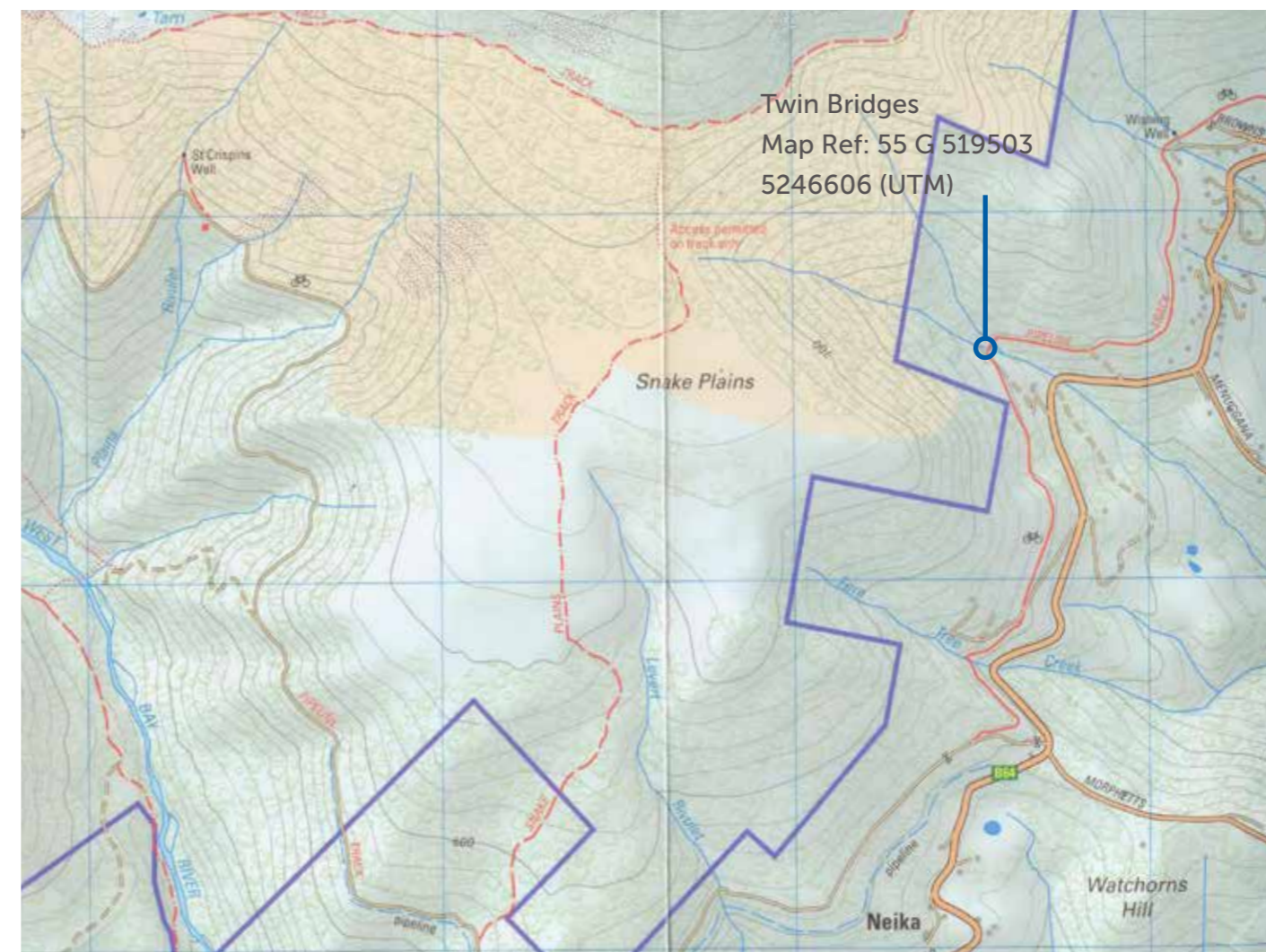
Existing Twin Bridges



'Penetrol' on natural steel



Concept Sketch of Bridge

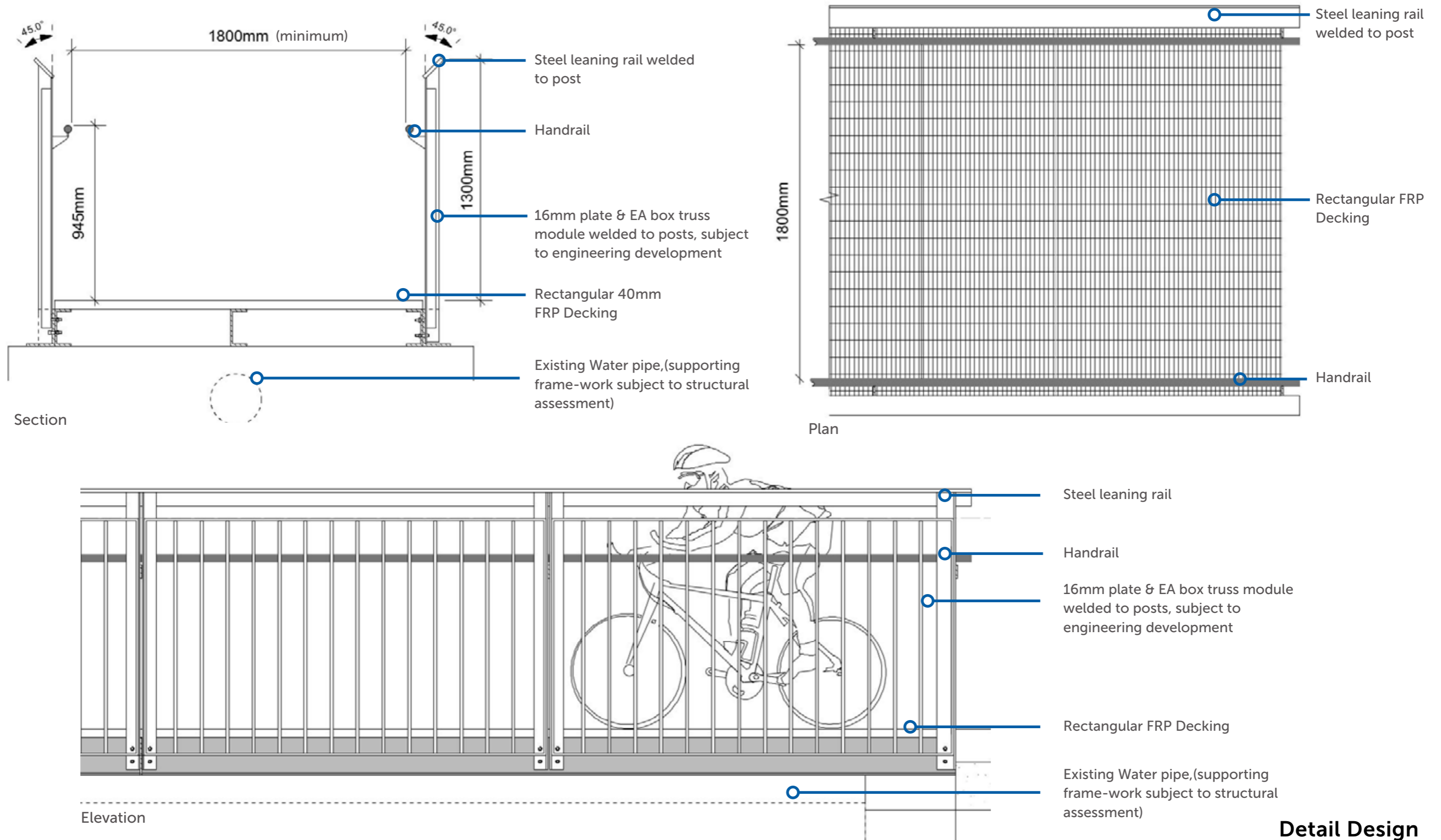


Location Plan of Twin Bridges

# CASE STUDY NO: 1

## TWIN BRIDGES

CS - 1



**Detail Design**



Picnic Resort, Fern Tree Bower, Mt. Wellington.

# PART C DESIGN GUIDELINE MATRIX

# DESIGN GUIDELINE MATRIX

## SUMMARY OF ELEMENTS

Note: All locations of signage and elements are indicative, all sites will require detailed design and heritage investigation, to locate positions of any signage and park infrastructure elements along the system. Some specific sites will require development of detailed site plan.

### SECTION 1: RECEIVING HOUSE TO HALLS SADDLE

MAP REF	LOCATION	SIGN TYPE	WAYFINDING & INTERP. SIGNAGE	LOCATION (UTM)	PARK INFRASTRUCTURE	COMMENTS
1	Receiving House (Track Start at Waterworks Reserve)	A	WF-1, WF-2, WF-4, WF5	55 G 523477 5249195		
2	Gentle Annie Falls (BOTTOM)	B	WF-3, WF-2, WF-5	55 G 523361 5249069	PI-4	
	Gentle Annie Falls (TOP)	C	WF-4, WF-2,	55 G 523309 5249017	PI-4	Existing handrail elements subject to heritage investigation
3	Mc Dermott's saddle	B	WF-4, WF-2, WF-5	55 G 523118 5248688	PI-7	Furniture to be located close to farm (not on track)
4	Halls Saddle @ SLUICE HOUSE	B	WF-4, WF-2, WF-5	55 G 521939 5248186		
4	Halls Saddle (TRACK AT ROAD INTERSECTION)					
	Lower	C	WF-3, WF-2,		PI-8	Bollard Only
	Upper	C	WF-3, WF-2,		PI-8	Bollard Only

### SECTION 2: HALLS SADDLE TO FERN TREE PARK

MAP REF	LOCATION	SIGN TYPE	WAYFINDING & INTERP. SIGNAGE	LOCATION (UTM)	PARK INFRASTRUCTURE	COMMENTS
5	The Aqueducts (over Sassafras Gully and Longhill Creek)	B	WF-4, WF-2, WF-5		PI-3, PI-4, PI-5	Section between Aqueducts and stone piers only.
6	Stone Piers for original wooden troughing over Longhill Creek	B	WF-4, WF-2, WF-5		PI-3, PI-5	
7	Fern Tree & Park area			55 G 521213 5247797		Furniture in Fern Tree Park, not Pipeline
	Lower (Fern Tree)	A,	WF-1, WF-2, WF-3 ,WF-5		PI-5, PI-7, PI-8	
	Upper (Fern Tree Park entrance)	A,	WF-1, WF-2, WF-3 ,WF-5		PI-7, PI-8	

# DESIGN GUIDELINE MATRIX

## SUMMARY OF ELEMENTS

### SECTION 3: FERN TREE PARK TO WELLINGTON FALLS

MAP REF	LOCATION	SIGN TYPE	WAYFINDING & INTERP. SIGNAGE	LOCATION (UTM)	PARK INFRASTRUCTURE	COMMENTS
8	The Fern Tree Bower	B	WF-4, WF-2, WF-5	55 G 520692 5247751	PI-2, PI-7	Furniture placement subject to development of site masterplan for Fern Tree Park
9	Silver Falls Weir	B	WF-4, WF-2, WF-5	55 G 520535 5247856	PI-1,PI-2, PI-3,PI-4, PI-7	Seat Only
	Clegg Road Crossing	D		55 G 520693 5247664	PI-8	
	Grays Road Crossing	D		55 G 520542 5247326	PI-8	
	Browns Road Crossing	D		55 G 521213 5247797	PI-8	
10	The Wishing Well	B	WF-4, WF-2, WF-5		PI-3, PI-7	
	Twin Bridges	C & D	WF-2, WF-3		PI-1	C only Neika side. D on Fern Tree side subject to Case Study design
11	Neika (@ Huon Road)	A	WF-1, WF-2, WF-3 ,WF-5	55 G 519606 5245564	PI-8	
	Neika (@ Track Junction)	C	WF-3, WF-2			
12	St Crispins Well (@ well)	B	WF-4, WF-2, WF-5		PI-7	
	St Crispins Well (@ Track Entrance )	D		55 G 517299 5247023	PI-3, PI-5, PI-7	Seat Only
	Wellington Falls (@ Track entrance)	B	WF-3, WF-2, WF-5	55 G 516449 5246676	PI-7	

# DESIGN GUIDELINE MATRIX

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## SUMMARY OF ELEMENTS

### SECTION 4: RIDGEWAY RESERVOIR

MAP REF	LOCATION	SIGN TYPE	WAYFINDING & INTERP. SIGNAGE	LOCATION (UTM)	PARK INFRASTRUCTURE	COMMENTS
	Ridgeway Reservoir (Start of Track)	B	WF-4, WF-2, WF-5	55 G 523920 5248598	PI-7	

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# DESIGN GUIDELINE MATRIX

## SUMMARY OF ELEMENTS

Park Infrastructure	Elements	Page No
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PI-3	Handrail Concept < 700mm	20
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PI-6	Gateway - Fence Low Profile	23
PI-7	Track Furniture - Seats and Tables	24-25
PI-8	Chicanes, Bicycle Barriers / @ pedestrian / road approach	26

Wayfinding & Interpretive Signage	Elements	Page No
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WF-3	Directional Marker	44
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Other Site Specific Elements	Elements	Page No
CS-1	Twin Bridges	50





Fern Tree Bower, Mt. Wellington.

## PART D MATERIALS INDEX

# MATERIALS INDEX

## KEY OF ELEMENTS

Element	Material	Supplier
Decking Surface	Slotted FRP Grating 38mm thick 25 x 100mm Heavy Duty Mesh 3660 x 1220, Gritted- colour dark grey	Grating Tasmania , Perforated and Expanded Metal Company 46 Derwent Park Road Derwent Park 7009 TASMANIA Ph:62722100 Fax:62722200
Handrail	Custom 42mm dia. extruded Recycled plastic handrail with rebate, colour dark grey, to comply with BCA/AS 1170.1.	Cosset Industries A: Unit 2, 4 Charles Street WOODSIDE SA 5244 E: nwotton@cosset.com.au W: www.cosset.com.au M: 0411600738 P: 08 83899331 F: 08 83897332
Steel Balusters	Mild Steel Structure, ('Penetrol' finish over black steel). metal rod 16mm infills, Maximum gap spacings to comply with BCA/AS 1170.1.	HCC
Steel barriers	Mild Steel Structure ('Penetrol' finish over black steel). To comply with BCA/AS 1170.1. 75 x 75 x 8mm MS posts. 50 x 10mm MS flat infill frame.	HCC
Stone Steps	Use stone from local geology factoring in availability, durability and heritage issues	HCC
Steel fencing	Steel chainlink fencing coloured Dulux Raku (PG2 C7). SHS section and/or Angle steel section posts.	ARC
Outdoor Tables and Chairs	Custom seat + table element drawing upon features on an existing HCC suite, adopted to remote/trail use. 'Penetrol' finish over black steel base. Timber top of Class 2 hardwood or approved equivalent.	HCC
Chicanes & Bollards	150mm CHS Steel, coloured with Dulux Raku (PG2 C7)	HCC

Note: Material dimensions refer - Part B Design Guidelines.

# MATERIALS INDEX

## KEY OF ELEMENTS

Element	Material	Supplier
Sign Structure A B C	Mild Steel Structure, ('Penetrol' finish over black steel) Bluescope 250 UB 248 x 124mm BLACK STEEL COATED WITH PENETROL	-
Sign Structure D	Mild Steel Structure, ('Penetrol' finish over black steel) Bluescope 100 UC 99 x 97mm BLACK STEEL COATED WITH PENETROL	-
Sign Structure Fixings A B C	M6 HEX AND POST TAMPER PROOF BUTTON HEAD BOLT	-
Sign Structure Fixings D	M6 HEX AND POST TAMPER PROOF BUTTON HEAD BOLT	-
Sign Graphic A B C	3mm ELECTRO-PLATED STEEL PANELS WRAPPED SAV GRAPHIC PRINT 2 PAC CLEAR COAT OVER 316 x 231mm FLAT PATTERN	-
Sign Graphic D	3mm ELECTRO-PLATED STEEL PANELS WRAPPED SAV GRAPHIC PRINT 2 PAC CLEAR COAT OVER 142 x 82mm FLAT PATTERN	-
Sign Graphic Fixings	2 x M6 NUTS WELDED TO RETURNS	-

Note: Material dimensions refer - Part B Design Guidelines.

## DOCUMENT PREPARED BY URBAN INITIATIVES AND ARTERIAL DESIGN

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