CESSNOCK CITY COUNCIL

SIGNAGE TECHNICAL MANUAL

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1

INTRODUCTION

INTRODUCTION 1

1.1 Scope of Manual

The intent of the Cessnock City Council Signage Technical Manual is to provide an instrument which guides the design and placement of signs within the Cessnock City Council area. The Manual aims to provide a consistent and resilient wayfinding methodology that improves both pedestrian and vehicular wayfinding throughout the Cessnock region, whilst enhancing the branding opportunities to be found for Council within the public domain.

Residents, visitors and businesses within Cessnock will benefit alike from a high quality wayfinding system. Wayfinding is an important element within the streetscape contributing to people's understanding, experience and enjoyment of their surrounding environment. Legibility within the public domain is created through the use of consistent and recognizable graphics and sign placement to create a cohesive environment.

A comprehensive suite of signs has been developed in order to identify, direct and inform both motorists and pedestrians throughout the LGA. This hierarchy of signage types has been designed with not only design values in mind but also longevity, production economies, ease of installation and maintenance requirements.

1.2 Associated Documents

This Technical Manual is to be read in conjunction with the following documentation:

- Cessnock City Council LEP 2011
- Cessnock City Council DCP 2010
- Cessnock LGA Signage Strategy
- Australian Standards; AS1742-2010, AS 1743-2001 and AS2890-2009
- SEPP 65 - State Environmental Planning Policy No. 64 - Advertising and Signage
- Transport Corridor Outdoor Advertising and Signage Guidelines, 2007
- TASAC - Tourism Attraction Signposting Assessment Committee information

1.3 Signage Principles

High quality wayfinding both provides information about facilities and guides people to their destination. Whilst well designed signage interventions can have a positive effect on the environment, the inverse is also true of poorly executed signage. A comprehensive and robust wayfinding system is built upon clarity, legibility and consistency to assist both residents and visitors alike in navigating the built environment around them.

The key principles used to achieve these outcomes for Cessnock LGA are:

- **Hierarchy;** a systematic and sequential methodology for guiding people into and around the region, both at the pedestrian and vehicular scale;
- **Legibility;** signage must be recognizable as part of an identifiable system, and be used to reiterate the overall identity of the Cessnock LGA;
- **Context;** signage should positively contribute to the visual character of the surrounding area as well as drawing inspiration from the surrounding landscape, people and history; and
- **Content;** fonts, graphics and messages used on signs must be clear, accurate and easily understood from both a moving vehicle and on foot. Information should be at an appropriate scale as well as in Braille and tactile format at the pedestrian scale to enable access by all users.

PART

2

SIGNAGE

POLICY AND PRINCIPLES 2

2.1 Ownership

Designs and signage are under copyright and are owned by Cessnock City Council, the contents cannot be reproduced without permission from Cessnock City Council.

2.2 Signage Types

There are two signage suites:
1. Cessnock City Council Local Government Area (LGA) and
2. Hunter Valley Wine Country (shared with Singleton Council).

2.2.1 The Cessnock City Council LGA signage system is comprised of the following 7 signage types:

1. **Gateway Entry Signs**
   Signs that welcome the motorist to Cessnock LGA at key access points for tourists and local residents.
   Signs are designated GE1 and GE3.
2. **Suburb Entry Signs**
   Signs that welcome the motorist to a suburb within the LGA.
   Signs are designated SE1.
3. **Community Facility Entry Signs**
   Signs that welcome the pedestrian and motorist to a significant facility or location.
   Signs are designated CE1.
4. **Community Facility Information Signs**
   Signs that offer the pedestrian and motorist more detailed information about the access to local facilities and their proximity to other facilities, including key information in Braille.
   Signs are designated CF1.
5. **Street Sign**
   Signs used to indicate street names. Variations allow for the location of key community facilities and attractions, including pictograms and names.
   Signs are designated SS.
6. **Town Centre Information Signs**
   Town centre signs are to be used in civic centres to provide map information with a pedestrian focus, to locate facilities such as public toilets and parks. Key information to be included in Braille. Additionally they have provision for the inclusion of pictograms and directional markers to key points of interest.
   Signs are designated TI1 and TI2.
7. **Walkway/Cycleway Signs**
   These signs are to be used for lower-speed, closer proximity viewing, and give directional information for pedestrians and cyclists, highlighting key facilities and attractions at key decision making points.
   Signs are designated WC1.

2.2.2 The Hunter Valley Wine Country signage system is shared with the Singleton Council and is comprised of the following 4 signage types;

1. **Gateway Entry Signs**
   Signs that welcome the motorist to the Hunter Valley Wine Country at key access points for tourists and local residents.
   Signs are designated GE1, GE2 and GE3
2. **Precinct Signs**
   Signs that welcome the motorist to a precinct within the Hunter Valley Wine Country. Signs are designated PS1.
3. **Street Sign**
   Signs used to indicate street names. Variations allow for the location of key community facilities and attractions, including pictograms and names.
   Signs are designated SS.
4. **Destination Marker**
   Signs are designated DM1.

2.3 Design Standards

All signage design and installation to meet legislative requirements current at the time of documentation/construction.

Relevant design standards include, but are not limited to:

- Disability Design Guidelines AS1428
- Road Sign Specifications AS1743
- Parking Facilities AS2890-2009
- SEPP 64 - State Environment Planning Policy No. 64

2.4 Sign Proliferation

In general signage should be kept to the minimum required to safely and effectively communicate information to the public and fulfil all current legislative requirements.

2.5 Locating Signs

All signs are to be located in accordance with all relevant legislation including, but not limited to, the associated documentation listed in Section 1.2.

Redundant Signage
Signs with out dated or redundant content shall be documented for removal. Examples of these signs may include; out dated map information, references to facilities that no longer exist, temporary signage that has not been removed or unauthorised commercial signage.

Consolidation of Signage
Repetition of signage is not only unnecessary but also reduces the legibility of the signage suite as a whole. Some existing signs may be incorporated into new sign installations in an effort to reduce clutter within the streetscape and provide homogeneous signage throughout the Cessnock City Council LGA.

Street Furniture
The relationship between street furniture and signage is key for the success of both. Signage should be placed ensuring that generous circulation space is maintained around street furniture and that key signage elements, such as maps or timetables, are not obscured.

Signs by Others
Other signage guidelines may be in effect under the jurisdiction of other agencies, such as RMS or Transport NSW. The placement of all new signs is to take these existing or proposed signage elements into account and ensure that information is not unnecessarily duplicated. New signs are to be placed in a manner that prevents these signage elements from being obscured.

Signage Placement
Generally new signs should be placed in accordance with the recommendations of AS1428.2 and SEPP 64 - Policy no. 64.

2.6 Sign Messages

The content of new signs should be both easy to read and interpret as well as being legible at an appropriate distance for the target audience. The fonts, graphics and messages selected must demonstrate all of the relevant information concisely. Important information, such as directions or place names, is to be included in Braille and tactile format to ensure access for all members of the community.

Typeface
Selected fonts can be viewed in section 2.12 Fonts. Messages are to be written in lower case, with the exception of some main headings, which are to be in all upper case. Refer to section 4 for graphic designs.

Destination Order
Destinations are to be ordered based on their proximity to the sign rather than in alphabetical order. The closest destination is to be displayed at the top of the listed information with the farthest destination to be placed at the bottom.

Nomenclature
The naming of places and facilities is to be consistent across all signs.

Accessibility
The Building Code of Australia and the Disability Discrimination Act (1992) regulate the access and wayfinding needs of people with disabilities. Under the Disability Discrimination Act (1992) Council has an obligation to provide appropriate wayfinding formats for people with disabilities. Heights for critical information designed to be viewed by pedestrians shall comply with the recommendations AS1428.1.

2.7 Sign Register

The Sign Register is to be an active document maintained and updated by Council. The Sign Register is to be used in conjunction with the Sign Audit Register.
Refer Appendix B.

2.8 Advertising

The installation of advertising within, or visible from a transport corridor is prohibited, unless compliant with the requirements of SEPP 64.

2.9 Maintenance

The signage family detailed within this manual has been designed to minimise the need for ongoing maintenance. Periodically maintenance procedures will still be required, as listed below. Refer Appendix A for templates.

Audit System
Create and maintain a GIS register of all new signage, LGA-wide. Information recorded is to include the sign's location, type and installation date. The signs on this register are to be checked for damage, vandalism or removal no less than once per year.

Updating Signage Information
The information provided on tourist maps and directories is to be updated periodically to reflect changes in the captured information. It is recommended that maps and directories be checked bi-annually for currency, and amended accordingly.

Replacement Signage
Where signs are vandalised, removed or damaged they should be replaced promptly.

Safety
Where any damage poses a threat to the public it is to be removed immediately and reinstated as soon as practically possible.

2.10 Sign Graphics

Signage graphics should be consistent and easily legible to maximise usefulness and ensure that motorists are not unduly distracted from the road. Both pedestrian and vehicular signage are to use the same sign graphics, to RMS standards, and as shown below.

RMS TOURIST INFORMATION PICTOGRAMS

STANDARD TOURIST INFORMATION PICTOGRAMS

CUSTOM HUNTER VALLEY WINE COUNTRY PICTOGRAMS

(1): Example pictograms. All RMS and Standard Tourist Information pictograms are to be located and installed as per AS 1742.6 Tourist and Service Signs.

2.11 Sign Colours - Cessnock City Council

The chosen standard colours for the signage family are as follows:

Blue: CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Usage

- Background to SE1, CE1, CF1, TC1, TC2 and SS.

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

Usage

- Background to GE1, GE3, SE1, CE1, CF1, TC1, TC2, W1 and SS.
- Lettering to GE1, GE2, GE3

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Usage

- Lettering and background to SE1, CE1, CF1, TC1, TC2, W1 and SS.

Steel panel. Paint finish colour: Pantone 5777CP
Usage

- GE1, GE3

Steel panel. Paint finish colour: Pantone 7486CP
Usage

- GE1, GE3

Please note that colours provided herein are a guide only. Pantone Matching System (PMS) codes are to be used rather than visual colour matching.

2.12 Sign Colours - Hunter Valley Wine Country

The chosen standard colours for the signage family are as follows:

Sign background and steel column: Colorbond Monument

Usage

- GE2, DM1, PS1 and all S-series street signs.

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Usage

- Lettering and background to SE1, CE1, CF1, TC1, TC2, W1 and SS.

Bench slats
Modwood Sahara
(brushed finish) GE2, PS1

Please note that colours provided herein are a guide only. Pantone Matching System (PMS) codes are to be used rather than visual colour matching.

Precinct signage colour as follows:

Broke Fordwich
C:80 M:20 Y:100 K:7

Parish of Pokolbin
C:66 M:0 Y:11 K:0

RGB - 89, 186, 204

Lovedale
C:100 M:88 Y:9 K:1

RGB - 65, 59, 118

Mount View
C:31 M:1 Y:100 K:0

RGB - 185, 205, 51

Branxton Greta
C:2 M:66 Y:99 K:0

Wollombi Valley
C:26 M:100 Y:100 K:19

RGB - 149, 49, 42

Kurri Kurri
C:80 M:100 Y:3 K:0

Around Hermitage
C:0 M:100 Y:96 K:0

RGB - 229, 50, 47

Central Pokolbin
C:2 M:8 Y:99 K:0

RGB - 251, 223, 33

Please note that colours provided herein are a guide only. Pantone Matching System (PMS) codes are to be used rather than visual colour matching.

2.13 Sign Fonts - Cessnock City Council

The selected fonts have been chosen for legibility, design value and consistency across the Cessnock LGA.

Main heading: “Cessnock” on GE1, GE3 signs:

ARIAL BLACK

Sub text: “Welcome to”on GE1, GE3 signs:

Palatino Italic Bold

Main headings such as suburbs for CE1, CF1, TC1, TC2:

Arial

‘CITY OF CESSNOCK’ for GE1, GE3, CE1, CF1, TC1 & TC2:

ARIAL BLACK

Community Facility Entry Heading for CE1:

ARIAL BLACK

Sub headings and body text:

Arial

2.14 Sign Fonts - Hunter Valley Wine Country

The selected fonts have been chosen for legibility, design value and consistency across the Hunter Valley Wine Country.

Main headings such as precinct names for GE2 and PS1:

Arial

Main headings, such as “Hunter Valley” on GE2 signs:

CENTURY GOTHIC

Main headings, such as “Hunter Valley” on PS1 signs:

ARIAL BOLD

Main headings, such as “Wine Country” on GE2 signs:

Didot LT Std Bold Italic (Modified)

All other text including sub headings and information:

Arial

2.15 Lighting

Lighting herein refers to artificial illumination of a sign, signage element or a sign's associated area. Design and assessment of illuminated signs should refer to SEPP 64, and the associated document *Transport Corridor Outdoor Advertising and Signage Guidelines* (2007).

TABLE 4: MAXIMUM ALLOWABLE DAYTIME LUMINANCE OF ILLUMINATED ADVERTISEMENTS

***Illuminated Area* (sq m)**	***Zone 1***	***Zone 2* (cd/sq m)**	***Zone 3* (cd/sq m)**	***Zone 4* (cd/sq m)**	***Zone 5***
up to 0.5	no limit	2900	2000	1000	no limit
0.5 to 2.0		2300	1600	800	
2.0 to 5.0		2000	1200	600	
5.0 to 10.0		1500	1000	600	
over 10.0		1200	800	400	

Luminance means the objective brightness of a surface as measured by a photometer, expressed in candelas per square meter.

Zone 1 covers areas with generally very high off-street ambient lighting, e.g. display centres similar to Kings Cross, central city locations

Zone 2 covers areas with generally high off-street ambient lighting eg. some major shopping/commercial centres with a significant number of off-street illuminated advertising devices and lights.

Zone 3 covers areas with generally medium off-street ambient lighting e.g. small to medium shopping/ commercial centres.

Zone 4 covers areas with generally low levels of off-street ambient lighting e.g. most rural areas, many residential areas.

Zone 5 covers areas within underground railway stations and areas fully contained within station buildings which are visible only from within the Rail Corridor.

(2): Maximum Allowable Daytime Luminance (NSW Department of Planning, 2007).

2.16 Sign Materials and Finishes

Further information regarding materials and finishes cane be found within Specifications for each sign type. The chosen standard materials and finishes for the signage family are as follows;

COLOURED CONCRETE
- Coloured concrete - CCS Honeycomb

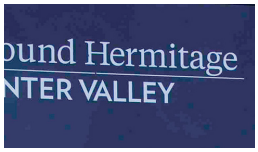
RAMMED EARTH

GALVANISED CIRCULAR HOLLOW SECTION (CHS)
- 50mm Galvanised. 2.9mm wall

STREET SIGN BLADES
- Digital printed Durst 3M UV ink

STAINLESS STEEL LETTERING

VINYL SIGNAGE



ALUMINIUM STEEL PANELS
- Painted

MILD STEEL PANELS
- Painted

200MM MILD STEEL UNIVERSAL BEAM
- Painted

HARDWOOD TIMBER

MODWOOD
- Sahara (brushed finish)

2.17 Anti-Graffiti

Anti-graffiti to be considered during fabrication and installation and to be confirmed by Cessnock City Council.

2.18 Engineering Certification

Construction certification to be supplied by contractor prior to fabrication and installation.

2.19 Safety

Safety is a key component of any part of the public domain. Many factors influence the safe installation and use of signs within the landscape. All legislative requirements relating to the site and works to be completed shall be observed.

Prior to installation of new signs;

- Ensure that all staff members are made aware of any potential dangers or risks.
- Provide staff with all relevant MSDS and SWMS prior to commencement of works.
- Review location and ability to consolidate signage to reduce streetscape clutter.

PART

3

SELECTION

SIGN SELECTION 3

3.1 Steps in Selecting and Obtaining Signs

Due to funding constraints it may not be possible to install the entire family of signs simultaneously. Prioritising installation with an implementation program for installing the signs is highly recommended. The following table provides a recommended guideline for the creation of this implementation programme.

HIGH PRIORITY
Indicates signage which is important for effective wayfinding and should be installed as quickly as possible. High priority should be given to signs which enhance the sense of arrival in Cessnock LGA and improve safety within the LGA.

MEDIUM PRIORITY
Signage that may be installed after high priority works have been completed or as replacement signs are installed on an as-needed basis. Medium priority should be given to upgrading street signs and improving pedestrian wayfinding in town centres.

LOWER PRIORITY
May be undertaken after the completion of medium priority works or on an as-needed basis. To get a proper idea about how the signs will look and function it is recommended that full size prototypes be developed where possible.

Signage Priority Hierarchy

Sign Type	Low Priority	Medium Priority	High Priority
GE1			
SE1			
TI1, TI2			
SS1, SS2, SS3, SS4			
CE1			
CI1			
WC1			

(3): Signage Priority Hierarchy

PART

4

SIGNAGE SPECIFICATION

4.1 Signage Specification

1.0 STEEL
General: Provide and select, if no selection is given, transport, deliver, store, handle, protect, finish, adjust and prepare for use the manufactured items in accordance with the current written recommendations and instructions of the manufacturer or supplier

1.1 Durability
General: Provide steel products protected from corrosion to suit the conditions of use.

1.2 Corrosion resistance
General: Conform to the following atmospheric corrosivity category as defined in AS/NZS 2312.

1.3 Protective coatings
Environment: To AS/NZS 2312 clause 2.3.
Coating designation: To AS/NZS 2312.

Fasteners
Self drilling screws
Corrosion resistance: To AS 3566.2

Vapour barrier
Vapour barrier to slabs: To AS 2870 clause 5.3.3.
Minimum thickness: 0.2 mm.

1.4 Stainless steel
Bars: To ASTM A276/A276M.
Plate, sheet and strip: To ASTM A240/A240M.
Welded pipe (plumbing applications): To AS 1769.
Welded pipe (round, square, rectangular): To ASTM A554.

1.5 Steel
Sheet: To AS/NZS 1595.
Structural bars and sections: To AS/NZS 3679.1.
Structural hollow sections: To AS/NZS 1163.

1.6 Steel for pre-finishes
Cold rolled bar: To AS 1443 - Bright.
Cold rolled sheet: To AS/NZS 1595.
Designation: CA2S-E.
Electric resistance welded tube: To AS 1450.

1.7 Metal separation
Incompatible sheet metals: Prevent direct contact between incompatible metals. Provide separation by one of the following:

- Apply an anti-corrosion low moisture transmission coating such as alkyd zinc phosphate primer or aluminium pigmented bituminous paint to contact surfaces.
- Insert a concealed, non-metallic separation layer such as polyethylene film, adhesive tape, neoprene, nylon or bituminous felt.

Incompatible fixings: Do not use.
Incompatible service pipes: Install lagging or grommets. Do not use absorbent, fibrous or paper products.

1.8 Brazing
General: Make sure brazed joints have sufficient lap to provide a mechanically sound joint.
Butt joints: Do not use butt jointing for joints subject to load. If butt joints are used, do not rely on the filler metal fillet only.
Filler metal: To AS/NZS 1167.1.

1.9 Finishing
Visible joints: Finish visible joints made by welding, brazing or soldering using methods appropriate to the class of work (including grinding or buffing) before further treatment such as painting, galvanizing or electroplating. Make sure self-finished metals are without surface colour variations after jointing.

1.10 Preparation
General: Before applying decorative or protective pre-finishes to metal components, complete welding, cutting, drilling and other fabrication, and prepare the surface using a suitable method.
Standard: To AS 1627 series.
Priming steel surfaces: If site painting is documented to otherwise uncoated mild steel or similar surfaces, prime as follows:

- After fabrication and before delivery to the works.
- After installation, repair damaged priming and complete the coverage to un-primed surfaces.

1.11 Welding
Aluminium: To AS 1665.
Stainless steel: To AS/NZS 1554.6.
Steel: To AS/NZS 1554.1.

1.12 Stainless Steel Finishes
Requirement: Provide a surface finish to match the approved sample.
Pre-assembly: Mechanically polished and brushed finishes: Apply grit faced belts or fibre brushes that achieve uni-directional finishes with buffing.

Post-assembly pre-treatment:
Heat discolouration: Remove by pickling.
Welds: Grind excess material, brush, and polish to match the pre-assembly finish.

Post-assembly finish:
Brushed electro polish finish: Conform to the following:

- Pre-assembly finish: No. 4 brushed finish.
- Post-assembly finish: Provide an electro-chemical processed finish to achieve a No. 7 to No. 8 brushed finish.

4.1 - Signage Specification

Completion:
Cleaning: Clean and rinse to an acid free condition and allow to dry. Do not use carbon steel abrasives or materials containing chloride.
Protection: Secure packaging or strippable plastic sheet.

Anodising:
Standard: To AS 1231.
Thickness grade: To AS 1231 Table H1.

1.13 Mild Steel Lettering
General: Locate as per details.
Type: 6mm thick mild steel.
Fixing: 5-6mm threaded rod. Finished lettering is to be set level and plumb, protruding 25mm from finished concrete surface. Ensure all finishing of rammed earth wall is completed prior to installation.
Finish: paint (refer section 3.0). Colour as per drawings.

1.14 Stainless Steel Lettering
General: Locate as per details.
Type: 6mm stainless steel lettering.
Fixing: 8mm threaded rod. 50mm stand off.
Finish: brushed.

1.15 Steel Plate
General: Locate as per details.
Type: 3mm mild steel. 400mm high x 1000mm depth.
Fixing: set into wall.
Finish: paint (refer section 3.0). Colour as per drawings.

1.16 Mild Steel Panel
General: Locate as per details.
Type: 6mm mild steel rolled and laser cut.
Fixing: As per engineers detail.
Finish: Paint colour PMS 7484 C.

1.17 Mild Steel Panel
General: Locate as per details.
Type: 6mm stainless steel rolled and laser cut.
Fixing: As per engineers detail.
Finish: paint (refer section 3.0). Colour as per drawings.

1.18 Mild Steel Universal Beam
General: Locate as per details.
Type: 200mm mild steel UB22
Fixing: Base plate as per engineers drawings
Finish: paint (refer section 3.0). Colour as per drawings.

1.19 Mild Steel Plate
General: Locate as per details.
Type: 10mm mild steel plate
Fixing: Weld to UB
Finish: paint (refer section 3.0). Colour as per drawings.

1.20 Aluminium and aluminium alloys
Drawn pipe: To AS/NZS 1867.
Drawn rod, bar and strip: To AS/NZS 1865.
Extrusions: To AS/NZS 1866.
Plate and sheets: To AS/NZS 1734.

1.21 Coated steel
Electro-galvanised (zinc) coating on ferrous hollow and open sections: To AS 4750.
Metallic-coated: Steel coated with zinc or aluminium-zinc alloy as follows:
- Ferrous open sections by an in-line process: To AS/NZS 4791.
- Ferrous hollow sections by a continuous or specialised process: To AS/NZS 4792.
- Metallic-coated steel sheet: To AS 1397. Metal thickness specified are base metal thickness.

Steel wire: To AS/NZS 4534.

1.22 Electroplated coatings
Chromium on metals: To AS 1192.
- Service condition number: At least 2.

Nickel on metals: To AS 1192.
- Service condition number: At least 2.

Zinc on iron or steel: To AS 1789.

1.23 Aluminium Steel Panels to form 'Box / Cladding'
General: Locate as per details.
Type: 6mm thick aluminium panels
Fixing: To be confirmed by shop drawings. Ensure all finishing of concrete wall is completed prior to installation.
Finish: paint (refer section 3.0). Colour as per drawings.

1.24 Aluminium Steel Panels (fixed to concrete)
General: Locate as per details.
Type: 6mm thick aluminium panels
Fixing: 6-8mm threaded rod with 25mm stand off. Ensure all finishing of concrete wall is completed prior to installation.
Finish: paint (refer section 3.0). Colour as per drawings.

1.25 Galvanised SHS frame
General: Locate as per details.
Type: 50mm x 5mm galvanised SHS fully welded frame
Fixing: 10mm baseplate. Fix into M16 ferrule central. Ensure all finishing of concrete wall is completed prior to installation.
Finish: galvanised

1.26 Aluminium Steel Panels (fixed to timber)
General: Locate as per details.
Type: 2mm thick aluminium panels.

2.0 MONOLITHIC STABILISED EARTH WALLING
2.1 General
Provide monolithic stabilised earth walling that continues to perform satisfactorily for its design life of 50 years.

2.2 Samples
Provide 2 samples one month before commencing works on site for designers approval.
Soil shall have sandstone and limestone blend.
Crushed Building Rubble Ex nominated quarry to suppliers standard.
Cement Content by volume shall be no less than 7%.
Proportion to be determined by Mix design and strength evaluation test.
Rammed Earth Wall to be sealed by approved stabilised earth wall water repellent.

2.3 Inspection
Give notice so that inspection may be made of the following:
- Sampling for field testing.
- Field testing.
- Damp-proof courses, in place.
- Termite protection measures in place.
- Forms in place.
- Commencement of rammed stabilised earth placing.
- Embedded pipes and conduits in position.
- Built-in items in place.
- Control joints, ready for joint filler.

2.4 Tests
Soil tests:
Particle size distribution: To AS 1289.3.6.1.
Mix design and strength evaluation tests.
Components: Submit details of components and mix design to achieve density and strength criteria.
Dry density/moisture content relation:
- Test report: Include the following additional material:
- Cement content by weight.
- Elapsed time between addition of cement and compaction.
- Date moulded.

Unconfined compressive strength: Prepare, test, evaluate and report in conformance with SAA HB 195.
Stabilised earth density test.
Method: To SAA HB 195.

2.5 Soil particle sizes
Clay: < 0.002 mm.
Silt: < 0.06 mm.
Sand: 0.06 – 2.0 mm.
Coarse aggregate:
- Gravel: 2.0 – 75 mm, ≤ 5% retained on a 37.5 mm sieve.
- Limestone: 19 mm.
- Sandstone: 19 mm.

2.6 Soil particle size distribution
Organic content: < 2%.
Clay and silt content: < 20%.
Sand content: ≥ 50%.
Coarse aggregate content: > 30%.
Water: Requirement: Clean, fresh, free from impurities.
Fixing: Finish: Paint colour.

2.7 Stabilising agent
Type: Cement.
Standard: To AS 3972.
Grade: GP.

2.8 Stabilised earth mix
Cement content (range): 6 – 10% by weight.
- Value: Determine using the Mix design and strength evaluation test.

Mix Design: 75% 7-10mm crushed Rhyolite
25% 7mm - crushed Rhyolite dust both sourced from Cessnock Landscape Supplies.
10% Off-white cement by weight.

Properties at placement:
- Characteristic adjusted compressive strength (minimum): 2.5 MPa.
- Moisture content (range): 8 – 16% by weight.

2.9 Damp-proof courses
Standard: To AS/NZS 2904.
Material: Polythene sheeting.

2.10 Structural fixings
Type: Chemical anchors.

2.11 Control joint infill
Material: 25 x 25 mm UV stable acrylic adhesive impregnated poly foam strip.
Steel components, including reinforcement.
Durability classification to AS 3700 (minimum): R2.
Reinforcement: Bar: To AS/NZS 4671.
Machine-welded mesh: To AS/NZS 4671.

2.12 Temporary formwork
Performance: Sufficiently robust to withstand the pressure of the compacted soil and to allow stripping without disturbance or adhesion.
Standard: To AS 3610.1.
Class: 3.
General: True and free from bulging in the wall surface.

2.13 Reinforcement
Refer to engineers drawings relevant to each sign.

3.0 CONCRETE
3.1 Concrete wall
General: Cast concrete wall.
Standard: Class 3 as per AS3610.
Colour to wall: CCS Honeycomb
Exposure: To AS3600 Table 4.3.
Aggregate: 8-10mm quartz aggregate.
Cement: natural grey portland.
Finish: 16mm custom orb off-form finish to Class 3 as per AS3610 and timber ply.
Refer to engineers specification for structural details and specification.

4.0 VINYL SIGNAGE
Graphic set-out to be providex by Cessnock City Council.

All vinyl signage to be Eclipse 21 Series Self-Adhesive Polymeric Inkjet Vinyl. Vinyl to be 3mm thick with a UV stabilized over laminate in matte finish.
Solid colours are to be in Pantone colours and other imagery CMYK format.
To be installed in accordance with manufacturer's specifications.

5.0 TIMBER
5.1 Durability
Requirement: Provide timbers with natural durability appropriate to the conditions of use, or preservative-treated timber of equivalent durability.
Natural durability class: To AS 5604.
Obtain durability: By chemical impregnation, natural durability or both.
Timber quality: Free of core wood (material within 50 mm of the tree's centre) and free of splits, checks, loose knots and cavities. Free of sapwood (lighter coloured wood found on the outer layer of the tree).
Lyctid susceptible timbers: Do not provide untreated timbers containing Lyctid susceptible sapwood.
Naturally termite-resistant timbers: To AS 3660.1 Appendix C.

5.2 Moisture content
Moisture content: Structural and seasoned timbers shall have a moisture content of not less than 10% and not more than 15%.
Test: Methods as follows:
- Timber: To AS/NZS 1080.1.

Protection: Protect timber and timber products stored on site from moisture and weather. For milled, pre-finished, prefabricated and similar elements which are to be protected in the final structure, provide temporary weather protection until the permanent covering is in place.

5.3 Selection
Type: Hardwood timber infill panel
Class: Class 1 Timber
Size: 182mm x 38mm
Finish: To be free of all splinters and loose materials. Sanded to a minimum of 120 grit. Lanotec "Timber Sealer" applied as per manufacturers specification.
Fixings: Countersunk screw fixings.
Certification: Provide evidence to the relevant parts of the AS 4685 series.

6.0 PAINTING
6.1 Products
Storage and handling:
Requirement: Handle, store, mix and apply all protective coatings in conformance with the manufacturer's recommendations.
Original containers: Deliver coating products to site in manufacturer's labelled and sealed containers.
Ambient temperature range for storage: 3°C to 30°C, or to manufacturer's recommendations.
Sunlight: Protect coating materials from direct sunlight before mixing or adding the converter (catalyst).

Use-by-date: Use products with limited shelf life before their use-by-date, unless written authorisation from the coating manufacturer's technical services section is provided.

Paint material:
Requirement: To AS/NZS 5131 clause 9.9.3.

Proprietary products:
Requirement: Provide all products from the one manufacturer's supply.
Product data sheets (PDS): Keep on site copies of all relevant manufacturer's PDS.
Safety data sheets (SDS): Keep on site copies of all relevant manufacturer's SDS.
Recording: To AS/NZS 5131 clause 9.9.5.

6.2 Surface Preparation
General: To AS/NZS 5131 Section 9 and the recommendations of AS/NZS 2312.1.

Treatment of welds:
Requirement: Clean welds to remove roughness, using power tools to AS 1627.2. Remove filings by vacuum or compressed air.
Temporary welds: Grind flush any temporary welds.
Porous, skip or stitch welds: Not permitted.
Site welding: If possible, avoid site welding. If on site welding is required, prepare and treat the weld to AS/NZS 5131 clause 9.12.2.

Shop priming:
Requirement: Dust off and apply a coat of primer in conformance with the manufacturer's recommendations.

Site coating:
General: High pressure wash down all surfaces with clean water. Lightly sand down primer/ intermediate coats, which have been shop applied, before site application of next coat.

6.3 Preparation assessment
General: Assess all surfaces of each steel member for conformance with the documented preparation requirements.
Abrasive blast cleaning: To AS 1627.4 and AS 1627.9.
Mechanical cleaning: To AS 1627.9.
Surface profile: To AS 3894.5 Method A.
Surface dust from abrasion: To AS 3894.6 Method C.
Chloride level testing: Test: To AS 3894.6 Method A.
Maximum allowable chloride levels: 50 mg/m2 for critical applications (heavy condensation, fresh water ponding or immersion) or to manufacturer's recommendations.
Conformance: If the maximum allowable chloride is exceeded, rewash the affected surface area until the chloride level is within the acceptable limits using clean water or chloride neutralising solutions. Jet-washing or steam cleaning is also acceptable before re-testing and re-abrasive blasting.
Timing of testing: Early in the blasting work so that removal procedures can be started before the blasting is completed.

6.4 Mixing
General: To AS/NZS 5131 clause 9.9.6.
Powered agitators: Mix package sizes larger than 4 litres using powered agitators driven by air motors.
Multi-component coatings: Combine as whole pack units before application.
Thinners: If addition of thinners is proposed, conform to the coating manufacturer's recommendations for the documented product.
Colour consistency: If colour consistency is required, pre-mix tinted products, before the addition of the curing agent or converter and before coating application.

6.5 Coating Application
General: Conform to AS/NZS 5131 clause 9.9 and the PDS.
Painting and coating colour: Verify all project finish colours with the retained samples.

Final surface preparation or coating application:
Limits: If the environmental/climatic/substrate conditions listed in AS/NZS 5131 clause 9.9.10 and the following are present do not apply coating:
- Ambient air temperature below 5°C or above 40°C.
- Substrate temperature below 5°C or above 35°C.
- Full prime coat application cannot be carried out before the specified cleanliness of the surface deteriorates.
- Surface preparation standard has not been achieved.
- Time between final surface preparation and the commencement of coating has exceed 4 hours.
- Visual tarnishing or black spots develop on the surface of the steel.

Exception: Preliminary blast or other surface preparations may be performed in conditions that are outside the limits, providing the final surface preparation and all coating applications are undertaken under the limit conditions.
Pre-coating: Before the spray application of each coating, stripe coat by brush method all edges, welds, seams, rivets, bolts, bolt holes (including slots) and difficult to spray areas. Prime the underlying surfaces of replacement bolting, washers and nuts before installation.
Procedure: Conform to the coating order shown in SELECTIONS, PROTECTIVE PAINT COATING SYSTEMS.
Subsequent coats: Before applying any subsequent coating layer, make sure the surface condition of the preceding coat conforms to SELECTIONS, PROTECTIVE PAINT COATING SYSTEMS and is clean and free from defects.

Wet film thickness (WFT):
Method of measurement: To AS 3894.3 Appendix C using an approved wet film gauge continuously during application.

Dry film thickness (DFT):

Method of measurement: To AS 3894.3 clause 10.
Extent: Measure all surfaces at the completion of each prime, intermediate and finish coats, including areas of the element difficult to paint, masked by structure, or where double or light coating is likely.
Number of measurements: To AS 3894.3 clause 7.
Coatings with DFT 150 µm or less: If testing, deduct the effect of the measured surface profile from all DFT readings.
Single readings: Conform to the following:

- The average of 5 point readings for each 10 m2 area of coating surface to be within the documented coating thickness range.
- No single point reading in any 10 m2 to be less than 80% of the specified minimum coating thickness. If the average of three readings is used to produce a point reading, an individual reading may be less than 80% of the minimum coating thickness.
- Check any single reading that is greater than 150% of the documented maximum DFT with three additional readings within 50 mm of the original reading. If the average of these three readings is not greater than 150% of the specified DFT, take the average reading as the point reading. If greater than 150%, reject the DFT for that area. If no maximum limit for DFT is documented, consult manufacturer.

Rectification and defects:
Rectification: Re-work areas rejected, using the same surface preparation, coatings and sequence as for the original work.
Defects (including under-thickness and over-thickness): Mark with dustless chalk, adhesive inspection labels or masking tape. Do not use crayon, paint or spirit based ink pens.

6.6 Protection
Contamination:
Surfaces: Prevent contamination of coated surface, which are not yet dry, from blasting dust, abrasive or surface preparation debris and any other foreign matter.

Post application care:
General: Protect the coating against physical, chemical, or atmospheric damage until all components are fully cured.
Care: Stack and handle all coated items using fabric slings or padded chains. Use soft packaging, carpet strips or other deformable materials between all coated items.
Water ponding: Stack coated items to prevent water ponding.

Surface dust from abrasion: To AS 3894.6 Method C.
Chloride level testing: Test: To AS 3894.6 Method A.
Maximum allowable chloride levels: 50 mg/m2 for critical applications (heavy condensation, fresh water ponding or immersion) or to manufacturer's recommendations.
Conformance: If the maximum allowable chloride is exceeded, rewash the affected surface area until the chloride level is within the acceptable limits using clean water or chloride neutralising solutions. Jet-washing or steam cleaning is also acceptable before re-testing and re-abrasive blasting.
Timing of testing: Early in the blasting work so that removal procedures can be started before the blasting is completed.

6.7 Mixing
General: To AS/NZS 5131 clause 9.9.6.
Powered agitators: Mix package sizes larger than 4 litres using powered agitators driven by air motors.
Multi-component coatings: Combine as whole pack units before application.
Thinners: If addition of thinners is proposed, conform to the coating manufacturer's recommendations for the documented product.
Colour consistency: If colour consistency is required, pre-mix tinted products, before the addition of the curing agent or converter and before coating application.

6.8 Coating Application
General: Conform to AS/NZS 5131 clause 9.9 and the PDS.
Painting and coating colour: Verify all project finish colours with the retained samples.

Final surface preparation or coating application:
Limits: If the environmental/climatic/substrate conditions listed in AS/NZS 5131 clause 9.9.10 and the following are present do not apply coating:

- Ambient air temperature below 5°C or above 40°C.
- Substrate temperature below 5°C or above 35°C.
- Full prime coat application cannot be carried out before the specified cleanliness of the surface deteriorates.
- Surface preparation standard has not been achieved.
- Time between final surface preparation and the commencement of coating has exceed 4 hours.
- Visual tarnishing or black spots develop on the surface of the steel.

Exception: Preliminary blast or other surface preparations may be performed in conditions that are outside the limits, providing the final surface preparation and all coating applications are undertaken under the limit conditions.
Pre-coating: Before the spray application of each coating, stripe coat by brush method all edges, welds, seams, rivets, bolts, bolt holes (including slots) and difficult to spray areas. Prime the underlying surfaces of replacement bolting, washers and nuts before installation.
Procedure: Conform to the coating order shown in SELECTIONS, PROTECTIVE PAINT COATING SYSTEMS.
Subsequent coats: Before applying any subsequent coating layer, make sure the surface condition of the preceding coat conforms to SELECTIONS, PROTECTIVE PAINT COATING SYSTEMS and is clean and free from defects.

Wet film thickness (WFT):
Method of measurement: To AS 3894.3 Appendix C using an approved wet film gauge continuously during application.

Dry film thickness (DFT):
Method of measurement: To AS 3894.3 clause 10.

Extent: Measure all surfaces at the completion of each prime, intermediate and finish coats, including areas of the element difficult to paint, masked by structure, or where double or light coating is likely.
Number of measurements: To AS 3894.3 clause 7.
Coatings with DFT 150 µm or less: If testing, deduct the effect of the measured surface profile from all DFT readings.
Single readings: Conform to the following:

- The average of 5 point readings for each 10 m2 area of coating surface to be within the documented coating thickness range.
- No single point reading in any 10 m2 to be less than 80% of the specified minimum coating thickness. If the average of three readings is used to produce a point reading, an individual reading may be less than 80% of the minimum coating thickness.
- Check any single reading that is greater than 150% of the documented maximum DFT with three additional readings within 50 mm of the original reading. If the average of these three readings is not greater than 150% of the specified DFT, take the average reading as the point reading. If greater than 150%, reject the DFT for that area. If no maximum limit for DFT is documented, consult manufacturer.

Rectification and defects:
Rectification: Re-work areas rejected, using the same surface preparation, coatings and sequence as for the original work.
Defects (including under-thickness and over-thickness): Mark with dustless chalk, adhesive inspection labels or masking tape. Do not use crayon, paint or spirit based ink pens.

6.9 Protection
Contamination:
Surfaces: Prevent contamination of coated surface, which are not yet dry, from blasting dust, abrasive or surface preparation debris and any other foreign matter.

Post application care:
General: Protect the coating against physical, chemical, or atmospheric damage until all components are fully cured.
Care: Stack and handle all coated items using fabric slings or padded chains. Use soft packaging, carpet strips or other deformable materials between all coated items.
Water ponding: Stack coated items to prevent water ponding.

6.10 Coating Repair
Repair of coating damage:
Preparation: Feather back by hand or machine sanding all leading edges of intact coating adjacent to the repair, to remove any sharp edge.
Surface contamination: Remove by dusting or blowing down before applying the first coat of paint.
Sequence: Apply the repair coating in the same sequence and manner as the original coating.
Areas damaged without exposing the primer: Wash with a proprietary detergent solution, rinse with clean water and abrade so that edges of sound paint are feathered. Coat the area with the appropriate intermediate and finishing coat materials.
Areas damaged exposing the primer or steel surface: Blast clean to the original standard. Prepare at least 50 mm into the sound coating and to a further feathering zone of approximately 50 mm. Re-coat with the documented system to restore the film thickness and integrity over the whole prepared surface including the feathered zone.
Aesthetic reinstatement: If required, repaint to a physical or discernible boundary line.
Defects: If corrosion pitting or areas of significant metal loss and defects are exposed by the blasting process, advise for inspection and have areas passed as being fit for service before proceeding with the coating system.
Timing: Apply the protective coating system within 4 hours of blast cleaning or in any case before visual tarnishing of the steel occurs.

6.11 Completion
Joints: On completion, seal all joints and mating surfaces with a compatible polyurethane sealant.

Warranties
Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the applicator.

- Form: Against failure of materials and execution under normal environment and use

conditions.
- Period: As offered by the supplier.

6.12 Selections
Two-pack liquid coating:
Application to be 2-pack polyurethane or approved equivalent.
Application: Spray.
Finish: Full gloss.
Primer: Two pack epoxy primer to AS/NZS 3750.13.

Topcoat:
- External use: Proprietary polyurethane system.

Polyurethane – AS/NZS 2312.1 Categories C1 and C2 table

Location	Primer	Second Coat	Third Coat
External decorative conforming to AS/NZS 2312.1 PUR2	75 µm Epoxy zinc phosphate conforming to AS/NZS 3750.13	50 µm High Solids Polyurethane conforming to AS/NZS 3750.6	Nil

Polyurethane – AS/NZS 2312.1 Categories C3, C4 and C5 table

Location	Primer	Second Coat	Third Coat
External decorative conforming to AS/NZS 2312.1 PUR5	75 µm Zinc rich epoxy conforming to AS/NZS 3750.9 Type 2	200 µm High-Build Epoxy MIO conforming to AS/NZS 3750.14	50 µm Polyurethane conforming to AS/NZS 3750.6 (Alternative: 75 µm High Solids Polyurethane)

7.0 LIGHTING
Allowances to be made for laying of conduit prior to construction. Refer Electrical Engineers Specification and Details.

8.0 MODWOOD
Size: 65x23mm ModWood. Colour: 'Sahara' Finish: Brushed. Fixings: As per Details. Coatings with DFT 150 µm or less: If testing, deduct the effect of the measured surface profile from all DFT readings.

All sizes to be in accordance with drawings.

Single readings: Conform to the following:
-The average of 5 point readings for each 10 m2 area of coating surface to be within the documented coating thickness range.
-No single point reading in any 10 m2 to be less than 80% of the specified minimum coating thickness. If the average of three readings is used to produce a point reading, an individual reading may be less than 80% of the minimum coating thickness.
-Check any single reading that is greater than 150% of the documented maximum DFT with three additional readings within 50 mm of the original reading. If the average of these three readings is not greater than 150% of the specified DFT, take the average reading as the point reading. If greater than 150%, reject the DFT for that area. If no maximum limit for DFT is documented, consult manufacturer.

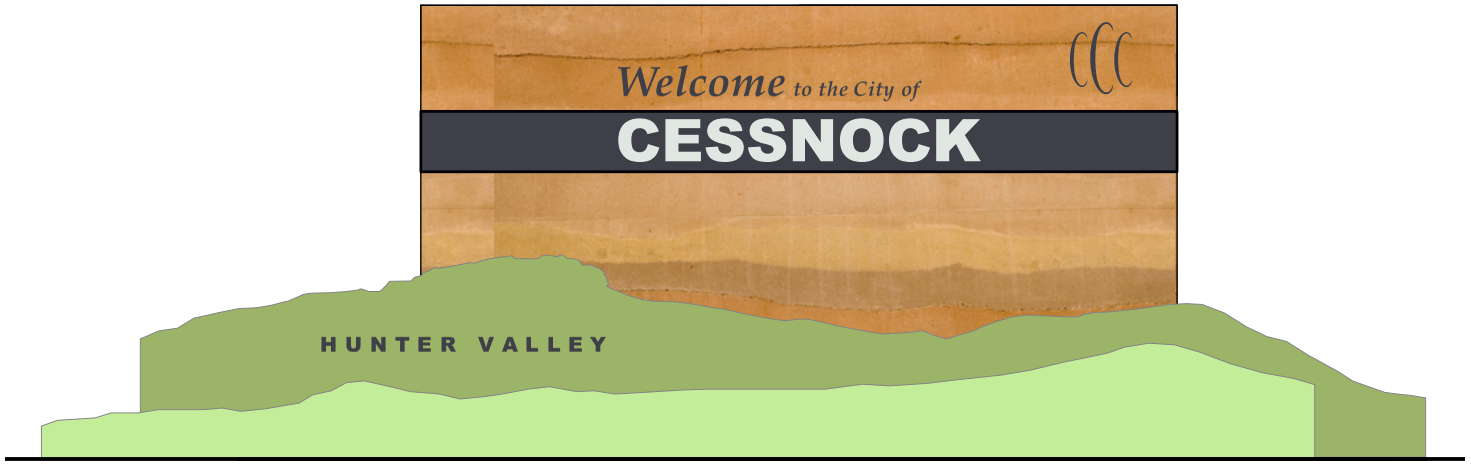
Rectification and defects: Rectification: Re-work areas rejected, using the same surface preparation, coatings and sequence as for the original work.
Defects (including under-thickness and over-thickness): Mark with dustless chalk, adhesive inspection labels or masking tape. Do not use crayon, paint or spirit based ink pens.

PART

5

SIGNAGE DETAILS CESSNOCK CITY COUNCIL

5.1 GE1 Entry Sign



01 GE1 Entry Sign - Elevation
Scale: 1:50

COLOURS:

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

Green:
CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

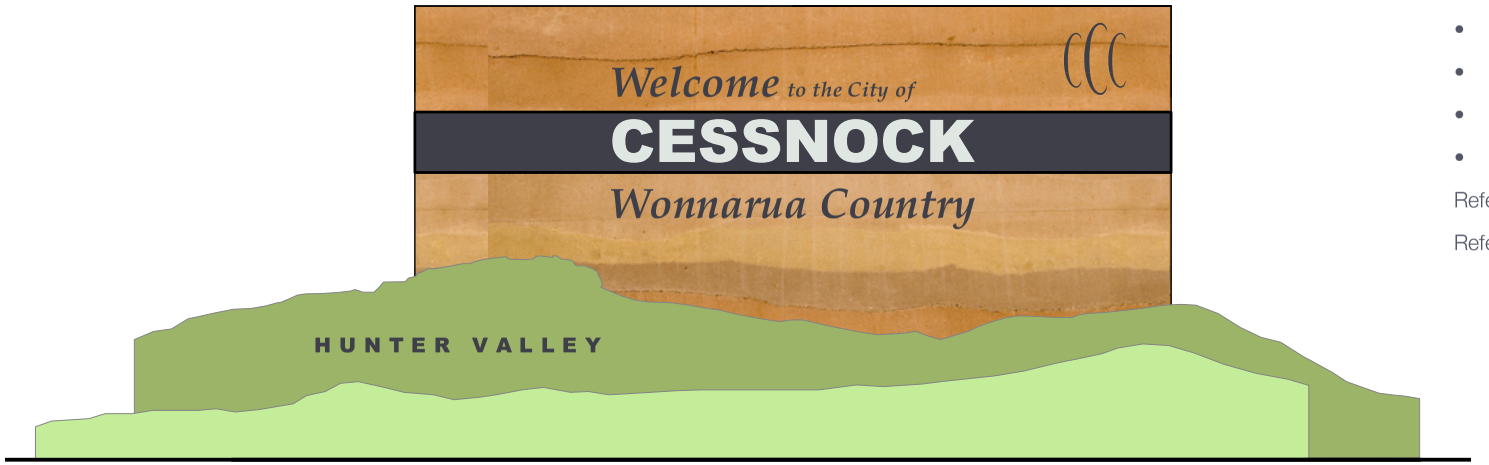
Light green:
CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

LETTERING:

Welcome to the City of: Palatino Italic Bold

Cessnock: Arial Black
Hunter Valley: Arial Black

5.1 GE1 Entry Sign



General Notes:

Refer to GE1 Entry Sign supporting drawings:

- 01 GE1 Entry Sign - Elevation
- 02 GE1 Entry Sign - Elevation with Optional Wording
- 03 GE1 Entry Sign - Plan
- 04 GE1 Entry Sign - Front Elevation
- 05 GE1 Entry Sign - Steel Panels Front Elevation
- 06 GE1 Entry Sign - Side Section

Refer to Section 4. Signage Specification

Refer Engineer's Specification and Details

02 GE1 Entry Sign - Elevation with Optional Wording
Scale: 1:50

COLOURS:

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

Green:
CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Light green:
CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

LETTERING:

Welcome to the City of: Palatino Italic Bold

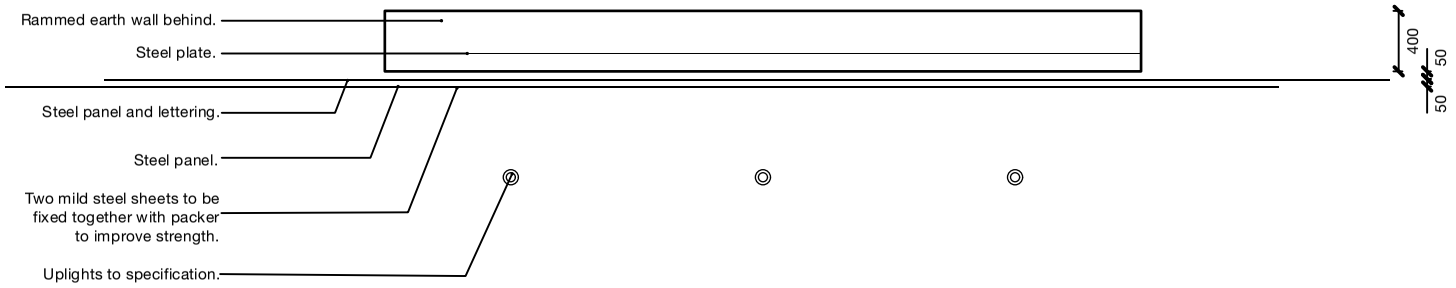
Cessnock: Arial Black

Hunter Valley: Arial Black

Wonnarua Country: Palatino Italic Bold

"Wonnarua Country"
Wording optional, Cessnock City Council to confirm when wording to be incorporated.

5.1 GE1 Entry Sign



03 GE1 Entry Sign - Plan
Scale: 1:50

General Notes:

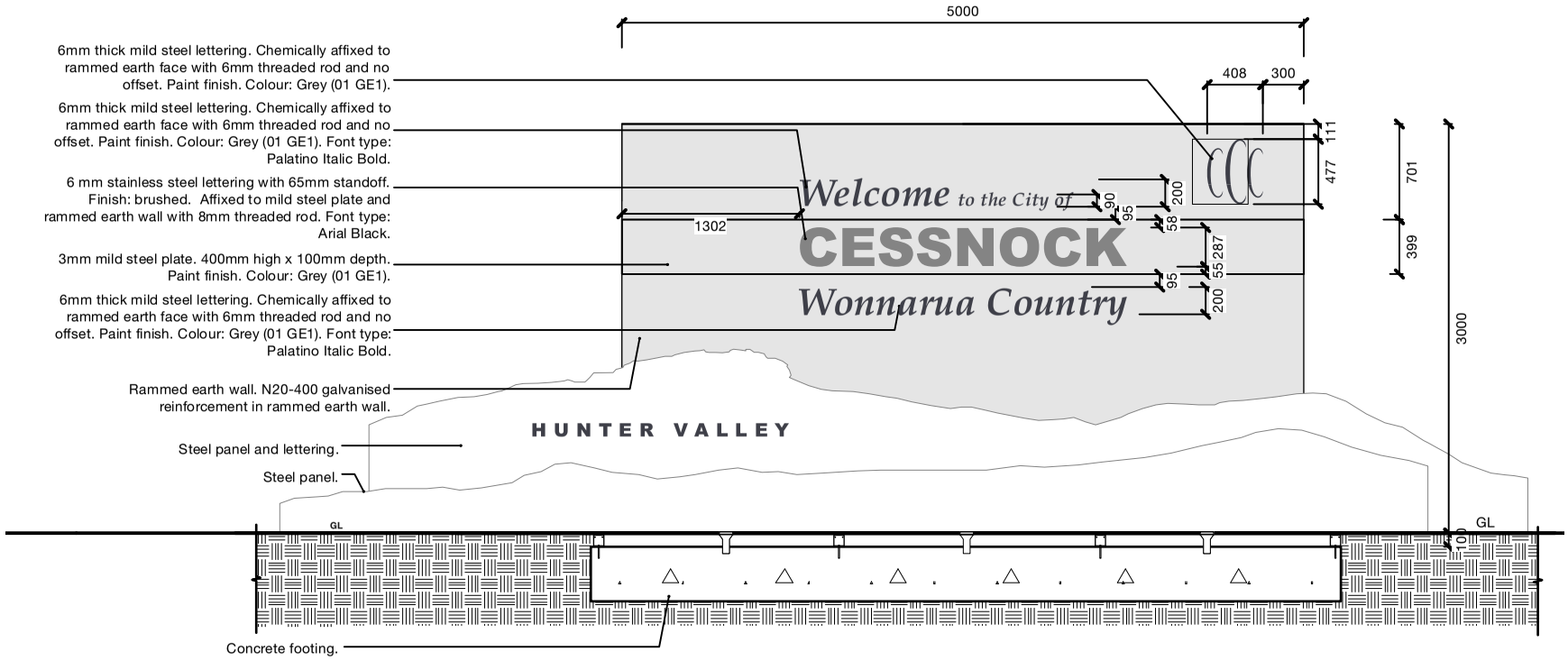
Refer to GE1 Entry Sign supporting drawings:

- 01 GE1 Entry Sign - Elevation
- 02 GE1 Entry Sign - Elevation with Optional Wording
- 03 GE1 Entry Sign - Plan
- 04 GE1 Entry Sign - Front Elevation
- 05 GE1 Entry Sign - Steel Panels Front Elevation
- 06 GE1 Entry Sign - Side Section

Refer to Section 4. Signage Specification

Refer Engineer's Specification and Details

5.1 GE1 Entry Sign



04 GE1 Entry Sign - Front Elevation
Scale: 1:50

General Notes:

Refer to GE1 Entry Sign supporting drawings:

- 01 GE1 Entry Sign - Elevation
- 02 GE1 Entry Sign - Elevation with Optional Wording
- 03 GE1 Entry Sign - Plan
- 04 GE1 Entry Sign - Front Elevation
- 05 GE1 Entry Sign - Steel Panels Front Elevation
- 06 GE1 Entry Sign - Side Section

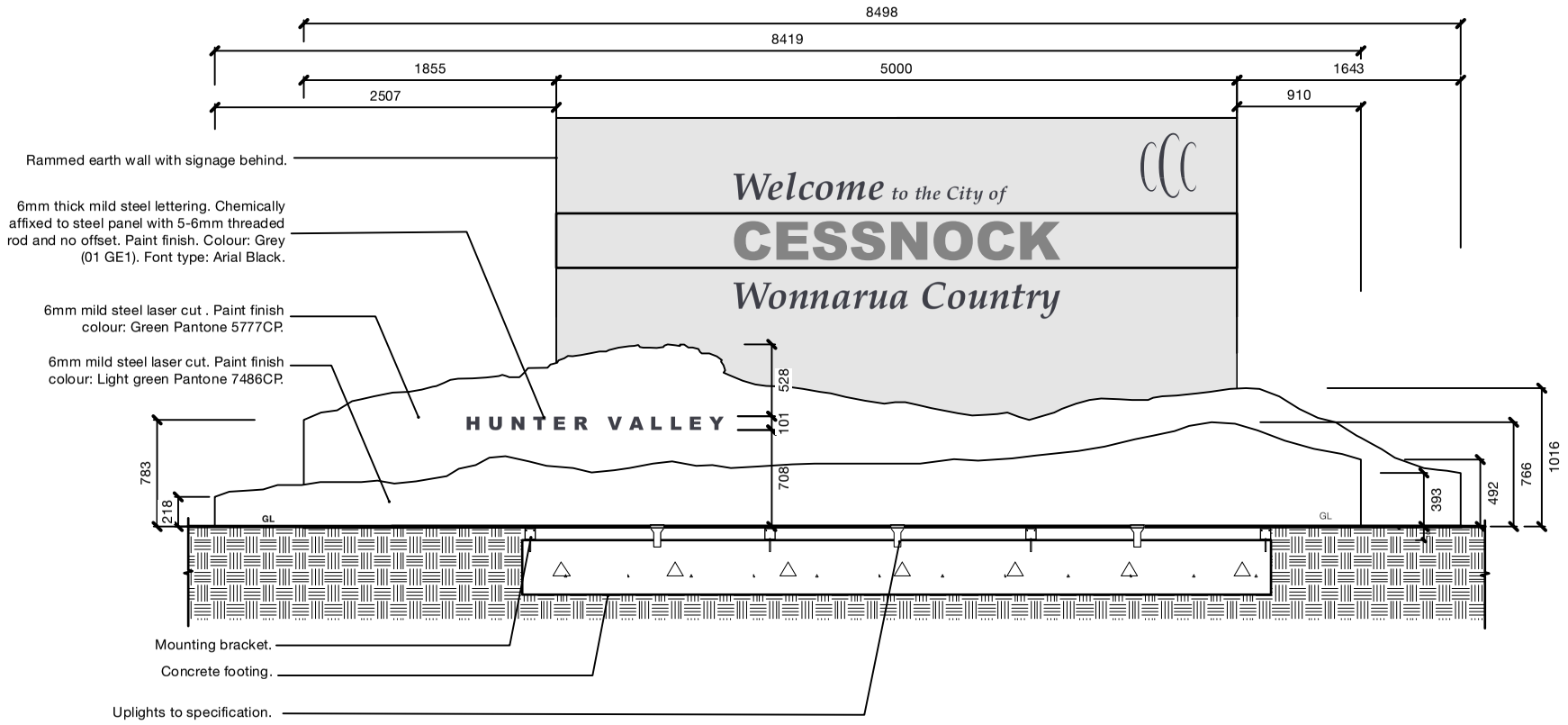
Refer to Section 4. Signage Specification

Refer Engineer's Specification and Details

"Wonnarua Country"

Wording optional, Cessnock City Council to confirm when wording to be incorporated.

5.1 GE1 Entry Sign



05 GE1 Entry Sign - Steel Panels Front Elevation
Scale: 1:50

General Notes:

Refer to GE1 Entry Sign supporting drawings:

- 01 GE1 Entry Sign - Elevation
- 02 GE1 Entry Sign - Elevation with Optional Wording
- 03 GE1 Entry Sign - Plan
- 04 GE1 Entry Sign - Front Elevation
- 05 GE1 Entry Sign - Steel Panels Front Elevation
- 06 GE1 Entry Sign - Side Section

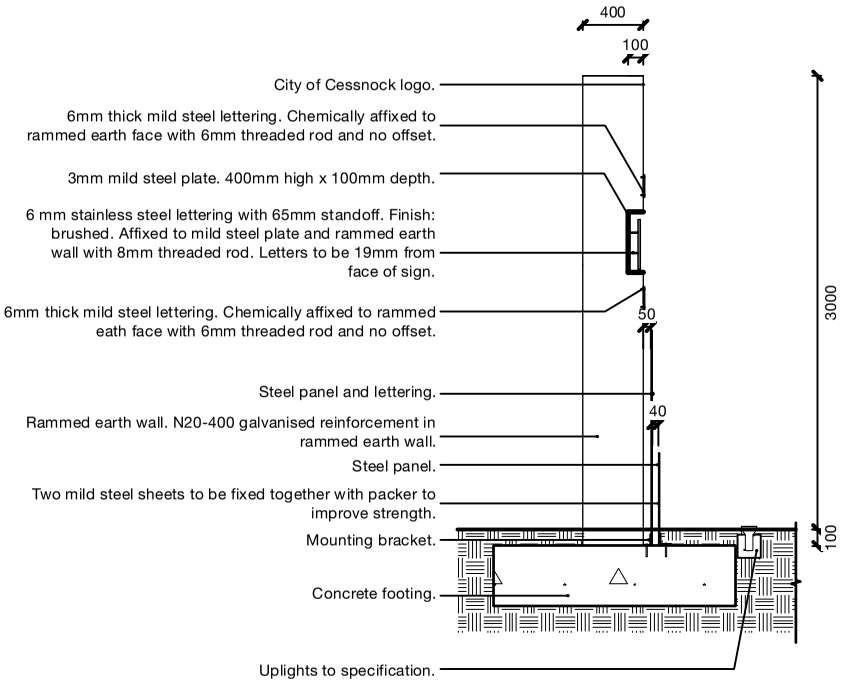
Refer to Section 4. Signage Specification

Refer Engineer's Specification and Details

"Wonnarua Country"

Wording optional, Cessnock City Council to confirm when wording to be incorporated.

5.1 GE1 Entry Sign



06 GE1 Entry Sign - Side Section
Scale: 1:50

General Notes:

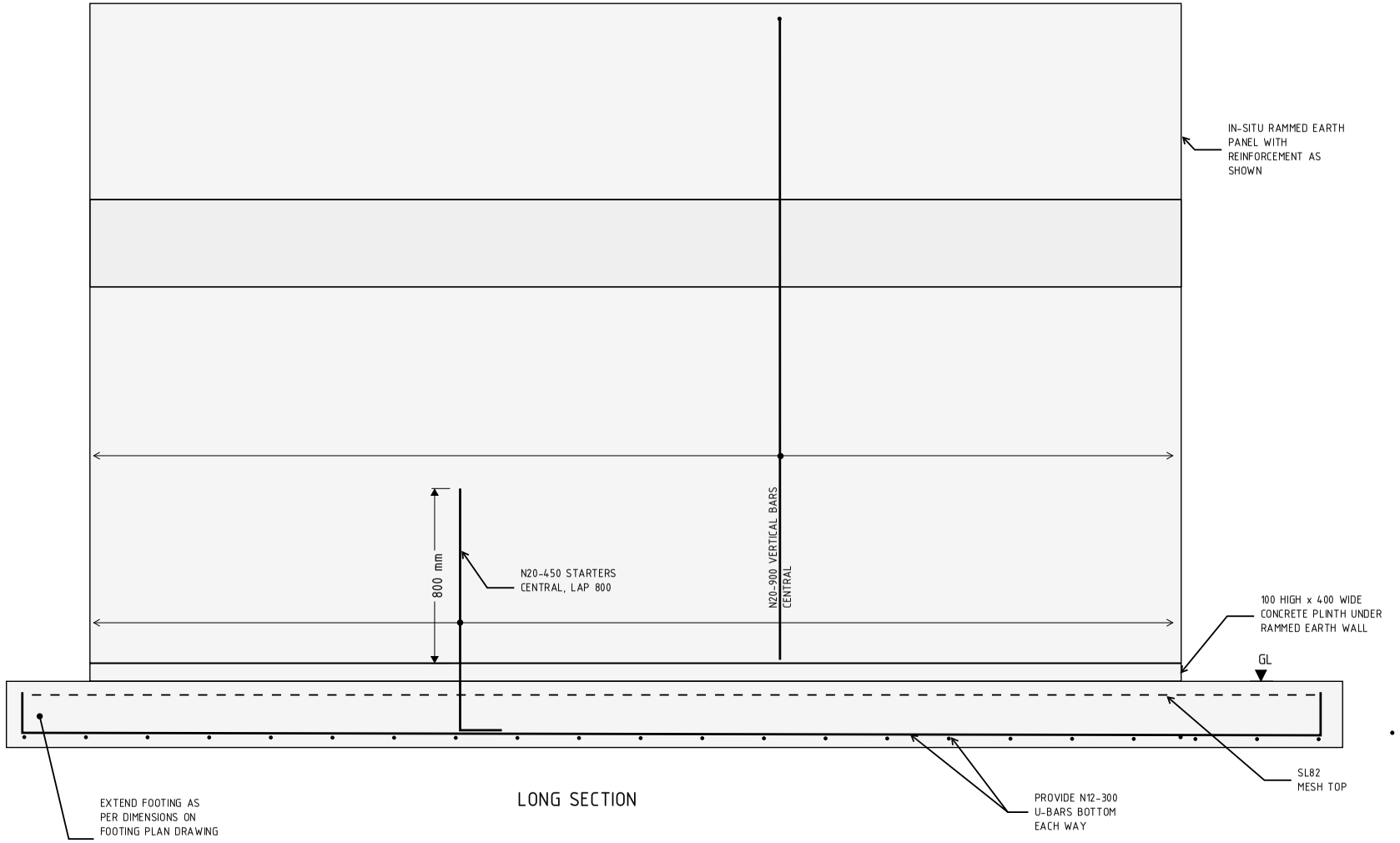
Refer to GE1 Entry Sign supporting drawings:

- 01 GE1 Entry Sign - Elevation
- 02 GE1 Entry Sign - Elevation with Optional Wording
- 03 GE1 Entry Sign - Plan
- 04 GE1 Entry Sign - Front Elevation
- 05 GE1 Entry Sign - Steel Panels Front Elevation
- 06 GE1 Entry Sign - Side Section

Refer to Section 4. Signage Specification

Refer Engineer's Specification and Details

5.1 GE1 Entry Sign - Engineer's Drawing



GE1 - ENTRY SIGN (3000h x 5000w)

NORTHROP
Newcastle
Suite 4, 215 Pacific Hwy, Charlestown NSW 2290
P.O. Box 180, Charlestown NSW 2290
Ph (02) 4943 1777 Fax (02) 4943 1577
Email newcastle@northrop.com.au ABN 81 094 433 100

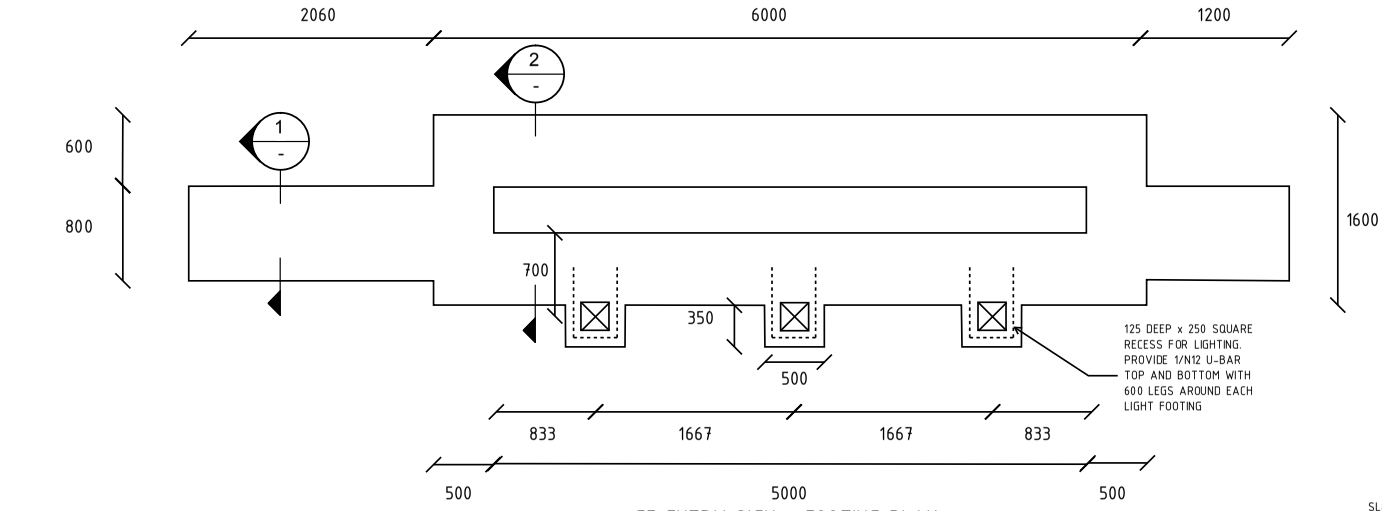
JOB NUMBER:	NL201373	DATE:	16/12/2020	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			3
DRAWING TITLE:	GE1 - ENTRY SIGN (SHALLOW PAD OPTION)			
DRAWING NUMBER:	NL201373_SK05			

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

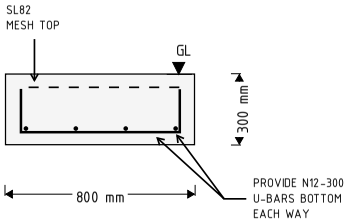
REFER TO SK01 FOR SPECIFICATIONS. ALL REINFORCEMENT WITHIN RAMMED EARTH WALLS TO BE GALVANISED

NOTE: FIX 10mm LASERCUT MILD STEEL SIGNS TO RAMMED EARTH WALL AT TOP USING M12 HILTI HIT-HY70 INJECTION ANCHORS (GALVANISED) WITH COUNTERSUNK HEADS. PROVIDE FIXINGS 50mm FROM TOP OF EACH SIGN @ 900 CTS, WITH SOLID STANDOFFS TO SUIT SPACING BETWEEN RAMMED EARTH AND METAL SIGN.

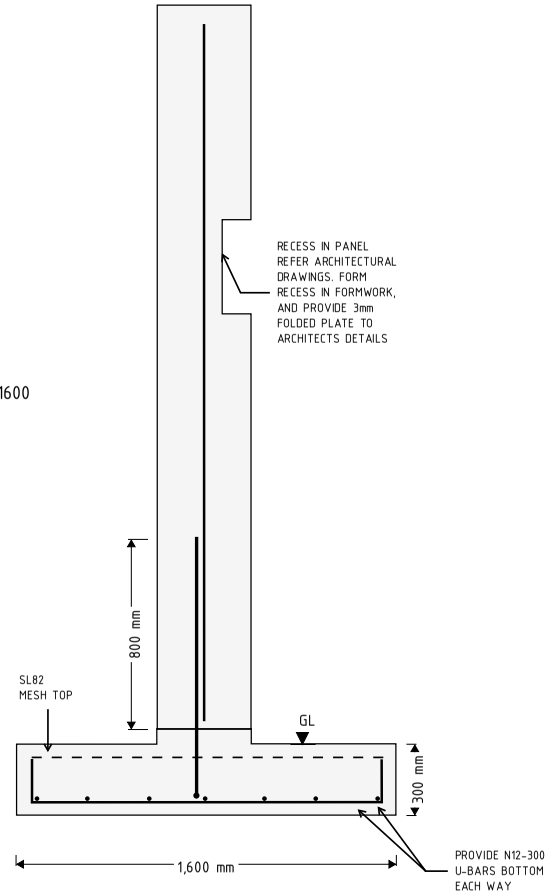
5.1 GE1 Entry Sign - Engineer's Drawing



GE ENTRY SIGN - FOOTING PLAN



TRANSVERSE SECTION 1



TRANSVERSE SECTION 2

NORTHROP Newcastle Suite 4, 215 Pacific Hwy, Charlestown NSW 2290 P.O. Box 180, Charlestown NSW 2290 Ph (02) 4943 1777 Fax (02) 4943 1577 Email newcastle@northrop.com.au ABN 81 094 433 100	JOB NUMBER:	NL201373	DATE: 16/12/20	REV.
	PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE		3
	DRAWING TITLE:	GE1 - ENTRY SIGN (SHALLOW PAD OPTION)		
	DRAWING NUMBER:	NL201373_SK06		

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK01 FOR SPECIFICATIONS. ALL REINFORCEMENT WITHIN RAMMED EARTH WALLS TO BE GALVANISED

NOTE: FIX 10mm LASERCUT MILD STEEL SIGNS TO RAMMED EARTH WALL AT TOP USING M12 HILTI HIT-HY70 INJECTION ANCHORS (GALVANISED) WITH COUNTERSUNK HEADS. PROVIDE FIXINGS 50mm FROM TOP OF EACH SIGN @ 900 CTS, WITH SOLID STANDOFFS TO SUIT SPACING BETWEEN RAMMED EARTH AND METAL SIGN.

5.1 GE1 Entry Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED $V^{'}r$ = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M^{'}z,cat$ = 0.91
- WIND DIRECTION MULTIPLIER $M^{'}d$ = 1
- SHIELDING MULTIPLIER $M^{'}s$ = 1
- TOPOGRAPHIC MULTIPLIER $M^{'}t$ = 1
- SITE WIND SPEED = 41 m/s

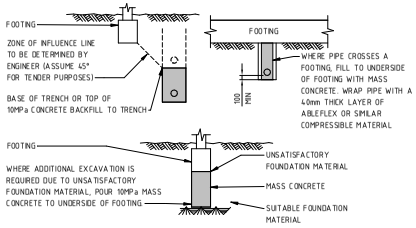
G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 102125.00.R.001.Rev0 PREPARED BY DOUGLAS PARTNERS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTIONS OF CONDITIONS AT OR BELOW GROUND LEVEL.

F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

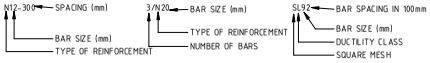
C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT					
ELEMENT		CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)	
SLABS ON GROUND	EXTERNAL	25	1000 µm	TOP 30	BTM 60
STRIP FOOTINGS		25	1000 µm	60	
PAD FOOTINGS		25	1000 µm	60	

MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.
C3. COMPACT ALL CONCRETE USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.
REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YIELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT., THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100.

IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH WALL MIX DESIGN

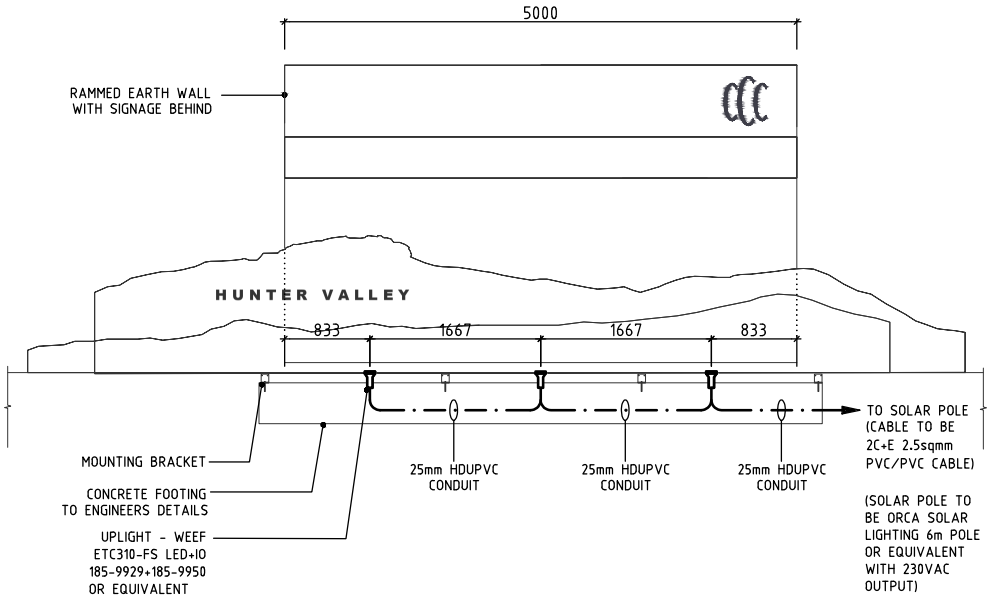
RE1. 75% 7-10mm CRUSHED RHYOLITE
RE2. 25% 7mm - CRUSHED RHYOLITE DUST
RE3. BOTH MATERIALS LISTED ABOVE ARE TO BE SOURCED FROM CESSNOCK LANDSCAPE SUPPLIER.
RE4. 10% OFF WHITE CEMENT BY WEIGHT

NORTHROP
Newcastle
Suite 4, 215 Pacific Hwy, Charlestown NSW 2290
P.O. Box 180, Charlestown NSW 2290
Ph (02) 4943 1777 Fax (02) 4943 1577
Email newcastle@northrop.com.au ABN 81 094 433 100

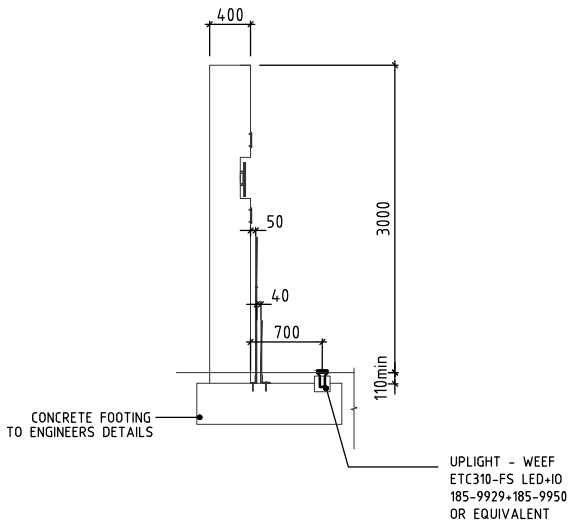
JOB NUMBER:	NL201373	DATE:	16/12/2020	REV.
PROJECT:	POKOLBIN INFO BAY			3
DRAWING TITLE:	SPECIFICATION NOTES			
DRAWING NUMBER:	NL201373_SK01			

5.1 GE1 Entry Sign - Lighting Specification

0 50 100 150 200 250mm
SCALE BAR 1:50
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



FRONT ELEVATION



SIDE ELEVATION

REV	REVISION DETAILS	BY	APP.	DATE
D	APPROVAL ISSUE	CH	PM	10.12.20
C	APPROVAL ISSUE	AD	PM	08.09.20
B	APPROVAL ISSUE	AD	PM	02.09.20
A	PRELIMINARY ISSUE	LM	PM	29.07.20

DESIGN BY:
ELECTRICAL PROJECTS AUSTRALIA P/L
(Pty Ltd / A.C.N. 053 112 502)
386 Maitland Road,
P.O. Box 365
MAYFIELD NSW 2304
PHONE: (02) 4967 5999
FAX: (02) 4967 5933

PROJECT:
CESSNOCK CITY COUNCIL
GATEWAY ENTRY SIGNS

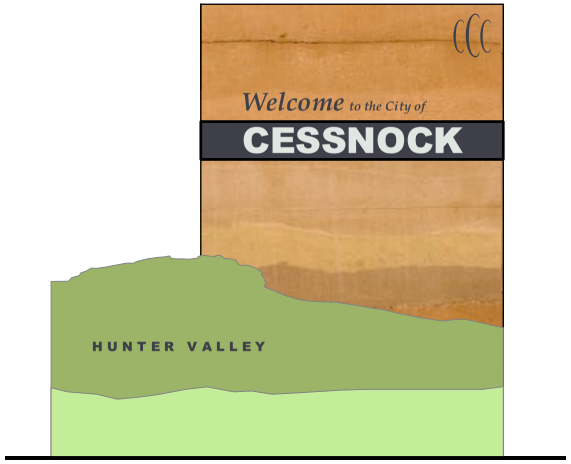
CLIENT:
MOIR LANDSCAPE ARCHITECTURE

LOCATION:
CESSNOCK

DRAWING:
GATEWAY ENTRY SIGN GE1
LIGHTING LAYOUT

DATE: 29.07.20 DRAWN: LM
SCALE: 1:50@A3 DESIGN: PM
PROJECT No. 20245 DRAWING No: E01 ISSUE: D

5.2 GE3 Entry Sign



01 GE3 Entry Sign - Elevation
Scale: 1:50

General Notes:

Refer to GE3 Entry Sign supporting drawings:

- 01 GE3 Entry Sign - Elevation
- 02 GE3 Entry Sign - Elevation with Optional Wording
- 03 GE3 Entry Sign - Plan
- 04 GE3 Entry Sign - Front Elevation
- 05 GE3 Entry Sign - Steel Panels Front Elevation
- 06 GE3 Entry Sign - Side Section
- 07 GE3 Entry Sign - Front Elevation

Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

COLOURS:

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

Green:
CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Light green:
CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

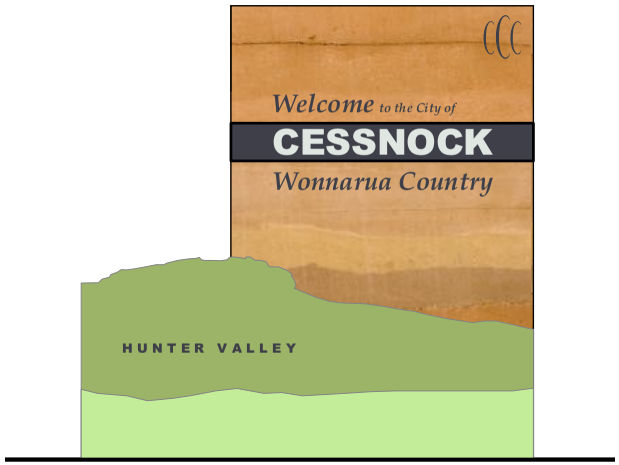
LETTERING:

Welcome to the City of: Palatino Italic Bold

Cessnock: Arial Black

Hunter Valley: Arial Black

5.2 GE3 Entry Sign



02 GE3 Entry Sign - Elevation with Optional Wording
Scale: 1:50

General Notes:

Refer to GE3 Entry Sign supporting drawings:

- 01 GE3 Entry Sign - Elevation
- 02 GE3 Entry Sign - Elevation with Optional Wording
- 03 GE3 Entry Sign - Plan
- 04 GE3 Entry Sign - Front Elevation
- 05 GE3 Entry Sign - Steel Panels Front Elevation
- 06 GE3 Entry Sign - Side Section
- 07 GE3 Entry Sign - Front Elevation

Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

COLOURS:

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

Green:
CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Light green:
CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

LETTERING:

Welcome to the City of: Palatino Italic Bold

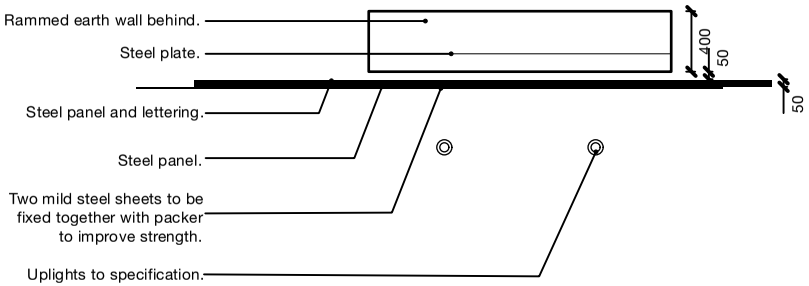
Cessnock: Arial Black

Hunter Valley: Arial Black

Wonnarua Country: Palatino Italic Bold

"Wonnarua Country"
Wording optional, Cessnock City Council to confirm when wording to be incorporated.

5.2 GE3 Entry Sign



03 GE3 Entry Sign - Plan
Scale: 1:50

General Notes:

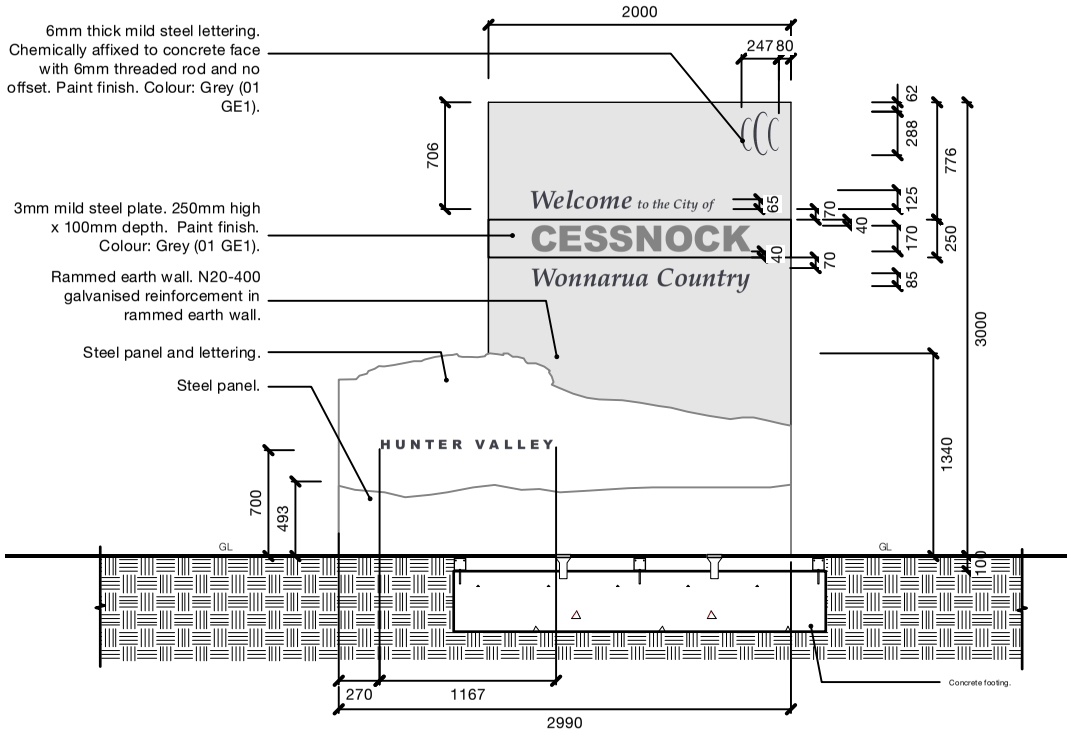
Refer to GE3 Entry Sign supporting drawings:

- 01 GE3 Entry Sign - Elevation
- 02 GE3 Entry Sign - Elevation with Optional Wording
- 03 GE3 Entry Sign - Plan
- 04 GE3 Entry Sign - Front Elevation
- 05 GE3 Entry Sign - Steel Panels Front Elevation
- 06 GE3 Entry Sign - Side Section
- 07 GE3 Entry Sign - Front Elevation

Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

5.2 GE3 Entry Sign



04 GE3 Entry Sign - Front Elevation

Scale: 1:50

"Wonnarua Country"

Wording optional, Cessnock City Council to confirm

when wording to be incorporated.

General Notes:

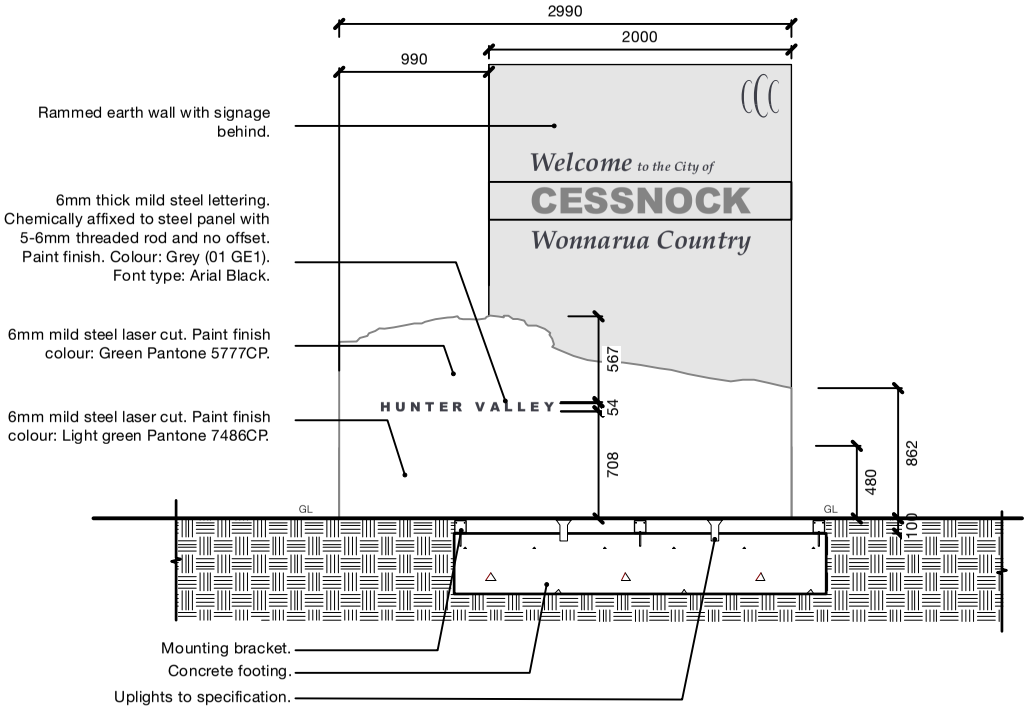
Refer to GE3 Entry Sign supporting drawings:

- 01 GE3 Entry Sign - Elevation
- 02 GE3 Entry Sign - Elevation with Optional Wording
- 03 GE3 Entry Sign - Plan
- 04 GE3 Entry Sign - Front Elevation
- 05 GE3 Entry Sign - Steel Panels Front Elevation
- 06 GE3 Entry Sign - Side Section
- 07 GE3 Entry Sign - Front Elevation

Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

5.2 GE3 Entry Sign



05 GE3 Entry Sign - Steel Panels Front Elevation
Scale: 1:50

"Wonnarua Country"

Wording optional, Cessnock City Council to confirm

when wording to be incorporated.

General Notes:

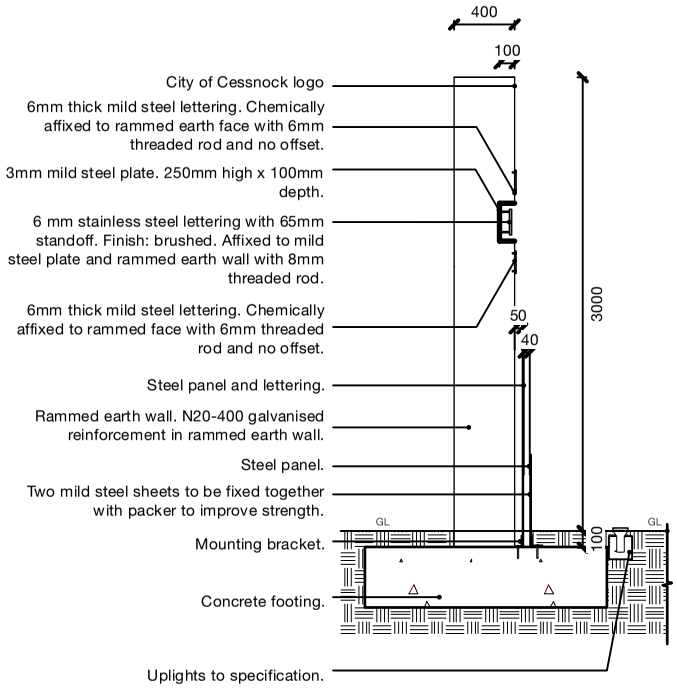
Refer to GE3 Entry Sign supporting drawings:

- 01 GE3 Entry Sign - Elevation
- 02 GE3 Entry Sign - Elevation with Optional Wording
- 03 GE3 Entry Sign - Plan
- 04 GE3 Entry Sign - Front Elevation
- 05 GE3 Entry Sign - Steel Panels Front Elevation
- 06 GE3 Entry Sign - Side Section
- 07 GE3 Entry Sign - Front Elevation

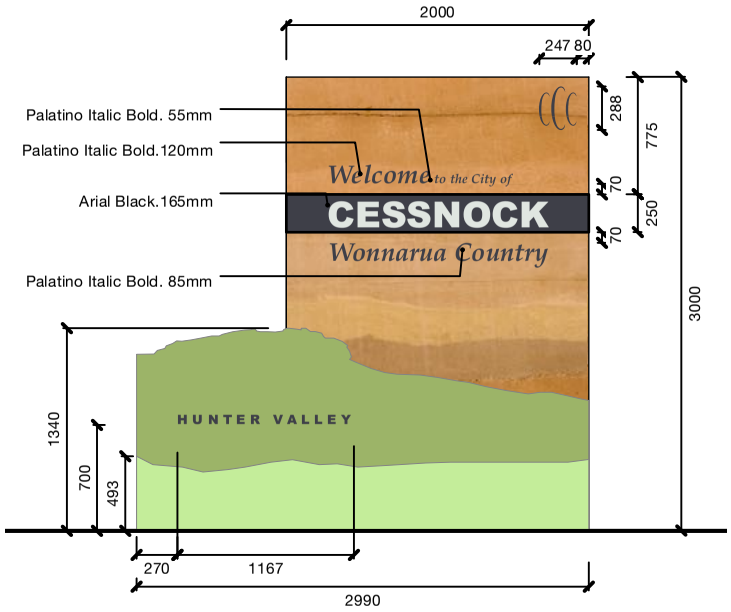
Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

5.2 GE3 Entry Sign



06 GE3 Entry Sign - Side Section
Scale: 1:50



07 GE3 Entry Sign - Front Elevation
Scale: 1:50

"Wonnarua Country"

Wording optional, Cessnock City Council to confirm when wording to be incorporated.

General Notes:

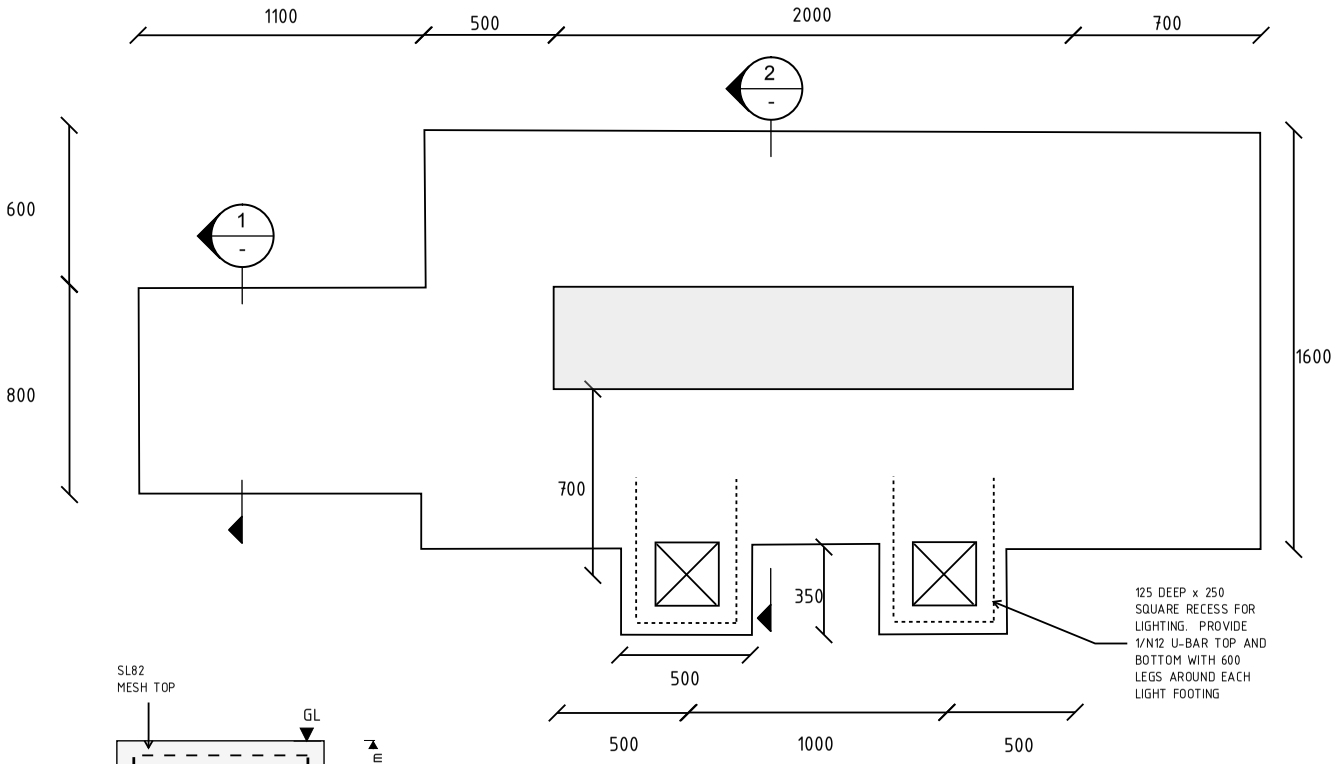
Refer to GE3 Entry Sign supporting drawings:

- 01 GE3 Entry Sign - Elevation
- 02 GE3 Entry Sign - Elevation with Optional Wording
- 03 GE3 Entry Sign - Plan
- 04 GE3 Entry Sign - Front Elevation
- 05 GE3 Entry Sign - Steel Panels Front Elevation
- 06 GE3 Entry Sign - Side Section
- 07 GE3 Entry Sign - Front Elevation

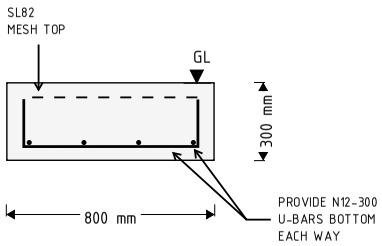
Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

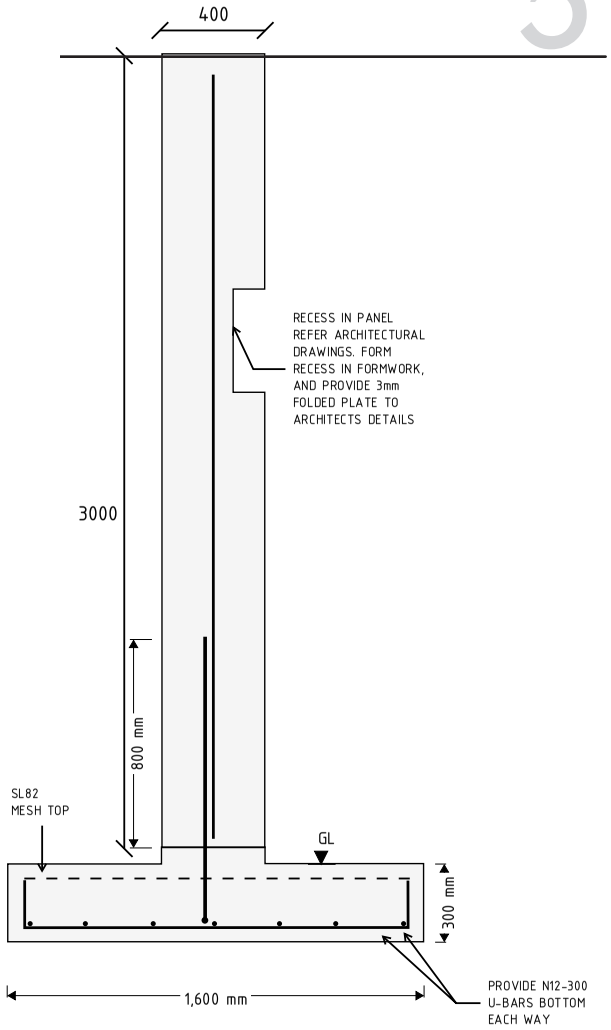
5.2 GE3 Entry Sign - Engineer's Drawing



GE ENTRY SIGN - FOOTING PLAN



TRANSVERSE SECTION 1



TRANSVERSE SECTION 2

NORTHROP
Newcastle
Suite 4, 215 Pacific Hwy, Charlestown NSW 2290
P.O. Box 180, Charlestown NSW 2290
Ph (02) 4943 1777 Fax (02) 4943 1577
Email newcastle@northrop.com.au ABN 81 094 433 100

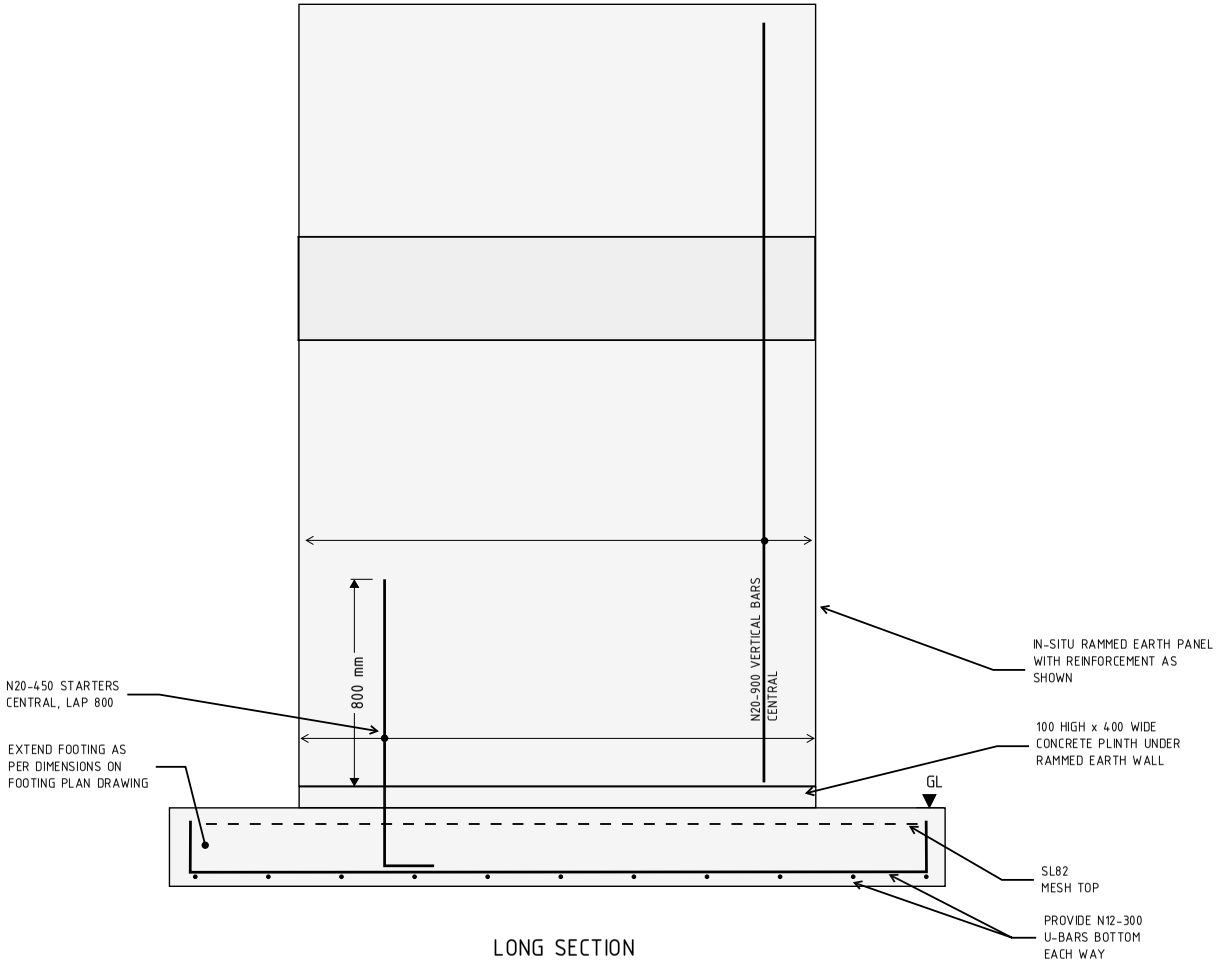
JOB NUMBER:	NL201373	DATE:	16/12/20	REV.
PROJECT:	CESSNOCK CITY COUNCIL SIGNAGE			3
DRAWING TITLE:	GE3 - ENTRY SIGN (SHALLOW PAD OPTION)			
DRAWING NUMBER:	NL201373_SK08			

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK01 FOR SPECIFICATIONS. ALL REINFORCEMENT WITHIN RAMMED EARTH WALLS TO BE GALVANISED

NOTE: FIX 10mm LASERCUT MILD STEEL SIGNS TO RAMMED EARTH WALL AT TOP USING M12 HILTI HIT-HY70 INJECTION ANCHORS (GALVANISED) WITH COUNTERSUNK HEADS. PROVIDE FIXINGS 50mm FROM TOP OF EACH SIGN @ 900 CTS, WITH SOLID STANDOFFS TO SUIT SPACING BETWEEN RAMMED EARTH AND METAL SIGN.

5.2 GE3 Entry Sign - Engineer's Drawing



LONG SECTION

GE3 - ENTRY SIGN (3000h x 2000w)

NORTHROP
Newcastle
Suite 4, 215 Pacific Hwy, Charlestown NSW 2290
P.O. Box 180, Charlestown NSW 2290
Ph (02) 4943 1777 Fax (02) 4943 1577
Email newcastle@northrop.com.au ABN 81 094 433 100

JOB NUMBER:	NL201373	DATE:	16/12/2020	REV.
PROJECT:	CESSNOCK CITY COUNCIL SIGNAGE			3
DRAWING TITLE:	GE3 - ENTRY SIGN (SHALLOW PAD OPTION)			
DRAWING NUMBER:	NL201373_SK01			

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK01 FOR SPECIFICATIONS. ALL REINFORCEMENT WITHIN RAMMED EARTH WALLS TO BE GALVANISED

NOTE: FIX 10mm LASERCUT MILD STEEL SIGNS TO RAMMED EARTH WALL AT TOP USING M12 HILTI HIT-HY70 INJECTION ANCHORS (GALVANISED) WITH COUNTERSUNK HEADS. PROVIDE FIXINGS 50mm FROM TOP OF EACH SIGN @ 900 CTS, WITH SOLID STANDOFFS TO SUIT SPACING BETWEEN RAMMED EARTH AND METAL SIGN.

5.2 GE3 Entry Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V^{*}_{r} = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M^{*}_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M^{*}_{d} = 1
- SHIELDING MULTIPLIER M^{*}_{s} = 1
- TOPOGRAPHIC MULTIPLIER M^{*}_{t} = 1
- SITE WIND SPEED = 41 m/s

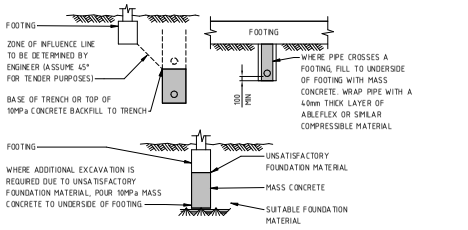
G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 102125.00.R.001.Rev0 PREPARED BY DOUGLAS PARTNERS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTIONS OF CONDITIONS AT OR BELOW GROUND LEVEL.

F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

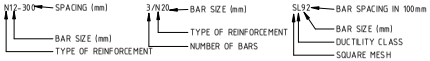
COVER TO REINFORCEMENT					
ELEMENT		CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)	
SLABS ON GROUND	EXTERNAL	25	1000 µm	TOP 30	BTM 60
STRIP FOOTINGS		25	1000 µm	60	
PAD FOOTINGS		25	1000 µm	60	

MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.
C3. COMPACT ALL CONCRETE USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION. (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YIELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100.

IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH WALL MIX DESIGN

RE1. 75% 7-10mm CRUSHED RHYOLITE
RE2. 25% 7mm - CRUSHED RHYOLITE DUST
RE3. BOTH MATERIALS LISTED ABOVE ARE TO BE SOURCED FROM CESSNOCK LANDSCAPE SUPPLIER.
RE4. 10% OFF WHITE CEMENT BY WEIGHT

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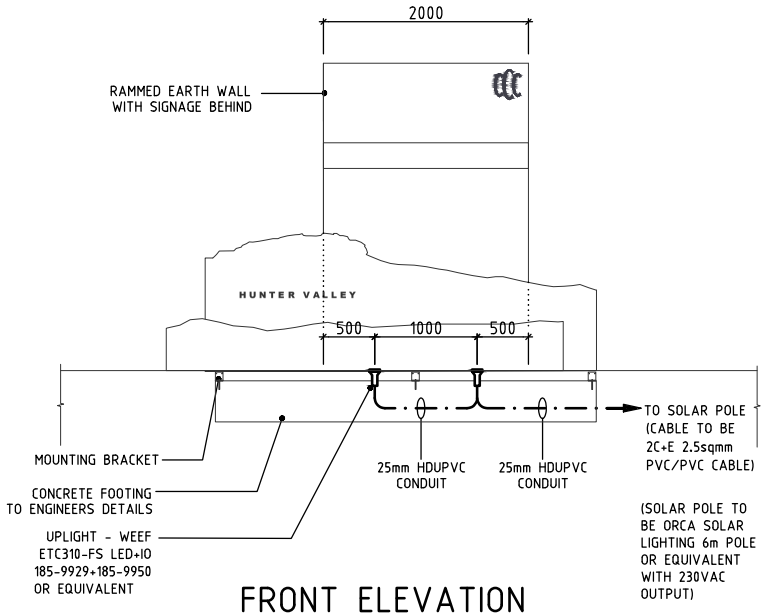
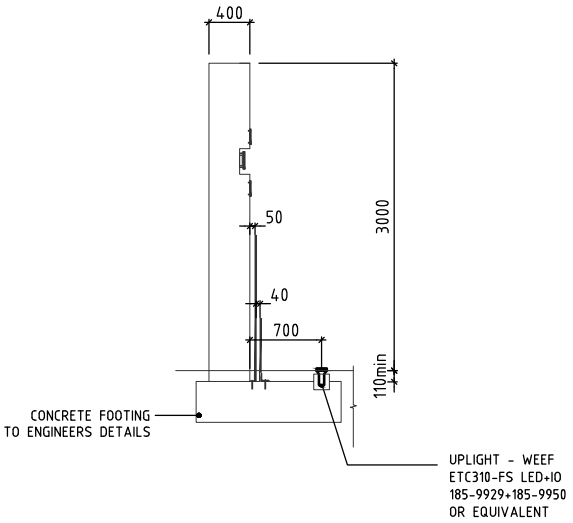
JOB NUMBER:	NL201373	DATE:	16/12/2020	REV.
PROJECT:	POKOLBIN INFO BAY			3
DRAWING TITLE:	SPECIFICATION NOTES			
DRAWING NUMBER:	NL201373_SK01			

5.2 GE3 Entry Sign - Electrical Drawing

0 50 100 150 200 250mm
SCALE BAR 1:50
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



FRONT ELEVATION



SIDE ELEVATION

REV	REVISION DETAILS	BY	APP.	DATE
D	APPROVAL ISSUE	CH	PM	10.12.20
C	APPROVAL ISSUE	AD	PM	08.09.20
B	APPROVAL ISSUE	AD	PM	02.09.20
A	PRELIMINARY ISSUE	LM	PM	29.07.20

DESIGN BY:
ELECTRICAL PROJECTS AUSTRALIA P/L
(Pty Ltd / A.C.N. 053 112 502)
386 Maitland Road,
P.O. Box 365
MAYFIELD NSW 2304
PHONE: (02) 4967 5999
FAX: (02) 4967 5933

PROJECT:
CESSNOCK CITY COUNCIL
GATEWAY ENTRY SIGNS

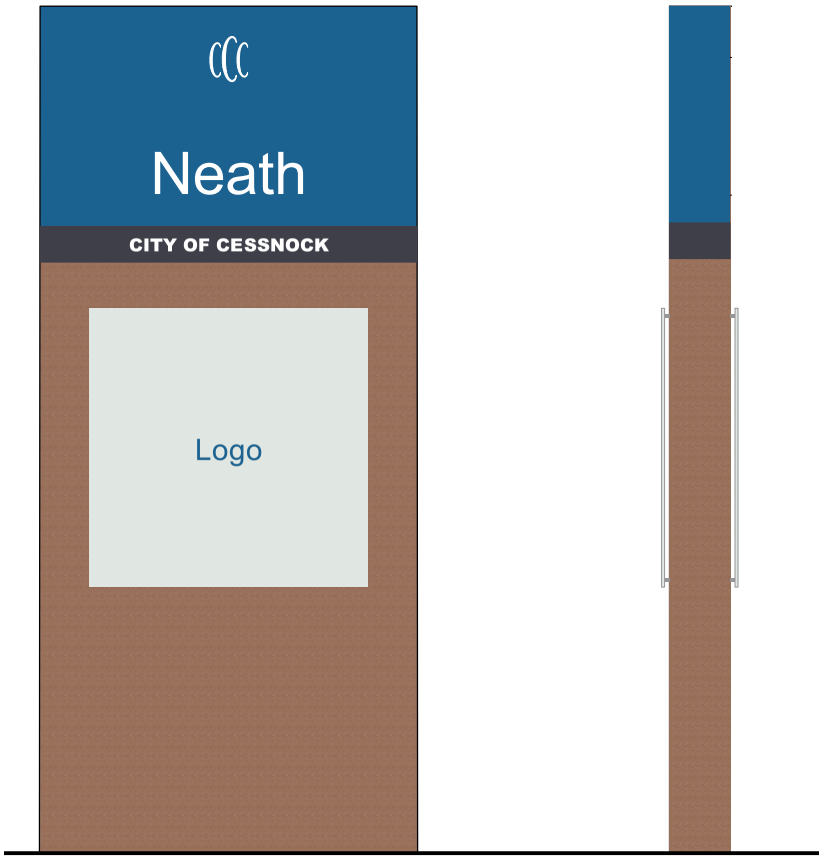
CLIENT:
MOIR LANDSCAPE ARCHITECTURE

LOCATION:
CESSNOCK

DRAWING:
GATEWAY ENTRY SIGN GE3
LIGHTING LAYOUT

DATE: 29.07.20 DRAWN: LM
SCALE: 1:50@A3 DESIGN: PM
PROJECT No. 20245 DRAWING No: E02 ISSUE: D

5.3 SE1 Suburb Entry Sign



01 SE1 Suburb Entry Sign - Elevation

COLOURS:

Blue: CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Concrete Colour: CCS Honeycomb (4%)

LETTERING:

Suburb: Arial

City of Cessnock: Arial Black

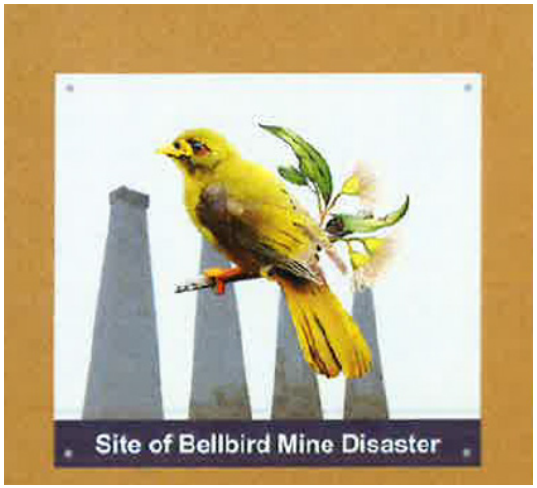
Thank you for visiting: Arial

5.3 SE1 Suburb Entry Sign

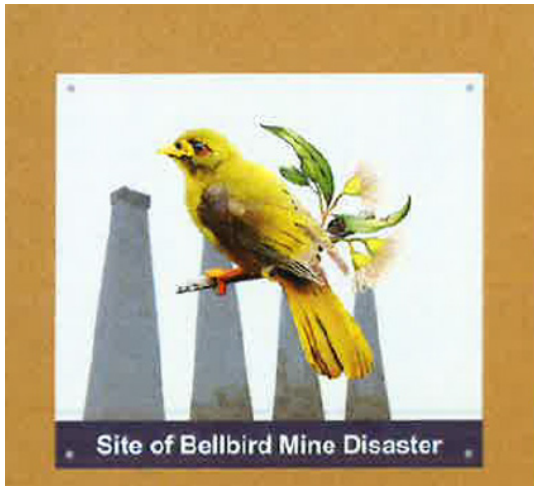
Individual Suburb Logos

Aberdare

Abermain



Bellbird



Bellbird Heights

Blackhill

Branxton

5.3 SE1 Suburb Entry Sign

Individual Suburb Logos

Brunkerville

Cessnock

Ellalong

Elrington

Greta

Kearsley

5.3 SE1 Suburb Entry Sign

Individual Suburb Logos

Kitchener

Kurri Kurri

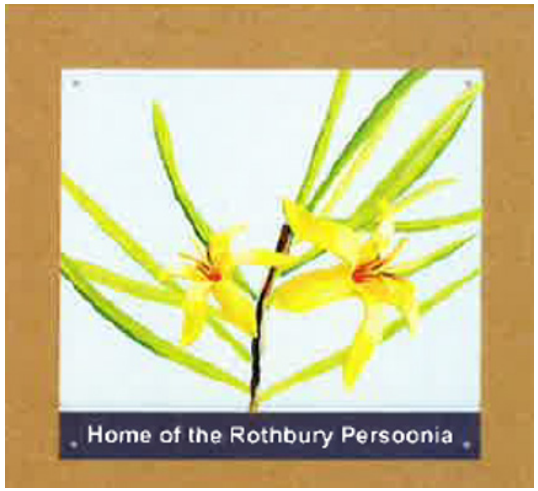
Millfield

Mount Vincent

Mulbring

Neath

5.3 SE1 Suburb Entry Sign



North Rothbury

Nulkaba

Paxton

Pelaw Main

Richmond Vale

Rothbury

5.3 SE1 Suburb Entry Sign

Sawyers Gully

Stanford Methyr

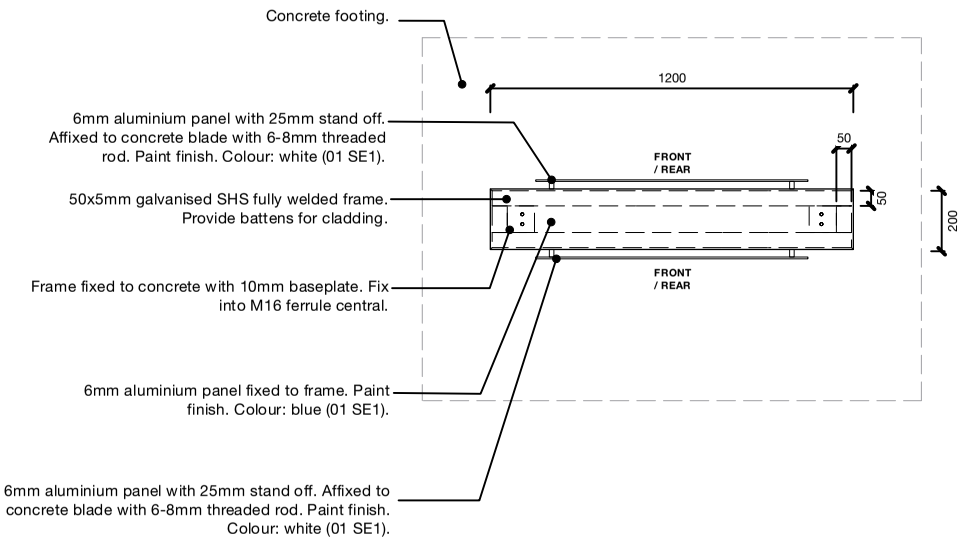
Weston

5.3 SE1 Suburb Entry Sign

The Logo subjects were chosen by public surveys organised by Cessnock City Council and are as follows;

Aberdare	-	Miners cottage
Abermain	-	Pit horse
Bellbird	-	Mining disaster
Bellbird Heights	-	Mining disaster
Blackhill	-	Mandarine
Branxton	-	Handshake, grapes and a pickaxe
Brunkerville	-	Wedge tailed eagle
Cessnock	-	Vine leaves/ glass
Ellalong	-	Pelican
Elrington	-	Coal mining
Greta	-	Greta mining camp
Kearsley	-	Horses trough
Kitchener	-	Coal mine poppet head
Kurri Kurri	-	Kookaburra
Millfield	-	Bullocky team
Mount Vincent	-	Mount Sugarloaf
Mulbring	-	Bullockies
Neath	-	Imagery of Harry Littlefair's miners lamp & WWI
North Rothbury	-	Rothbury Riot
Nulkaba	-	Vineyards
Paxton	-	Colliery buildings
Pelaw Main	-	Steam Train
Richmond Vale	-	Steam Train
Rothbury	-	Rothbury Riot
Sawyers Gully	-	Native dog (Sawyers Gully was formerly known as Native Dog Hill)
Stanford Methyr	-	Colliery
Weston	-	Steam train

5.3 SE1 Suburb Entry Sign



02 SE1 Suburb Entry Sign - Plan
Scale 1:25

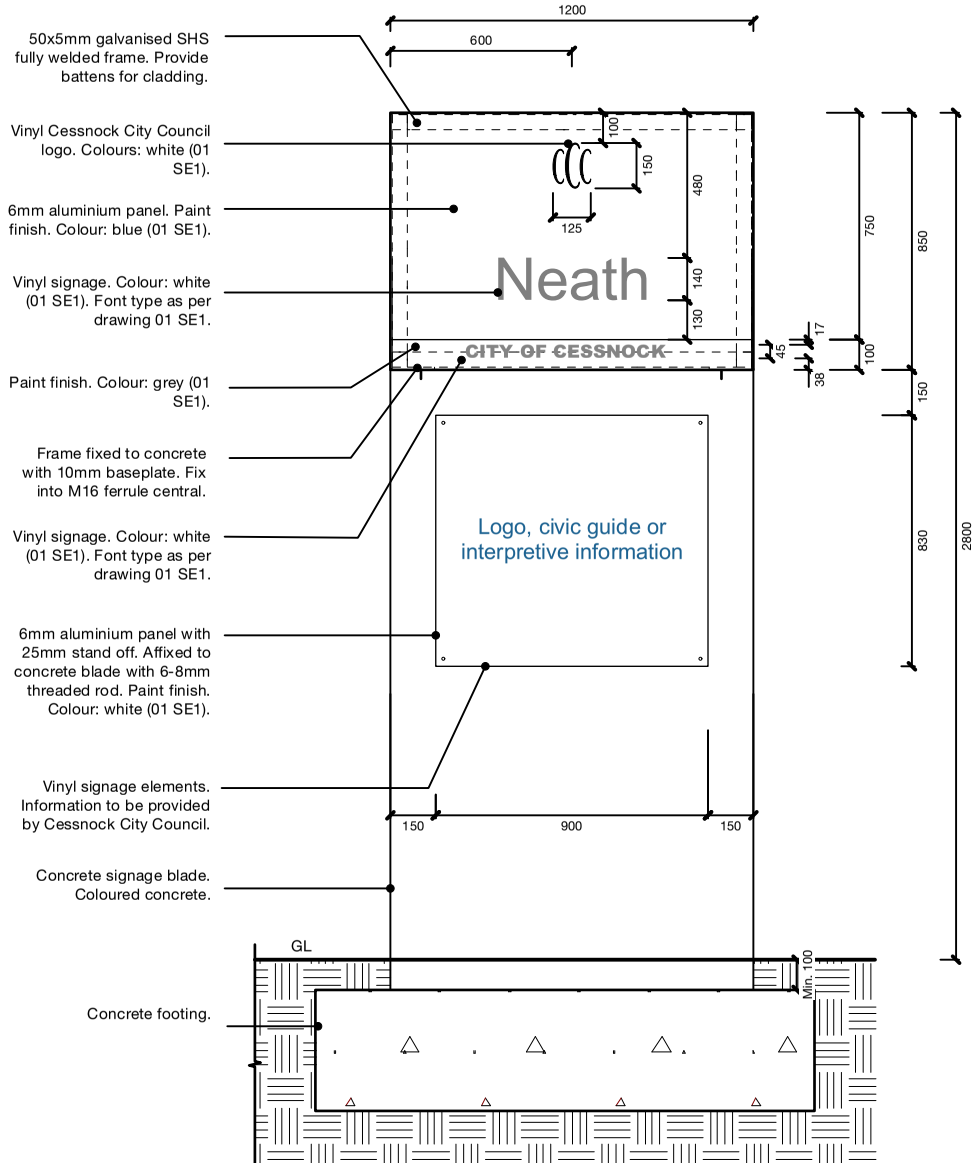
General Notes:

Refer to SE1 Suburb Entry Sign supporting drawings:

- 01 SE1 Suburb Entry Sign
- 02 SE1 Suburb Entry Sign - Plan
- 03 SE1 Suburb Entry Sign - Elevation (Front and Rear)
- 04 SE1 Suburb Entry Sign - Side Section

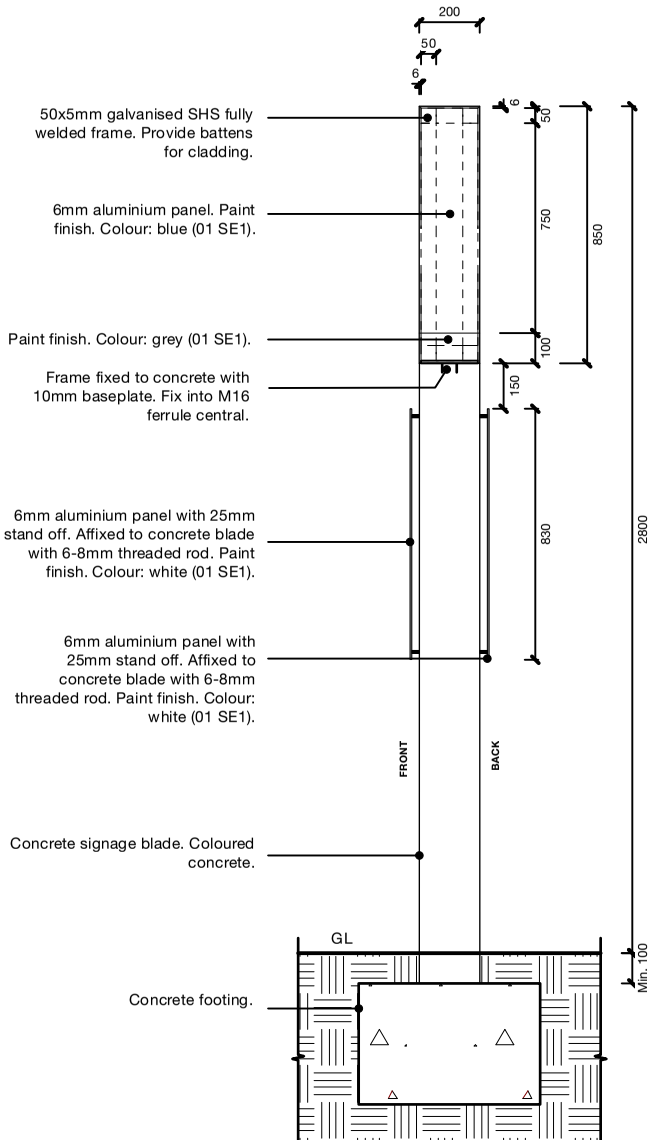
Refer Section 4 - Signage Specification

Refer Engineer's Specification and Details



03 SE1 Suburb Entry Sign - Elevation (Front and Rear)
Scale 1:25

5.3 SE1 Suburb Entry Sign



04 SE1 Suburb Entry Sign - Side Section
Scale: 1:25

General Notes:

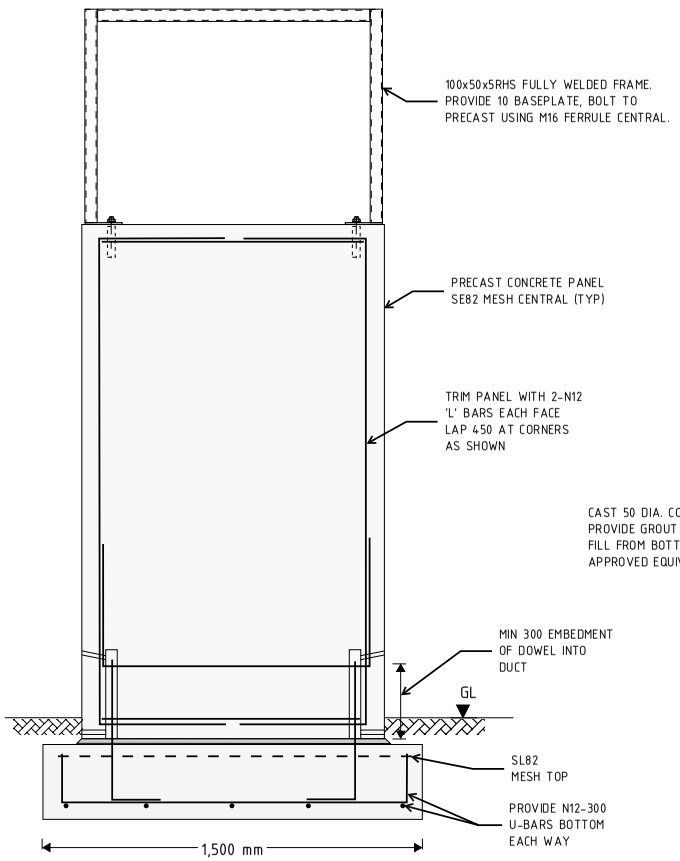
Refer to SE1 Suburb Entry Sign supporting drawings:

- 01 SE1 Suburb Entry Sign
- 02 SE1 Suburb Entry Sign - Plan p.50
- 03 SE1 Suburb Entry Sign - Elevation (Front and Rear)
- 04 SE1 Suburb Entry Sign - Side Section

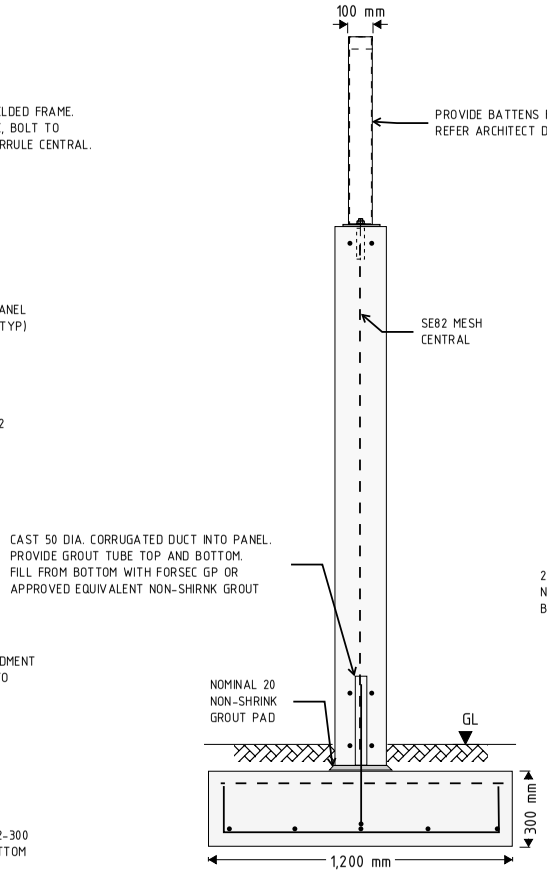
Refer Section 4 - Signage Specification

Refer Engineer's Specification and Details

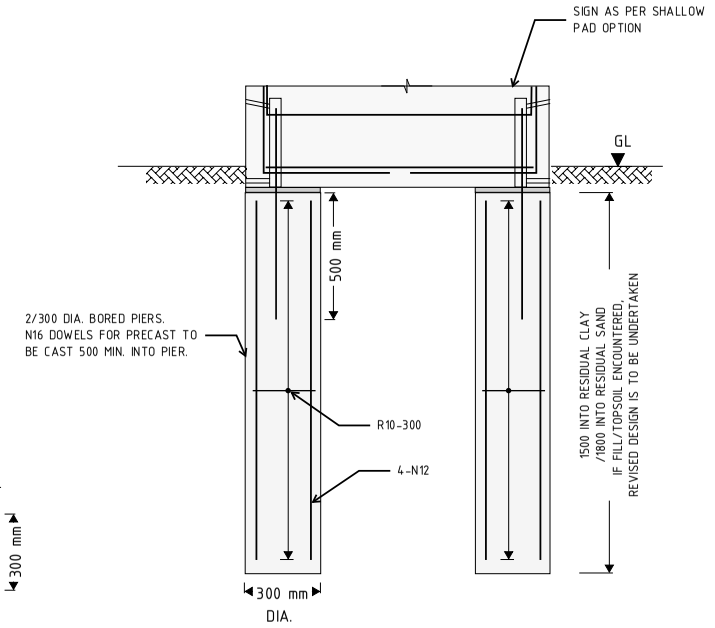
5.3 SE1 Suburb Entry Sign - Engineer's Drawing



LONG SECTION
(SHALLOW PAD OPTION)



TRANSVERSE SECTION
(SHALLOW PAD OPTION)



LONG SECTION
(BORED PILE OPTION)

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

CF1 - COMMUNITY FACILITY INFORMATION SIGN (2800h x 1200w)
SE1 - SUBURB ENTRY SIGN (2800h x 1250w) SIMILAR
TC1-TC2 - TOWN CENTRE INFORMATION SIGN (2800h x 900w) SIMILAR

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JOB NUMBER:	NL166682	DATE:	15/12/2017	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			1
DRAWING TITLE:	CF1, SE1 AND TC1-TC2 SIGNS			
DRAWING NUMBER:	NL166682_SK22			

5.3 SE1 Suburb Entry Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

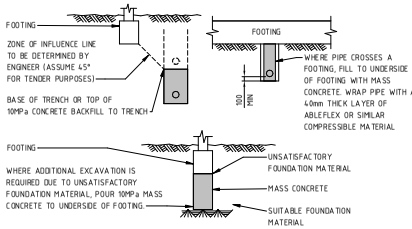
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER M_z,cat = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

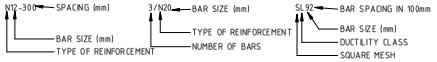
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100.

IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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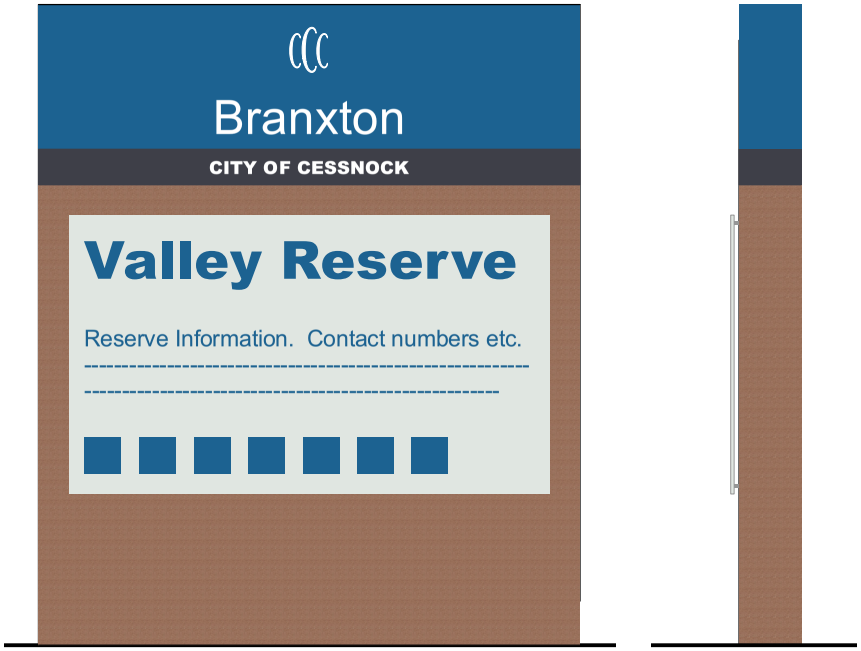
JOB NUMBER:	NL166682	DATE:	16/02/2018	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			2
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

5.4 CE1 Community Facility Entry Sign



01 CE1 Community Facility Entry Sign - Elevation

COLOURS:

Blue: CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Concrete Colour: CCS Honeycomb (4%)

LETTERING:

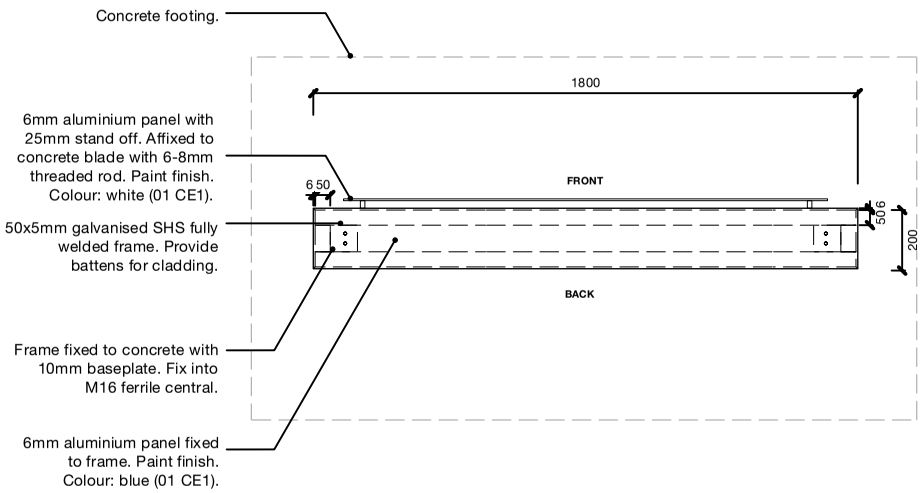
Suburb: Arial

City of Cessnock: Arial Black

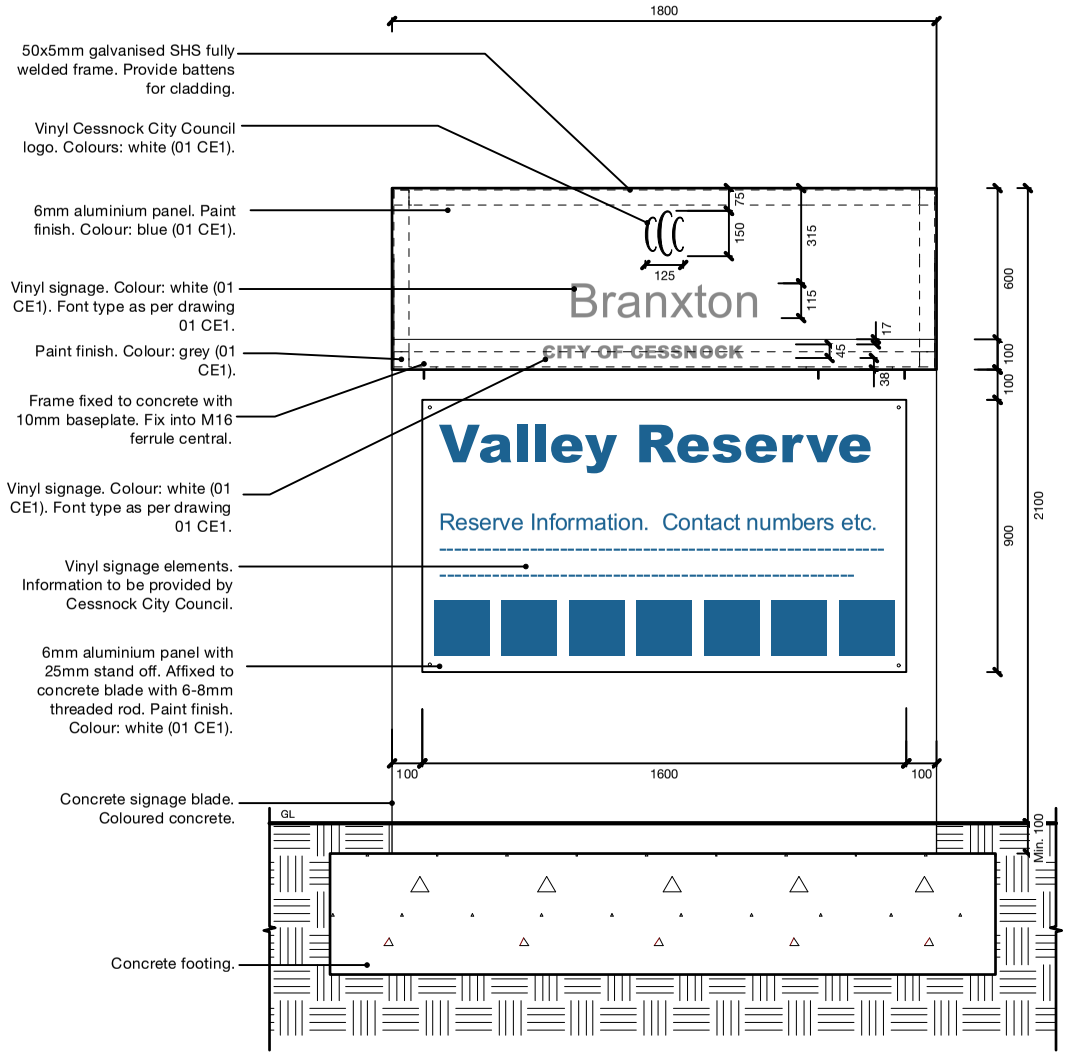
Valley Reserve: Arial Black

Reserve Information etc: Arial

5.4 CE1 Community Facility Entry Sign



02 CE1 Community Facility Entry Sign - Plan
Scale: 1:25



03 CE1 Community Facility Entry Sign - Front Elevation
Scale: 1:25

General Notes:

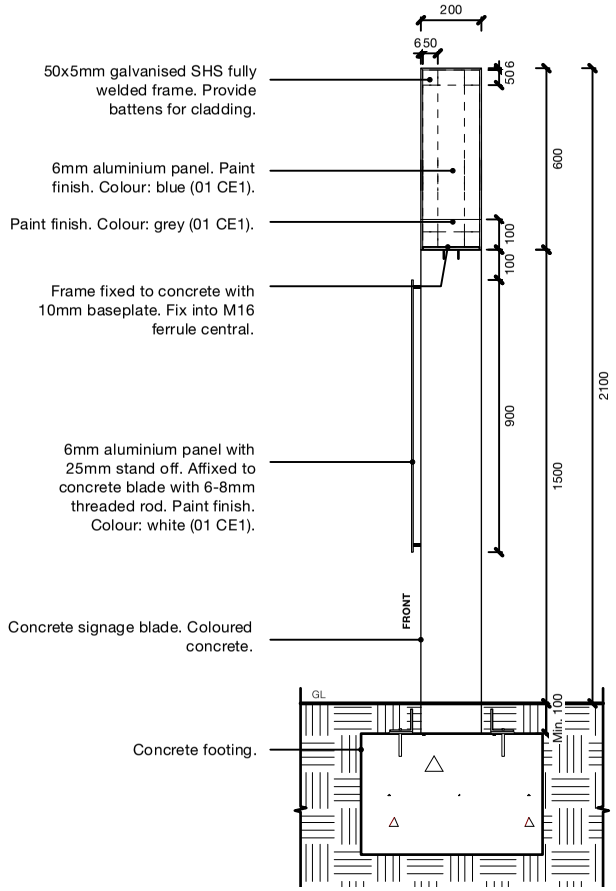
Refer to CE1 Community Facility Entry Sign supporting drawings:

- 01 CE1 Community Facility Entry Sign - Elevation
- 02 CE1 Community Facility Entry Sign - Plan
- 03 CE1 Community Facility Entry Sign - Front Elevation
- 04 CE1 Community Facility Entry Sign - Side Section
- 05 CE1 Community Facility Entry Sign - Rear Elevation

Refer Section 4 Signage Specification

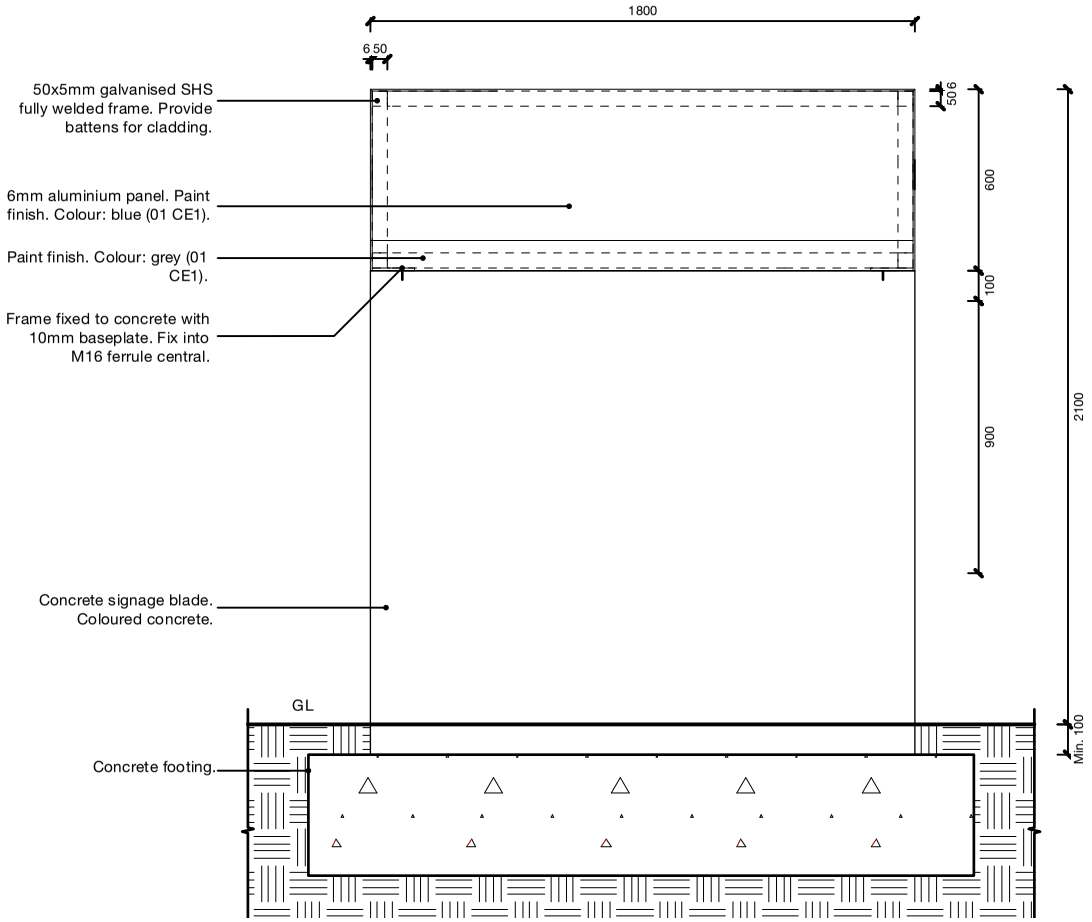
Refer Engineer's Specification and Details

5.4 CE1 Community Facility Entry Sign



04 CE1 Community Facility Entry Sign - Side Section

Scale: 1:25



05 CE1 Community Facility - Rear Elevation

Scale: 1:25

General Notes:

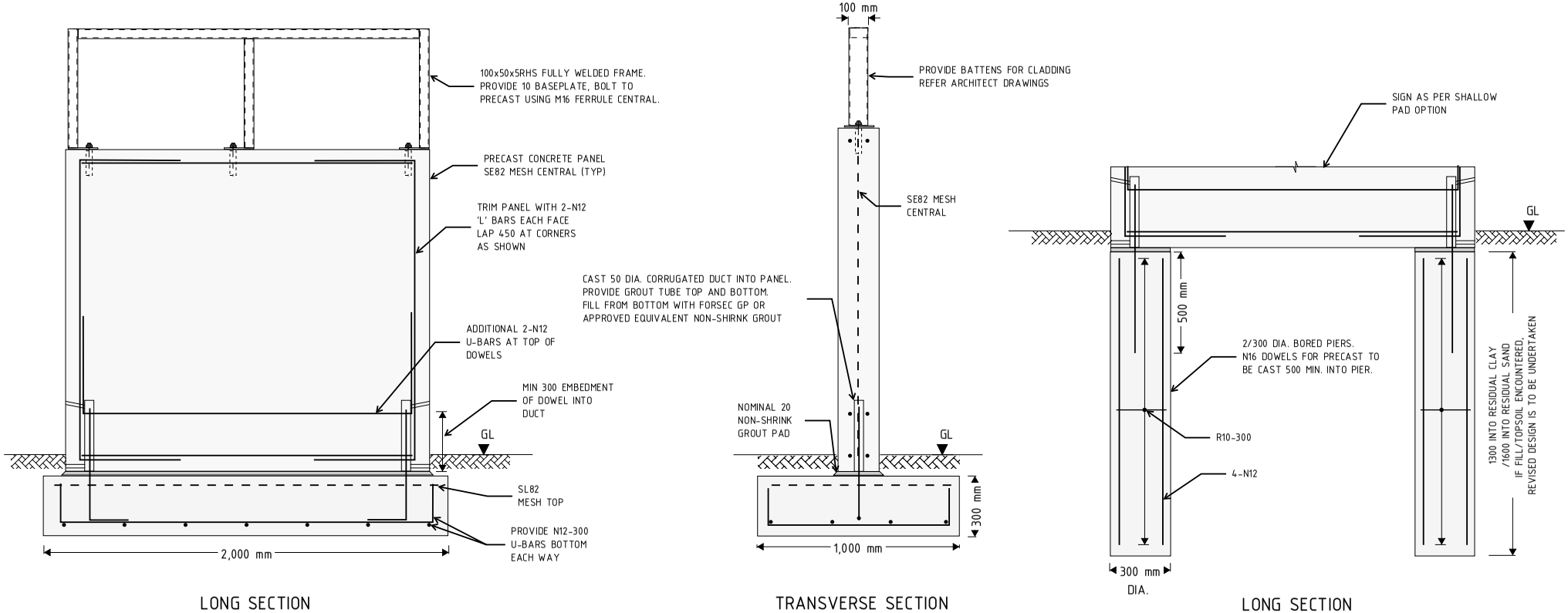
Refer to CE1 Community Facility Entry Sign supporting drawings:

- 01 CE1 Community Facility Entry Sign - Elevation
- 02 CE1 Community Facility Entry Sign - Plan
- 03 CE1 Community Facility Entry Sign - Front Elevation
- 04 CE1 Community Facility Entry Sign - Side Section
- 05 CE1 Community Facility Entry Sign - Rear Elevation

Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

5.4 CE1 Community Facility Entry Sign - Engineer's Drawing



LONG SECTION
(SHALLOW PAD OPTION)

TRANSVERSE SECTION
(SHALLOW PAD OPTION)

LONG SECTION
(BORED PILE OPTION)

CE1 - COMMUNITY FACILITY ENTRY SIGN (2100h x 1800w)

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

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JOB NUMBER:	NL166682	DATE:	15/12/2017	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			1
DRAWING TITLE:	CE1 - COMMUNITY FACILITY ENTRY SIGN			
DRAWING NUMBER:	NL166682_SK21			

5.4 CE1 Community Facility Entry Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

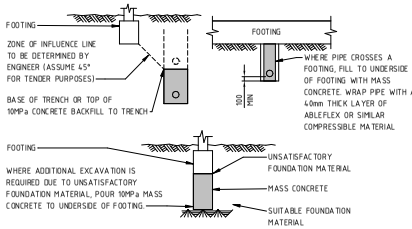
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER M_z,cat = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

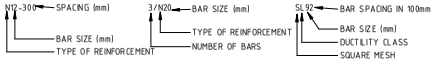
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100. IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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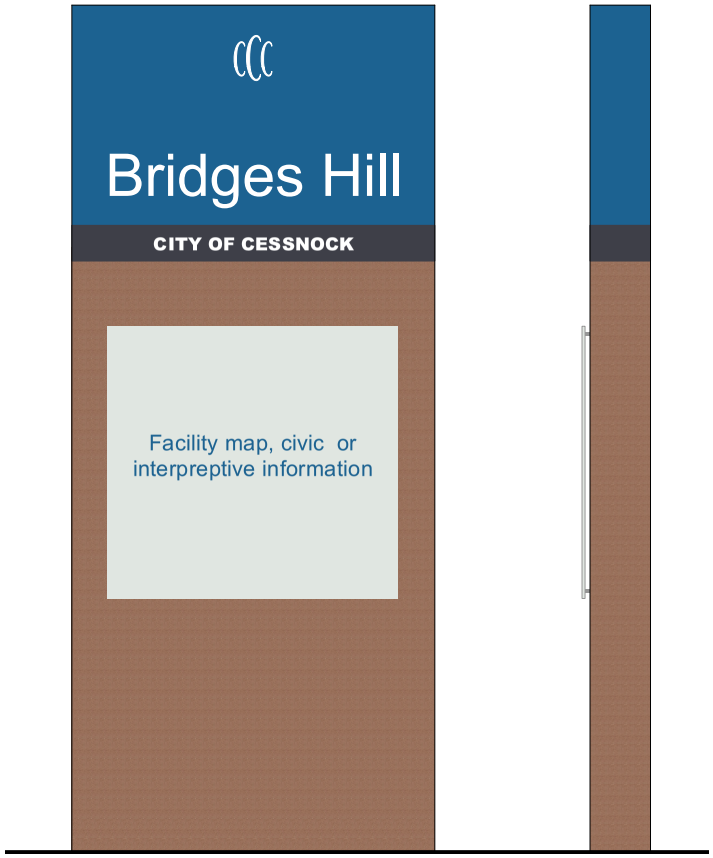
JOB NUMBER:	NL166682	DATE:	16/02/2018	REV. 2
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

5.5 CF1 Community Facility Information Sign



COLOURS:

Blue: CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Concrete Colour: CCS Honeycomb (4%)

LETTERING:

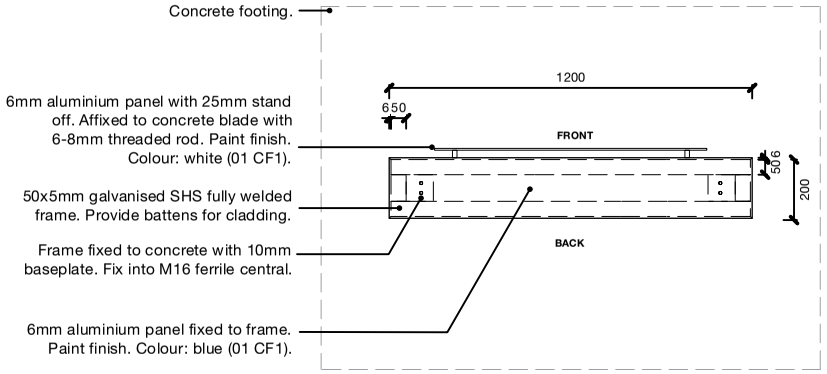
Facility Heading: Arial

City of Cessnock: Arial Black

Reserve Information etc: Arial

01 CF1 Community Facility Information Sign - Elevation

5.5 CF1 Community Facility Information Sign



02 CF1 Community Facility Information Sign - Plan
Scale: 1:25

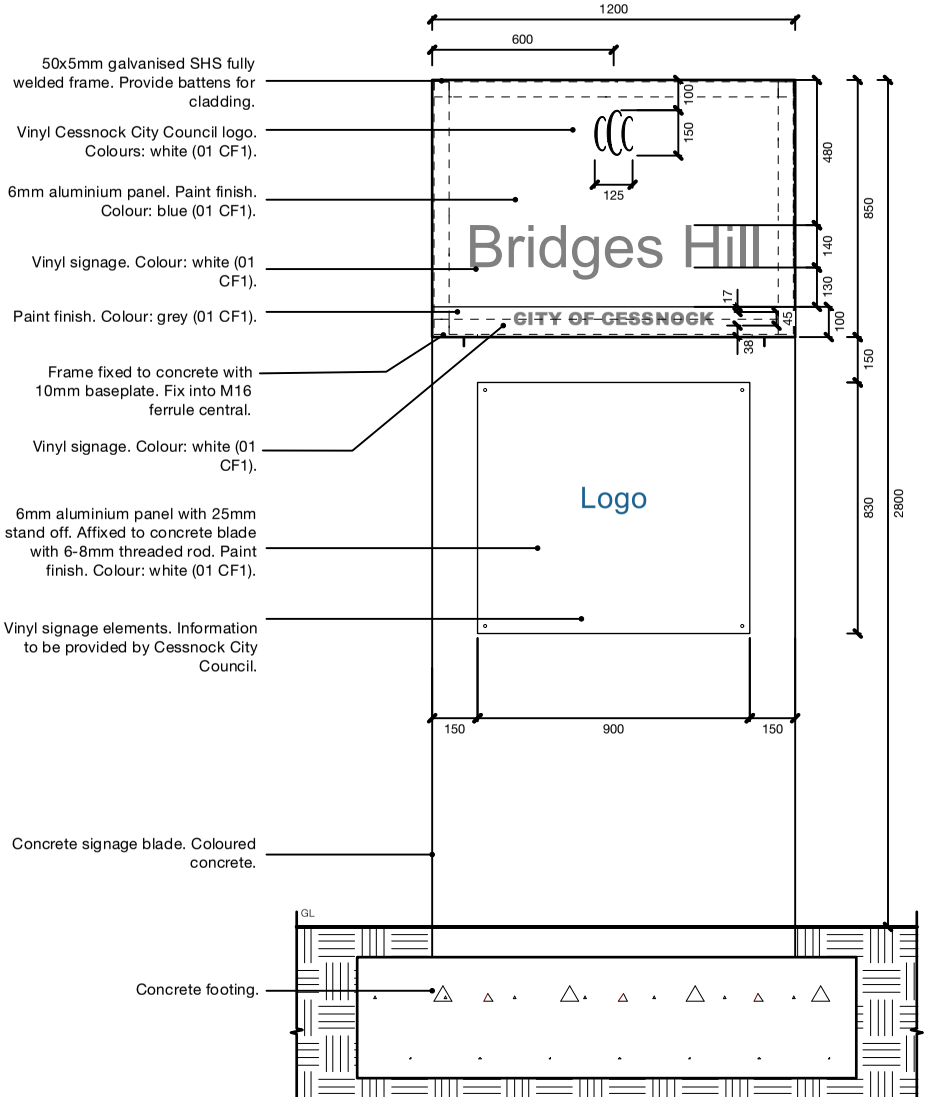
General Notes:

Refer to CF1 Community Facility Information Sign supporting drawings:

- 01 CF1 Community Facility Information - Elevation
- 02 CF1 Community Facility Information - Plan
- 03 CF1 Community Facility Information - Front Section
- 04 CF1 Community Facility Information Sign - Side Section
- 05 CF1 Community Facility Information Sign - Rear Elevation
- 06 CF1 Community Facility Information Sign - Layout Example

Refer Section 4 Signage Specification

Refer Engineers Specification and Details



03 CF1 Community Facility Information Sign - Front Section
Scale: 1:25

5.5 CF1 Community Facility Information Sign

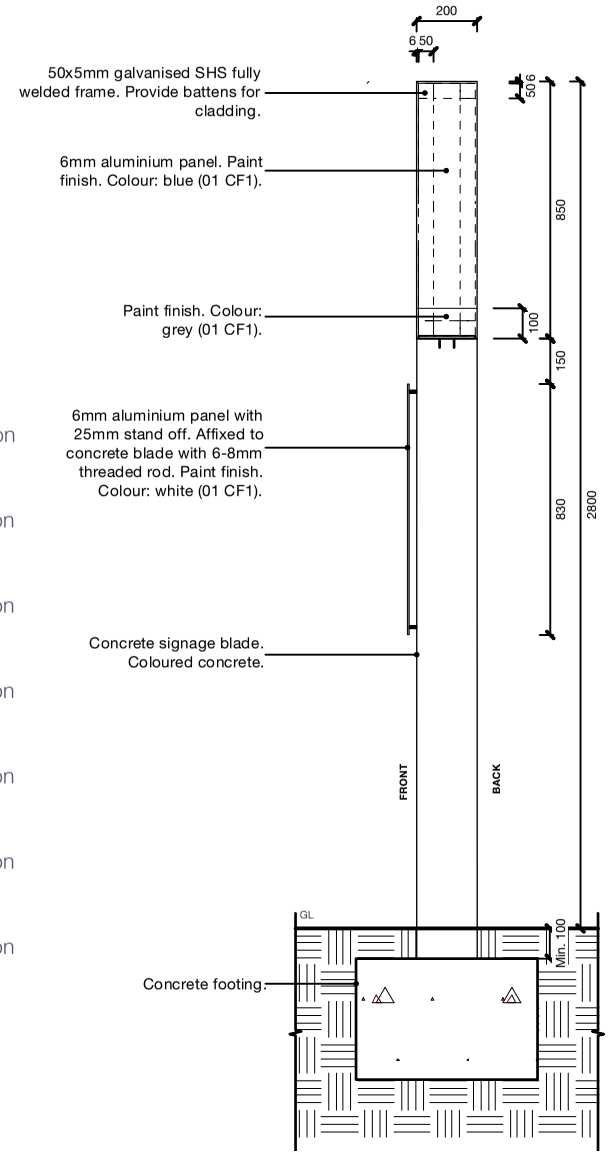
General Notes:

Refer to CF1 Community Facility Information Sign supporting drawings:

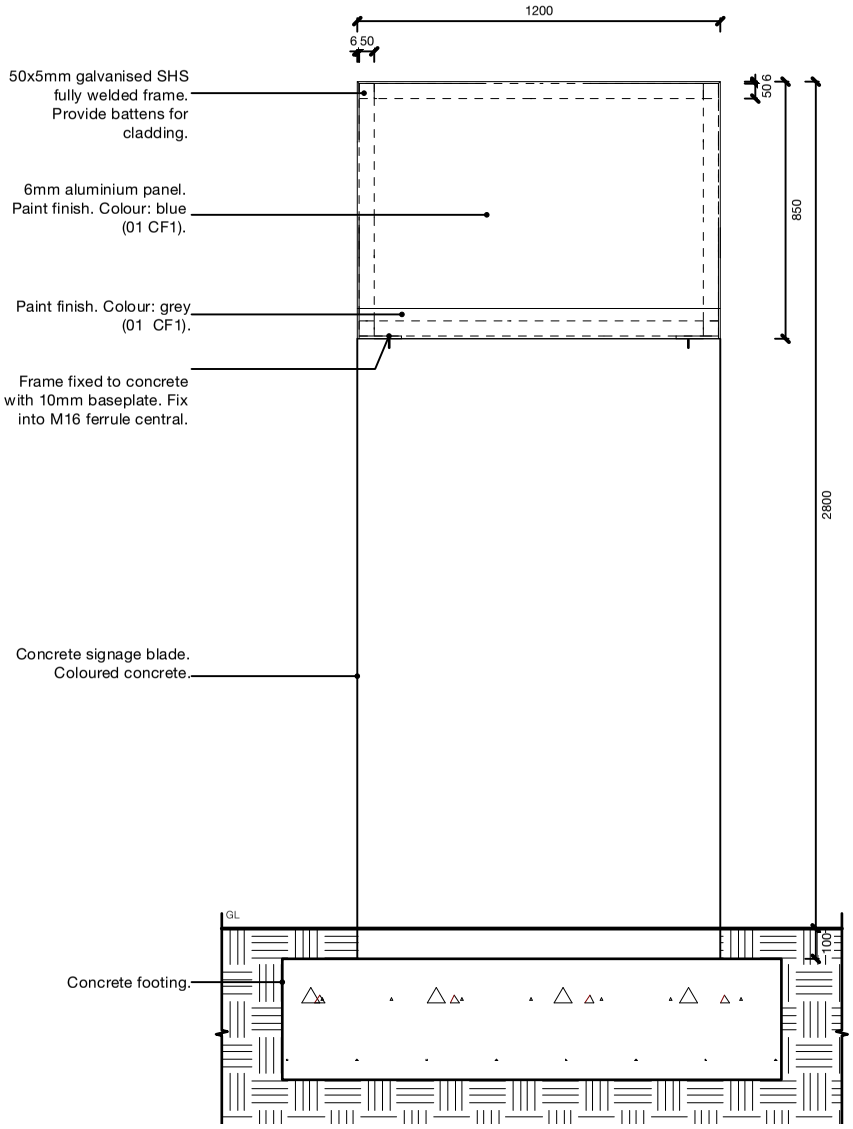
- 01 CF1 Community Facility Information - Elevation
- 02 CF1 Community Facility Information - Plan
- 03 CF1 Community Facility Information - Front Section
- 04 CF1 Community Facility Information - Side Section
- 05 CF1 Community Facility Information Sign - Rear Elevation
- 06 CF1 Community Facility Information Sign - Layout Example

Refer Section 4 Signage Specification

Refer Engineers Specification and Details

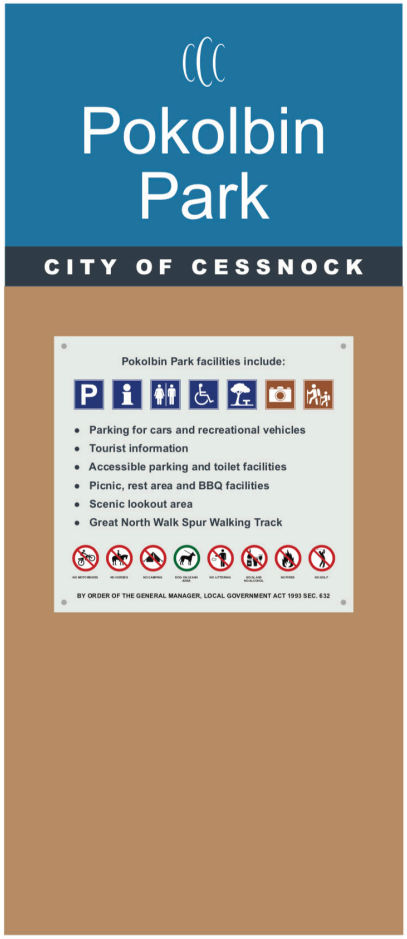


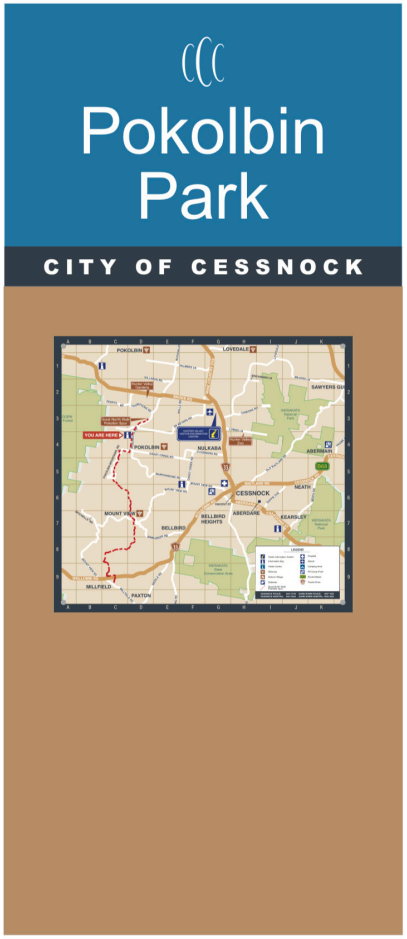
04 CF1 Community Facility Information Sign - Side Section
Scale 1:25



05 CF1 Community Facility Information - Rear Section
Scale 1:25

5.5 CF1 Community Facility Information Sign





06 CF1 Community Facility Information Sign - Layout Example
Scale 1:25

General Notes:

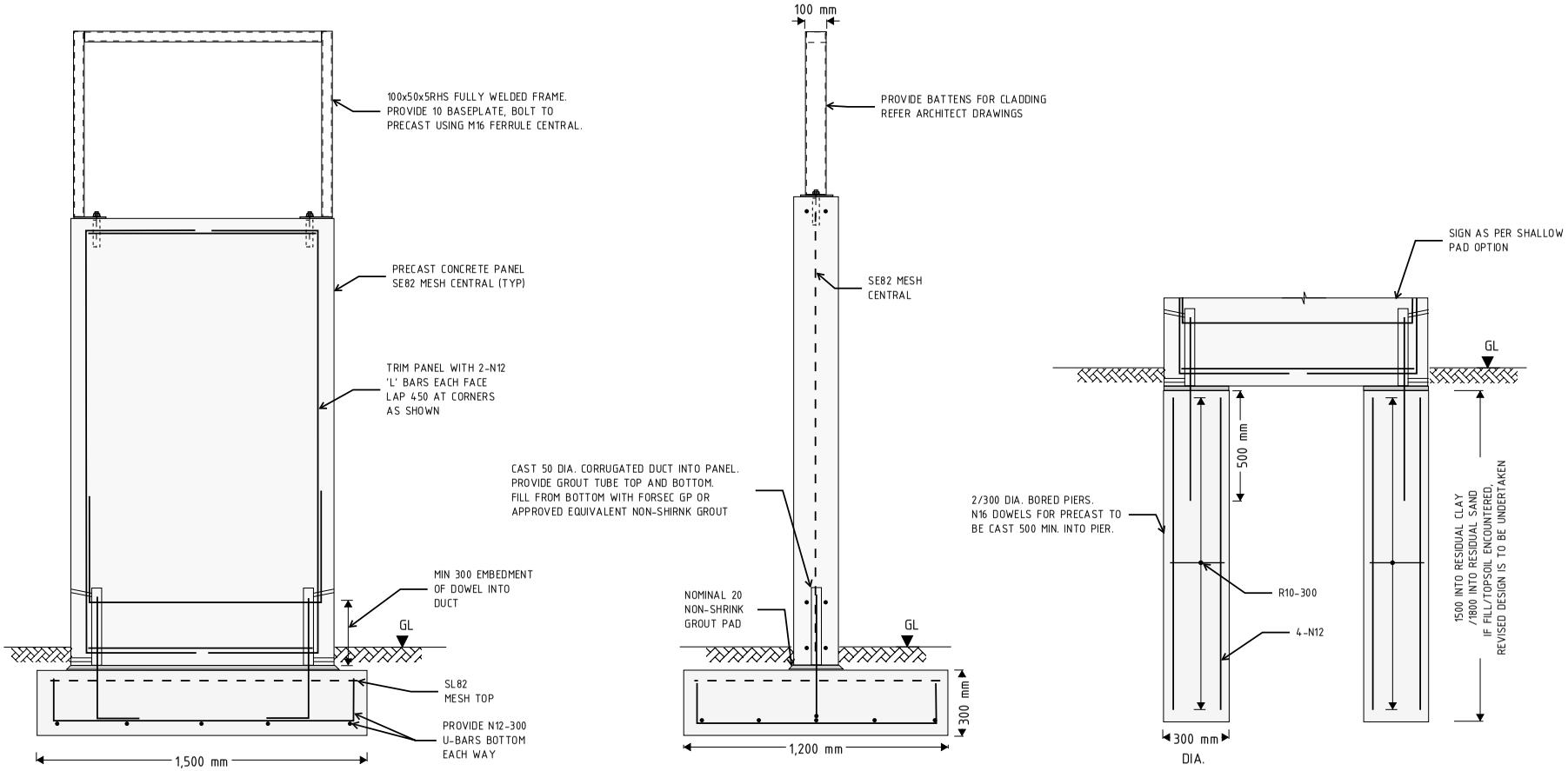
Refer to CF1 Community Facility Information Sign supporting drawings:

- 01 CF1 Community Facility Information - Elevation
- 02 CF1 Community Facility Information - Plan
- 03 CF1 Community Facility Information - Front Section
- 04 CF1 Community Facility Information - Side Section
- 05 CF1 Community Facility Information Sign - Rear Elevation
- 06 CF1 Community Facility Information Sign - Layout Example

Refer Section 4 Signage Specification

Refer Engineers Specification and Details

5.5 CF1 Community Facility Information Sign - Engineer's Drawing



LONG SECTION
(SHALLOW PAD OPTION)

TRANSVERSE SECTION
(SHALLOW PAD OPTION)

LONG SECTION
(BORED PILE OPTION)

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

CF1 - COMMUNITY FACILITY INFORMATION SIGN (2800h x 1200w)
SE1 - SUBURB ENTRY SIGN (2800h x 1250w) SIMILAR
TC1-TC2 - TOWN CENTRE INFORMATION SIGN (2800h x 900w) SIMILAR

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JOB NUMBER:	NL166682	DATE:	15/12/2017	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			1
DRAWING TITLE:	CF1, SE1 AND TC1-TC2 SIGNS			
DRAWING NUMBER:	NL166682_SK22			

5.5 CF1 Community Facility Information Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

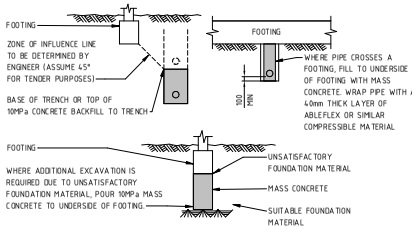
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

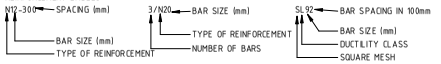
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) (TIME TO FIRST MAINTENANCE TO BE 10 YEARS) = AS/NZS 2312-HDG600P3 or IZS3
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100. IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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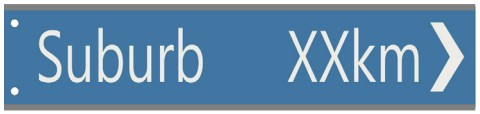
JOB NUMBER:	NL166682	DATE:	16/02/2018	REV. 2
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

5.6 SS Street Signs - Family and Colours

01 Standard Street Blade

02 Pictogram Blade



03 Suburb Directional Blade

04 Standard Street Blade
Private Road

05 Standard Street Blade
Urban No Through Road

06 Community Facility Blade

07 Standard Street Blade
Rural No Through Road

08 Bus Stop

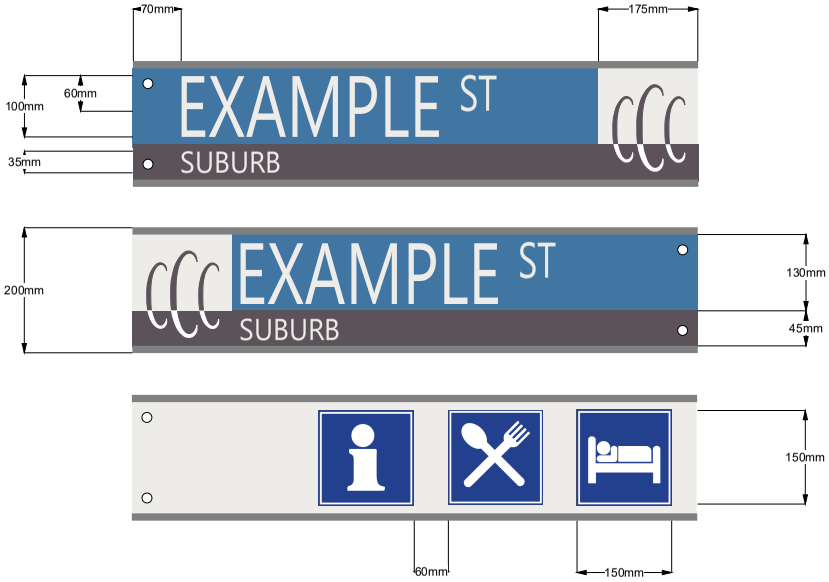
COLOURS:

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

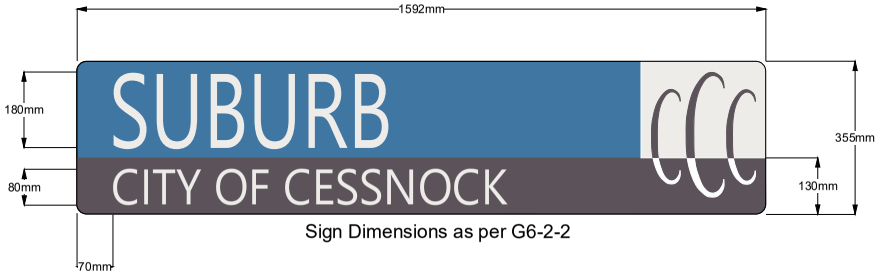
White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Blue: CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

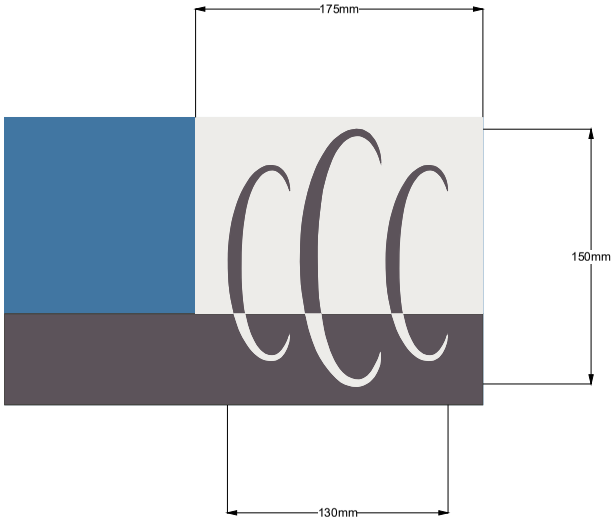
5.6 SS Street Signs - Dimensions



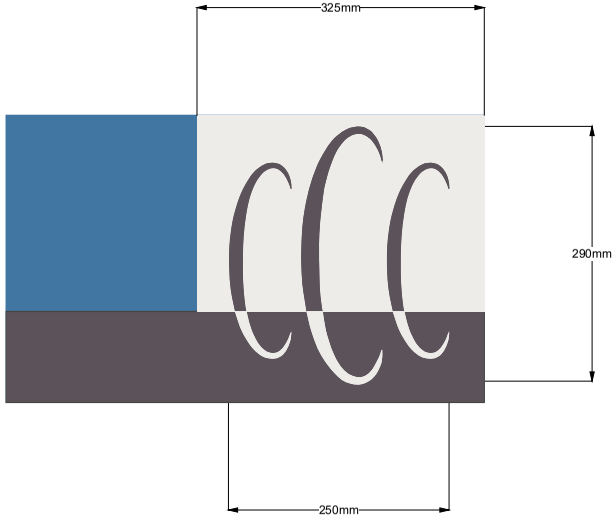
09 Standard Street Blade Dimensions



10 Suburb Sign Secondary Roads Dimensions

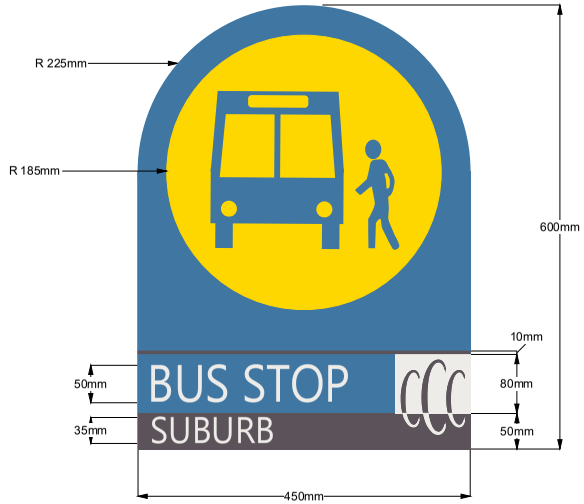


11 Standard Street Blade - Council Logo Dimensions

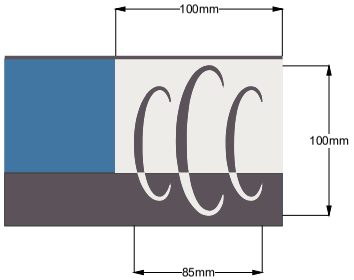


12 Suburb Sign Secondary Roads - Council Logo Dimensions

5.6 SS Street Signs - Dimensions



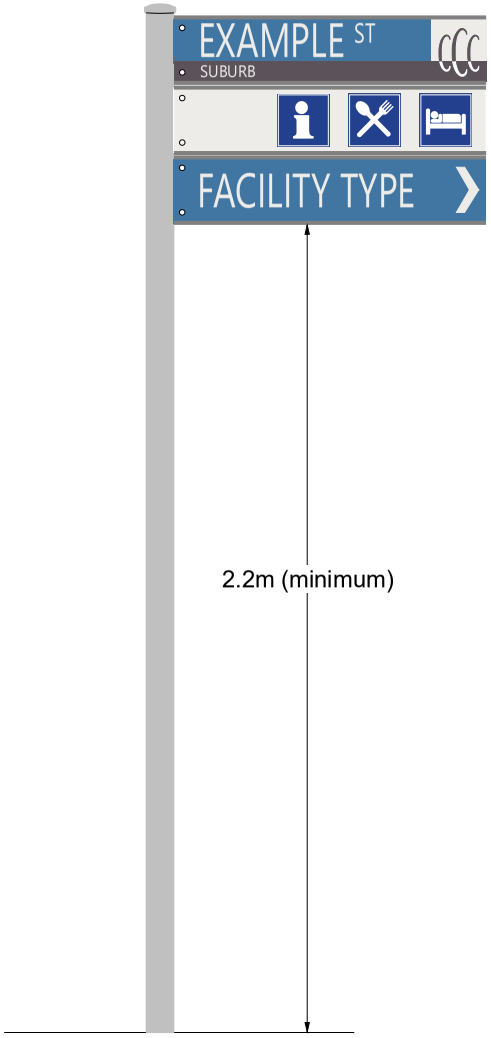
13 Bus Stop Dimensions



14 Bus Stop - Council Logo Dimensions

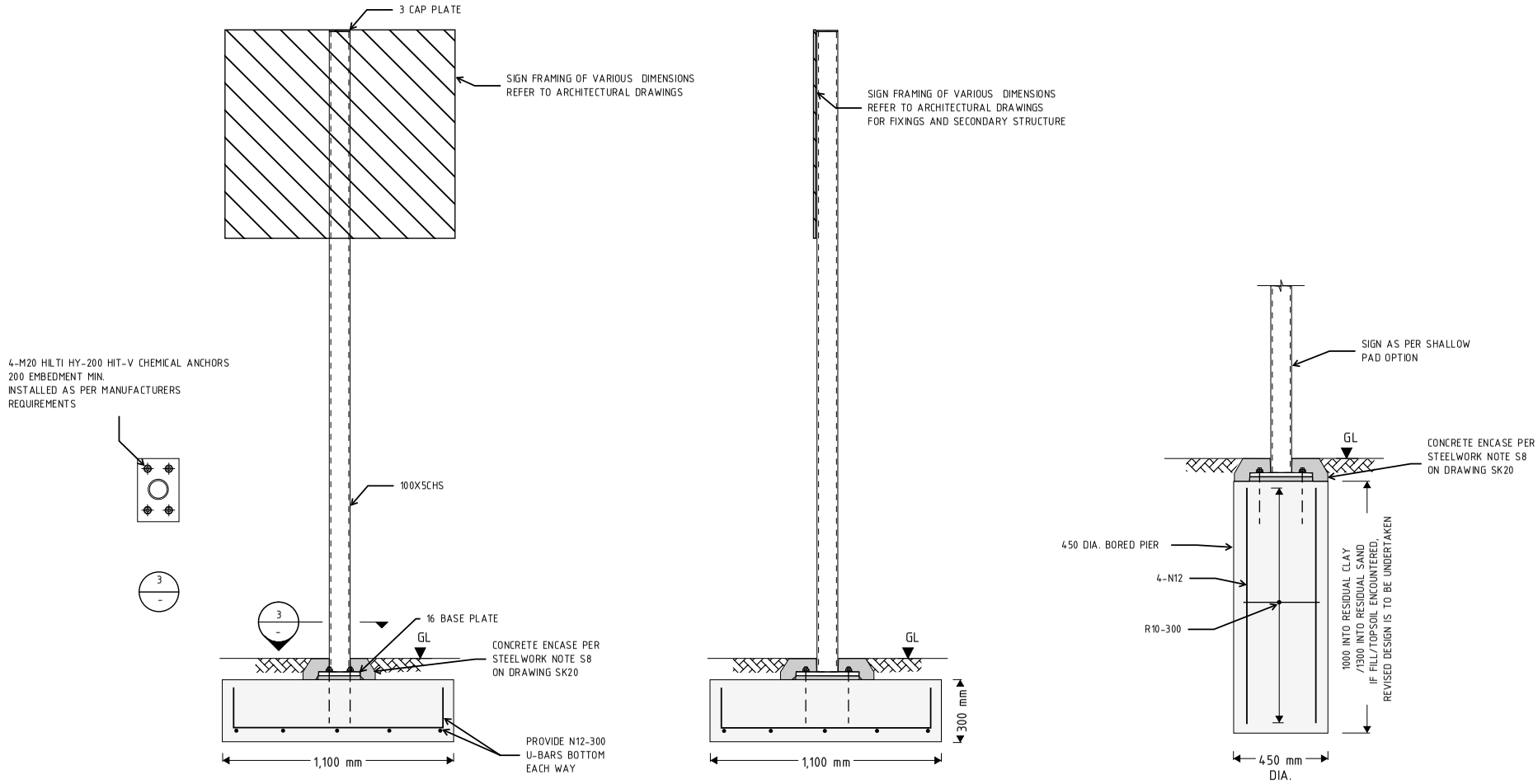
LETTERING:

BUS STOP - 50mm AS1744 Series C.
Suburb Name - 35mm AS1744 Series D



15 Sign combination and post Dimensions

5.6 SS Street Signs - Engineer's Drawing



SS1-SS6 STREET SIGNS (TYP.) (100CHS, 3000h MAX.)

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JOB NUMBER:	NL166682	DATE:	15/12/2017	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			1
DRAWING TITLE:	SS1-SS6 STREET SIGNS (TYP.)			
DRAWING NUMBER:	NL166682_SK26			

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

5.6 SS Street Signs - Signage Specification

LETTERING:

Street Blades
Digital printed Durst 3M UV ink.
Street Name: 100mm AS1744 Series C. Note 100mm Series B to be substituted for long street names if required.
ST, AV, RD etc: 60mm AS1744 Series C.
Suburb Name: 35mm AS1744 Series D.

Bus Stop
BUS STOP: 50mm AS1744 Series C.
Suburb Name: 35mm AS1744 Series D.

Suburb Directional Blade
Suburb Name and Distance: 100mm AS1744 Series C.

Suburb Sign
Suburb Name: 180mm AS1744 Series C.
LGA Name: 80mm AS1744 Series D.

Precinct Pictogram Blade
Digital printed Durst 3M UV ink.
Precinct Name: 35mm AS1744 Series D.

Rural NO THROUGH ROAD
NO: 120mm AS1744 Series E.
THROUGH ROAD: 60mm AS1744 Series E.

BLADE LENGTH:

600mm - 900mm (length to suit)
900mm- 1200mm (to be used only after consultation with Council Staff.

BLADE MATERIAL:

200mm Aluminium Street Blade Extrusion.
3M ECF 1170 clear over-laminate.

BLADE BRACKETS:

1 Way: AL1-8
2 Way: AL2-8
3 Way: AL3-8

POSTS:

50mm Galvanised. 2.9mm wall

5.6 SS Street Signs - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

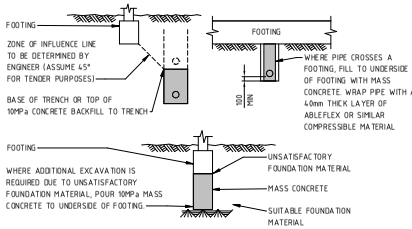
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

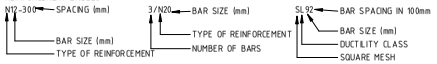
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100. IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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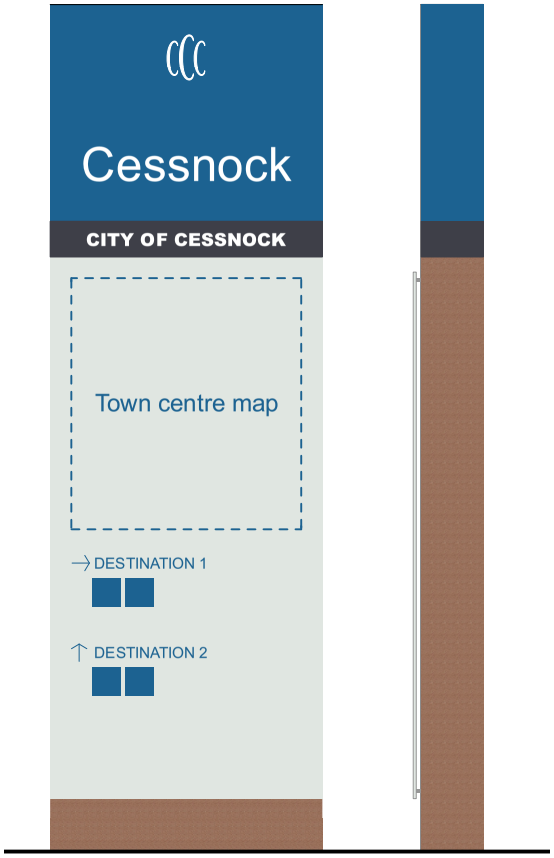
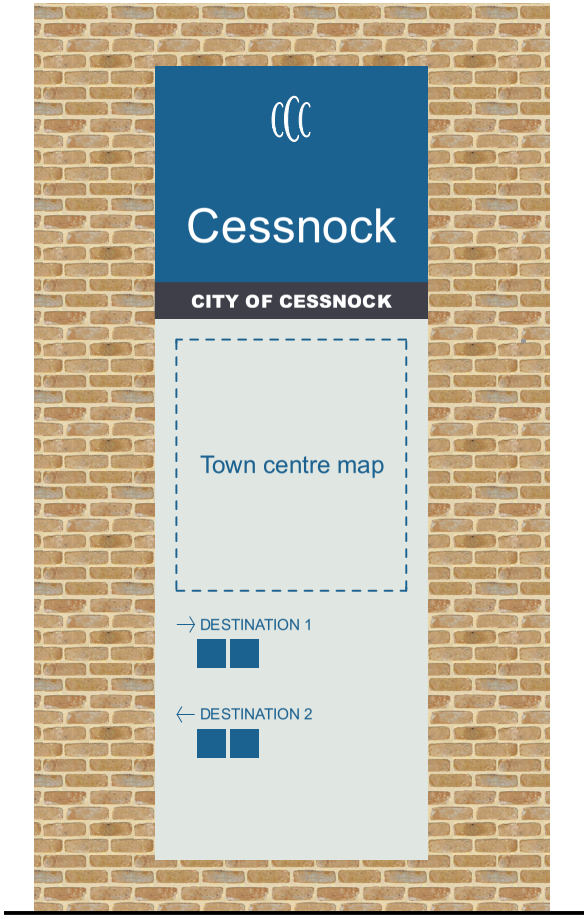
Email newcastle@northrop.com.au ABN 81 094 433 100

JOB NUMBER:	NL166682	DATE:	16/02/2018	REV. 2
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

5.7 TC1-TC2 Town Centre Information Sign





COLOURS:

Blue: CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Concrete Colour: CCS Honeycomb (4%)

LETTERING:

Town Centre: Arial

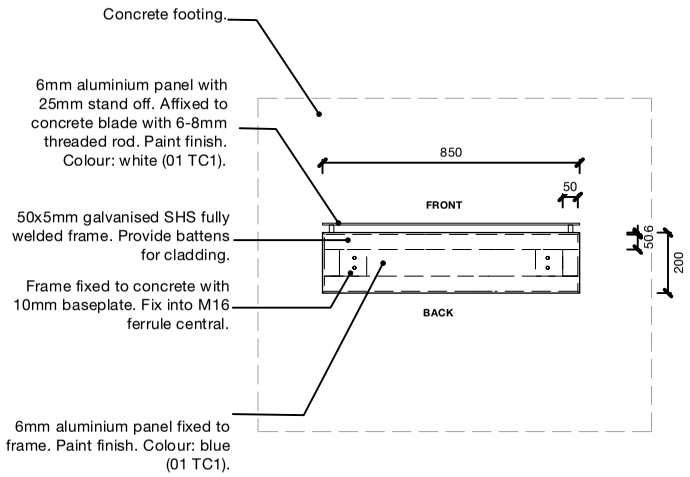
City of Cessnock: Arial Black

Town Centre Information etc: Arial

01 TC1 Town Centre Information Sign (Free-standing) - Elevation

02 TC2 Town Centre Information Sign (Wall Mounted) - Elevation

5.7 TC1 Town Centre Information Sign - Free-standing



03 TC1 Town Centre Information Sign (Free-standing) - Plan
Scale 1:25

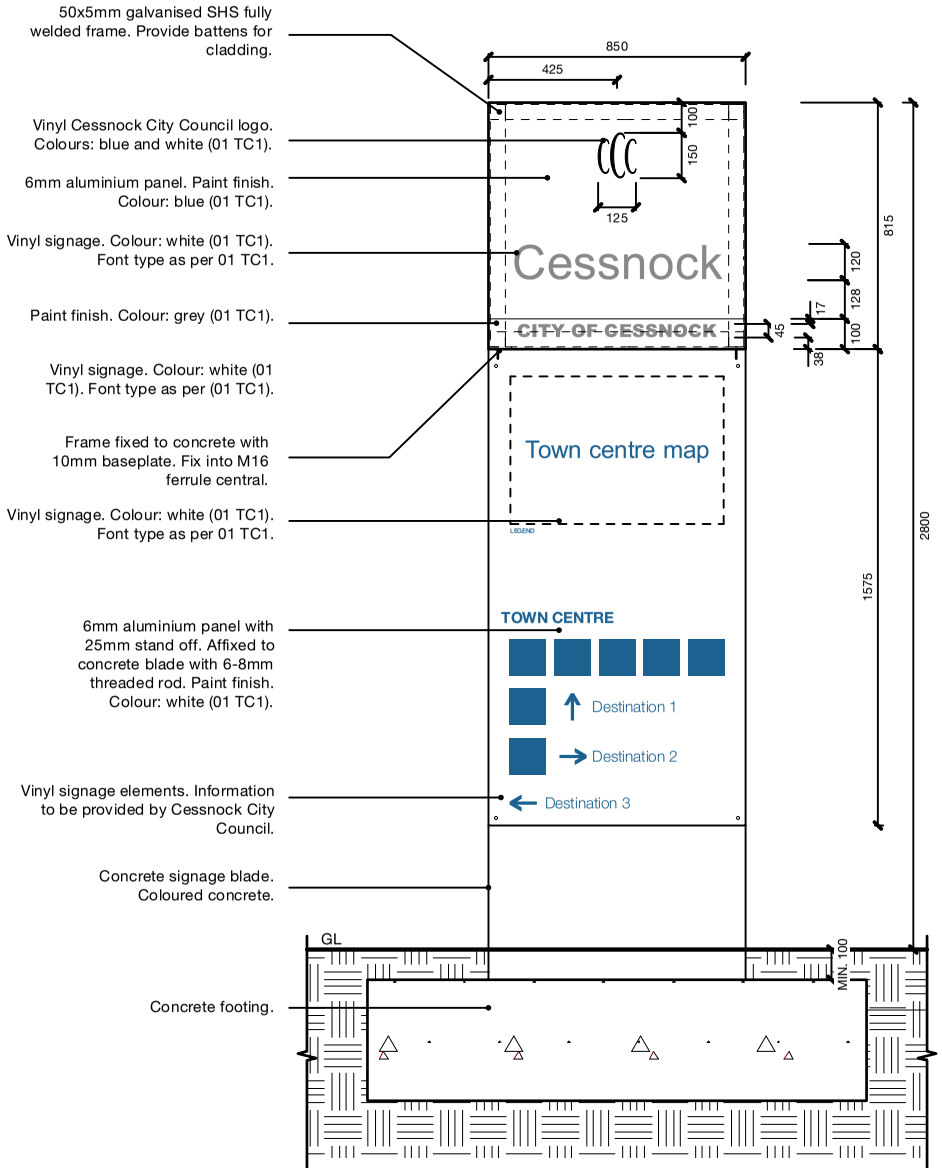
General Notes:

Refer to TC1-TC2 Town Centre Information Sign supporting drawings:

- 01 TC1 Town Centre Information (Free-standing) - Elevation
- 02 TC2 Town Centre Information (Wall Mounted) - Elevation
- 03 TC2 Town Centre Information (Free-standing) - Plan
- 04 TC2 Town Centre Information (Free-standing) - Front Elevation
- 05 TC1 Town Centre Information (Free-standing) - Side Section
- 06 TC2 Town Centre Information Sign (Wall Mounted) - Front Elevation
- 07 TC2 Town Centre Information Sign (Wall Mounted) - Side Section
-

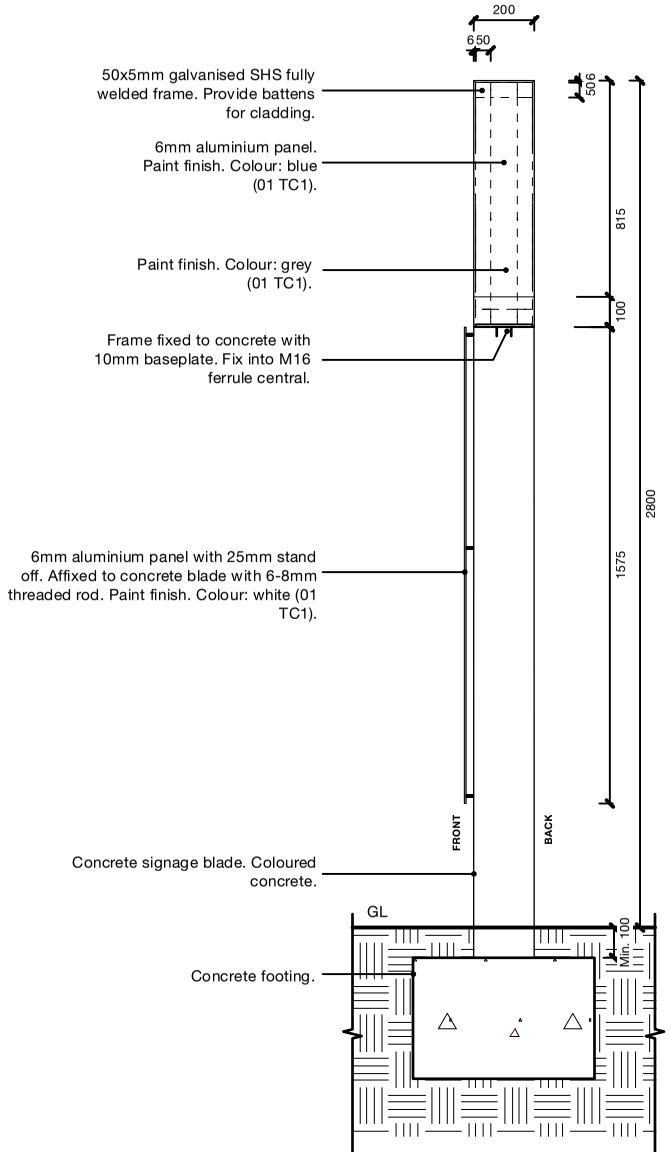
Refer Section 4 Signage Specification

Refer Engineer's Specification and Details



04 TC1 Town Centre Information Sign (Free-standing) - Front Elevation
Scale 1:25

5.7 TC1 Town Centre Information Sign - Freestanding



General Notes:

Refer to TC1-TC2 Town Centre Information Sign supporting drawings:

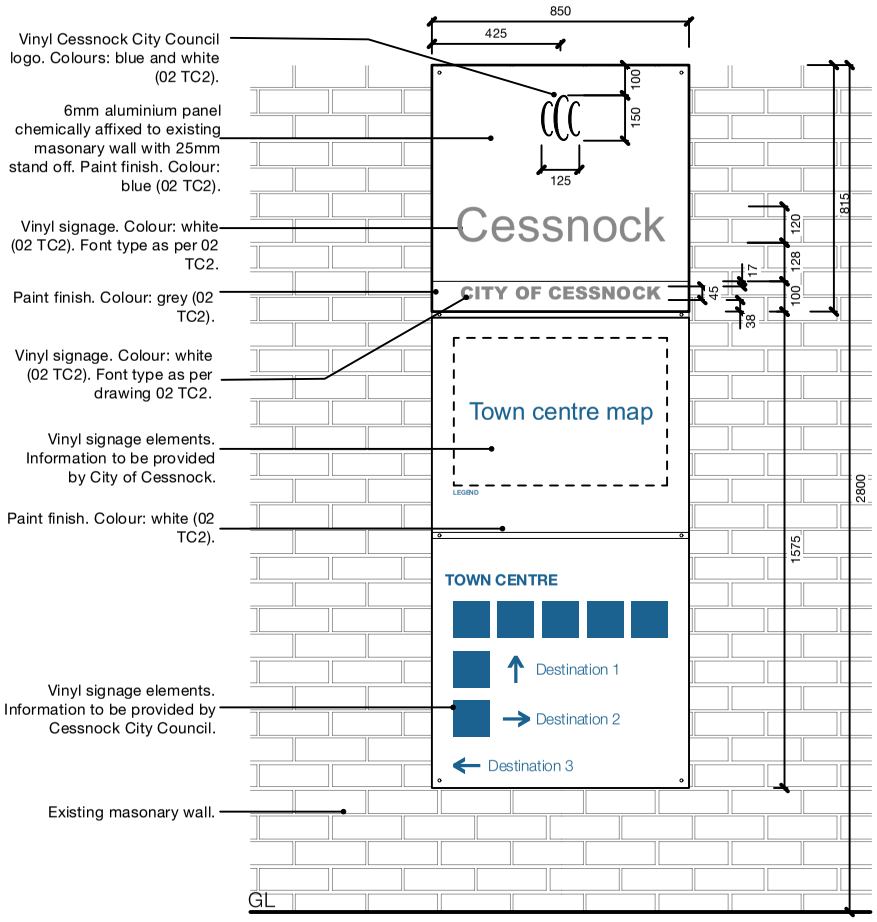
- 01 TC1 Town Centre Information (Free-standing) - Elevation
- 02 TC2 Town Centre Information (Wall Mounted) - Elevation
- 03 TC2 Town Centre Information (Free-standing) - Plan
- 04 TC2 Town Centre Information (Free-standing) - Front Elevation
- 05 TC1 Town Centre Information (Free-standing) - Side Section
- 06 TC2 Town Centre Information Sign (Wall Mounted) - Front Elevation
- 07 TC2 Town Centre Information Sign (Wall Mounted) - Side Section

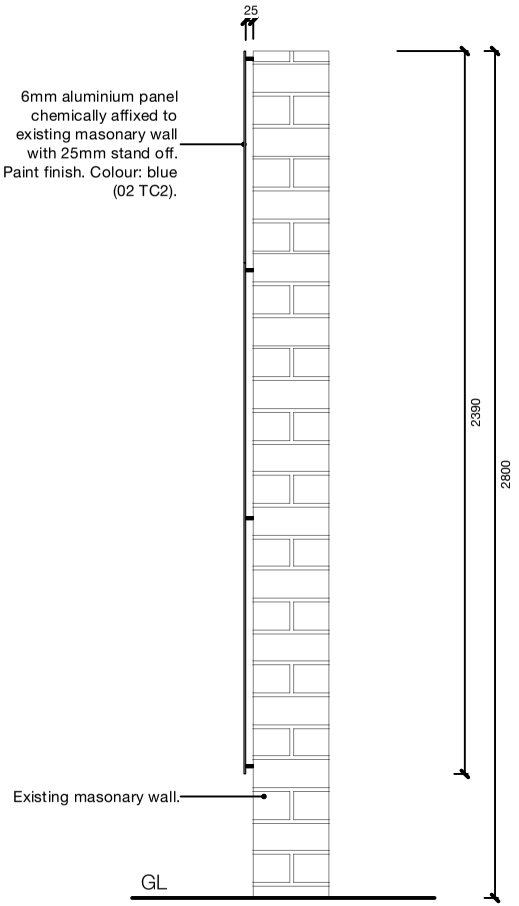
Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

05 TC1 Town Centre Information Sign (Free-standing) - Side Section
Scale 1:25

5.7 TC2 Town Centre Information Sign - Wall Mounted





General Notes:

Refer to TC1-TC2 Town Centre Information Sign supporting drawings:

- 01 TC1 Town Centre Information (Free-standing) - Elevation
- 02 TC2 Town Centre Information (Wall Mounted) - Elevation
- 03 TC2 Town Centre Information (Free-standing) - Plan
- 04 TC2 Town Centre Information (Free-standing) - Front Elevation
- 05 TC1 Town Centre Information (Free-standing) - Side Section
- 06 TC2 Town Centre Information Sign (Wall Mounted) - Front Elevation
- 07 TC2 Town Centre Information Sign (Wall Mounted) - Side Section

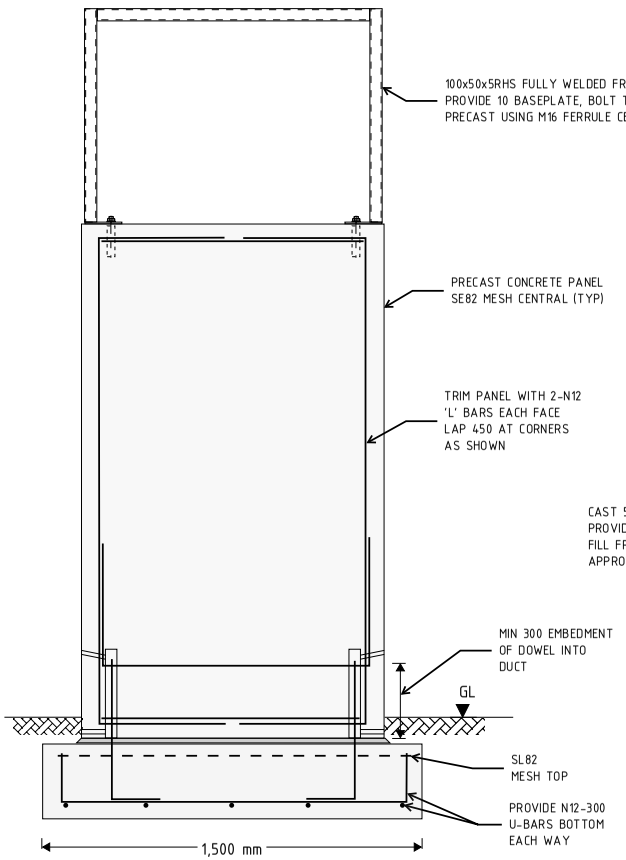
Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

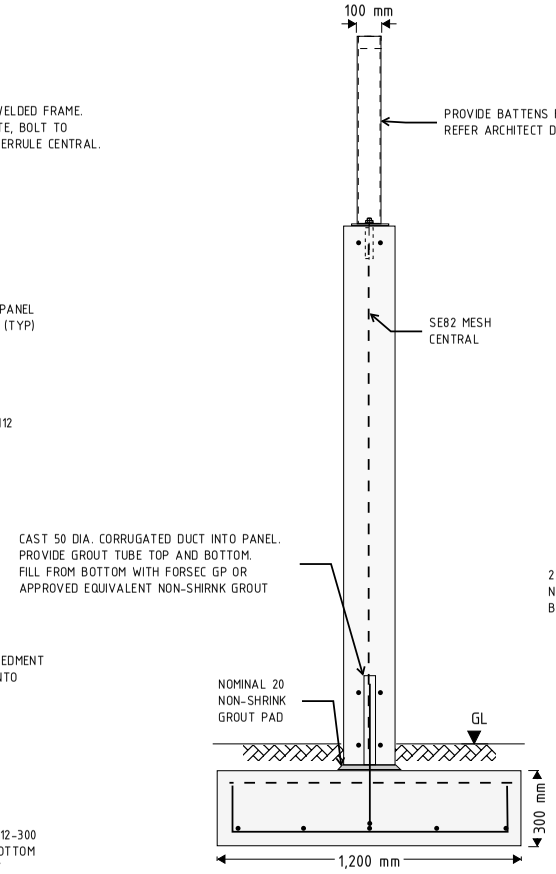
06 TC2 Town Centre Information Sign (Wall Mounted) - Front Elevation
Scale 1:25

07 TC2 Town Centre Information Sign (Wall Mounted) - Side Section
Scale 1:25

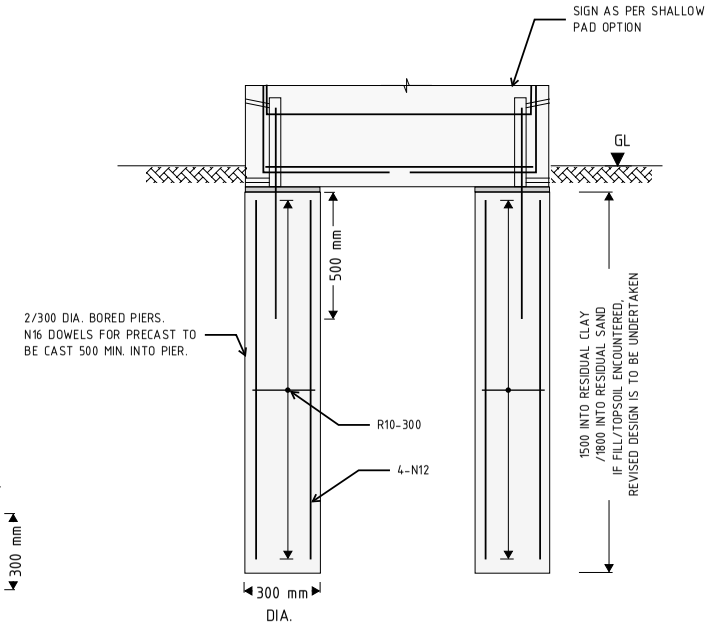
5.7 TC2 Town Centre Information Sign - Engineer's Drawing



LONG SECTION
(SHALLOW PAD OPTION)



TRANSVERSE SECTION
(SHALLOW PAD OPTION)



LONG SECTION
(BORED PILE OPTION)

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

CF1 - COMMUNITY FACILITY INFORMATION SIGN (2800h x 1200w)
SE1 - SUBURB ENTRY SIGN (2800h x 1250w) SIMILAR
TC1-TC2 - TOWN CENTRE INFORMATION SIGN (2800h x 900w) SIMILAR

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JOB NUMBER:	NL166682	DATE:	15/12/2017	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			1
DRAWING TITLE:	CF1, SE1 AND TC1-TC2 SIGNS			
DRAWING NUMBER:	NL166682_SK22			

5.7 TC1-TC2 Town Centre Information Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

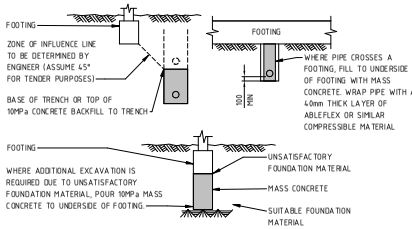
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

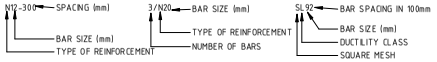
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100. IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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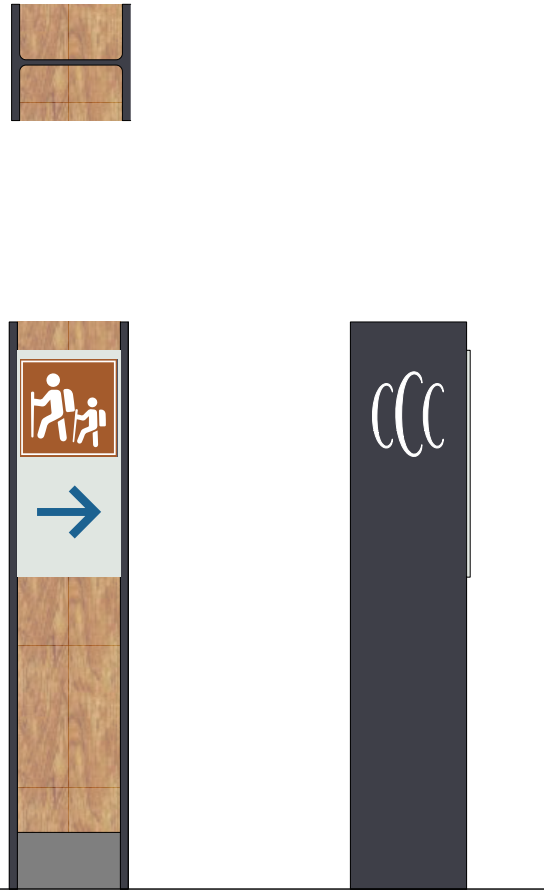
JOB NUMBER:	NL166682	DATE:	16/02/2018	REV. 2
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

5.8 WC1 Walkway/Cycleway Sign



COLOURS:

Blue: CMYK: 83, 37, 6, 6
RGB: 65, 118, 162

Grey: CMYK: 74, 66, 48, 16
RGB: 92, 83, 90

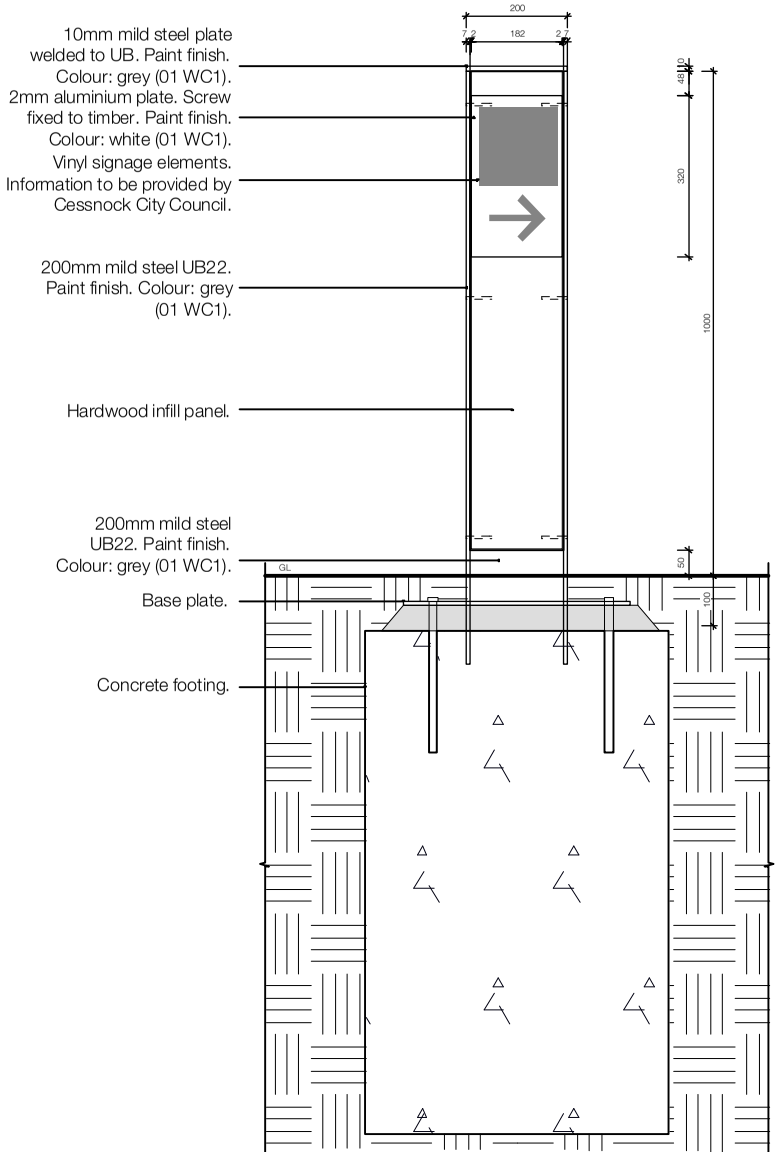
White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

HARDWOOD TIMBER:

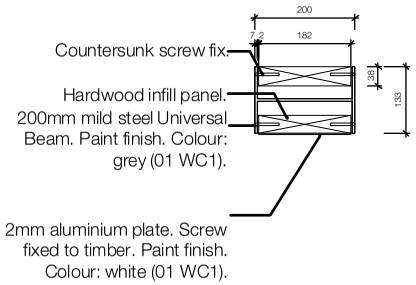
Hardwood Timber

01 WC1 Walkway/Cycleway Sign - Elevation

5.8 WC1 Walkway/Cycleway Signs



02 Typical WC1 Walkway/Cycleway Sign - Front Elevation
Scale 1:15



03 Typical WC1 Walkway/ Cycleway Sign - Plan
Scale 1:15

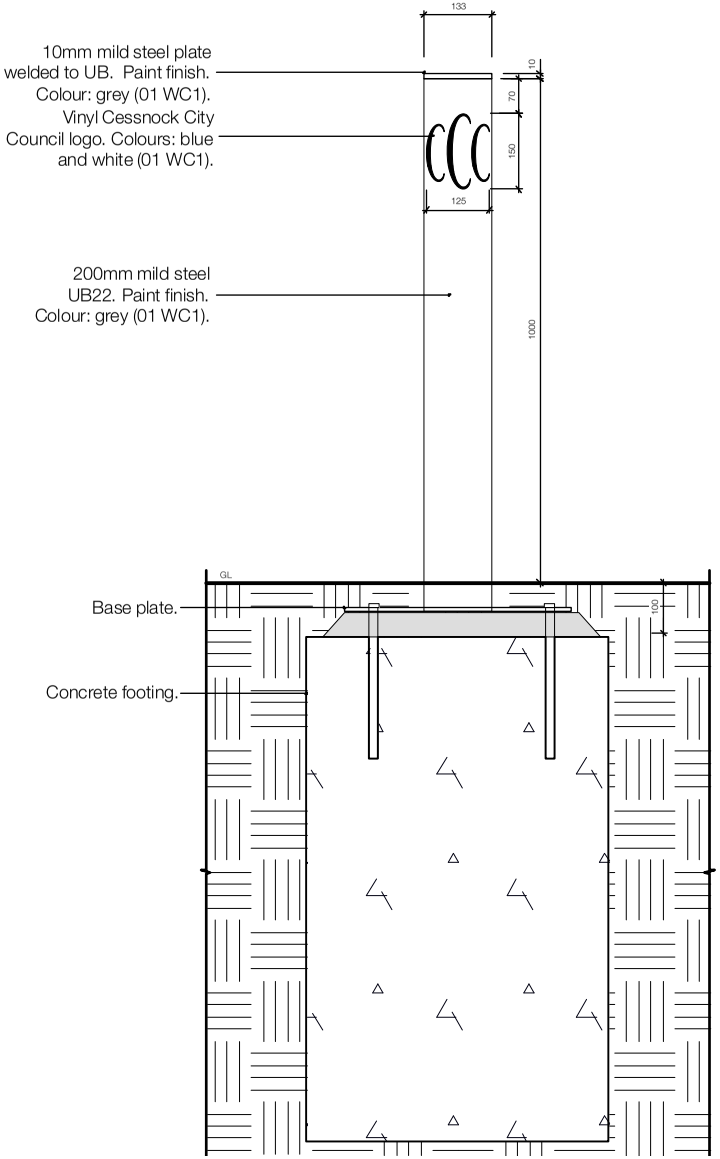
General Notes:

Refer to WC1 Walkway/Cycleway Sign supporting drawings:

- 01 WC1 Walkway/Cycleway Sign - Elevation
- 02 WC1 Walkway/Cycleway Sign - Front Elevation
- 03 WC1 Walkway/Cycleway Sign - Plan
- 04 WC1 Walkway/Cycleway Sign - Side Section

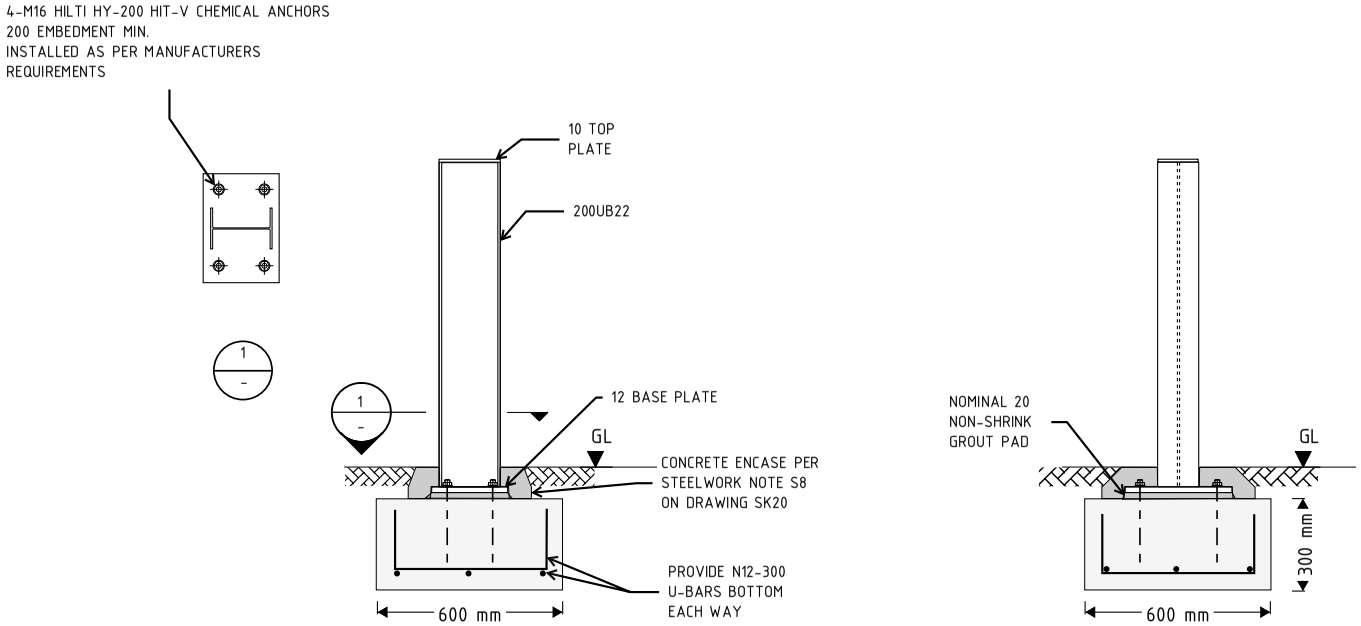
Refer Section 4 Signage Specification

Refer Engineer's Specification and Details



04 Typical WC1 Walkway/Cycleway - Side Section
Scale 1:15

5.8 WC1 Walkway/Cycleway Signs - Engineer's Drawing



LONG SECTION
(SHALLOW PAD OPTION)

TRANSVERSE SECTION
(SHALLOW PAD OPTION)

WC1 WALKWAY/CYCLEWAY SIGN (200UB, 1000h)

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

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JOB NUMBER:	NL166682	DATE:	15/12/2017	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			1
DRAWING TITLE:	WC1 WALKWAY/CYCLEWAY SIGN			
DRAWING NUMBER:	NL166682_SK24			

4.9 WC1 Walkway/Cycleway Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

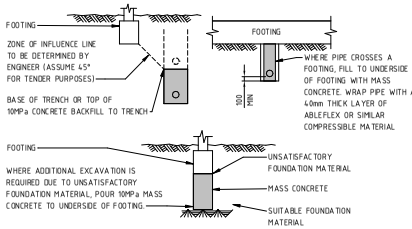
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED $V^{}_{R}$ = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M^{}_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER $M^{}_{d}$ = 1
- SHIELDING MULTIPLIER $M^{}_{s}$ = 1
- TOPOGRAPHIC MULTIPLIER $M^{}_{t}$ = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

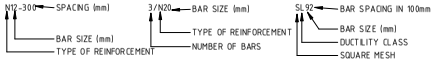
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100.

IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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JOB NUMBER:	NL166682	DATE:	16/02/2018	REV. 2
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

PART

SIGNAGE DETAILS
Hunter Valley
Wine Country

6.1 GE2 Wine Country Information Bay

COLOURS:

Background and steel: Colorbond Monument

White: CMYK: 8, 4, 5, 0

RGB: 237, 236, 233

Modwood Panelling Modwood Sahara (brushed finish)

Concrete Colour: CCS Honeycomb (4%)

LETTERING:

Precinct Names: Arial

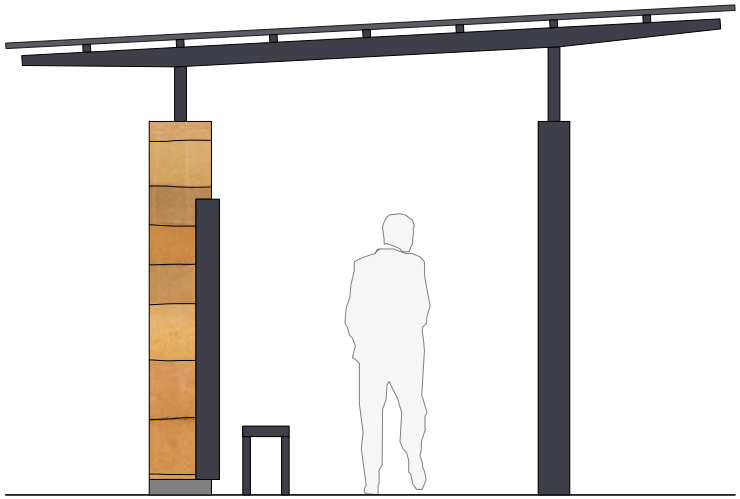
Hunter Valley: Century Gothic

Wine Country: Didot LT Std Bold Italic (Modified)

Statement of Acknowledgement: Didot LT Std Bold Italic (Modified)

Information bay information etc: Arial

01 GE2 Wine Country Information Bay - Front Elevation

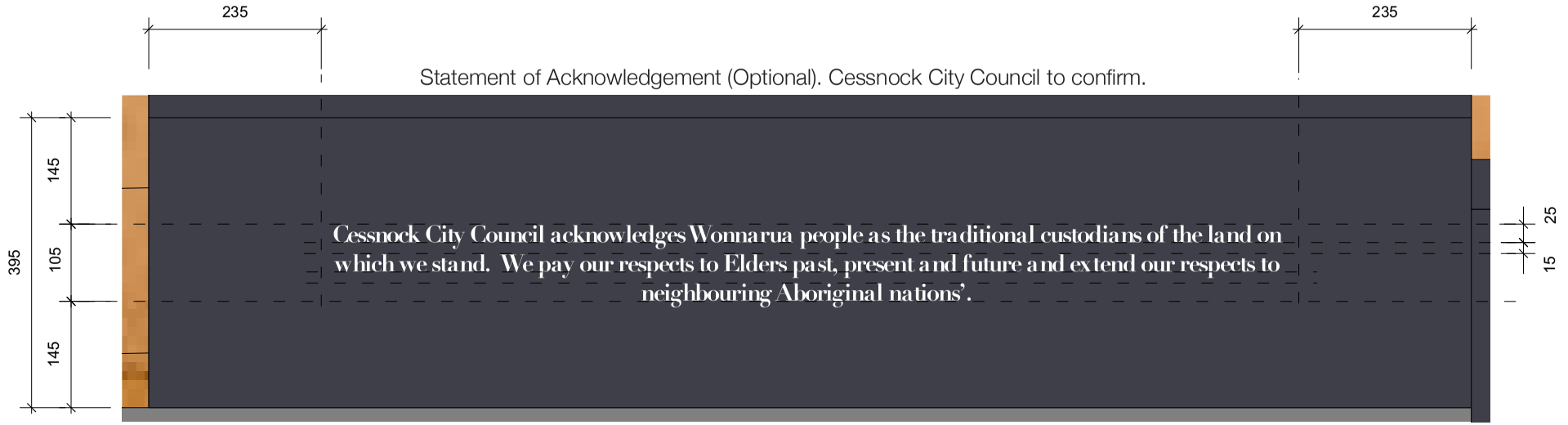


02 GE2 Wine Country Information Bay - Side Elevation

6.1 GE2 Wine Country Information Bay

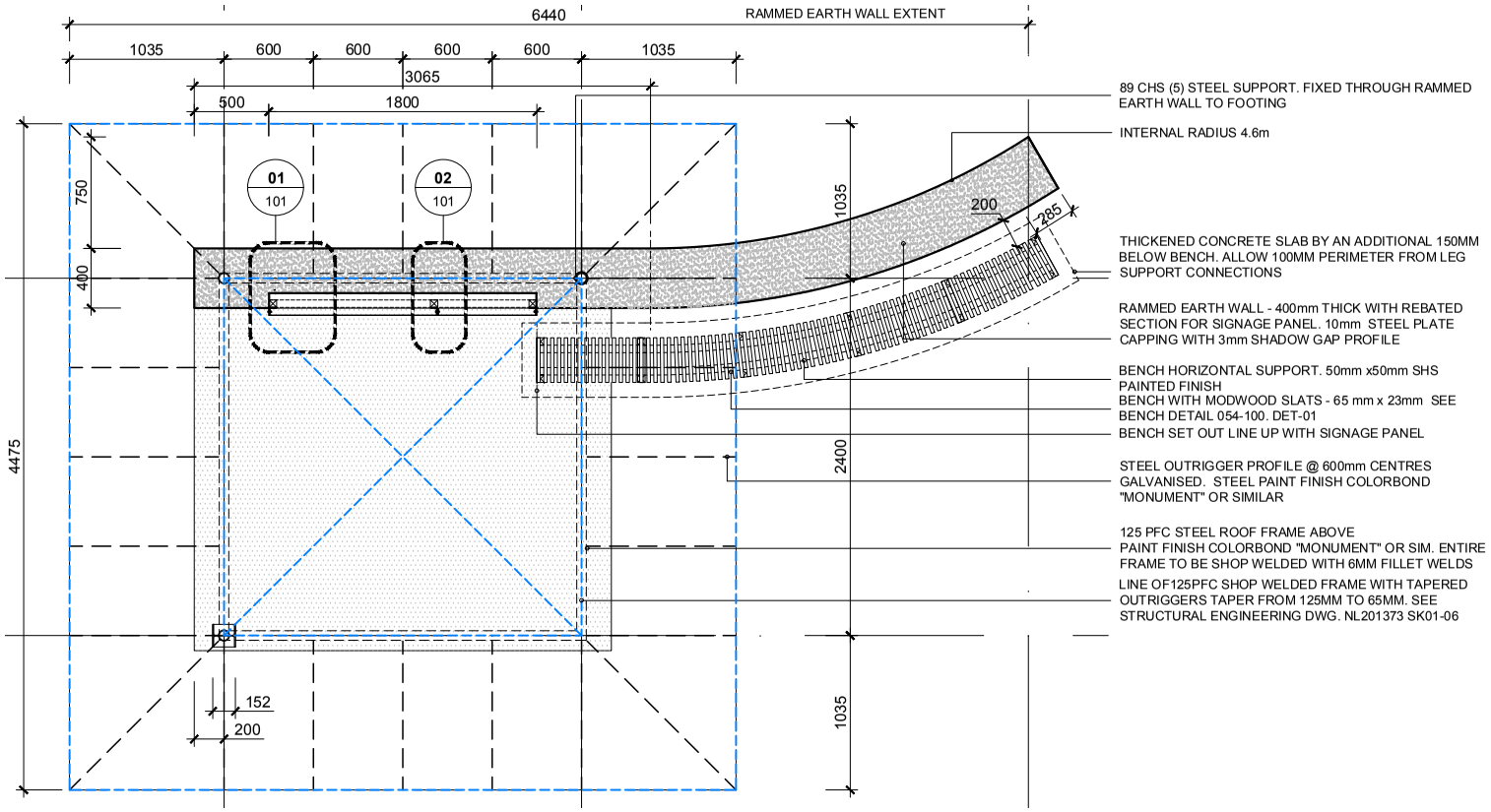
03 GE2 Steel Text Detail

"Cessnock City Council acknowledges Wonnarua people as the traditional custodians of the land on which we stand. We pay our respects to Elders past, present and future and extend our respects to neighbouring Aboriginal nations"



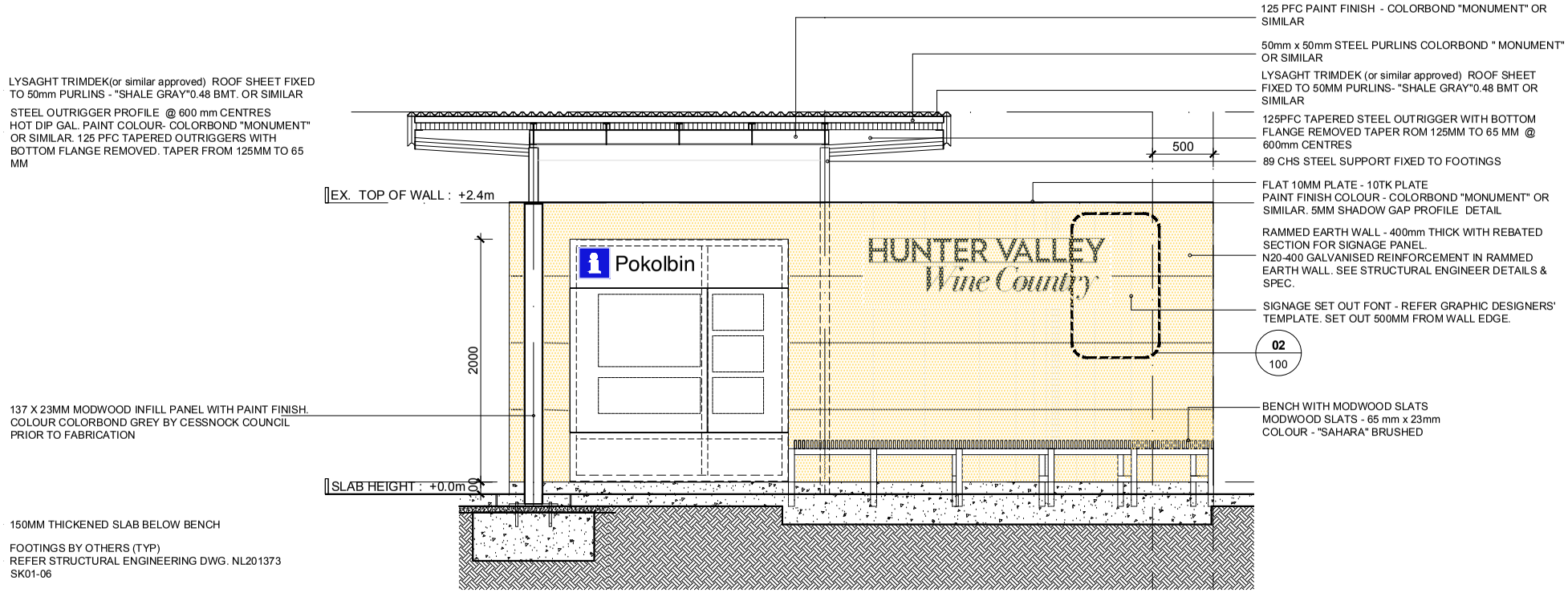
04 GE2 Statement of Acknowledgement

6.1 GE2 Wine Country Information Bay



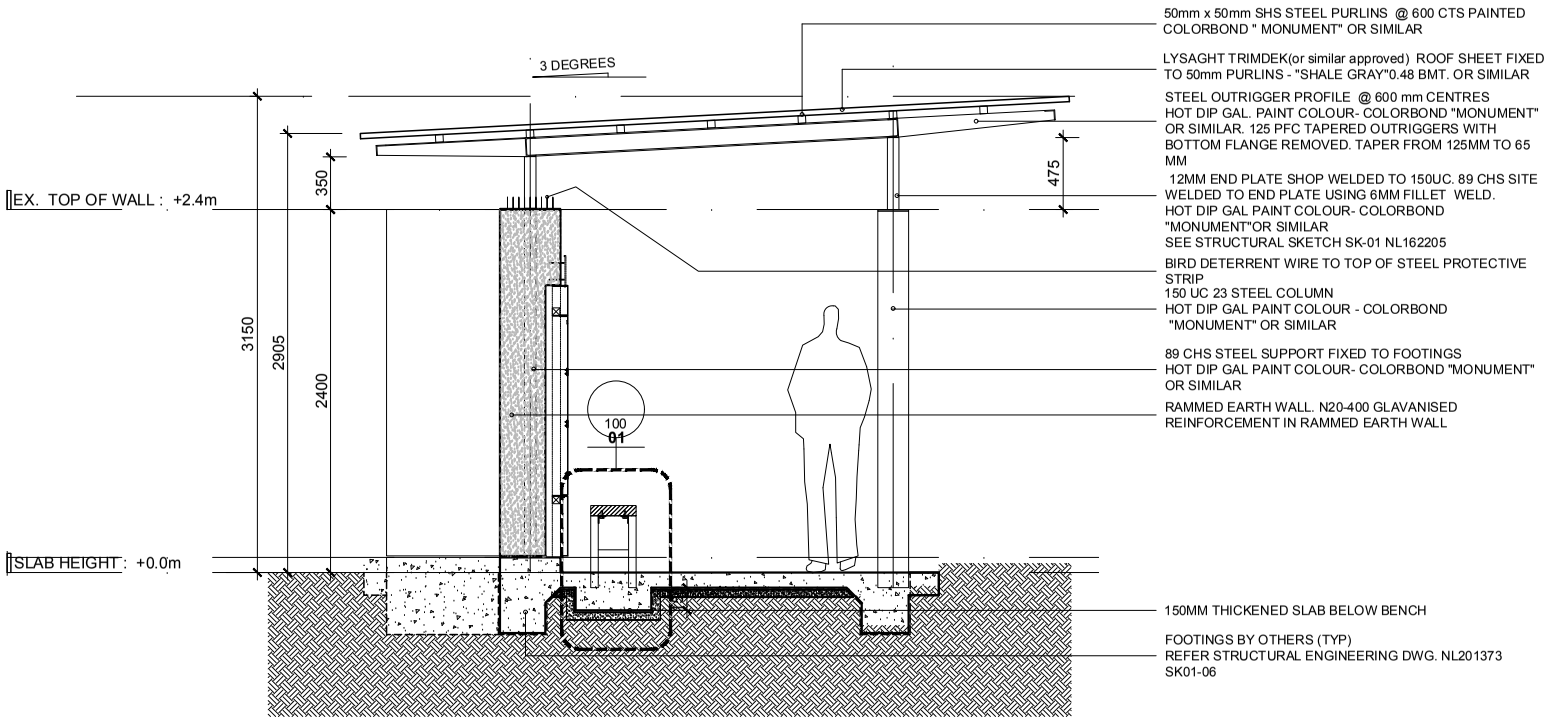
05 GE2 Wine Country Information Bay - Plan
Scale 1:50

6.1 GE2 Wine Country Information Bay



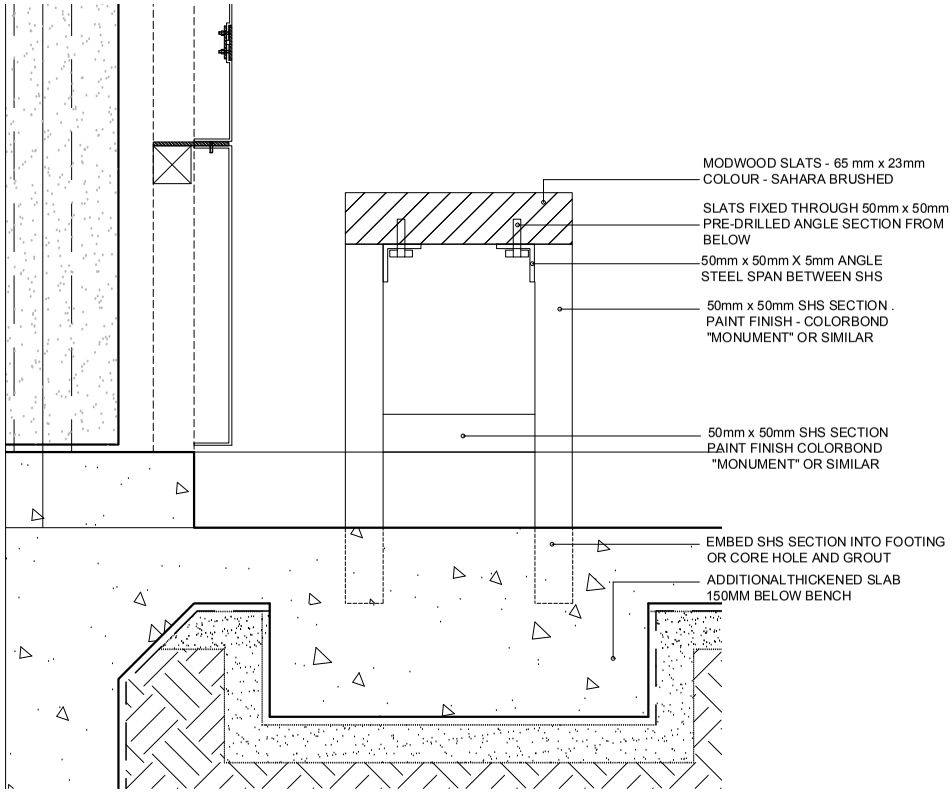
06 GE2 Wine Country Information Bay - Front Elevation
Scale 1:50

6.1 GE2 Wine Country Information Bay



07 GE2 Wine Country Information Bay - Section XX
Scale 1:50

6.1 GE2 Wine Country Information Bay



08 GE2 Wine Country Information Bay - 01 Bench Detail
Scale 1:10

General Notes:

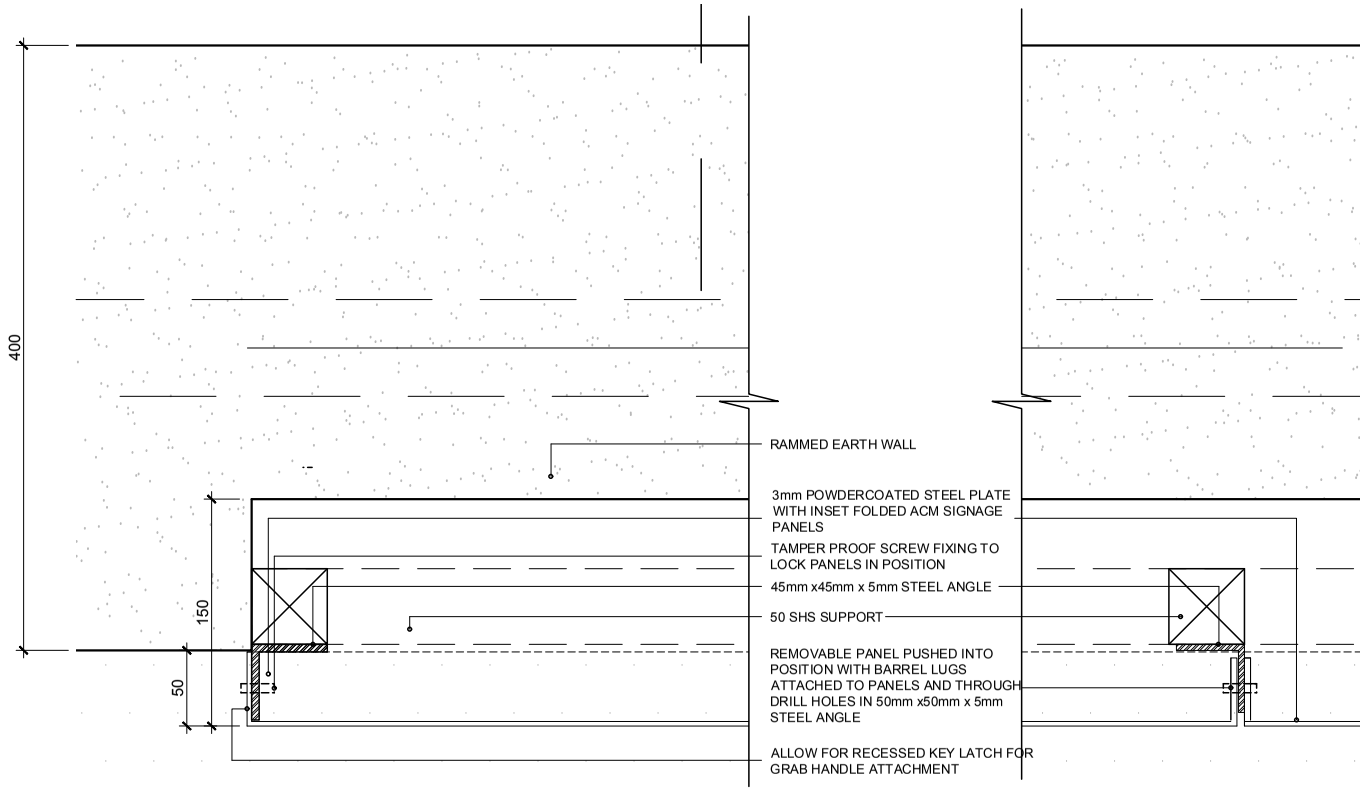
Refer to GE2 Wine Country Information Bay supporting drawings:

- 01 GE2 Wine Country Information Bay - Front Elevation
- 02 GE2 Wine Country Information Bay - Side Elevation
- 03 GE2 Wine Country Information Bay - Steel Text Detail
- 04 GE2 Wine Country Information Bay - Statement of Acknowledgement
- 05 GE2 Wine Country Information Bay - Plan
- 06 GE2 Wine Country Information Bay - Front Elevation
- 07 GE2 Wine Country Information Bay - Section XX
- 08 GE2 Wine Country Information Bay - 01 Bench Detail
- 09 GE2 Wine Country Information Bay - Detail Plan 01 & 02
- 10 GE2 Wine Country Information Bay - Section AA
- 11 GE2 Wine Country Information Bay - 03 Detail Section
- 12 GE2 Wine Country Information Bay - Front Elevation

Refer Signage Specification & Part 4 Signage Specification

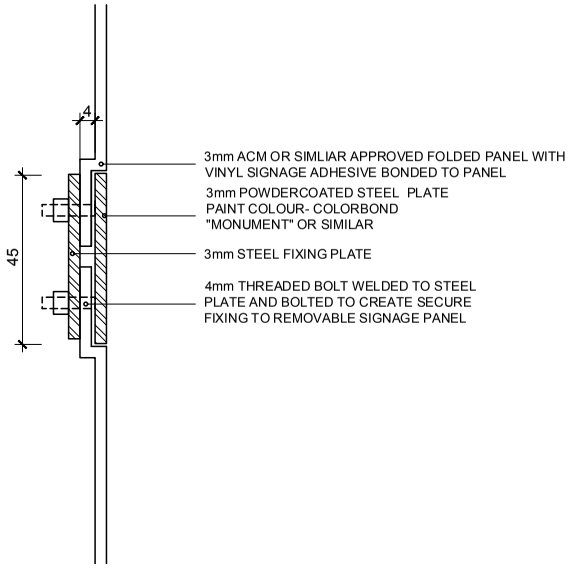
Refer Engineer's Specification and Detail

6.1 GE2 Wine Country Information Bay

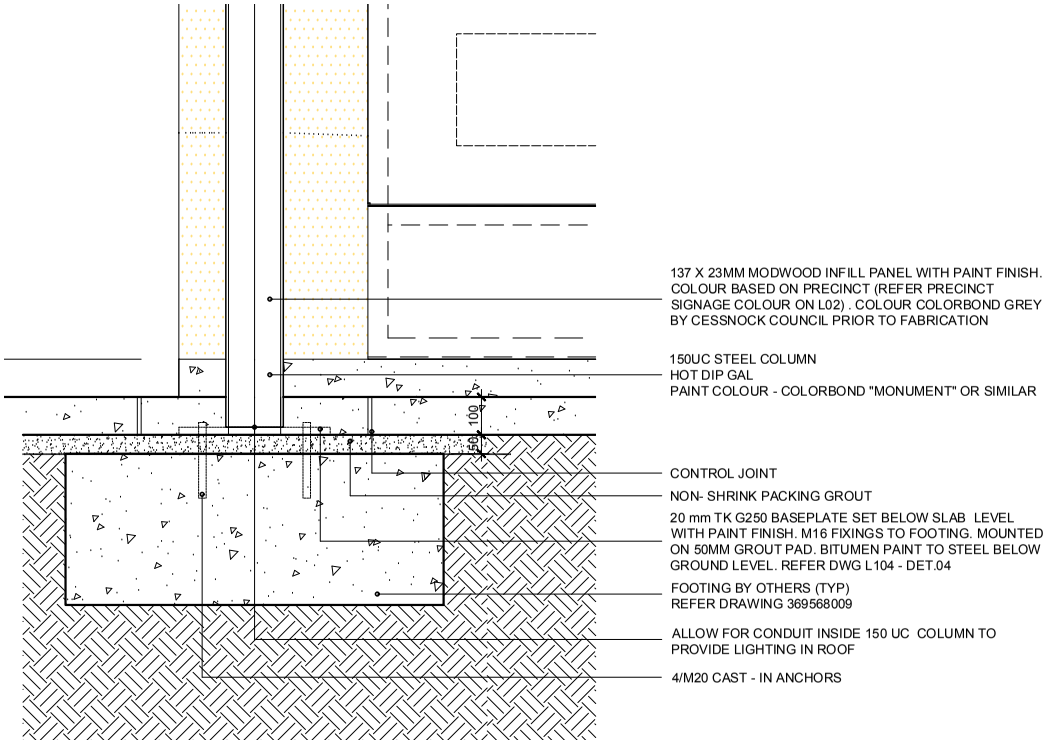


09 GE2 Wine Country Information Bay - Detail Plan 01 & 02
Scale 1:5

6.1 GE2 Wine Country Information Bay

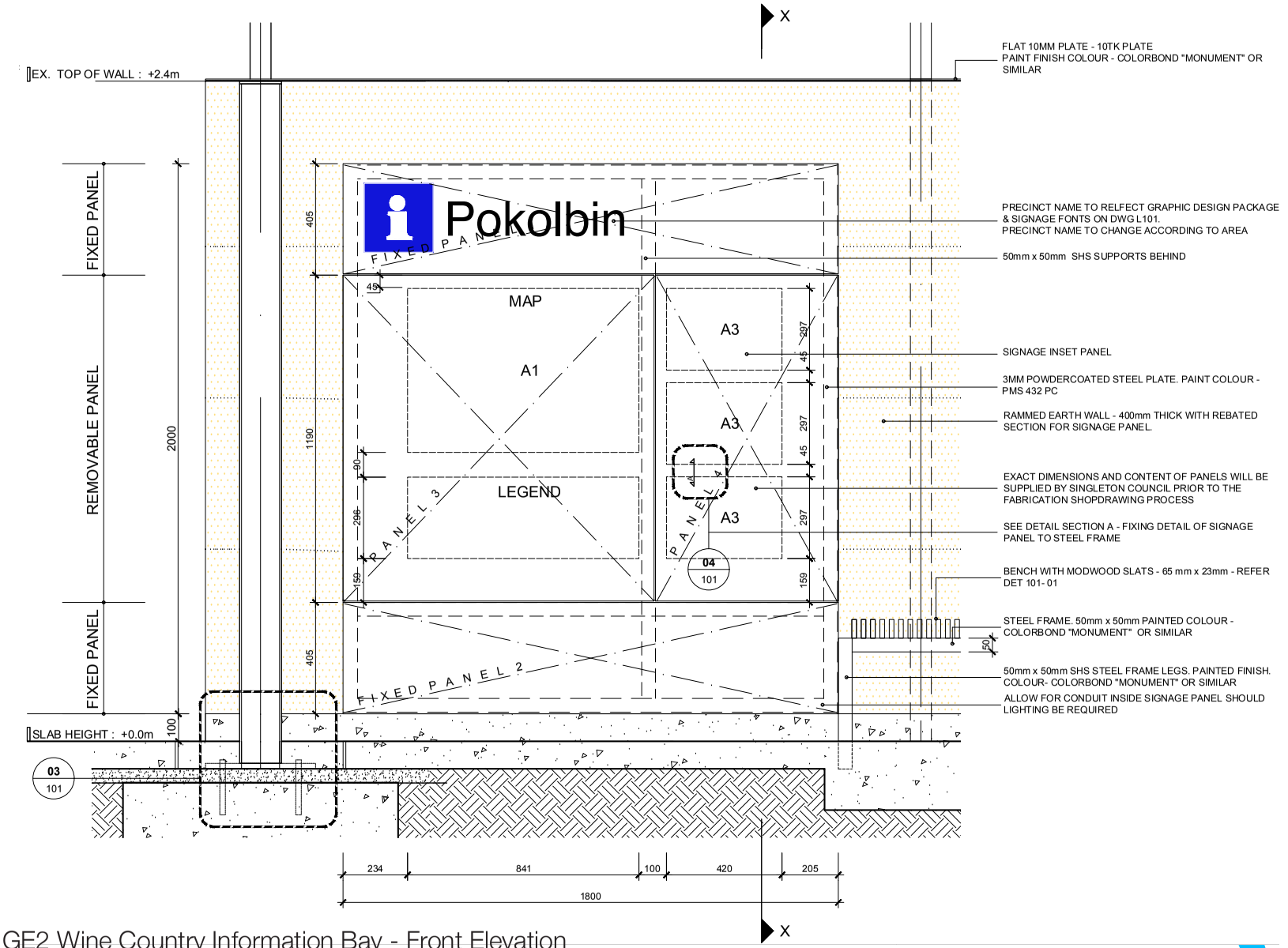


10 GE2 Wine Country Information Bay - Section AA
Scale 1:2



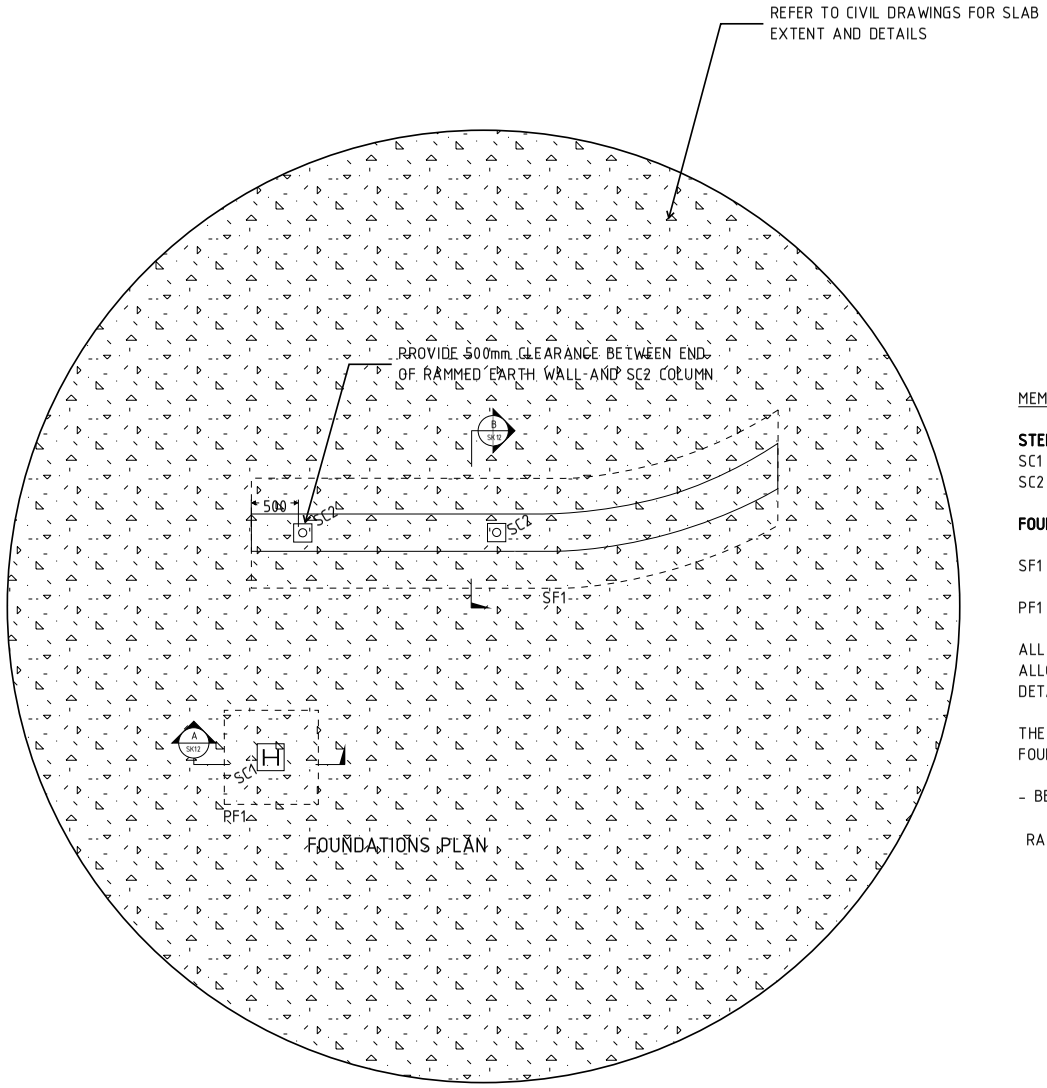
11 GE2 Wine Country Information Bay - 03 Detail Section
Scale 1:20

6.1 GE2 Wine Country Information Bay



12 GE2 Wine Country Information Bay - Front Elevation
Scale: NTS

6.1 GE2 Wine Country Information Bay - Engineer's Drawing



MEMBER SCHEDULE:

STEEL
SC1 = 150UC23
SC2 = 89X5CHS

FOUNDATIONS

SF1 = 1200w x 600d STRIP FOOTING. 6/N16 TOP AND BOTTOM. N12-300 TIES

PF1 = 1000sq x 500d PAD FOOTING. 5-N16 U-BARS TOP AND BOTTOM EACH WAY

ALL FOUNDATIONS TO BE FOUNDED ON FIRM NATURAL GROUND WHICH ACHIEVES 100kPa ALLOWABLE BEARING CAPACITY. IF FILL IS REQUIRED, OR UNCONTROLLED FILL IS ENCOUNTERED, DETAILED FOOTING DESIGN IS TO BE UNDERTAKEN.

THE BUILDER IS TO ENGAGE A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO CONFIRM THAT FOUNDING MATERIALS MEET THE FOLLOWING REQUIREMENTS PRIOR TO PLACING OF REINFORCEMENT:

- BEARING CAPACITY OF FOUNDING MATERIAL = 100kPa

RAMMED EARTH WALL TO HAVE A MINIMUM DESIGN COMPRESSIVE STRENGTH OF 5MPa

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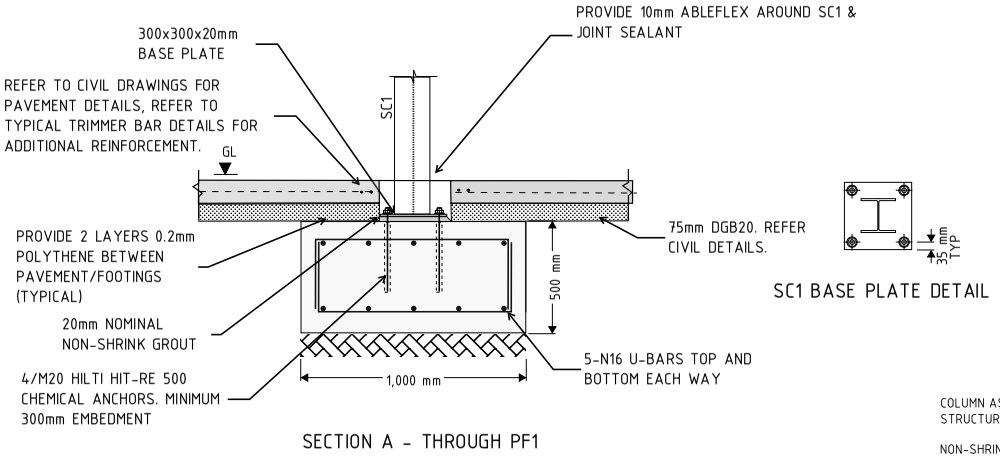
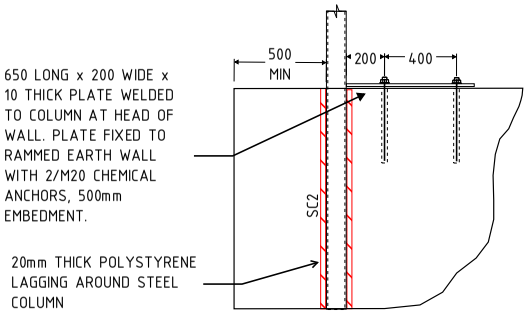
JOB NUMBER:	NL201373	DATE:	5/02/2021	REV.
PROJECT:	POKOLBIN INFO BAY			5
DRAWING TITLE:	FOUNDATION PLAN AND DETAILS			
DRAWING NUMBER:	NL201373_SK02			

6.1 GE2 Wine Country Information Bay - Engineer's Drawing

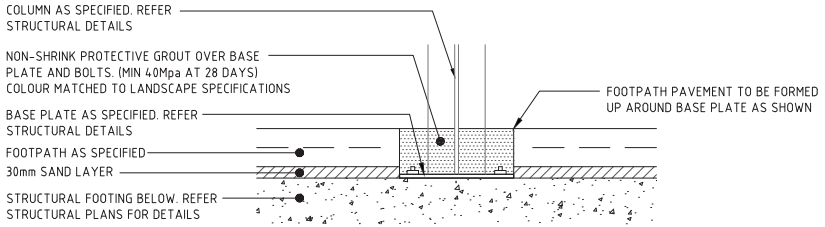


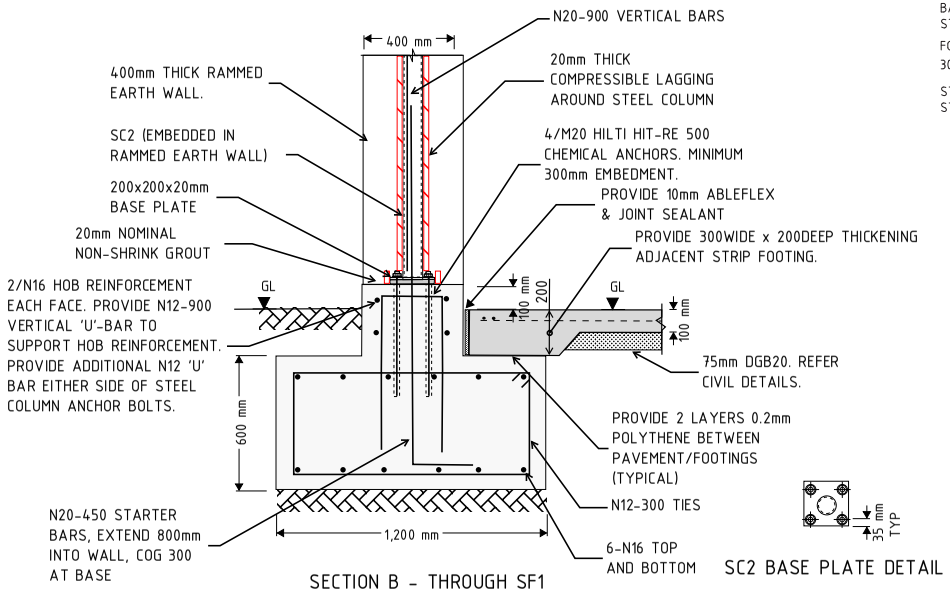
SECTION A - THROUGH PF1

SC1 BASE PLATE DETAIL



SC2/RAMMED EARTH WALL - HEAD CONNECTION DETAIL

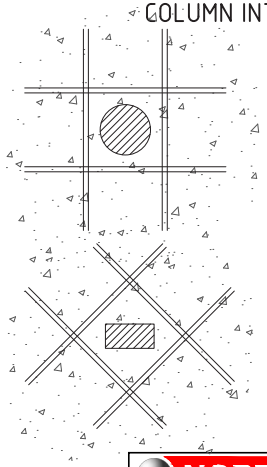




SECTION B - THROUGH SF1

SC2 BASE PLATE DETAIL

COLUMN INTERFACE DETAIL



TYPICAL TRIMMER BAR DETAILS (TB)

NOTE:

- PROVIDE 2/N12 TRIMMER BARS MINIMUM 1200mm LONG UNLESS NOTED OTHERWISE AT ALL PITS, COLUMNS, INSPECTION OPENINGS, DOWNPIPES ETC THAT CAUSE A PENETRATION THROUGH THE SLAB.
- ALL TRIMMER BARS MUST MAINTAIN A MINIMUM 70mm COVER FROM PENETRATION & CONTROL JOINTS.
- UNLESS NOTED OTHERWISE PROVIDE ISOLATION JOINT (IJ) AT ALL PAVEMENT INTERFACES WITH STRUCTURE / PITS.
- APPLIES TO ALL DRAINAGE/SEWER PITS, SERVICE PITS, COLUMNS & SLAB PENETRATIONS.

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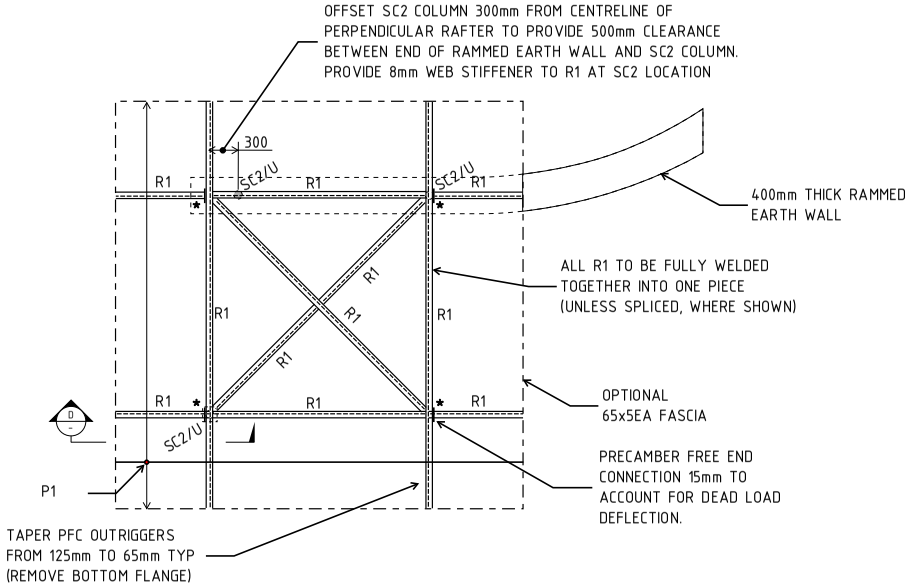
Ph (02) 4943 1777 Fax (02) 4943 1577
Email newcastle@northrop.com.au ABN 81 094 433 100

JOB NUMBER:	NL201373	DATE:	16/12/2020	REV.
PROJECT:	POKOLBIN INFO BAY			4
DRAWING TITLE:	FOUNDATION DETAILS 2			
DRAWING NUMBER:	NL201373_SK03			

6.1 GE2 Wine Country Information Bay - Engineer's Drawing



ROOF PLAN

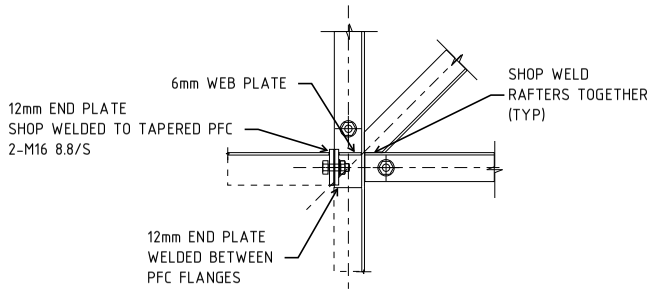
MEMBER SCHEDULE:

STEEL
SC1 = 150UC23
SC2 = 89X5CHS

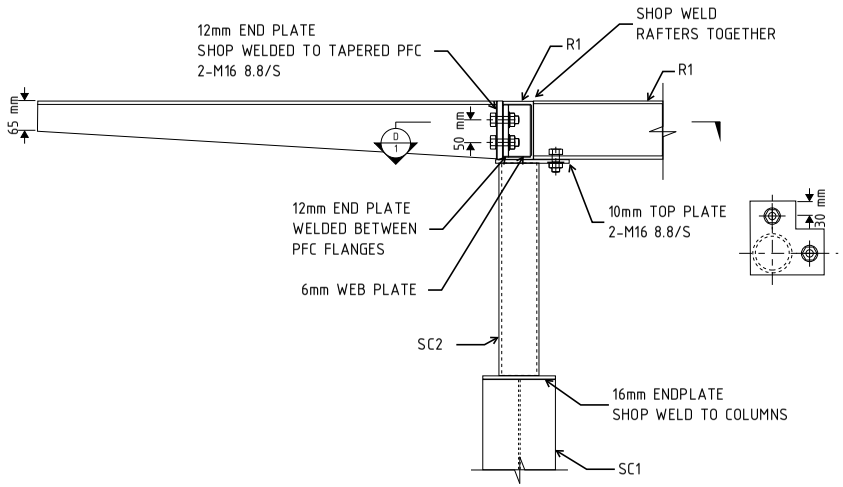
R1 = 125PFC

P1 = 50X4SHS AT 600CTS

★ DENOTES BOLTED SPLICE



SECTION D1 - PLAN SECTION OF RAFTER CONNECTION



SECTION D - TYPICAL RAFTER CONNECTION

NORTHROP Newcastle Suite 4, 215 Pacific Hwy, Charlestown NSW 2290 P.O. Box 180, Charlestown NSW 2290 Ph (02) 4943 1777 Fax (02) 4943 1577 Email newcastle@northrop.com.au ABN 81 094 433 100	JOB NUMBER:	NL201373	DATE: 16/12/2020	REV: 3
	PROJECT:	POKOLBIN INFO BAY		
	DRAWING TITLE:	ROOF PLAN AND DETAILS		
	DRAWING NUMBER:	NL201373_SK04		

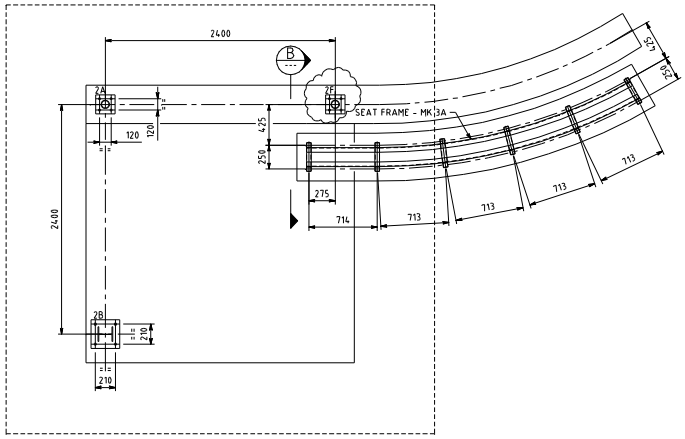
6.1 GE2 Wine Country Information Bay - Engineer's Drawing

SHOP DRAWING REVIEW

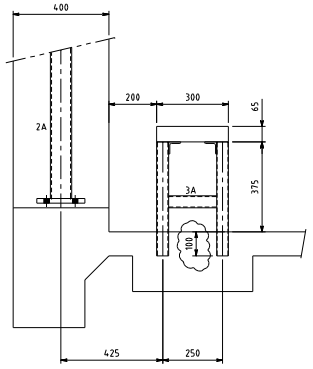
We have reviewed these drawings and find them in general agreement with the intent of our documentation.
This review does not relieve the contractor of responsibility for general coordination, correctness of dimensions and compliance with the contract documents.

☑ No alterations required ☐ Make alterations as noted
☐ Amend as noted & resubmit ☐ Rejected see remarks

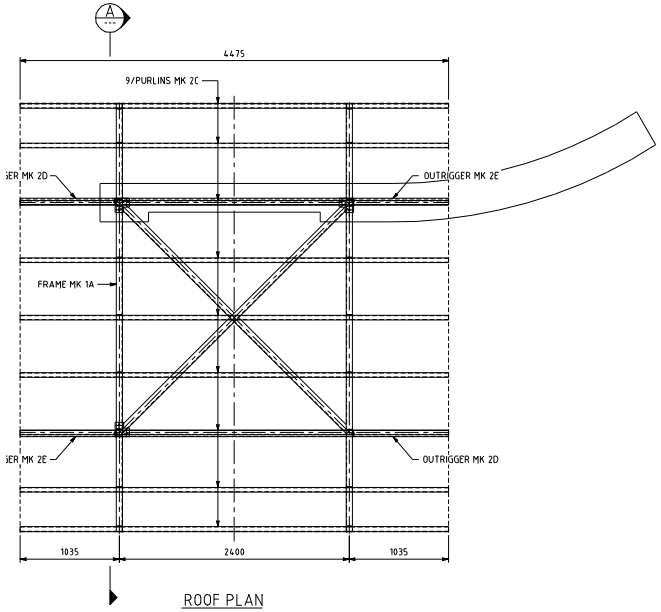
Northrop Consulting Engineers Pty Ltd ABN 81 094 433 100
Signed: G. Laver Date 5/02/2021



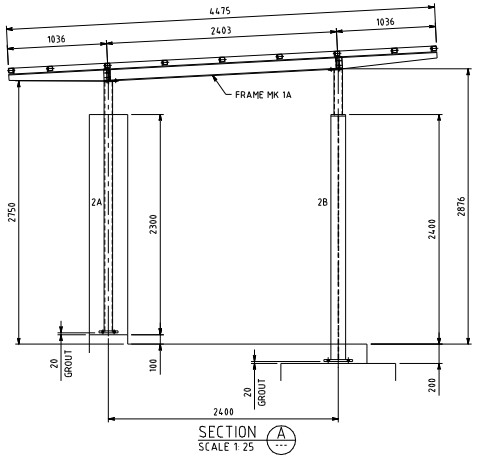
COLUMN SET-OUT PLAN



SECTION B
SCALE 1:10



ROOF PLAN



SECTION A
SCALE 1:25

FOR CONSTRUCTION

QTY	SIZE	GRADE	DESCRIPTION	LENGTH	LOCATION
18	M12	4.6/S	HEX. HD BOLT C/W NUT & FLAT WASHER	80	2C TO 1A
8	M16	8.8/S	HEX. HD BOLT C/W NUT & FLAT WASHER	55	2D/2E TO 1A
6	M16	8.8/S	HEX. HD BOLT C/W NUT & FLAT WASHER	50	1A TO 2A/2B

BOLT LIST

NELSON BAY STEEL FABRICATIONS P/L
NELSON BAY, N.S.W. 02 49191983

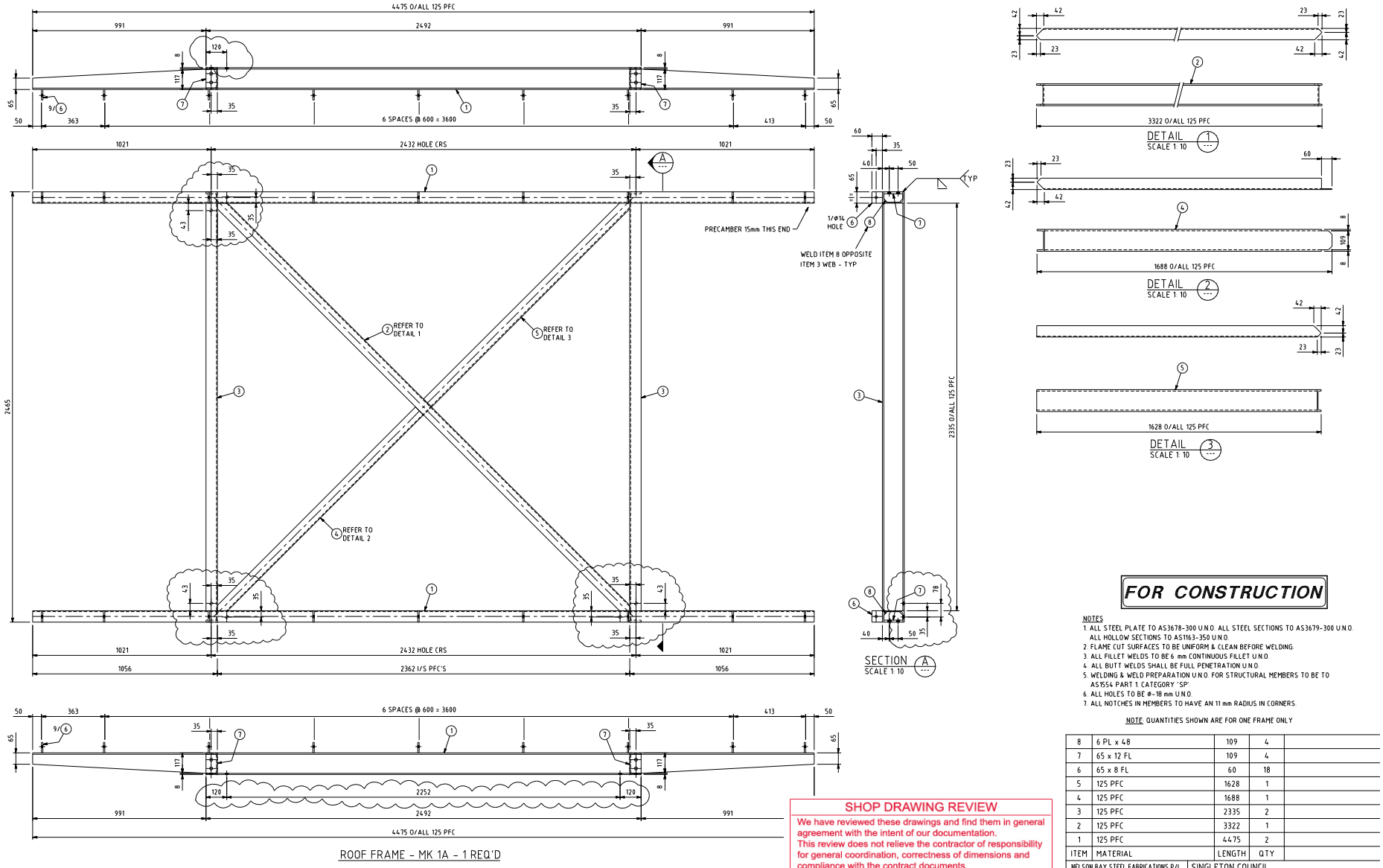
DRAWINGS PREPARED BY:
G.H. DRAFTING SERVICES P/L
46 ROBINIA GROVE,
GARDEN SUBURB. Ph. 02 49206712
A.C.N. 063548069

SINGLETON COUNCIL
INFORMATION BAY
STEELWORK ARRANGEMENT

Drawn	Checked	Date
G.HERFURTH		11-09-20
Scale 1:25		Revision D

MP1

6.1 GE2 Wine Country Information Bay - Engineer's Drawing



ROOF FRAME - MK 1A - 1 REQ'D

FOR CONSTRUCTION

NOTES
1. ALL STEEL PLATE TO AS3678-300 U.N.O. ALL STEEL SECTIONS TO AS3679-300 U.N.O. ALL HOLLOW SECTIONS TO AS1163-350 U.N.O.
2. FLAME CUT SURFACES TO BE UNIFORM & CLEAN BEFORE WELDING.
3. ALL FILLET WELDS TO BE 6 mm CONTINUOUS FILLET U.N.O.
4. ALL BUTT WELDS SHALL BE FULL PENETRATION U.N.O.
5. WELDING & WELD PREPARATION U.N.O. FOR STRUCTURAL MEMBERS TO BE TO AS1554 PART 1 CATEGORY 'SP'.
6. ALL HOLES TO BE ⌀=18 mm U.N.O.
7. ALL NOTCHES IN MEMBERS TO HAVE AN 11 mm RADIUS IN CORNERS.

NOTE QUANTITIES SHOWN ARE FOR ONE FRAME ONLY

ITEM	MATERIAL	LENGTH	Q.TY
8	6 PL x 48	109	4
7	65 x 12 FL	109	4
6	65 x 8 FL	60	18
5	125 PFC	1628	1
4	125 PFC	1688	1
3	125 PFC	2335	2
2	125 PFC	3322	1
1	125 PFC	4475	2

SHOP DRAWING REVIEW

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☑ No alterations required ☐ Make alterations as noted
☐ Amend as noted & resubmit ☐ Rejected see remarks

Northrop Consulting Engineers Pty Ltd ABN 81 094 433 100
Signed: G. Laver Date: 5/02/2021

NELSON BAY STEEL FABRICATIONS P/L
NELSON BAY, N.S.W. 02 49191983

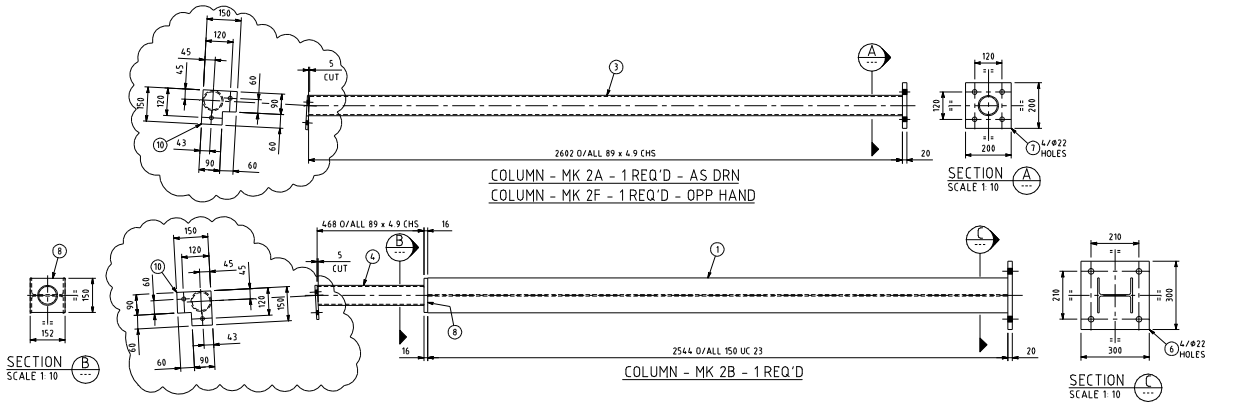
DRAWINGS PREPARED BY:
G.H. DRAFTING SERVICES P/L
46 ROBINIA GROVE,
GARDEN SUBURB. Ph. 02 49206712
A.C.N. 063548069

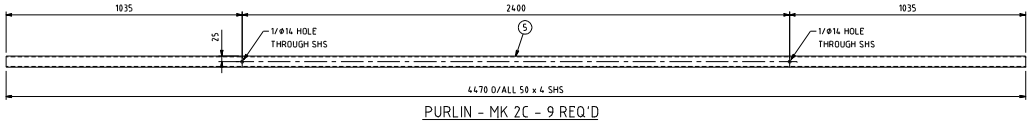
SINGLETON COUNCIL
INFORMATION BAY
ROOF FRAME DETAILS

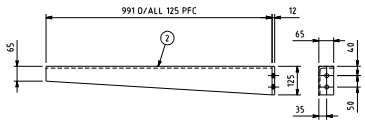
Drawn	Checked	Date
G.HERFURTH		11-09-20
Scale 1:10		Revision 0

S1

6.1 GE2 Wine Country Information Bay - Engineer's Drawing







FOR CONSTRUCTION

NOTES
1. ALL STEEL PLATE TO AS3678-300 U.N.O. ALL STEEL SECTIONS TO AS3679-300 U.N.O. ALL HOLLOW SECTIONS TO AS1163-350 U.N.O.
2. FLAME CUT SURFACES TO BE UNIFORM & CLEAN BEFORE WELDING.
3. ALL FILLET WELDS TO BE 6 mm CONTINUOUS FILLET U.N.O.
4. ALL BUTT WELDS SHALL BE FULL PENETRATION U.N.O.
5. WELDING & WELD PREPARATION U.N.O. FOR STRUCTURAL MEMBERS TO BE TO AS1554 PART 1 CATEGORY 'SP'.
6. ALL HOLES TO BE Ø=18 mm U.N.O.
7. ALL NOTCHES IN MEMBERS TO HAVE AN 11 mm RADIUS IN CORNERS.

NOTE: QUANTITIES SHOWN ARE FOR ONE BAY ONLY

ITEM	MATERIAL	LENGTH	QTY
10	150 x 10 FL	150	3
9	65 x 12 FL	125	4
8	150 x 16 FL	152	1
7	200 x 20 FL	200	2
6	300 x 20 FL	300	1
5	50 x 4 SHS	4470	9
4	89 x 4.9 CHS	468	1
3	89 x 4.9 CHS	2602	2
2	125 PFC	991	4
1	150 UC 23	2544	1

NELSON BAY STEEL FABRICATIONS P/L
NELSON BAY, N.S.W. 02 49191983

DRAWINGS PREPARED BY:
G.H. DRAFTING SERVICES P/L
46 ROBINIA GROVE,
GARDEN SUBURB. Ph. 02 49206712
A.C.N. 063548069

SINGLETON COUNCIL
INFORMATION BAY
COLUMN, OUTRIGGER & PURLIN DETAILS

Drawn	Checked	Date
G HERFURTH		11-09-20
Scale		Revision
1:10		C

S2

SHOP DRAWING REVIEW

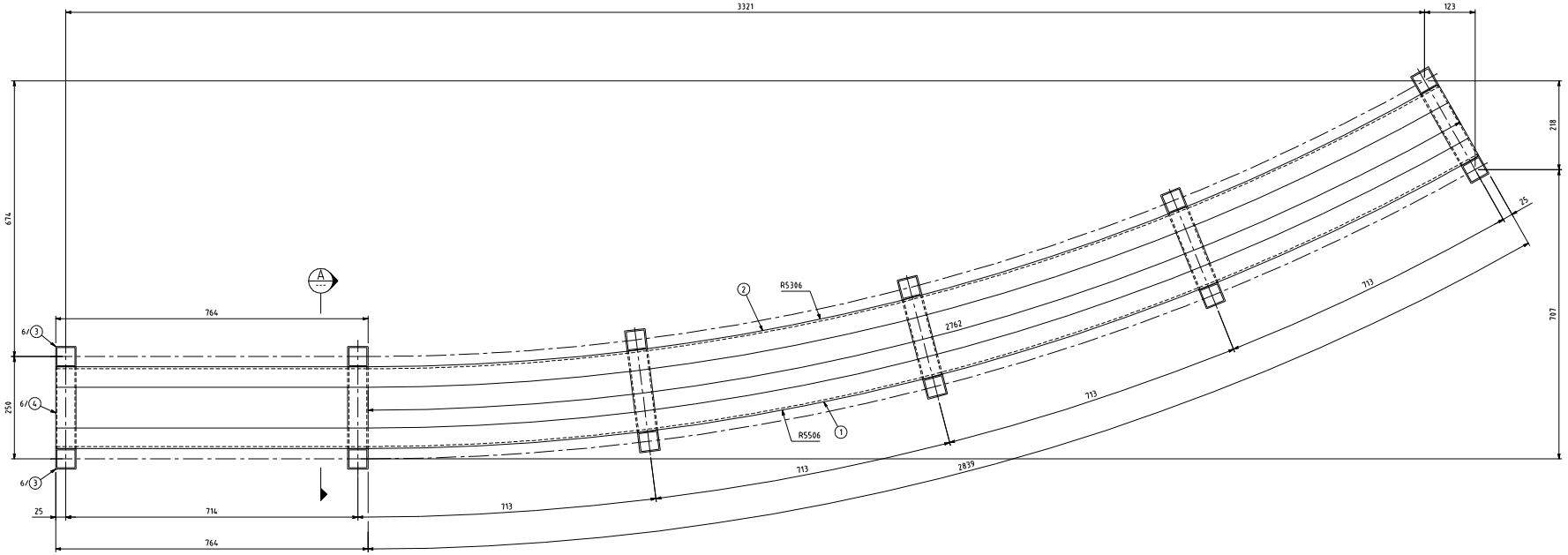
We have reviewed these drawings and find them in general agreement with the intent of our documentation.
This review does not relieve the contractor of responsibility for general coordination, correctness of dimensions and compliance with the contract documents.

☑ No alterations required ☐ Make alterations as noted
☐ Amend as noted & resubmit ☐ Rejected see remarks

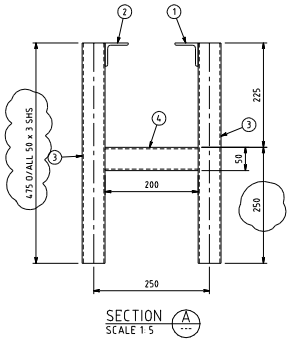
Northrop Consulting Engineers Pty Ltd ABN 81 094 433 100

Signed: A. Laver Date 5/02/2021

6.1 GE2 Wine Country Information Bay - Engineer's Drawing



SEAT FRAME - MK 3A - 1 REQ'D



SECTION A
SCALE 1:5

FOR CONSTRUCTION

NOTES
1. ALL STEEL PLATE TO AS3678-300 U.N.O. ALL STEEL SECTIONS TO AS3679-300 U.N.O. ALL HOLLOW SECTIONS TO AS1163-350 U.N.O.
2. FLAME CUT SURFACES TO BE UNIFORM & CLEAN BEFORE WELDING.
3. ALL FILLET WELDS TO BE 6 mm CONTINUOUS FILLET U.N.O.
4. ALL BUTT WELDS SHALL BE FULL PENETRATION U.N.O.
5. WELDING & WELD PREPARATION U.N.O. FOR STRUCTURAL MEMBERS TO BE TO AS1554 PART 1, CATEGORY 'GP'.
6. ALL HOLES TO BE ø-18 mm U.N.O.
7. ALL NOTCHES IN MEMBERS TO HAVE AN 11 mm RADIUS IN CORNERS.

NOTE: QUANTITIES SHOWN ARE FOR ONE FRAME ONLY

ITEM	MATERIAL	LENGTH	Q.TY
5	50 x 3 SHS	200	6
3	50 x 3 SHS	475	12
2	50 x 5 EA	3525	1
1	50 x 5 EA	3603	1

SHOP DRAWING REVIEW

We have reviewed these drawings and find them in general agreement with the intent of our documentation.
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☑ No alterations required ☐ Make alterations as noted
☐ Amend as noted & resubmit ☐ Rejected see remarks

Northrop Consulting Engineers Pty Ltd ABN 81 094 433 100
Signed: G. Laver Date 5/02/2021

NELSON BAY STEEL FABRICATIONS P/L
NELSON BAY, N.S.W. 02 49191983

DRAWINGS PREPARED BY:
G.H. DRAFTING SERVICES P/L
46 ROBINIA GROVE,
GARDEN SUBURB. Ph. 02 49206712
A.C.N. 063548069

SINGLETON COUNCIL
INFORMATION BAY
SEAT FRAME DETAILS

Drawn	Checked	Date
G.HERFURTH		11-09-20
Scale		Revision
1:5		C

S3

6.1 GE2 Wine Country Information Bay - Specification

Specification to be read in conjunction with SECTION 4 SIGNAGE SPECIFICATION

1.0 Steel

1.1 Stainless Steel Finishes
Requirement: Provide a surface finish to match the approved sample.
Pre-assembly: Mechanically polished and brushed finishes: Apply grit faced belts or fibre brushes that achieve uni-directional finishes with buffing.

Post-assembly pre-treatment:
Heat discolouration: Remove by pickling.
Welds: Grind excess material, brush, and polish to match the pre-assembly finish.

Post-assembly finish:
Brushed electro polish finish: Conform to the following:
-Pre-assembly finish: No. 4 brushed finish.
-Post-assembly finish: Provide an electro-chemical processed finish to achieve a No. 7 to No. 8 brushed finish.

Completion:
Cleaning: Clean and rinse to an acid free condition and allow to dry. Do not use carbon steel abrasives or materials containing chloride.
Protection: Secure packaging or strippable plastic sheet.

Anodising:
Standard: To AS 1231.
Thickness grade: To AS 1231 Table H1.

2.0 PAINTING DULUX PROTECTIVE PAINT COATINGS
2.1 Contact:
DuluxGroup/Dulux technical contacts
Architects and Specifiers' Hotline: 13 23 77.
Website: www.duluxprotectivecoatings.com.au/contact-us.

2.1 Products
Storage and handling:
Care: Handle, store, mix and apply all protective coatings in conformance with Dulux recommendations.
Original containers: Deliver coating products to site in the manufacturer's labelled and sealed containers.
Ambient temperature range for storage: 15°C to 25°C.
Use-by-date: Use products with limited shelf life before their use-by-date unless written authorisation from the coating manufacturer's technical services section is provided.

Safety data sheets (SDS):
Requirement: Keep on site copies of all relevant Dulux SDS's and technical datasheets.

Proprietary products:
Substitution: Dulux paint products and specified coatings systems have been selected for this project and unauthorised product substitution will jeopardise or void the Warranties.

2.2 Surface Preparation
General:
Defects: Remove all surface defects, including cracks, laminations, deep pitting, weld spatter slag, burrs, fins, sharp edges and other defects before the preparation of the surface to be coated.
Temporary welds: Grind flush temporary welds.
Site welding: Where possible avoid site welding.
Porous, skip or stitch welds: Not acceptable.
Edges: De-burr and round all edges to a 2 mm radius.
Surface contaminants: Remove surface contaminants such as oil, grease, dirt and loose particles, using an alkaline oil emulsifier/ degreaser to AS 1627.1.
Surface preparation: Prepare surfaces to the required finish to AS 1627.1, AS 1627.2, AS 1627.4, AS 1627.5, AS 1627.6 and AS 1627.9.
Surface cleaning: Remove spent abrasive from the surface by blowing with clean, dry air and/or by vacuum cleaning.
Bolts: Provide washers at heads and nuts at replacement bolts.
Surface preparation for atmospheric steel:
General: Conform to the following requirements:

-Wash and degrease all surfaces to be coated in conformance with AS 1627.1 with a free-rinsing, alkaline detergent, such as Gibson F310B or Gamlen CA No. 1 in conformance with the manufacturer's written instructions and all safety warnings.
-Wash with fresh potable water and remove all soluble salts are in conformance with AS 3894.6 Methods A and D.
-Grind all sharp edges with a power tool to a minimum radius of 2 mm.

-Power tool clean welds to AS 1627.2 Class 2 to remove roughness. Remove filings, preferably by vacuum or compressed air.
-Abrasive blast clean all steel surfaces to be painted in conformance with AS 1627.4 to visual standard AS 1627.9 Class 2.5 (equivalent to ISO 8501-1, Sa 2.5: Very Thorough Blast-Cleaning). Use a non-metallic medium that will generate a surface profile of 35 to 65 µm, as tested to AS 3894.5 Method A.
-Commence application within 4 hours of abrasive blast cleaning or before surface becomes contaminated, otherwise repeat abrasive blasting step.
-Stripe coat welds, bolts, bolt holes and all edges with primer before application of full primer coat nominated in PROTECTIVE PAINT COATING SYSTEMS.
-Before application, make sure that the surface is free of contaminants including oil, grease, dirt, dust, salt and any other deleterious materials that will interfere with coating performance.

Treatment of on-site welding
On-site welding: If on site welding is performed, adopt the following procedure:
-Remove weld spatter.
-Power tool clean welds to AS 1627.2 Class 2 to remove roughness. Remove filings, preferably by vacuum or compressed air.
-Prime welds immediately with the nominated primer before contamination can re-occur. Make sure that the primer overlaps the sound adjacent coating by between 25 mm and 50 mm.
-Apply intermediate and topcoats over the primed welds to match the surrounding coating system, overlapping the sound adjacent coating by between 25 mm and 50 mm.

Preparing galvanized and aluminium surfaces:
Remove grease, oil and other solvent-soluble contaminants by wiping with mineral turpentine or white spirit. Finally wipe with a clean solvent. Allow to dry and proceed with the next operation immediately. Abrade surfaces to a medium coarse type finish to provide an adhesion key.

Preparing zinc primed surfaces:
If present, remove zinc salts from zinc primers. Remove grease, oil and other solvent-soluble contaminants by wiping with mineral turpentine or white spirit. Finally wipe with a clean solvent. Allow to dry and proceed with the next operation immediately.

Shop priming:
Dust off and apply a coat of primer, according to the technical specification.

Site coating:
General: High pressure fresh water wash down all surfaces. Lightly sand down primer/ intermediate coats, which have been shop applied, before site application of next coat.

2.3 Preparation assessment
Conformance: All areas of any item must meet the required cleanliness standard.
Abrasive blast cleaning: Assessment: To AS 1627.4 and ISO 8501-1.
-Class 2.5.
Power tool cleaning: Assessment: To AS 1627.2 and ISO 8501-2.
-Class 2.

Hand tool cleaning:
Visual assessment: To ISO 8501-2.
-Class 1.
Surface profile: General: To AS 3894.5.
Profile grade: To AS 3894.5 Method A.

Surface dust from abrasion:
General: To AS 3894.6 Method C.
Chloride level testing
Test: To AS 3894.6 Method A.
Maximum allowable chloride levels: 50 mg/m2.
Conformance: If this level is exceeded, rewash the affected surface area using fresh water until the chloride level is within acceptable limits. Pressure washing or steam cleaning is also acceptable before re-testing and re-abrasive blasting.
Timing of testing: Early in the blasting work so that removal procedures can be initiated before the blasting is completed.
Wet film thickness: Method of measurement: To AS 3894.3, Appendix C using an approved wet film gauge continuously during application.
Dry film thickness: Method of measurement: To AS 3894.3, clause 10.
Extent: All surfaces at the completion of each of the prime, intermediate and finish coats, in particular include areas of the structure which are difficult to paint, are masked by structure, or areas where double coating or light coating is likely due to the shape of the substrate.
Number of measurements: Perform a sufficient number of readings to make sure a representative account for the DFT compliance of the coated areas tested.
Deduction: If testing the DFT of coatings 150 µm and less, deduct the effect of the measured surface profile from all DFT readings.
Single readings: Single reading requirements are as follows:
-The average of 5 point readings for each 10 m2 area of coating surface should not be outside the specified coating thickness range.

-No single point reading in any 10 m2 should be less than 80% of the specified minimum coating thickness. However, where three readings are averaged to produce a point reading, an individual reading may be less than 80% of the minimum coating thickness.
-Check any single reading that is greater than 150% of the specified DFT with three additional readings within 50 mm of the original reading. If these three readings average not greater than 150% of the specified DFT, take the averaged readings as the point reading. If greater than 150%, reject the DFT in that area.

Rectification: Re-work areas rejected, using surface preparation and coatings in the same manner and order as the original work.
Defects including under thickness and over thickness: Mark with school grade chalk, adhesive inspection labels or masking tape. Do not use crayon, paint or spirit based ink pens.

2.4 Mixing
General:
Mixing: Mix coatings thoroughly. All containers larger than 4 litres are to be mixed using powered agitators driven by air motors.
Multi-component coatings: Combine multi-component coatings as whole pack units. If partial mixing is proposed, submit details.
Thinners: If addition of thinners is proposed, conform to the Dulux product data sheet for the specified product.
Colour consistency: If colour consistency is required, before the addition of the curing agent or converter and before coating application, pre-mix the components of coating products that have been tinted to make sure colour uniformity.
Thinners: If addition of thinners is proposed, conform to the coating manufacturer's recommendations for the documented product.
Colour consistency: If colour consistency is required, pre-mix tinted products, before the addition of the curing agent or converter and before coating application.

2.5 Coating Application
General: Conform to the Dulux product data sheets and the Dulux specification.
Painting and coating colour: Verify all project finish colours with the retained samples.
Final surface preparation or coating application
Limits: If the following climatic/substrate conditions are present do not apply coating:
-The relative humidity is above 85%.
-The substrate temperature is less than 3°C above the dew point.
-The ambient air temperature is below 5°C or above 40°C.
-The substrate temperature is below 10°C or above 45°C.
-The surface to be coated is wet or damp.
-Where the full prime coat application cannot be carried out before the specified cleanliness of the surface deteriorates.
-For external or site applied coatings:
-The weather is clearly deteriorating or unfavourable for application or curing.
-High wind conditions.
-The surface preparation standard has not been achieved.
-The time between surface blast cleaning and the commencement of coating exceed 4 hours.
-Visual tarnishing or black spots develop on the surface of the metal.
Exception: Preliminary blast or other surface preparations may be performed in conditions that are outside the limits, provided the final surface preparation and all coating applications are undertaken under the limited conditions.

Prior coating: Before the spray application of each coating stripe coat by brush method all edges, welds, seams, rivets bolts and bolt holes (including slots). Prime the underlying surfaces of replacement bolting, washers and nuts before installation.
Procedure: Conform to the order shown in PROTECTIVE PAINT COATING SYSTEMS.
Timing: Conform to the minimum and maximum re-coat intervals and curing times.
Detail: Stripe coat all welds, bolt holes, corners and difficult to spray areas by brushing in with the prime coat and intermediate coat material before the full coating application.
Subsequent coats: Make sure that before any subsequent coating layer is applied, the surface condition of the preceding coat is complete and correct in all respects, including its DFT achievement, cleanliness, freedom from defects. These are detailed on the Dulux Protective Coating specification. Depending on the applicators chosen method additional coats may be required to achieve the nominated minimum DFT.
Conformance: To AS/NZS 2312.1 for the specified film thickness of individual coats.
Correction: Correct any defect in a coating layer before the subsequent coating layer is applied.

Protection:
General: Perform all painting under cover and/or protected from rain, condensation, dew, excessive wind, overspray or wind-blown dust.
Period: Continue protection where any of these conditions exist before the coating has cured to a sufficient degree so as to be unaffected.

2.6 Coating Repair
Repair of coating damage:
Preparation: Feather back by hand or machine sanding all leading edges of intact coating adjacent to the repair, to remove any sharp edges.
Surface contamination: Remove by dusting or blowing down before applying the first coat of paint.
Sequence: Apply the repair coating in the same sequence and manner as the original coating.
Areas damaged without exposing the primer: Wash with a proprietary detergent solution and rinse with fresh water, followed by abrading and ensuring that edges of sound paint are feathered. Then coat the area with the appropriate intermediate and finishing coat materials.
Areas damaged to the primer or steel surface: Blast clean to the original standard. Prepare at least 50 mm into the sound coating and to a further feathering zone of approximately 50 mm.

Re-coat with the specified system to restore the film thickness and integrity over the whole prepared surface including the feathered zone.
Aesthetic reinstatement: If required, repaint to a physical or discernible boundary line.
Defects: If corrosion pitting or areas of significant metal loss and defects are exposed by the blasting process, advise for inspection and have areas passed as being fit for service before proceeding with the coating system.
Timing: Apply the Dulux Protective Coating system within 4 hours of blast cleaning or in any case before visual tarnishing of the steel occurs.

Cleaning: Provide, at no additional cost, surface treatment as follows:
-Surfaces left longer than four hours: Re-blast cleaning before coating.
-Surfaces that develop visual tarnishing (red rust or black spots) at any time before coating: Wash down with fresh potable water then blast clean before coating. There are commercially available chloride reducing solutions that may assist.

2.7 Completion
General:
Joints: On completion, seal all joints and mating surfaces with a compatible polyurethane sealant.

Warranties:
Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the applicator.
- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier.

2.8 Selections
There are decorative finish options for architectural and structural steel. The most common coating types are:

Epoxy acrylic
Inland AS/NZS 2312.1 Categories C1 and C2: Epoxy acrylic

Location	Primer	Second Coat	Third Coat	Duspec No
Exterior decorative equivalent to AS/NZS 2312.1 ACC2	75 µm DULUX Durepon P14 DI1117	50 µm DULUX Acrathane IF DI1102	Nil	SI1433

Coastal AS/NZS 2312.1 Categories C3, C4 and C5: Epoxy acrylic

Location	Primer	Second Coat	Third Coat	Duspec No
Exterior decorative equivalent to AS/NZS 2312.1 ACC6	75 µm DULUX Zinc-anode 402 DI0539	00 µm DULUX Duremax GPE DI1115	50 µm DULUX Acrathane IF DI1102	SI1399

3.0 ROOFING
3.1 Fasteners
Finish: Pre-finish exposed fasteners with an oven baked polymer coating to match the roofing material.

3.2 Materials
Sheet metal roofing
Standard: To AS 1562.1.
Pre-painted and organic film/metal laminate products: To AS/NZS 2728.
Corrosion protection: To BCA Table 3.5.1.1.a.

4.0 MODWOOD
Size: 65x23mm ModWood. Colour: ‘Sahara’ Finish: Brushed. Fixings: As per Architects drawings.
Coatings with DFT 150 µm or less: If testing, deduct the effect of the measured surface profile from all DFT readings.
Single readings: Conform to the following:
-The average of 5 point readings for each 10 m2 area of coating surface to be within the documented coating thickness range.
-No single point reading in any 10 m2 to be less than 80% of the specified minimum coating thickness. If the average of three readings is used to produce a point reading, an individual reading may be less than 80% of the minimum coating thickness.
-Check any single reading that is greater than 150% of the documented maximum DFT with three additional readings within 50 mm of the original reading. If the average of these three readings is not greater than 150% of the specified DFT, take the average reading as the point reading. If greater than 150%, reject the DFT for that area. If no maximum limit for DFT is documented, consult manufacturer.
Rectification and defects: Rectification: Re-work areas rejected, using the same surface preparation, coatings and sequence as for the original work.
Defects (including under-thickness and over-thickness): Mark with dustless chalk, adhesive inspection labels or masking tape. Do not use crayon, paint or spirit based ink pens.

6.1 GE2 Wine Country Information Bay - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_r = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

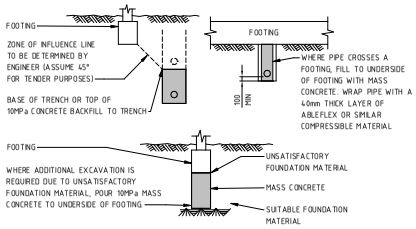
G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 102125.00.R.001.Rev0 PREPARED BY DOUGLAS PARTNERS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTIONS OF CONDITIONS AT OR BELOW GROUND LEVEL.

F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT					
ELEMENT		CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)	
SLABS ON GROUND	EXTERNAL	25	1000 µm	TOP 30	BTM 60
STRIP FOOTINGS		25	1000 µm	60	
PAD FOOTINGS		25	1000 µm	60	

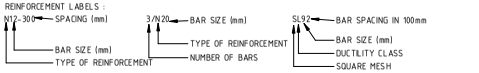
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. COMPACT ALL CONCRETE USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YIELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT., THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100.

IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH WALL MIX DESIGN

RE1. 75% 7-10mm CRUSHED RHYOLITE
RE2. 25% 7mm - CRUSHED RHYOLITE DUST
RE3. BOTH MATERIALS LISTED ABOVE ARE TO BE SOURCED FROM CESSNOCK LANDSCAPE SUPPLIER.
RE4. 10% OFF WHITE CEMENT BY WEIGHT

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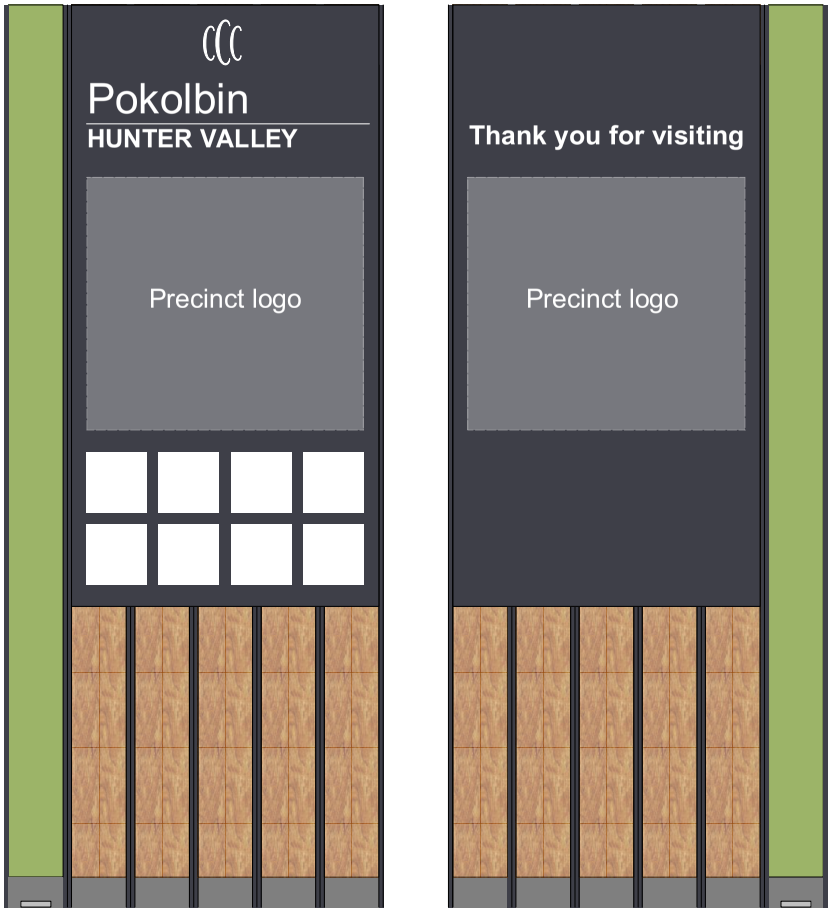
JOB NUMBER:	NL201373	DATE:	16/12/2020	REV: 3
PROJECT:	POKOLBIN INFO BAY			
DRAWING TITLE:	SPECIFICATION NOTES			
DRAWING NUMBER:	NL201373_SK01			

6.2 PS1 Precinct Sign



01 PS1 Precinct Sign - Elevation

COLOURS:

Background and steel column: Colorbond Monument

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

Modwood Panelling Modwood Sahara (brushed finish)

PRECINCT COLOURS:

Parish of Pokolbin
C:66 M:0 Y:11 K:0
RGB - 89, 186, 204

Kurri Kurri: CMYK: 80, 100, 3, 0. RGB: 101, 46, 119

Broke Fordwich
C:80 M:20 Y:100 K:7

Around Hermitage
C:0 M:100 Y:96 K:0
RGB - 229, 50, 47

Central Pokolbin
C:2 M:8 Y:99 K:0
RGB - 251, 223, 33

Wollombi Valley
C:26 M:100 Y:100 K:19
RGB - 149, 49, 42

Mount View
C:31 M:1 Y:100 K:0
RGB - 185, 205, 51

Branxton Greta: CMYK: 2, 66, 99, 0.
RGB: 233, 115, 46

Lovedale
C:100 M:88 Y:9 K:1
RGB - 65, 59, 118

LETTERING:

Precinct Names: Arial

Hunter Valley: Arial Bold

Thank You: Arial

6.2 PS1 Precinct Sign

Individual Precinct Logos

Around Hermitage

Central Pokolbin

Information Centre

Lovedale

Lovedale

6.2 PS1 Precinct Sign

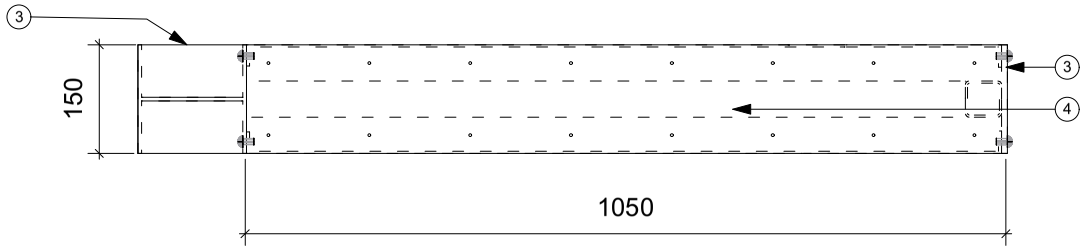
Individual Precinct Logos

Mount View

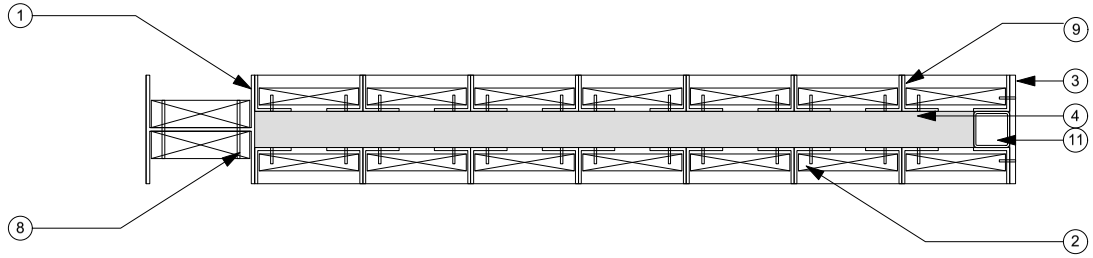
Parish of Pokolbin

Wollombi Valley

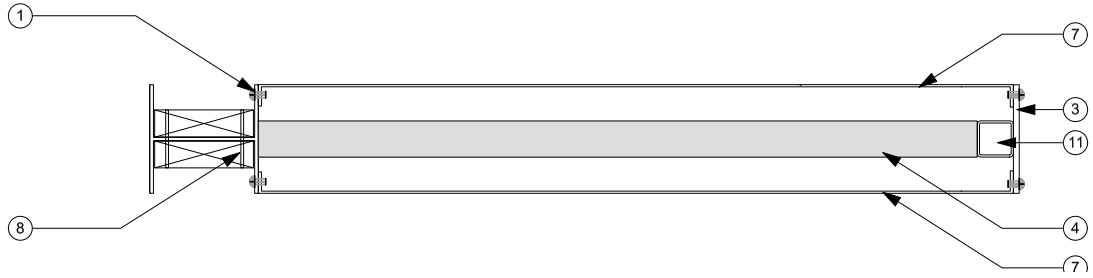
6.2 PS1 Precinct Sign



02 PS1 Precinct Sign - Top View
NTS



03 PS1 Precinct Sign - Section A
NTS



04 PS1 Precinct Sign - Section B
NTS

NOTES

1. 150mm steel Universal Channel post. Paint finish colourbond 'Monument'. Refer specification.
2. 137x23mm ModWood infill panel in "Sahara" - Brushed Finish, with concealed fixings. Refer specification.
3. 10mm mild steel plate surround welded to frame. Paint finish 'Monument'. Refer specification.
4. Fabricated galvanised SHS frame to AS4100-1998. Nominal 50x4mm SHS welded to posts. Refer specification.
7. 3mm thick galvanised HDG600 signage panel. Paint finish colourbond 'Monument'. Refer specification.
8. 137x35mm ModWood infill panel with paint finish. Colour based on Precinct (refer precinct signage colours). Colour to be confirmed by Cessnock Council prior to manufacture. Refer specification.
9. 50x50x4mm angle steel frame all round with paint finish Colorbond 'Monument'. Refer specification.
11. 50x6mm galvanised SHS structural post. Refer specification.

General Notes:

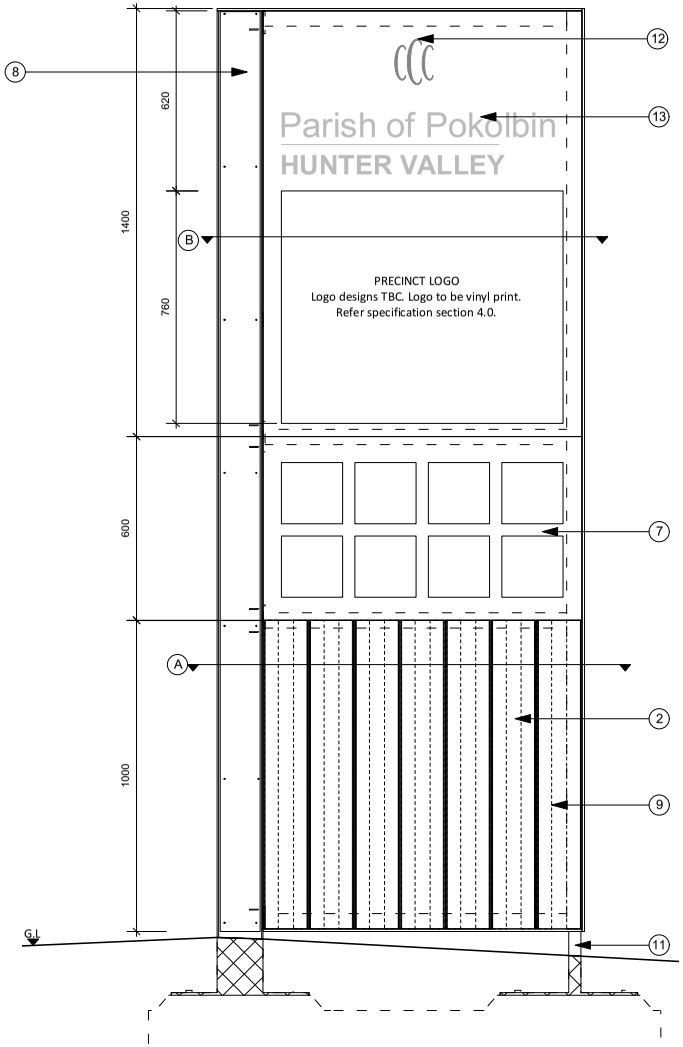
Refer to PS1 Precinct Sign supporting drawings:

- 01 PS1 Precinct Sign
- 02 PS1 Precinct Sign - Top View
- 03 PS1 Precinct Sign - Section A
- 04 PS1 Precinct Sign - Section B
- 05 PS1 Precinct Sign - Front Elevation
- 06 PS1 Precinct Sign - Rear Elevation
- 07 PS1 Precinct Plan - Framing Detail

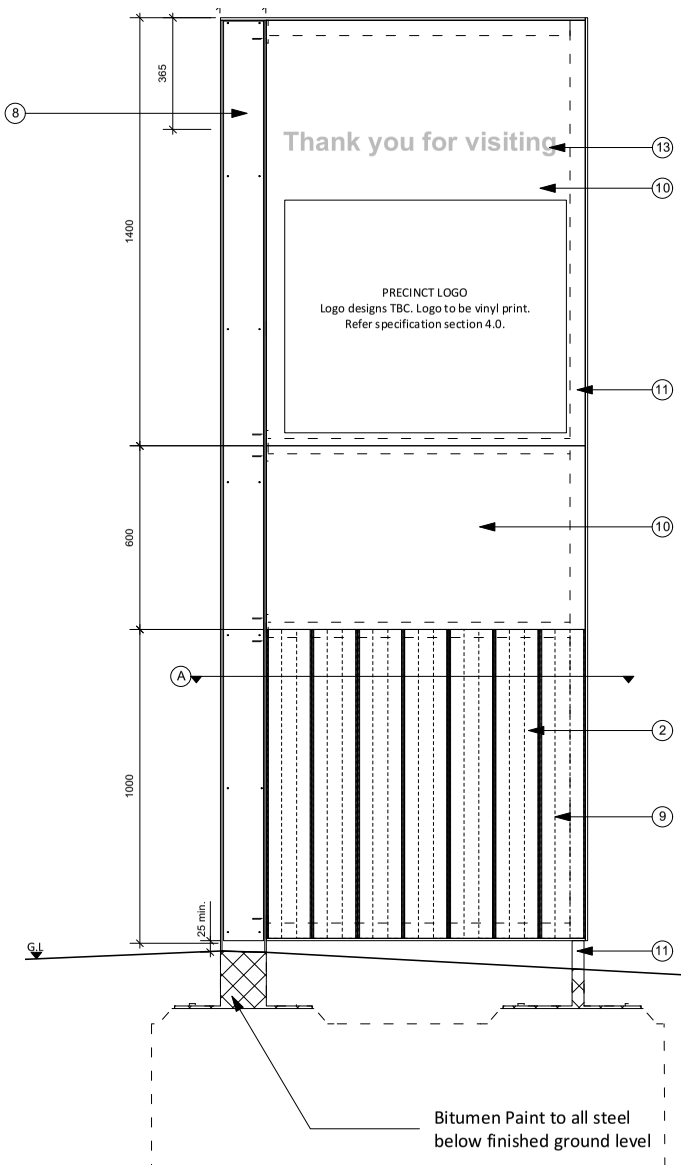
Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

6.2 PS1 Precinct Sign



05 PS1 Precinct Sign - Front Elevation
NTS



06 PS1 Precinct Sign - Rear Elevation
NTS

NOTES

1. 150mm steel Universal Channel post. Paint finish colourbond 'Monument'. Refer specification.
2. 137x23mm ModWood infill panel in "Sahara" - Brushed Finish, with concealed fixings. Refer specification.
3. 10mm mild steel plate surround welded to frame. Paint finish 'Monument'. Refer specification.
4. Fabricated galvanised SHS frame to AS4100-1998. Nominal 50x4mm SHS welded to posts. Refer specification.
5. Concrete footing. Refer Engineers Drawings.
6. Baseplate. Refer Engineers Drawings. Bitumen paint to steel below ground level. Refer specification
7. 3mm thick galvanised HDG600 signage panel. Paint finish colourbond 'Monument' with 200mm x 200mm vinyl signage elements. Information to be provided by Cessnock City Council. Refer specification.
8. 137x35mm ModWood infill panel with paint finish. Colour based on Precinct (refer precinct signage colours). Colour to be confirmed by Cessnock Council prior to manufacture. Refer specification .
9. 50x50x4mm angle steel frame all round with paint finish Colorbond 'Monument'. Refer specification.
10. 3mm thick galvanised HDG600 signage panel. Paint finish colourbond 'Monument'. Information to be provided by Cessnock City Council. Refer specification.
11. 50x6mm galvanised SHS structural post. Refer specification .
12. Vinyl Cessnock City Council logo. White as per drawing 01. Refer specification.
13. Vinyl Signage. White as per drawing 01. Refer to drawing 01 for font types. Refer specification.

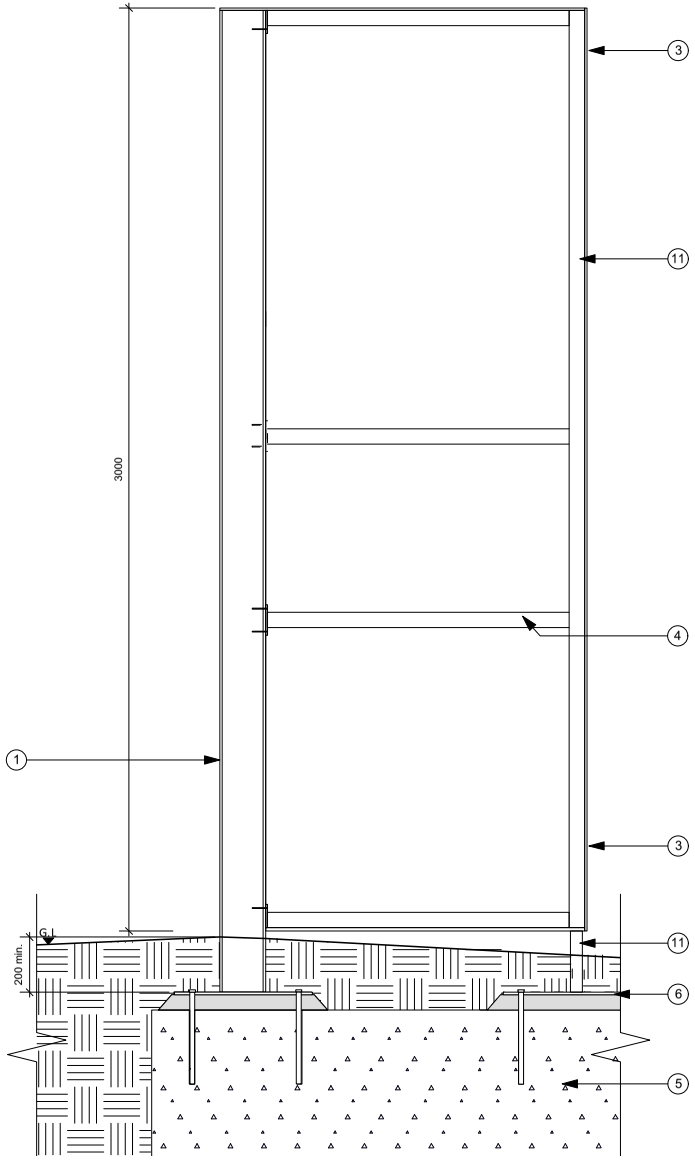
General Notes:

Refer to PS1 Precinct Sign supporting drawings:

- 01 PS1 Precinct Sign
- 02 PS1 Precinct Sign - Top View
- 03 PS1 Precinct Sign - Section A
- 04 PS1 Precinct Sign - Section B
- 05 PS1 Precinct Sign - Front Elevation
- 06 PS1 Precinct Sign - Rear Elevation
- 07 PS1 Precinct Plan - Framing Detail

Refer Section 4 Signage Specification

Refer Engineer's Specification and Details



07 PS1 Precinct Sign - Framing Detail
NTS

NOTES

1. 150mm steel Universal Channel post. Paint finish colourbond 'Monument'. Refer specification.
2. 137x23mm ModWood infill panel in "Sahara" - Brushed Finish, with concealed fixings. Refer specification.
3. 10mm mild steel plate surround welded to frame. Paint finish 'Monument'. Refer specification.
4. Fabricated galvanised SHS frame to AS4100-1998. Nominal 50x4mm SHS welded to posts. Refer specification.
5. Concrete footing. Refer Engineers Drawings.
6. Baseplate. Refer Engineers Drawings. Bitumen paint to steel below ground level. Refer specification
7. 3mm thick galvanised HDG600 signage panel. Paint finish colourbond 'Monument' with 200mm x 200mm vinyl signage elements. Information to be provided by Cessnock City Council. Refer specification.
8. 137x35mm ModWood infill panel with paint finish. Colour based on Precinct (refer precinct signage colours). Colour to be confirmed by Cessnock Council prior to manufacture. Refer specification .
9. 50x50x4mm angle steel frame all round with paint finish Colorbond 'Monument'. Refer specification.
10. 3mm thick galvanised HDG600 signage panel. Paint finish colourbond 'Monument'. Information to be provided by Cessnock City Council. Refer specification.
11. 50x6mm galvanised SHS structural post. Refer specification .
12. Vinyl Cessnock City Council logo. White as per drawing 01. Refer specification.
13. Vinyl Signage. White as per drawing 01. Refer to drawing 01 for font types. Refer specification.

General Notes:

Refer to PS1 Precinct Sign supporting drawings:

- 01 PS1 Precinct Sign - Elevation
- 02 PS1 Precinct Sign - Top View
- 03 PS1 Precinct Sign - Section A
- 04 PS1 Precinct Sign - Section B
- 05 PS1 Precinct Sign - Front Elevation
- 06 PS1 Precinct Sign - Rear Elevation
- 07 PS1 Precinct Plan - Framing Detail

Refer Section 4 Signage Specification

Refer Engineer's Specification and Details

6.2 PS1 Precinct Sign - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

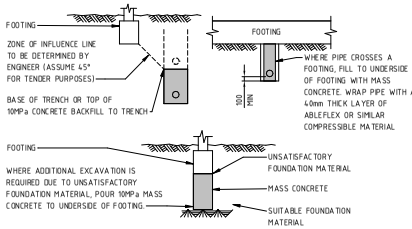
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'_c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

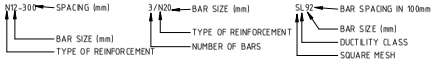
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100. IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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JOB NUMBER:	NL166682	DATE:	16/02/2018	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			2
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

6.3 SS Street Signs - Family and Colours

01 Standard Street Blade

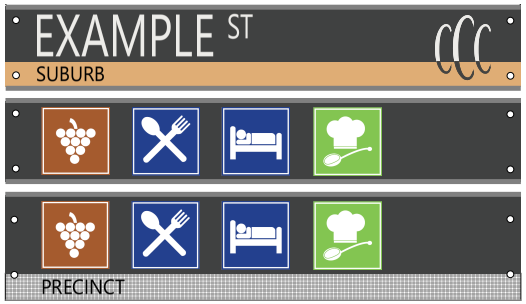
02 Precinct Pictogram Blade

03 Pictogram Blade

04 Standard Street Blade Private Road

05 Suburb Directional Blade

06 G5-10: Rural NO THROUGH ROAD



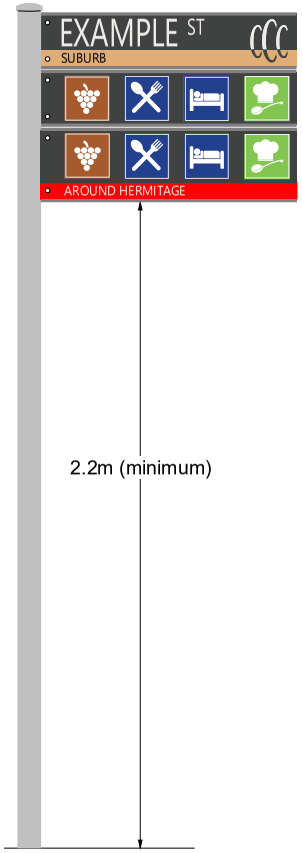
07 Precinct Pictogram Reassurance Blade

COLOURS:

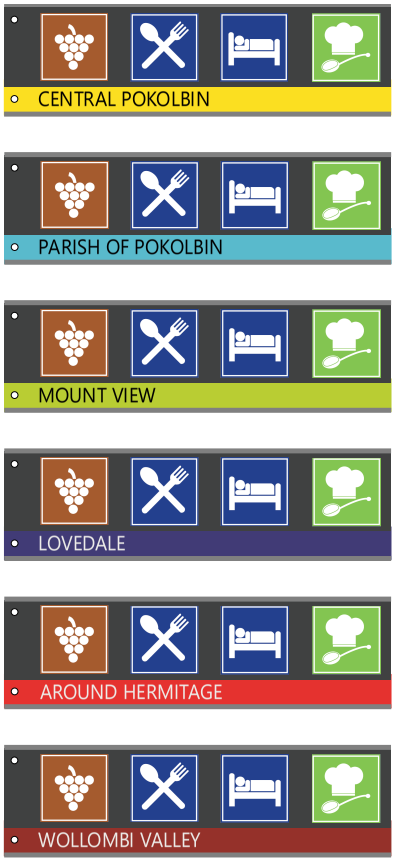
Monument: CMYK: 11, 11, 11, 80.
RGB: 64, 65, 65

White: CMYK: 8, 4, 5, 0
RGB: 237, 236, 233

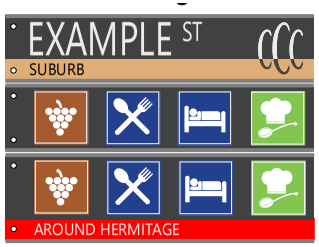
Light Brown: CMYK: 11, 30, 58, 0
RGB: 223, 173, 117



08 Sign Combination and Post

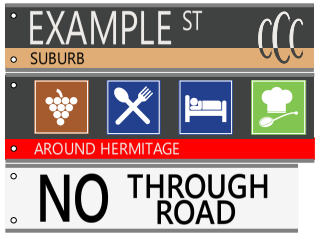


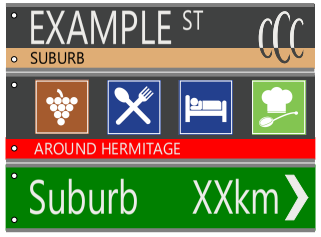
09 Precinct Pictogram Blades



10 Pictogram Blades

11 Pictogram Blade



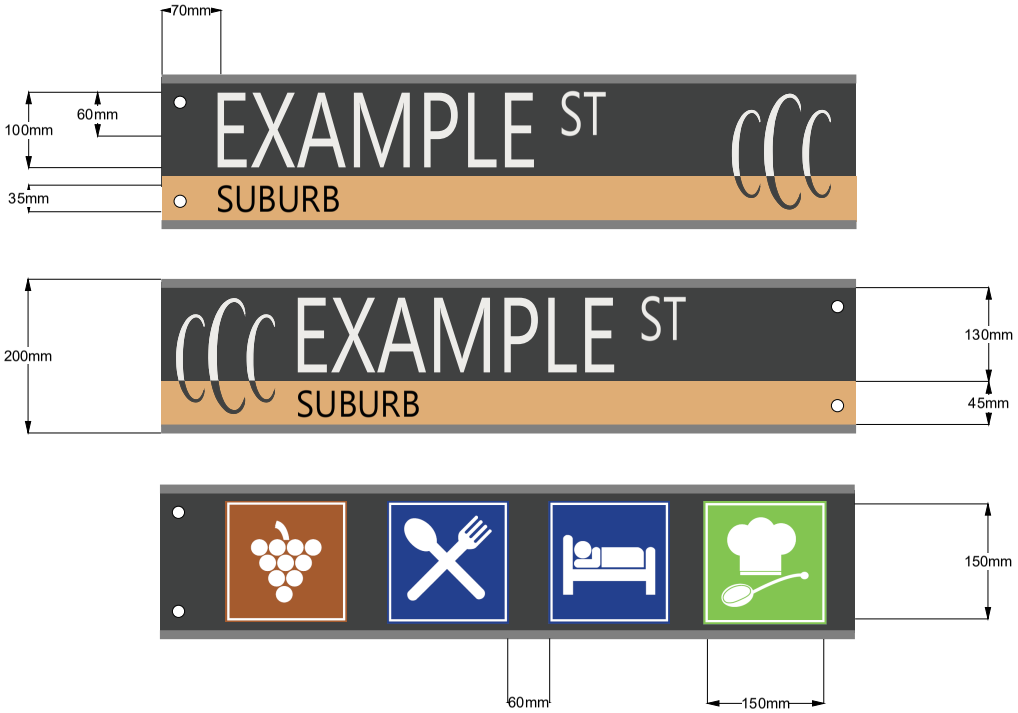


12 Pictogram Blade & 1 Additional

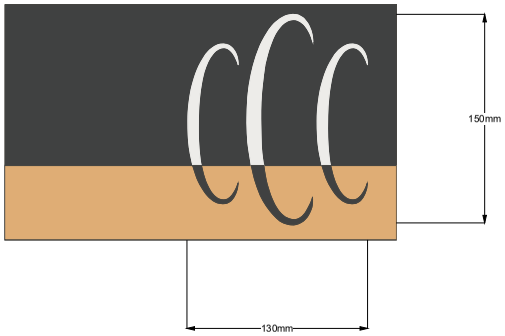
13 Reassurance - 2 Pictogram Blades

14 Reassurance - 1 Pictogram Blade

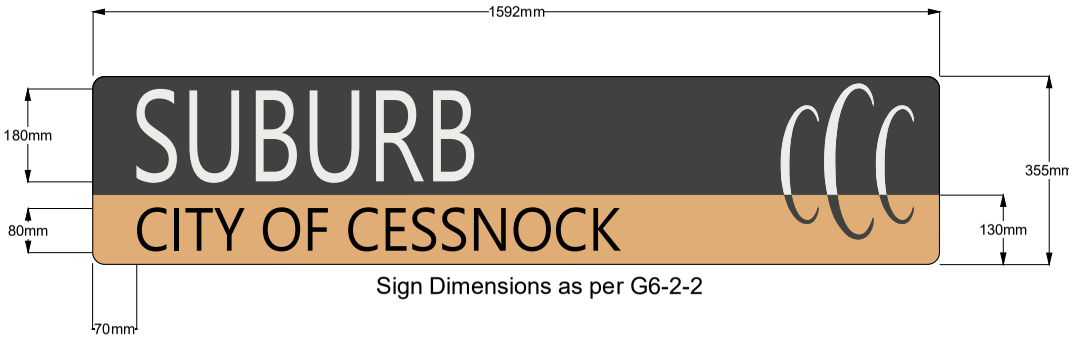
6.3 SS Street Signs - Dimensions



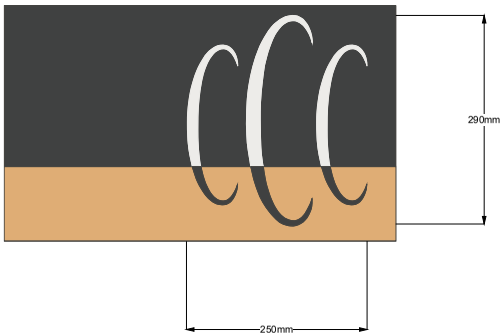
15 Standard Street Blade



16 Council Logo - Standard Street Blade

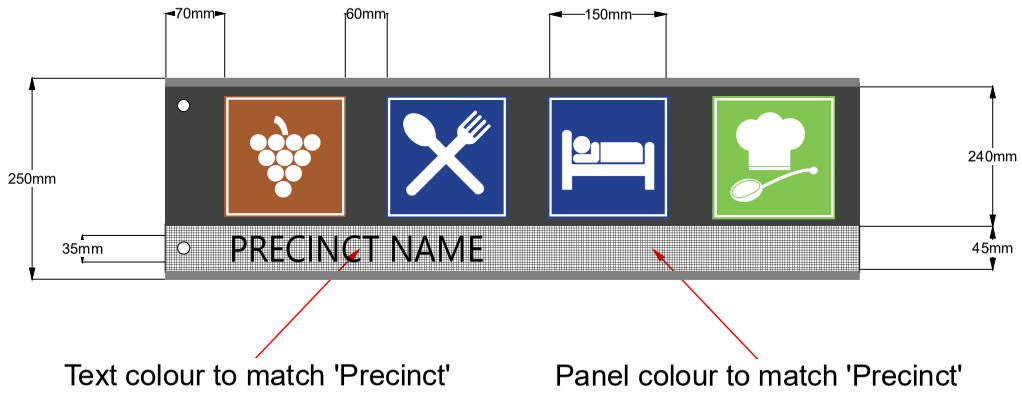


17 Suburb Sign Secondary Roads

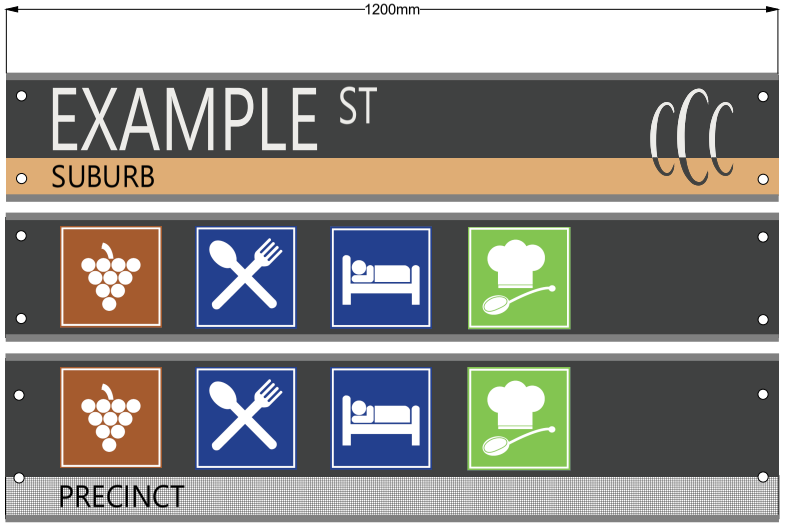


18 Council Logo - Suburb Sign Secondary Roads

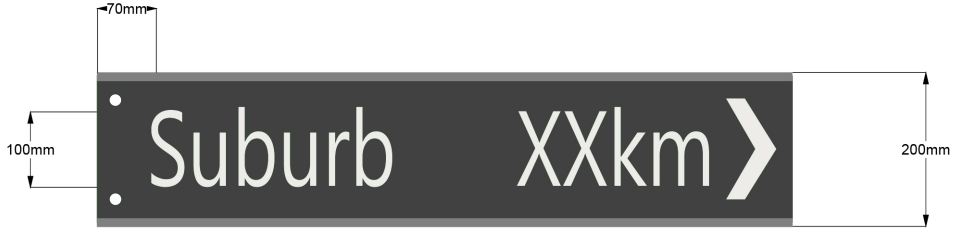
6.3 SS Street Signs - Dimensions



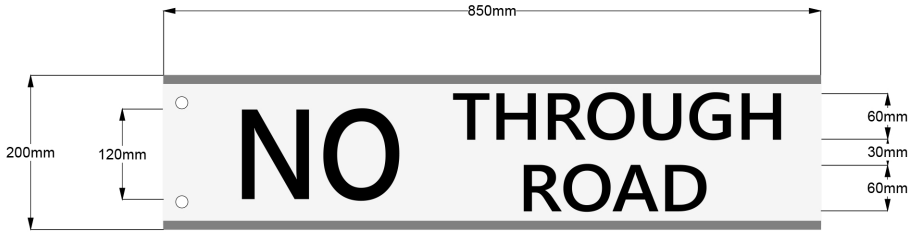
19 Precinct Pictogram Blade



20 Precinct Pictogram Reassurance Blades (on two posts)

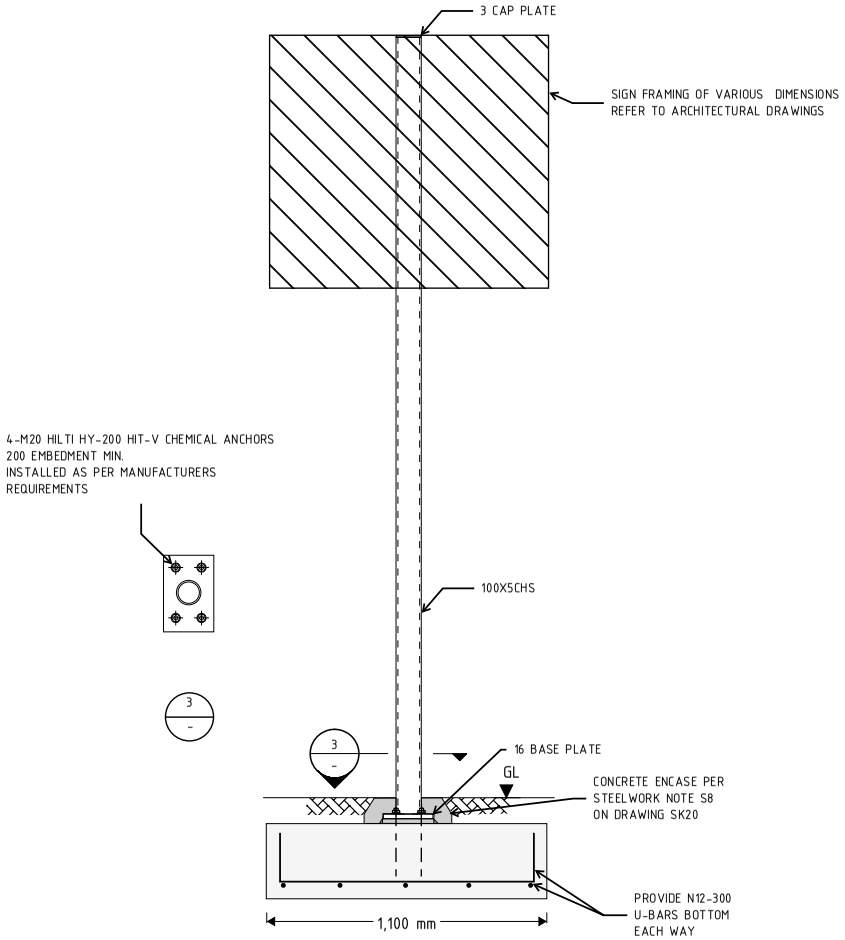


21 Suburb Directional Blade

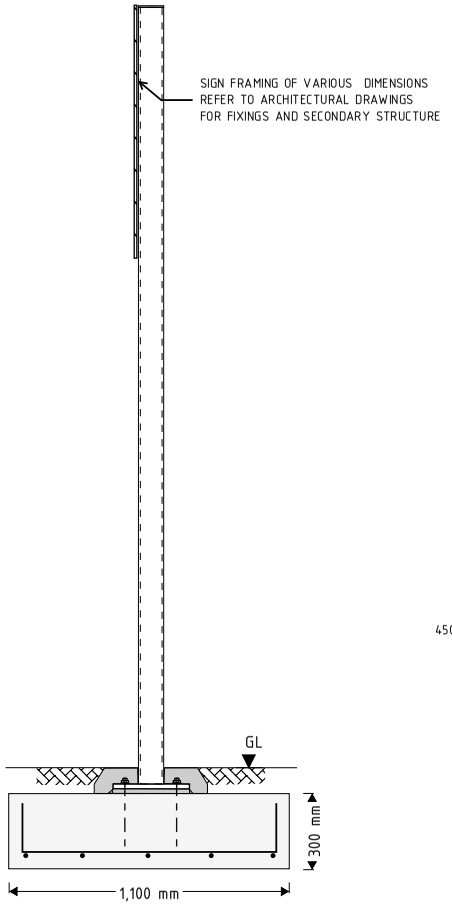


22 Rural No Through Road

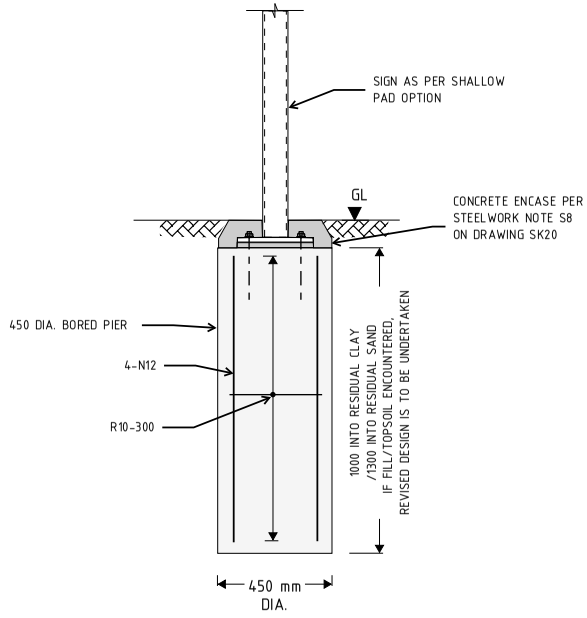
6.3 SS Street Signs - Engineer's Drawing



LONG SECTION
(SHALLOW PAD OPTION)



TRANSVERSE SECTION
(SHALLOW PAD OPTION)



LONG SECTION
(BORED PILE OPTION)

SS1-SS6 STREET SIGNS (TYP.) (100CHS, 3000h MAX.)

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				REV.
JOB NUMBER:	NL166682	DATE:	15/12/2017	1
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	SS1-SS6 STREET SIGNS (TYP.)			
DRAWING NUMBER:	NL166682_SK26			

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

6.3 SS Street Signs - Signage Specification

LETTERING:

Street Blades
Digital printed Durst 3M UV ink.
Street Name: 100mm AS1744 Series C. Note 100mm Series B to be substituted for long street names if required.
ST, AV, RD etc: 60mm AS1744 Series C.
Suburb Name: 35mm AS1744 Series D.

Precinct Pictogram Blade
Digital printed Durst 3M UV ink.
Precinct Name: 35mm AS1744 Series D.

Suburb Directional Blade
Suburb Name and Distance: 100mm AS1744 Series C.

Suburb Sign
Suburb Name: 180mm AS1744 Series C.
LGA Name: 80mm AS1744 Series D.

Rural NO THROUGH ROAD
NO: 120mm AS1744 Series E.
THROUGH ROAD: 60mm AS1744 Series E.

BLADE LENGTH:

600mm - 900mm (length to suit)
900mm- 1200mm (to be used only after consultation with Council Staff.
Precinct Pictogram Reassurance Blades: 1200mm (on two posts)

BLADE MATERIAL:

200mm Aluminium Street Blade Extrusion.
3M ECF 1170 clear over-laminate.

BLADE BRACKETS:

1 Way: AL1-8
2 Way: AL2-8
3 Way: AL3-8

POSTS:

50mm Galvanised. 2.9mm wall

6.3 SS Street Signs - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

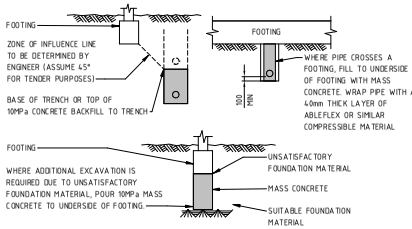
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

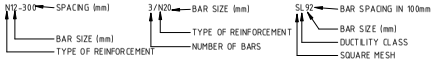
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) = AS/NZS 2312-HDG600P3 or IZS3 (TIME TO FIRST MAINTENANCE TO BE 10 YEARS)
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100.

IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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JOB NUMBER:	NL166682	DATE:	16/02/2018	REV. 2
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

6.4 DM1 Destination Marker

COLOURS:

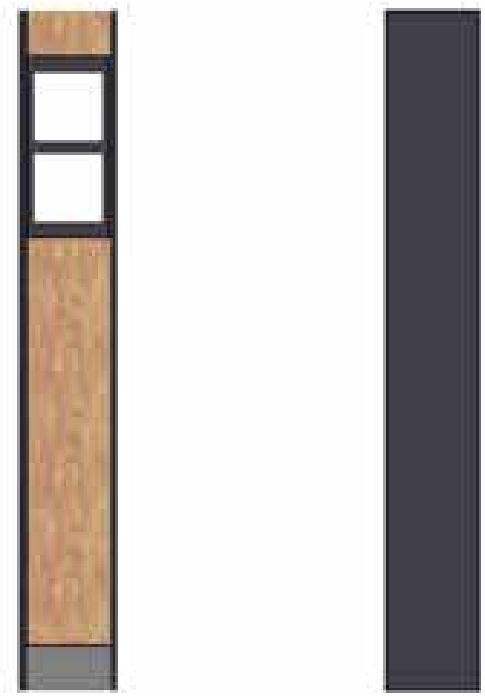
Steel column: Colorbond Monument

White: CMYK: 8, 4, 5, 0

RGB: 237, 236, 233

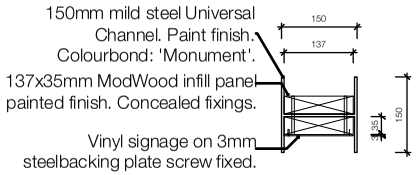
Modwood Panelling Modwood

Sahara (brushed finish)



01 Destination Marker - Elevation

6.4 DM1 Destination Marker



02 DM1Destination Marker - Plan
1:15

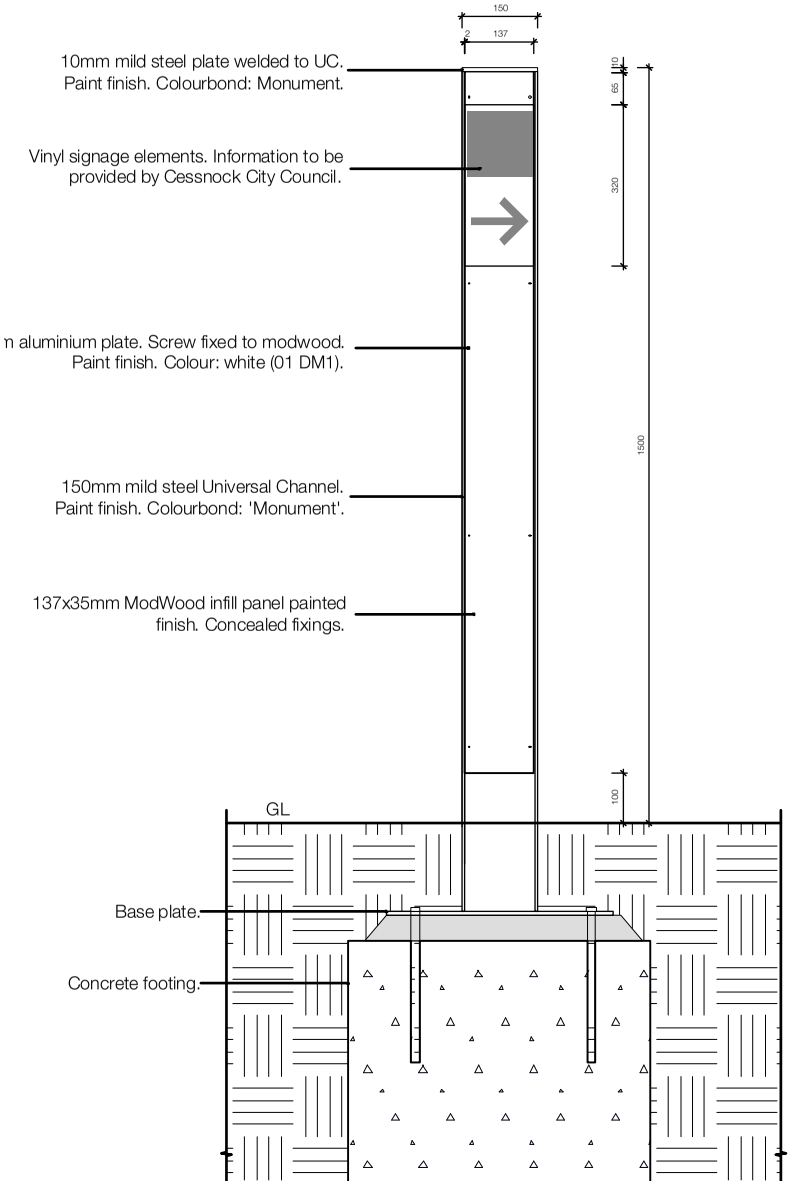
General Notes:

Refer to DM1 Destination Marker supporting drawings:

- 01 DM1 Destination Marker - Elevation
- 02 DM1 Destination Marker - Plan
- 03 DM1 Destination Marker - Front Elevation

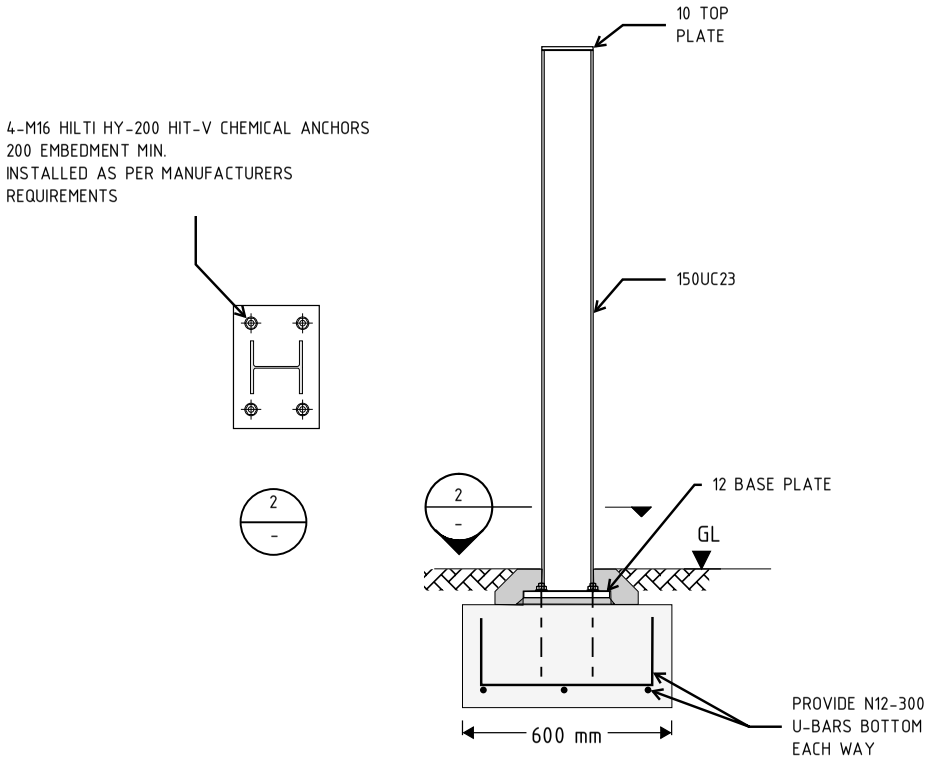
Refer Sewction 4 Signage Specification

Refer Engineer's Specification and Details

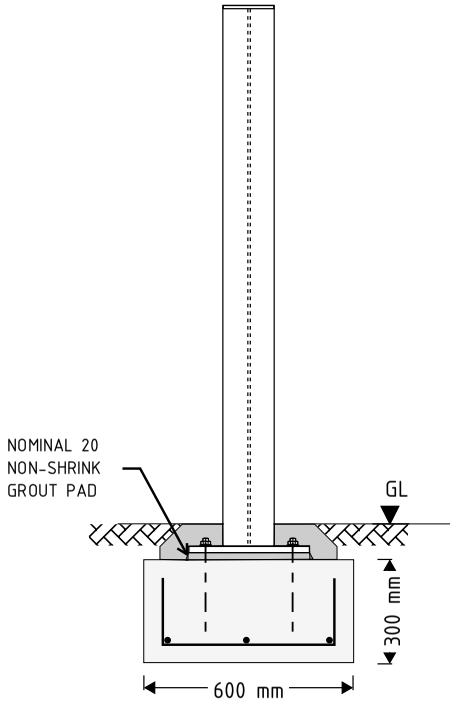


03 DM1 Destination Marker - Front Elevation
1:15

6.4 DM1 Destination Marker - Engineer's Drawing



LONG SECTION
(SHALLOW PAD OPTION)



TRANSVERSE SECTION
(SHALLOW PAD OPTION)

NOTE:
MINIMUM ALLOWABLE BEARING PRESSURE OF 100KPa IS ASSUMED, AND IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
IF FOOTING NOT IN 100kPa MATERIAL, ALTERNATIVE DESIGN WILL BE REQUIRED

REFER TO SK20 FOR SPECIFICATIONS

DM1 - DESTINATION MARKER (150UC, 1500h)

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JOB NUMBER:	NL166682	DATE:	15/12/2017	REV.
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			1
DRAWING TITLE:	DM1 - DESTINATION MARKER			
DRAWING NUMBER:	NL166682_SK25			

6.4 DM1 Destination Marker - Engineer's Specification

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
G5. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
G6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS.
G7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADS:

WIND LOADS:

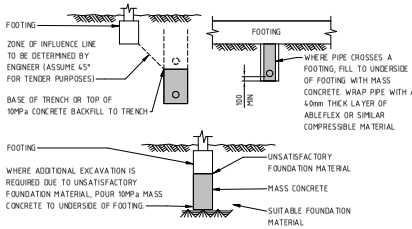
- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEDENCE = 1/500
- REGIONAL WIND SPEED V_R = 45 m/s
- TERRAIN CATEGORY = TC2
- TERRAIN MULTIPLIER $M_{z,cat}$ = 0.91
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 41 m/s

G8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
G9. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
G10. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- FOOTINGS = 100kPa

F2. A GEOTECHNICAL REPORT HAS NOT BEEN CARRIED OUT. MINIMUM ASSUMED ALLOWABLE BEARING PRESSURES TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE. IF MINIMUM BEARING PRESSURES NOT ACHIEVED, AN ALTERNATIVE DESIGN WILL BE REQUIRED.
F3. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
F4. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F5. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
F6. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
F7. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.
C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT			
ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)
WALLS	25	1000 µm	60
FOOTINGS	25	1000 µm	60

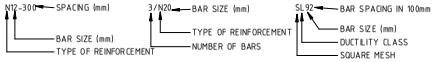
MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = A2 (IN CONTACT WITH GROUND)
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. SLABS USING MECHANICAL VIBRATORS.
C4. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.
C5. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



C6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
C7. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
C8. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009.
C9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009 SECTION 13.
C10. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS.
C11. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
C12. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY A SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING CONCRETE.
C13. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB.
C14. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 TO 27	1.50
27 TO 30	1.00
30 TO 32	0.75
32 TO 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, THE CONCRETE MIX DESIGN ENGINEER IS TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED.

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.
S2. PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S3. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE-WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO COPIES OF APPROVED DRAWINGS TO NORTHROP CONSULTING ENGINEERS FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR REVIEW).
S4. UNLESS NOTED OTHERWISE, USE:
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

S5. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-1983, AS/NZS 4534-2006, AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S6. MINIMUM YELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 250MPa
- HOT ROLLED PLATE = 250MPa

S7. SURFACE TREATMENT UNLESS NOTED OTHERWISE:
- EXPOSED TO WEATHER (STRUCTURAL MEMBERS) (TIME TO FIRST MAINTENANCE TO BE 10 YEARS) = AS/NZS 2312-HDG600P3 or IZS3
- BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS = AS/NZS 2312-HDG600P3

S8. ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT, THEN CONCRETE ENCASE STEELWORK WITH MASS CONCRETE (MINIMUM 75mm COVER TO STEELWORK).
S9. STEELWORK TO BE CONCRETE ENCASED FOR FIRE RATING PURPOSES SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm DIA.
S10. BOLT SYMBOLS:
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED.
- 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED.
- 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)

S11. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S12. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S13. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S14. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa
S15. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S16. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S17. IMPORTED STRUCTURAL STEEL MATERIAL
ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE COMPLIANT WITH AS4100, AND IN PARTICULAR:
- CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO COMMENCEMENT OF FABRICATION.
- PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
- CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED.
- UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100. IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

RAMMED EARTH

RE1. RAMMED EARTH WALLS SHALL CONFORM TO THE RELEVANT REQUIREMENTS OF AS3700, SAA HB 195, NZS4297, NZS4298 & NZS4299
RE2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE A MINIMUM OF 2.5MPa. THE MINIMUM CEMENT CONTENT BY WEIGHT SHALL BE 6%.
RE3. SUBMIT THE FOLLOWING FOR APPROVAL TO THE SUPERINTENDENT PRIOR TO COMMENCING WORKS:
- MIX DESIGN TO ACHIEVE DENSITY AND STRENGTH REQUIREMENTS, INCLUDING CEMENT CONTENT BY WEIGHT, DENSITY TO BE ACHIEVED AND PARTICLE SIZE DISTRIBUTION
- TEST REPORTS INCLUDING CONFIRMATION OF INSITU UNCONFINED COMPRESSIVE STRENGTH AND ELAPSED TIME BETWEEN ADDITION OF CEMEMNT AND COMPACTION. UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF SAA HB 195

RE4. U.N.O. ALL ANCHORS INTO RAMMED EARTH SHALL BE HILTI HIT-HY70 INJECTION ANCHORS. ANCHORS ARE TO BE HOT DIP GALVANISED
RE5. THE MOISTURE CONTENT AT PLACEMENT SHALL BE BETWEEN 8-16% BY WEIGHT
RE6. FORMWORK SHALL BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER, AND SHALL BE CAPABLE OF WITHSTANDING THE PRESSURE OF THE SOIL DURING COMPACTION. SUITABLE BOND BREAKERS SHALL BE USED TO ALLOW STRIPPING WITHOUT DISTURBANCE OF THE COMPACTED WALL.
RE7. PLACEMENT OF RAMMED EARTH SHALL NOT BE CARRIED OUT WHEN TEMPERATURE IS GREATER THAN 32 DEGREES CELSIUS.
RE8. MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 200mm THICK (WHEN UNCOMPACTED). MECHANICAL COMPACTION IS TO BE UNDERTAKEN USING PNEUMATIC RAMMERS. HAND RAMMING IS NOT TO BE USED.

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JOB NUMBER:	NL166682	DATE:	16/02/2018	REV. 2
PROJECT:	HUNTER VALLEY WAYFINDING SIGNAGE			
DRAWING TITLE:	JOB NOTES			
DRAWING NUMBER:	NL166682_SK20			

APPENDIX

7.2 Sign Register

Signs and Information Bays installed in 2018/19 (contract T1718-04 including variations)

4 Information Bays (refer DOC2017/082010):

1. Jeffery Park Kearsley
2. Lovedale Road and Camp Road Lovedale
3. Broke Road and Hermitage Road Pokolbin
4. Oakey Creek Road and Marrowbone Road, Pokolbin

Signage installed:

5. A community facility entry sign at Jeffery Park, Kearsley
6. A suburb entry sign at Bellbird and North Rothbury
7. 3 x town centre information signs in the Cessnock CBD (Cumberland Street, Vincent Street)
8. Community Facility Entry Sign CF1 Richmond Vale Museum – Leggetts Drive Richmond Vale

Signs and Information Bays installed in 2018/19 (contract T1718-07)

A. Gateway Entry Signs x 5m long x 3m high

1. Branxton between Hunter Expressway and New England Highway
2. Blackhill on southern side of John Renshaw Drive
3. Brunkerville on eastern side of Leggetts Drive

B. Tourist Information Bays

1. Pokolbin Hunter Valley Visitor Information Centre on Wine Country Drive.
2. Pokolbin corner of Broke Road and Wine Country Drive.

Sign Code	Location	Sides	Suburb Front	Suburb Back
SE1	Sanctuary Road, Paxton	Double	Paxton	Ellalong
SE1	Middle Road, Paxton	Single	Paxton	
SE1	Ellalong Road, Pelton	Single	Ellalong	
SE1	South Street, Ellalong	Single	Ellalong	
SE1	Wollombi Road, Millfield W	Single	Millfield	
SE1	Wollombi Road, Millfield E	Single	Millfield	
SE1	Millfield Road, Paxton	Double	Millfield	Paxton
SE1	Lake Road, Kearsley	Single	Kearsley	
SE1	Caledonia Street, Kearsley	Single	Kearsley	
SE1	Quorrobolong Road, Kitchener	Single	Kitchener	
SE1	Black Hill Road, Black Hill	Single	Black Hill	
TC1	Millfield Street, Cessnock	Double	TC Map	TC Map
TC1	Wollombi Road, Cessnock	Double	TC Map	TC Map
TC1	Vincent Street, Cessnock	Double	TC Map	TC Map

Signs installed in 2019 (Contract T1718-04 Variation 7 Refer to document DOC2020/127812 for maps of signs above)

Note: Middle Road Paxton and Caledonia Street Kearsley were moved in 2020 as they were installed inside the clear zone.

7.2 Sign Register

Signage and Tourist Information Bays Installed October to December 2020 (Refer TRIM SIF19/11)

1. Tourist Information bay at Pokolbin Hill Park, McDonalds Road Pokolbin
2. Tourist Information bay at Jeffries Park, Cessnock Road Abermain
3. Tourist Information bay at Wilderness Road, Lovedale (at the corner of Wine Country Drive)
4. Gateway Entry signs (2m wide design) at George Downes Drive Bucketty, Broke Road Pokolbin and George Booth Drive Seahampton.
5. 418 street blades / signs at various locations (refer to DOC2020/088412 and DOC2020/194967) installation completed May 2020 and December 2020.
6. 40 Tourist (TASAC) signs for Hunter Valley Wine Tourism area (refer DOC2020/001298 and DOC2020/001300, DOC2019/109773)
7. 25 suburb entry signs as per list below.
8. 2 Tourist Precinct Signs as per list below.
9. 5 Community Facility Information signs as per list below.

The locations for the suburb entry signs are as follows (refer DOC2019/037006):

7.2 Sign Register

No.	Suburb Name/s (Where double sided)		Street/s	Comments
1	Cessnock	Bellbird Heights	Wollombi Road	Existing sign location
2.	Cessnock	Kitchener	Quorrobolong	
3.	Cessnock	Neath	Cessnock Road	20m West of Aberdare Road
4.	Cessnock		Mount View Road	Oakey Creek Road
5.	Cessnock	Nulkaba	Wine Country Drive	20m South of Kerlew Street
6.	Cessnock	Kearsley	Greta Street Aberdare	Existing sign location
7.	Kurri Kurri	Stanford Merthyr	Tarro Street	Railway Street/ Victoria Street
8.	Kurri Kurri	Kurri Kurri	Main Street/ Lang Street	Cantwell Street
9.	Kurri Kurri	Pelaw Main	Stanford Street	Existing sign location
10.	Weston	Kurri Kurri	Northcote Street	60m East of Appleton Street
11.	Weston	Abermain	Cessnock Road	Existing sign location, 1 sign to replace 2 old style hoop signs
12.	Weston		Government Road	Intersection of Mitchell Avenue (South East corner)
13.	Abermain	Neath	Cessnock Road	290m North of Carrs Road
14.	Abermain	Sawyers Gully	Frame Drive	Intersection of Gingers Lane
15.	Nulkaba		Wine Country Drive	100m South of Lovedale Road
16.	Brunkerville		Leggetts Drive	345m North of LGA boundary
17	Brunkerville	Mount Vincent	Leggetts Drive	Leiberts Lane
18.	Branxton	Greta	New England Highway	245m East of Wine Country Drive
19.	Greta		Camp Road	West of Lovedale Road
20.	North Rothbury	Rothbury	Wine Country Drive	300m North of Littlewood Road
21.	Greta		New England Highway	In place of existing sign
22.	Kearsley		Caledonia Street	New footing and move existing suburb entry sign as in clear zone
23.	Mulbring	Mount Vincent	Leggetts Drive	170m South of Palmer Street
24.	Mulbring	Richmont Vale	Leggetts Drive	Whitebridge Road
25.	Mulbring	Elrington	Lake Road	North of Basin Road
26.	Pelaw Main	Richmont Vale	Leggetts Drive	South of HEZ Road
27.	Paxton		Middle Road	New footing and move existing suburb entry sign out of clear zone, placed on other side of road heading towards Paxton

7.2 Sign Register

The 2020 locations for the 2 Tourist Precinct Signs are:

No.	Location	Street/s	Comments
1	Pokolbin	Wine Country Drive	In the vicinity of the existing sign location at Visitor Information Centre.
2.	Lovedale	Corner of Lovedale Road/ Wine Country Drive	Replacement sign for existing footing to replace damaged sign previously installed.

The 2020 locations for the 4 Community Facility Information Signs are:

No.	Facility Location	Street/s	Comments
1.	Slacks Park, Wollombi	Paynes Crossing Road	
2.	Poppet Head Park, Kitchener	Cessnock Street	
3.	Mulbring Park, Mulbring	Vincent Street	
4.	Cessnock Youth Centre	49D Aberdare Street	Double Sided
5.	Pokolbin Park, Pokolbin	McDonalds Road	

REFERENCES

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REFERENCES 8

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