Suite 2, Level 1
33 Herbert Street
ST. LEONARDS NSW 2066

T 02 9438 5098

CIVIL AND STRUCTURAL ENGINEERING DESIGN DEVELOPMENT REPORT

WORLD CLASS END OF LIFE PROGRAM

TAMWORTH HOSPITAL

Prepared for: Health Infrastructure NSW

Document no: WCP-ACR-TAM- RPT-MEPF-005

Revision no: 005

Confidential and Commercial in Confidence

Disclaimer

This Report has been prepared in accordance with the scope of services described in the agreement between ACOR Consultants and the Client. The Report relies upon data, surveys, measurements and results based on instructions from, and in consultation with, the Client. Except as otherwise stated, ACOR Consultants has not attempted to verify the accuracy or completeness of any information provided by the Client. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that changes may be required to the Report. Changes in circumstances or facts, the passage of time, manifestation of latent conditions or impacts of future events may also impact on the accuracy, completeness or currency of the information or material set out in this Report. This Report has been prepared solely for use by the Client, ACOR Consultants Pty Ltd and its related body corporates accepts no responsibility for its use by any third parties without the specific authorisation of ACOR Consultants. ACOR Consultants reserves the right to alter, amend, discontinue, vary or otherwise change any information, material or service at any time without subsequent notification. All access to, or use of, the information or material is at the user's risk and ACOR Consultants Pty Ltd and its related body corporates accepts no responsibility for the results of any actions taken on the basis of information or material provided, nor for its accuracy, completeness or currency. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this Report, to the extent permitted by law.

Revisions

Revision	Description	Date	Prepared by	Approved by	Signature
001	DRAFT Master Planning Report	03/04/2024	TDL/GL	Dale Lenden	
002	DRAFT Master Planning Report	24/04/2024	TDL/GL	Dale Lenden	
003	Concept Report	24/07/2024	TDL/GL	Dale Lenden	
004	Draft Schematic Report	18/10/2024	TDL/GL	Dale Lenden	
005	Draft Design Development Report	07/03/2025	JY/GL	Dale Lenden	

Review Panel

Division/ Office	Name
Structural / St Leonards	Dale Lenden

Unless otherwise advised, the parties who have undertaken the Review and Endorsement confirm that the information contained in this document adequately describes the conditions of the site located at Tamworth Hospital, NSW.

Table of Contents

List of Tables

1 Executive Summary

ACOR Consultants Pty Ltd (ACOR) has been engaged by Health Infrastructure NSW (HINSW) to assist the design team with the Design Development design of the World Class End of Life Care Program (WCEoLP) relating to Civil and Structural Services. The development consists of the additional of a new facility adjacent to the existing Palliative Care unit at Tamworth Hospital for this part of the proposed WCEoLP works.

ACOR has investigated, through on-site investigations, review of existing documentation and consultation with the hospital engineering staff, the existing structural framing and civil infrastructure.

The Design Development design report, where information is available, will describe the existing infrastructure, structural framing, strategies, enabling works and diversions, staging requirements, and details of proposed civil and structural services to the new development.

Throughout the development of the design, we will assess several options and the final selected design parameters preferred by the project team, HINSW and the Hunter New England (LHD) will be detailed in each report for master planning, concept and schematic phases.

The overall design strategies for the project will consider and review key design strategies including:

- Existing Civil infrastructure
- Existing Structural framing
- Enabling works (if required)
- Environmentally Sustainable Design (ESD) Options and environmental best practice
- Safety in Design for construction and maintenance
- Risk assessment

In carrying out our preliminary assessments we have found:

1.1 Civil Services

The existing infrastructure:

- There are currently several stormwater pits immediately adjacent the proposed works location that will be utilised for any upgrades to the existing downpipe locations and stormwater requirements:
  - These have been coordinated with Hydraulics
- There is no grading required as the building is existing infrastructure and will be retained as is
  - Any additional footpaths can be provided and graded accordingly

The main design objective for us is to confirm the availability and compliance of the existing stormwater infrastructure for the proposed building works and that the structure can accommodate the proposed alterations and additions. As well as to ensure minimal disruption to existing hospital operations, cost effective construction methodology is used and compliance with statutory building codes and health facility best practice is achieved.

1.2 Structural Services

The proposed works include the excavation and construction of a new single level building adjoining the existing hospital. The proposed works will include permanent retaining and batter to accommodate the change in levels to the surrounding areas. The new building will be a raft on ground.

The building wall and roof will be a lightweight steel frame.

2 Introduction

The development is the extension of the existing Palliative Care Unit adjoining the existing Hospital, refer to Appendix A for the Design Development documentation as prepared by *Architetcus*. The below image represents the location of the proposed extension.

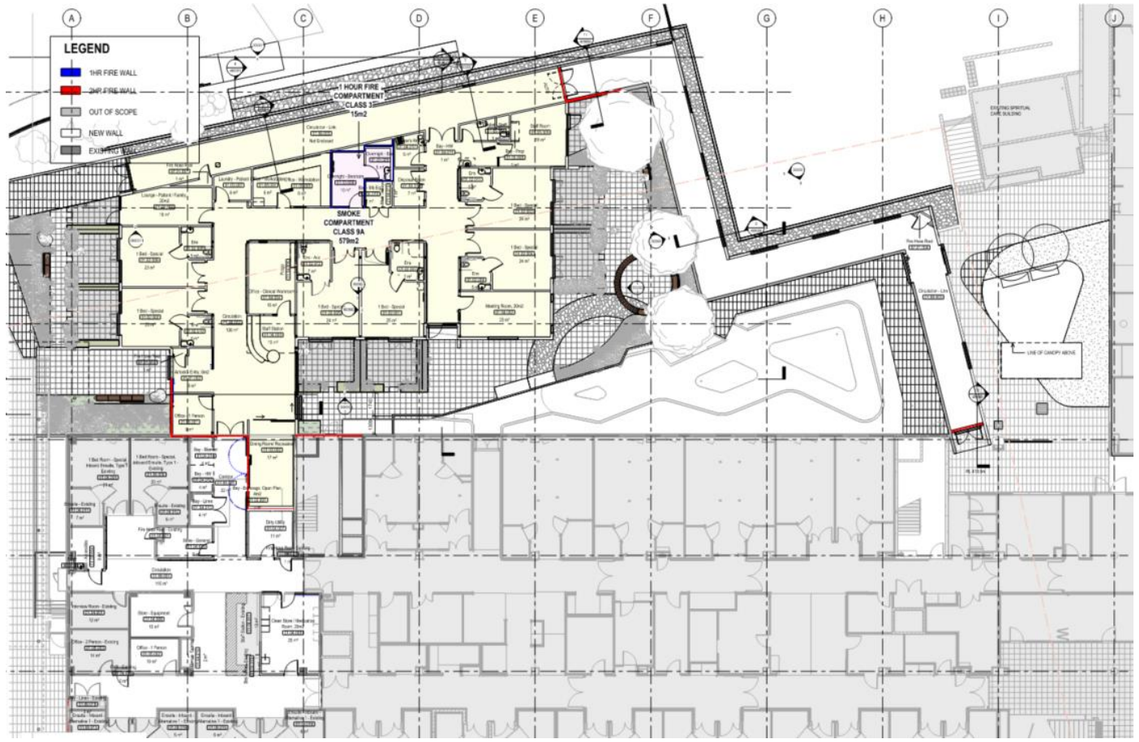


Image 1 – Proposed floor plan

The purpose of this document is to establish an engineering design strategy and highlight potential risks and opportunities for Civil and Structural Engineering services for the project.

This report will consider:

- External site infrastructure location
- Augmentation of existing civil infrastructure to cater for the proposed works
- Staging, interface and hospital disruption issues
- Enabling Works
- Proposed structural engineering design for the new extension
- ESD
- Safety in Design

- Risk Assessments

This report is based on:

- Detailed Design drawings prepared by *Architectus* (refer to Appendix A)
- Review of existing available documentation provided by Capital Insight to the design team
- Site visits and discussions with hospital engineers and maintenance staff
- Liaison with design team consultants and project managers
- HINSW requirements
- Site Visit attendance:
  - Site Visit 1 (6 October 2023) by Steven Wilson (Building Services)
  - Site visit 2 (31 January 2024) by Kevin Wong, Shebak Khan, William Maiwald, and Aaron Townsend
    - Site inspection to review latent conditions
    - Met with Fiona Ostini – LHD Project Officer Tamworth Redevelopment
    - Met with Rina Roderiguez, Sneha Bokade – Project Managers (Capital Insight)

  Site Visit 3 (November 2024) by Dale Lenden

3 Standards and Design Guides

3.1 Australian Standards and Codes

The following lists the primary standards and codes our design approaches are reliant upon:

In particular, the structural design will be in accordance with the following relevant Australian Standards:

- AS/NZS 1170.0 (2002) – Structural Design Actions Part 0 General Principles
- AS/NZS 1170.1 (2002) – Structural Design Actions Part 1 Permanent, Imposed and Other Actions
- AS/NZS 1170.2 (2011) – Structural Design Actions Part 2 Wind Loads
- AS 1170.4 (2007) – Structural Design Actions Part 4 Earthquake Actions in Australia
- AS 3600 (2018) – Concrete Structures
- AS 3700 (2018) – Masonry Code
- AS 4100(1998) – Steel Structures
- AS 4600(2018) – Cold-formed Steel Structures
- AS/NZS 2312.1 (2014) Protection of Structural Steel Part 1: Paint Coatings
- AS/NZS 2312.2 (2014) Protection of Structural Steel Part 2: Hot Dipped Galvanising

3.1.1 Design Loads

The design loads are as per the table below.

Floor Type	Live Load (kPa)	Imposed Point Load (kN)	Superimposed Dead Load (kPa)	40mm Sacrificial Concrete Toppings
Stairs, ramps	4.0	4.5	0.0	0.0
Corridors, circulation areas and foyer spaces	5.0	4.5	1.3	1.0
Wards (General)	3.0	4.5	1.8	1.0
Clinical areas (General)	3.0	4.5	1.8	1.0
Plant rooms	5.0	4.5	2.4	0.0
Roof (typical)	0.25	1.4	1.0	0.0
Roof (green roof)	5.0 (250mm soil)	1.4	1	0.0

Table 1 - Typical Design Loads

The loads above (excluding the Imaging, MRI and Façade loads) have generally been adopted as per AS1170.1 (2002).

Wind Loads

The following design parameters have been adopted for the Wind Actions as per AS1170.2 (2011).

Item	Value
Location	Region A3
Importance Level	4
Vu	48m/s
Vs	37m/s
Ms	1.0
Mt	1.05
Md	1.0
Terrain Category	2.5

Table 2 - Wind Load Design Parameters

Earthquake Loads

The following design parameters have been adopted for the Earthquake Actions as per AS1170.4 (2021).

Item	Value
Importance Level	4
Probability Factor, Kp	1.5
Hazard Factor, Z	0.08
Sub-Soil Class	TBC
Earthquake Design Category	III
Structural Ductility Factor, μ	3*
Structural Performance Factor, Sp	0.67

Table 3 - Earthquake Load Design Parameters

3.1.2 Deflection limits

Structural element	Maximum deflection
Supporting face masonry walls	Span / 1000
Supporting rendered masonry walls	Span / 800
Stud walls under lateral loading	Span / 500
Roof members:	
Dead load	Span / 360
Live load	Span / 250
Wind Service load	Span / 300

Table 4 – Deflection Limits

3.2 Authority and Regulatory Bodies

The following lists the primary authorities and regulatory bodies our design approaches are reliant upon:

- EP&A – ACT & Regulation
- Tamworth City Council (Council)
- Department of Fair Trading

3.3 NSW Health Policy and Health Infrastructure Engineering Guidelines

This report will rely upon the following guidelines and policies, however, the full suite of the HI guides and policies will be applicable:

- Design Guidance Note No.001 – Structural Design Criteria Guidelines
- Design Guidance Note No.006 – General Design Principles
- Design Guidance Note No.024 – Building Importance Levels for NSW Health Projects
- Design Guidance Note No.030 – Site Investigations: Project Opportunities and Constraints
- Design Guidance Note No.058 – Environmentally Sustainable Development dated 18 March 2021
- NSW Health – Engineering Services Guidelines GL2016_020
- Australasian Health Facilities Guideline (AHFG)

4 Scope of Services

ACOR will include the following aspects:

4.1 Civil

- Stormwater design (surface and in-ground external to the building envelope) including connection in an approved manner to the existing Authority stormwater system;
- On-site detention system
- Stormwater quality treatment system;
- Design and grading of surface levels external to the building envelope;
- Preparation of a Soil Erosion and Sedimentation Control plan for Authority approval;

4.2 Structural

- Permanent batter and gabion baskets
- Foundations
- GF floor slab
- Interface with existing building
- New light weight steel framing to new walls and roof.

5 Description of the Civil Engineering Services

5.1 Existing Civil Infrastructure

Existing stormwater drainage is located adjacent the proposed site works area. Care should be taken around these areas if excavation is to occur to minimise disturbance and settlement to the system. The existing stormwater from the road needs to be realigned to run down the proposed footpath connection.

The existing pavement in the area appears to be relatively new and likely does not need to be upgraded.

Photograph 01 – existing stormwater drain and pavement along the street adjacent to the hospital.

6 Description of the Existing Structural Framing

6.1 Existing Structural Framing

The existing structure was completed in 2014-2015. TTW were the structural engineers for the building. A set of as-built documents have been received from the LHD. The geotechnical engineer's report No. 75393 dated April 2012 by Douglas Partners was not sighted.

The existing building is a reinforcement concrete (RC) structure on pad footings on 2,000kPa allowable bearing material (ex. TTW drawing ST-ASB-S0102).

The adjoining ground floor is a 120mm RC slab on ground. Refer to extract from TTW drawing ST-ASB-S0402 below.

The adjoining Level 1 slab is a PT band beam and slab configuration.

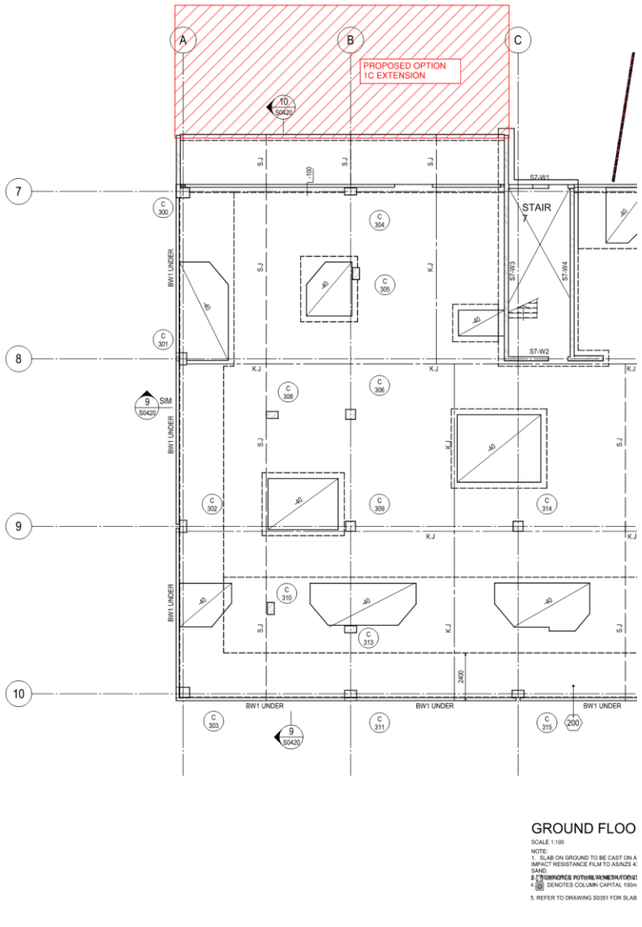


Image **2**– Extract from *TTW* drawing ST-ASB-S0402

7 Proposed Engineering Works

This section sets out to describe the proposed works associated with the new systems for the building. Staging and interface with the existing building is typically a key factor in considering the structural form and civil strategy ensuring minimal disruption to the existing Hospital.

7.1 Civil

Civil works include the connection of any new roof changes, in-ground stormwater pits, on-site detention systems and storm water quality systems to the existing drainage system as well as additional internal floor wastes which are being coordinated with the hydraulic engineer. The existing stormwater pit on the no-through-road adjacent to the hospital appears to be able to service the proposed stormwater system, although as there is no survey of the site this cannot be confirmed.

The civil works will also include localised hardstands and ramps to accommodate the new DDA access requirements.

Civil works include the detention of stormwater flows via an on-site detention tank. Walls and batters are also appropriately treated and capture for the detention of water. Refer to Appendix B for the Civil drawings.

7.2 Structural

The proposed structural engineering works includes the following (refer to Appendix C for the Structural sketches):

7.2.1 Permanent batters and gabion baskets

Due to the existing site topography, we are required to excavate to match the existing building ground floor finished floor levels.

It is proposed to have a combination of 1:3 permanent batters and gabion baskets retaining structures along the northern edge adjoining the existing road. Ther permanent batters will be protected from erosion with landscaping.

7.2.2 Raft slab on ground

It is proposed that the new ground floor slab will be a raft type construction, for both new palliative care units and linkways. The geotechnical report notes a site classification of Class P (abnormal conditions) due to deep fill, removed trees and structures. However, as we are excavating up to 2.5m, we will encounter natural sandy silty clay material to gravelly sandy clay material with a minimum safe allowable bearing capacity ranging from approximately 150kPa to 300kPa.

The new structure will be tied into the existing structure.

7.2.3 Roof and wall structure

The roof and wall structure will be a lightweight steel roof including steel rafters, steel beams, steel posts and bracings with light weight steel framing to the walls. The steel posts will be found on the RC raft. The linkway adjacent to the palliative care units and the ASB main building has the same lightweight steel roof and framing system.

8 Project Risks

The list below outlines current project risks:

- Unknown capacities and invert levels of civil infrastructure
- Structural as-built drawings and documentation are not accurate.
- Unknown services in the ground where there is proposed excavation
- The existing concrete PT slab and concrete blades between grid 6 and 7 on level 1 will be demolished due to the architectural changes. There are some risks of removing the PT slab and strengthening the remaining concrete PT slab

9 Budget Estimate Costs

9.1 Civil Engineering

The estimated cost for the Civil Engineering is prepared by the Project Cost Planner.

9.2 Structural Engineering

The estimated cost for the Structural Engineering is prepared by the Project Cost Planner.

Appendix A - Structural Drawings

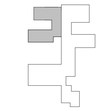
WORLD CLASS END OF LIFE PROGRAM TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH NSW 2340
STRUCTURAL

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESIGN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

DRAWING LIST

DRAWING №	DRAWING TITLE
01A-0000000	COVER SHEET
01A-0000001	GENERAL NOTES - SHEET 1
12B-0000100	EXTERNAL WORKS GENERAL ARRANGEMENT PLAN
12B-0000110	GABION WALL DETAILS - SHEET 1
12B-0000200	GROUND FLOOR GENERAL ARRANGEMENT PLAN
12B-0000210	LEVEL 01 GENERAL ARRANGEMENT PLAN
12B-0000300	ROOF FRAMING GENERAL ARRANGEMENT PLAN
12E-0000305	ROOF FRAMING ELEVATIONS - SHEET 1
12E-0000306	ROOF FRAMING ELEVATIONS - SHEET 2 - NOT USED

Drawing Key



PRINT IN COLOUR

North

Scale

SCALE BAR 1:100

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

NOT FOR CONSTRUCTION

ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5098

Drawing Title

STRUCTURAL
COVER SHEET

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL	15.10.2024	

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-STR-TAM-01A-0000000	E

GENERAL NOTES

G1. THE WORD 'ENGINEER' USED IN THESE NOTES REFERS TO AN EMPLOYEE OR NOMINATED REPRESENTATIVE OF ACOR CONSULTANTS PTY.LTD.

G2. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS, SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER AND ARCHITECT.

G3. DO NOT COMMENCE CONSTRUCTION USING THESE STRUCTURAL DRAWINGS UNTIL A CONSTRUCTION CERTIFICATE IS ISSUED BY THE PRINCIPLE AUTHORITY.

G4. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BUILDING CODE OF AUSTRALIA INCLUDING, BUT NOT LIMITED TO:
- AS1554-SAA WELDING CODE (ALL PARTS)
- AS1684-SAA NATIONAL TIMBER FRAMING CODE (ALL PARTS)
- AS1720-SAA TIMBER CODE (ALL PARTS)
- AS2870-SAA RESIDENTIAL SLABS AND FOOTINGS
- AS3600-SAA CONCRETE STRUCTURE CODE
- AS3610-SAA FORMWORK FOR CONCRETE CODE
- AS3700-SAA MASONRY STRUCTURE CODE
- AS3798-GUIDLINES FOR EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENT
- AS4100-SAA STEEL STRUCTURES CODE

G5. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED

G6. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.

G7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE. ALL LEVELS ARE EXPRESSED IN METERS. THE RL'S SHOWN ON THESE DRAWINGS ARE FOR THE SOLE PURPOSE OF ASSISTING THE STRUCTURAL DOCUMENTATION. THEY MUST NOT BE USED FOR CONSTRUCTION. ALL SET-OUT DIMENSIONS AND LEVELS, INCLUDING ANY SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS. ANY DISCREPANCIES IN THE DOCUMENTS MUST BE RESOLVED BEFORE ORDERING OR PLACING ANY MATERIALS.

G8. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVER STRESSED UNDER CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING, SHORING AND PROPPING IN ORDER TO KEEP THE BUILDING WORKS AND EXCAVATIONS STABLE AT ALL TIMES.TEMPORARY WORKS ELEMENTS NOTED IN THESE DRAWINGS ARE INTENDED AS A NOMINAL ALLOWANCE FOR TENDERING PURPOSES ONLY AND DOES NOT CONSTITUTE A CERTIFIED STRUCTURAL DESIGN.

G9. THE BUILDER IS RESPONSIBLE FOR THE ADEQUACY OF ALL TEMPORARY WORKS INCLUDING SHORING, PROPPING AND BRACING. WHERE NECESSARY THE CONTRACTOR IS TO ENGAGE A STRUCTURAL ENGINEER TO PROVIDE DESIGN, CERTIFICATION AND DEVELOP A SAFE WORKS METHODOLOGY FOR THE TEMPORARY WORKS. APPROPRIATE ALLOWANCE SHALL BE MADE DURING TENDERING.

G10. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT OF CONSTRUCTABILITY OR SAFETY, THE MATTER SHALL BE REFERRED TO THE STRUCTURAL ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

G11. IF THERE IS A DISCREPANCY IN MEMBER SIZES FOR ANY COMPONENT, ASSUME FOR PRICING PURPOSE ONLY THAT THE LARGER OR MORE EXPENSIVE SIZE IS CORRECT. REFER TO STRUCTURAL ENGINEER FOR DECISION BEFORE DETAILING OR CONSTRUCTION.

G12. THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE ENGINEER BUT IS NOT AN AUTHORISATION FOR A VARIATION. ANY VARIATIONS INVOLVED MUST BE TAKEN UP WITH THE ARCHITECT OR PROJECT MANAGER BEFORE THE WORK COMMENCES.

G13. THE WRITTEN CONSENT OF ADJOINING PROPERTY OWNERS SHALL BE OBTAINED BEFORE INSTALLATION OF UNDERPINNING, ANCHORING WORKS, DRAINAGE LINES OR ANY OTHER WORKS BEYOND THE PROPERTY BOUNDARY.

G14. UNLESS AGREED OR SPECIFIED OTHERWISE, THE BUILDER IS REQUIRED TO NOTIFY AND ALLOW TIME FOR THE STRUCTURAL ENGINEER TO INSPECT THE WORKS AT THE FOLLOWING POINTS, COMPLETED EXCAVATION, FORMWORK, REINFORCEMENT, MEMBRANES AND EMBEDMENT'S PRIOR TO PLACEMENT OF CONCRETE, COMPLETED ERECTED STRUCTURAL ELEMENTS PRIOR TO COVERING

G15. THE BUILDER SHALL GIVE 48 HOURS OR AT LEAST 2 BUSINESS DAYS NOTICE FOR ALL ENGINEERING INSPECTIONS. NOTICE OF 5 WORKING DAYS SHALL BE GIVEN WHERE A CERTIFICATE OF INSPECTION IS REQUIRED UNDERTAKEN BY THE ENGINEER. WHERE INSPECTION CERTIFICATES ARE REQUIRED FOLLOWING EACH INSPECTION. A PRELIMINARY INSPECTION WILL BE UNDERTAKEN BY THE PROJECT ENGINEER AND A REGISTERED ENGINEER WILL CONDUCT AN ADDITIONAL FOLLOW-UP INSPECTION ONCE ALL DEFECTS ARE CONFIRMED BY THE BUILDER AS HAVING BEEN RECTIFIED. IT IS THE RESPONSIBILITY OF THE BUILDER TO ENSURE SUFFICIENT TIME IS ALLOWED FOR IN PROGRAMME TO FACILITATE THE ABOVE.

G16. SITE INSPECTIONS DO NOT RELIEVE THE BUILDER OF RESPONSIBILITY FOR THE COMPLETENESS AND CORRECTNESS OF THEIR WORK.

G17. WHERE STRUCTURAL ELEMENTS ARE DESIGNED AND CERTIFIED BY OTHER PARTIES, THE CONTRACTOR SHALL OBTAIN WRITTEN CERTIFICATION PRIOR TO PROCEEDING WITH ANY CONSTRUCTION WORK WHICH WOULD PREVENT INSPECTION OR REMEDIAL WORKS TO BE UNDERTAKEN. ALL CERTIFICATIONS ARE TO BE ISSUED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO WORK PROCEEDING.

G18. THE CONTRACTOR SHALL ENSURE THAT ALL STRUCTURAL MEMBERS ARE PROTECTED FROM THE WEATHER AND THAT STRUCTURAL PROPERTIES ARE NOT IMPAIRED IN ANY WAY DURING THE CONSTRUCTION PERIOD.

G19. THE STRUCTURAL DRAWINGS DO NOT SHOW DETAILS OF ALL FIXTURES, INSERTS, SLEEVES, OPENINGS, ETC., REQUIRED BY THE VARIOUS TRADES. ALL SUCH DETAILS, INCLUDING OPENINGS FOR CONSTRUCTION FROM THE VARIOUS TRADES AND SHALL BE APPROVED BY THE ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.

G20. ALL PENETRATIONS AND SET DOWNS SHOWN ON STRUCTURAL DRAWINGS ARE INDICATIVE ONLY. THE PENETRATIONS ARE CONFIRMED BY THE APPROPRIATE SUB-CONTRACTOR. FINAL DETAILS TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.

G21. ALL PROPRIETARY PRODUCTS SPECIFIED ON THESE DRAWINGS SHALL BE USED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION. ALTERNATIVE PRODUCTS MAY ONLY BE USED WITH THE APPROVAL OF THE ENGINEER, FOLLOWING SUBMISSION OF EVIDENCE OF EQUIVALENCE.

G22. DETAILED SET OUT OF NEW WORKS ON SITE MUST BE UNDERTAKEN PRIOR TO DEMOLITION OF ANY EXISTING ASSETS. SITE MEASUREMENTS MUST BE UNDERTAKEN PRIOR TO DEMOLITION OF ANY EXISTING ASSETS TO VERIFY THAT THE DOCUMENTED EXTENT OF THE EXISTING ASSETS MATCHES THE ACTUAL EXTENT.

G23. THE BUILDER SHALL MAKE ALLOWANCE IN THEIR CONSTRUCTION PROGRAMME FOR ACOR TO RESPOND TO ALL REASONABLE GENERAL REQUESTS FOR INFORMATION WITHIN 5 WORKING DAYS.

G24. THE BUILDER SHALL MAKE ALLOWANCE IN THEIR CONSTRUCTION PROGRAMME FOR ACOR TO RESPOND TO SHOP DRAWING REVIEWS WITHIN 10 WORKING DAYS. ALL SUBMITTED SHOP DRAWINGS SHALL BE COMPLETE (I.E. NO OUTSTANDING QUERIES, DESIGN CHANGES PENDING ETC.), AND SHALL INCLUDE A 3D MODEL (IFC OR RVT FORMAT) IN THE SUBMISSION. ACOR HAS AN ALLOWANCE FOR A SINGLE REVIEW OF SHOP DRAWINGS FOR EACH OF STEELWORK AND PRECAST ELEMENTS, AND THE BUILDER SHALL BE LIABLE FOR ADDITIONAL COSTS ARISING FROM INCOMPLETE OR MULTIPLE SHOP DRAWING REVIEWS.

STRUCTURAL INSPECTION DURING CONSTRUCTION

SIN1. UNLESS AGREED OR SPECIFIED OTHERWISE, THE BUILDER IS REQUIRED TO HOLD CONSTRUCTION AND NOTIFY THE STRUCTURAL ENGINEER FOR INSPECTION AT THE FOLLOWING POINTS:

A) COMPLETED EXCAVATION, FORMWORK, REINFORCEMENT, MEMBRANES AND EMBEDMENTS PRIOR TO PLACING CONCRETE.

B) COMPLETED ERECTED STRUCTURAL, TIMBER FRAMING PRIOR TO COVERING (UNLESS COVERED BY AS1684 NATIONAL TIMBER FRAMING CODE).

C) COMPLETED ERECTED STRUCTURAL STEELWORK PRIOR TO COVERING.

SIN2. 48 HOURS OR AT LEAST 2 BUISNESS DAYS NOTICE IS REQUIRED FOR INSPECTION. ALL WORK TO BE INSPECTED MUST BE COMPLETED PRIOR TO THE TIME OF INSPECTION.

SIN3. SITE INSPECTIONS DO NOT RELIEVE THE BUILDER OF RESPONSIBILITY FOR THE COMPLETENESS AND CORRECTNESS OF HIS WORK.

SIN4. INSPECTIONS WILL BE PERIODIC AND REPRESENTATIVE AND WILL NOT NECESSARILY BE MADE OF ALL WORKS. ELECTION TO INSPECT OR OTHERWISE WILL BE AT THE ENGINEER'S DISCRETION. THE BUILDER IS TO ALLOW TIME AND PROVIDE SITE ACCESS FOR THE INSPECTION TO TAKE PLACE AND IS TO HAVE A RESPONSIBLE SITE FOREMAN AVAILABLE TO RECEIVE ANY COMMENT OR DIRECTION FROM THE ENGINEER.

SIN5. WHERE STRUCTURAL ELEMENTS ARE DESIGNED AND CERTIFIED BY OTHER PARTIES, THE BUILDER SHALL OBTAIN WRITTEN CERTIFICATION, PRIOR TO PROCEEDING WITH ANY CONSTRUCTION WHICH MAY PREVENT INSPECTION OR REMEDIAL WORKS BEING UNDERTAKEN TO THESE ITEMS.

SIN6. WHERE INSPECTION CERTIFICATES ARE REQUIRED FOLLOWING EACH INSPECTION, A PRELIMINARY INSPECTION WILL BE UNDERTAKEN BY THE PROJECT ENGINEER AND A REGISTERED ENGINEER WILL CONDUCT AN ADDITINAL FOLLOW-UP INSPECTION ONCE ALL DEFECTS ARE CONFIRMED BY THE BUILDER AS HAVING BEEN RECTIFIED. IT IS THE RESPNSIBILITY OF THE BUILDER TO ENSURE SUFFICIENT TIME IS ALLOWED FOR IN THE PROGRAMME TO FACILITATE THE ABOVE.

EARTHWORKS

E1. THE CONTRACTOR SHALL MAKE PROVISION FOR THE EFFECTIVE DIVERSION OR REMOVAL OF ALL SURFACE WATER FROM THE PREPARED SUBGRADE, FROM ANY SOURCE. TEMPORARY DRAINS AND EFFICIENT PUMPING EQUIPMENT OR OTHER MEANS TO DEWATER THE EARTHWORKS SHALL BE PROVIDED BY THE CONTRACTOR.

E2. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED ENVIRONMENTAL TREATMENT OF RUNOFF FROM THE CONSTRUCTION SITE.

E3. STRIP THE AREA OF THE BUILDING FOOTPRINT OF ANY GRASS, ROOT AFFECTED SOIL OR ANY OTHER DELETERIOUS MATERIAL TO A MINIMUM DEPTH OF 150mm, UNLESS NOTED OTHERWISE.

E4. PROOF ROLL THE EXPOSED SUBGRADE WITH A STATIC SMOOTH STEEL WHEELED ROLLER WITH A MINIMUM MASS OF 12 TONNES, TO REVEAL SOFT, WET, LOOSE, OR UNSTABLE AREAS. ALL SUCH AREAS WHICH DO NOT IMPROVE WITH ROLLING SHALL BE EXCAVATED AND REPLACED WITH APPROVED MATERIAL COMPACTED TO 98% OF STANDARD MAX DRY DENSITY. RAISE THE SUBGRADE LEVEL FOR THE BUILDING FOOTPRINT TO THE DESIGN LEVEL USING APPROVED FILL MATERIAL, PLACED IN LAYERS NOT EXCEEDING 150mm AND COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY BEFORE PLACING THE NEXT LAYER.

EARTHWORKS NOTES CONTINUED

E5. MATERIAL WON FROM SITE SHALL NOT BE USED AS ENGINEERING FILL MATERIAL WITHOUT APPROVAL FROM THE ENGINEER.

E6. SUBGRADE PREPARATION, FILL REPLACEMENT AND COMPACTION SHALL BE SUPERVISED BY A GEOTECHNICAL ENGINEER. THE FREQUENCY OF FIELD DENSITY TESTING SHALL BE IN ACCORDANCE WITH TYPE 1 EARTHWORKS AS NOTED IN TABLE 8.1 OF AS 3798.

E7. ALLOWANCE IS TO BE MADE FOR SOFT SPOTS - AT A MINIMUM, TO REPLACE 10% OF THE SURFACE AREA BELOW ALL CONCRETE AND ASPHALT PAVEMENTS, AND ALL CONCRETE SLABS/RAFT SLABS ON GROUND. TENDERER IS TO MAKE ALLOWANCE FOR THIS REPLACEMENT TO A DEPTH OF 600mm AND TO PROVIDE A RATE TO VARY ACTUAL QUANTITY.

E8. ONLY HANDHELD COMPACTION EQUIPMENT PERMITTED FOR USE OVER INSTALLED UNDERGROUND SERVICES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

FOUNDATION NOTES

F1. REFER TO THE GEOTECHNICAL REPORT NUMBER R44178g BY ENVIROWEST CONSULTING PTY LTD DATED 2 JULY 2024.

F2. EDGE BEAMS / THICKENINGS / FOOTINGS TO BE FOUNDED 100 mm MINIMUM INTO NATURAL SANDY TO SILTY CLAY AT A MINIMUM DEPTH OF 1000mm BELOW NATURAL GROUND LEVEL WITH A MINIMUM BEARING CAPACITY AS FOLLOWS:

FOUNDATION TYPE	SAFE BEARING CAPACITIES (kPa)
STRIP FOOTING	250 kPa
PAD FOOTING	250 kPa
BORED PIER END BEARING	320 kPa
BORED PIER SIDE FRICTION	32 kPa

IF A GEOTECHNICAL INVESTIGATION HAS NOT BEEN MADE, THE FOUNDATION CONDITIONS AND REACTIVITY CLASS ARE AN ASSUMPTION AND MUST BE CONFIRMED BY TRIAL EXCAVATIONS BY THE BUILDER.

FOUNDATION MATERIAL SHALL BE APPROVED FOR THIS BEARING PRESSURE BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE.

F3. THE BUILDER IS TO ENGAGE A GEOTECHNICAL CONSULTANT OR SUITABLY QUALIFIED PERSONNEL TO ASSESS THE SUITABILITY OF THE FOUNDATION MATERIAL PRIOR TO PLACING CONCRETE.

F4. THE BUILDER IS TO IMPLEMENT ALL RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT AND RELEVANT RECOMMENDATIONS FROM BUILDING TECHNOLOGY FILE 18 (FORMERLY KNOWN AS CSIRO NOTE 10-91)

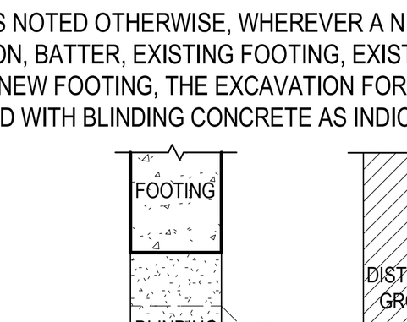
F5. SITE CLASSIFICATION IN ACCORDANCE WITH AS2870 IS CLASS -P

F6. REFER TO STRUCTURAL DESIGN LOAD NOTE L4 FOR SITE SUB-SOIL CLASS IN ACCORDANCE WITH AS1170.4.

F7. BEARING MATERIAL AT BASES OF PIERS TO BE CONFIRMED BY AN EXPERIENCED GEOTECHNICAL ENGINEER OR ENGINEERING GEOLOGIST.

F8. BUILDER IS TO MAKE APPROPRIATE ALLOWANCE FOR BLINDING CONCRETE TO ENSURE ABOVE FOUNDING DEPTHS ARE ALLOWED FOR BELOW ALL STRIP, INTERNAL, EXTERNAL, EDGE AND PAD FOOTINGS. BUILDER TO PROVIDE RATE TO VARY ACTUAL BLINDING CONCRETE QUANTITY REQUIRED. A MINIMUM DEPTH OF BLINDING OF **XXX**mm BELOW ALL FOOTINGS SHOULD BE ALLOWED FOR BY THE TENDERER.

F9. UNLESS NOTED OTHERWISE, WHEREVER A NEW FOOTING IS LOCATED CLOSE TO AN EXCAVATION, BATTER, EXISTING FOOTING, EXISTING SERVICE OR NEW SERVICE WHICH IS DEEPER THAN THE NEW FOOTING, THE EXCAVATION FOR THE NEW FOOTING SHALL BE DEEPENED AND BACKFILLED WITH BLINDING CONCRETE AS INDICATED BELOW.



F10. THE BASE OF ALL SERVICE TRENCHES SHALL BE SLOPED AWAY FROM THE BUILDING. TRENCHES SHALL BE BACKFILLED WITH CLAY IN THE TOP 300mm WITHIN 1.5m OF THE BUILDING. THE CLAY USED FOR BACKFILLING SHALL BE COMPACTED.

F11. WHERE PIPES PASS UNDER THE FOOTING SYSTEM, THE TRENCH SHALL BE BACKFILLED FULL DEPTH WITH CLAY OR CONCRETE TO RESTRICT THE INGRESS OF WATER BENEATH THE FOOTING SYSTEM.

F12. BUILDER TO COMPLY WITH ADDITIONAL REQUIREMENTS FOR CLASSES M, H1, H2 AND E SITES AS SET OUT IN AS 2870 CL 5.6 INCLUDING MASONRY DETAILING, VARIATIONS IN FOUNDATION MATERIAL, DRAINAGE AND PLUMBING REQUIREMENTS.

F13. ALL FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE

F14. DO NOT BACKFILL RETAINING WALLS (OTHER THAN CANTILEVER WALLS) UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM IS COMPLETED.

F15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ANY EXCAVATION IN A STABLE CONDITION WITHOUT ADVERSELY AFFECTING SURROUNDING PROPERTY INCLUDING SERVICES. THIS INCLUDES OBTAINING ALL NECESSARY APPROVALS FOR SHORING AND ANCHOR SYSTEMS.

F16. ANY OVER EXCAVATION SHALL BE BACKFILLED WITH CONCRETE GRADE N15. FOUNDATIONS ADJACENT TO SERVICES ETC. SHALL BE EXTENDED DOWN SUCH THAT THE INFLUENCE LINE OF THE FOUNDATION IS BELOW THE ADJACENT SERVICE.

CONCRETE NOTES

C1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600 CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2. ALL CONCRETE SUPPLY SHALL COMPLY WITH AS1379. CONCRETE PROPERTIES AND COVER TO REINFORCING:

ELEMENTS		COVER (mm)		f'c (MPa) (28 DAYS)	MAX 56 DAY SHRINKAGE
BORED PILES		70		40	800
SLAB ON GROUND	EXTERNAL	T 40	B 50	32	800
	INTERNAL	T 20	B 50		
STRIP FOOTINGS		50		40	800
PAD FOOTINGS		50		40	800
SUSPENDED SLABS	EXTERNAL	T 40	B 40	40	650
	INTERNAL	T 20	B 20		
BEAMS	EXTERNAL	N/A	N/A	N/A	N/A
	INTERNAL	N/A	N/A		
COLUMN	EXTERNAL	40	40	40	800
	INTERNAL	40	40		
CONCRETE WALLS	EXTERNAL	40	40	40	800
	INTERNAL	20	40		
PRECAST WALLS	EXTERNAL	N/A	N/A	N/A	N/A
	INTERNAL	N/A	N/A		

MAXIMUM AGGREGATE SIZE = 20
SLUMP DURING PLACEMENT = 80
EXPOSURE CLASSIFICATION AS PER STRUCTURAL DESIGN LOAD NOTE L7.

C3. SIDE COVER TO BEAMS TO BE 50mm.

C4. CEMENT TO BE TYPE SL TO AS 3972 UNLESS NOTED OTHERWISE THIS IS A MODIFIED TYPE 'GP' CEMENT. SEE ACSE CONCRETE SPECIFICATION.

C5. NO 'BRECCIA' TYPE AGGREGATE IS TO BE USED.

C6. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY THE ENGINEER.

C7. PROJECT ASSESSMENT OF CONCRETE SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1379.

C8. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1379 BY A NATA REGISTERED TESTING LABORATORY. SAMPLES SHALL BE TAKEN FOR TESTING OF SLUMP, COMPRESSIVE STRENGTH AND ANY OTHER TEST SPECIFIED.

SLUMP SHALL BE SAMPLED FOR EACH TRUCK AT THE TIME OF POURING.

THE MINIMUM FREQUENCY OF SAMPLING FOR COMPRESSIVE TESTING OF EACH TYPE AND GRADE SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

NUMBERS OF BATCHED PER DAY	NUMBERS OF SAMPLES 1 SAMPLE = 3 CYLINDERS (4 CYLINDERS FOR POST TENSIONED CONCRETE)
1	1 SAMPLE
1 TO 5	2 SAMPLES
6 TO 10	3 SAMPLES
11 TO 20	4 SAMPLES
FOR EACH ADDITIONAL 10	1 ADDITIONAL SAMPLE

SAMPLES SHALL BE TESTED FOR COMPRESSIVE STRENGTH AS FOLLOWS:
ONE CYLINDER AT 3 DAYS (POST TENSIONED CONCRETE ONLY)
ONE CYLINDER AT 7 DAYS
TWO CYLINDERS AT 28 DAYS

C9. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS. UNLESS NOTED/ DETAILED OTHERWISE ON DRAWINGS.

C10. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

C11. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.

C12. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USE ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER.

C13. ALL CONCRETE COLUMNS ARE TO BE POURED A MINIMUM OF 4 HOURS PRIOR TO SLAB OR BEAM OVER.

C14. DRIP GROOVES ARE TO BE PROVIDED AT ALL EXPOSED EDGES. COVER TO REINFORCEMENT IS TO BE MAINTAINED.

C15. CONDUITS, PIPES AND THE LIKE SHALL NOT BE PLACED WITHIN THE CONCRETE COVER.

C16. ALL CONCRETE (INCLUDING FOOTINGS AND SLABS ON GROUND) SHALL BE MECHANICALLY VIBRATED TO ACHIEVE FULL COMPACTION.

CONCRETE NOTES CONTINUED

C17. SAWN CUT JOINTS ARE TO BE CUT AFTER THE CONCRETE HAS SUFFICIENTLY HARDENED THAT WILL NOT BE DAMAGED BY THE SAWING BUT BEFORE SHRINKAGE CRACKING CAN OCCUR.

C18. CURING OF ALL CONCRETE SHALL BE IN ACCORDANCE WITH AS3600 AND SHALL COMMENCE WITHIN 2 HOURS OF FINISHING OPERATIONS. CURING SHALL BE BY CONTINUAL SATURATION WITH POTABLE WATER FOR 3 DAYS FOLLOWED BY PREVENTION OF MOISTURE LOSS FOR THE NEXT 4 DAYS USING POLYTHENE SHEETING OR WET HESSIAN PROTECTED FROM WIND OR TRAFFIC AND THEN ALLOWING GRADUAL DRYING OUT. CURING COMPOUNDS MAY BE USED PROVIDED THAT THEY COMPLY WITH AS3799 AND DO NOT AFFECT FLOOR FINISHES. THE COMPATIBILITY OF CURING COMPOUNDS WITH PROPOSED APPLIED FINISHES SHALL BE VERIFIED PRIOR TO APPLICATION. CURING COMPOUNDS ARE TO BE APPLIED UNIFORMLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION. PVA BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.

C19. ALIPHATIC ALCOHOL:WHEN SHADE TEMPERATURE EXCEEDS 35° C SPRAY THE EXPOSED SURFACE OF CONCRETE SLAB DURING THE PLACING AND FINISHING OPERATION WITH A FINE FILM OF APPROVED ALIPHATIC ALCOHOL. REPEAT THE SPRAY IF THE SPRAYED SURFACE HAS BEEN RE-WORKED.

C20. ENSURE ADEQUATE SUPPLY OF ALIPHATIC ALCOHOL ON SITE BEFORE COMMENCING CONCRETE WORK.

C21. SLIP JOINTS ARE TO BE USED ON ALL LOAD BEARING MASONRY WALLS. USE TWO LAYERS OF GALVANIZED FLAT STEEL WITH GRAPHITE GREASE BETWEEN IN INTERNAL SKIN & TWO LAYERS OF STAINLESS STEEL WITH GRAPHIC GREASE BETWEEN IN EXTERNAL SKINS. PROVIDE MORTAR LEVELLING STRIP AS REQUIRED.

C22. NON LOAD BEARING MASONRY SHALL BE SEPARATED FROM THE SOFFIT OF SLABS AND BEAMS BY 20mm.

C23. MASONRY WALLS MUST NOT BE CONSTRUCTED ON SUSPENDED CONCRETE UNTIL ALL TEMPORARY SUPPORTS ARE REMOVED AND ALL MASONRY TO BE LAID HAS BEEN STACKED ADJACENT TO PROPOSED POSITION.

C24. CEMENT STABILISED BACKFILL MATERIAL SHALL CONSIST OF BASE COURSE MATERIAL, OR OTHER SUITABLE MATERIAL APPROVED BY THE ENGINEER, STABILISED IN THE PROPORTION OF 100KG OF TYPE GP PORTLAND CEMENT TO ONE CUBIC METER OF UNCOMPACTED BACKFILL MATERIAL. WATER FOR CEMENT STABILISATION SHALL BE CLEAN AND POTABLE.

TYPICAL OPENINGS IN SLABS

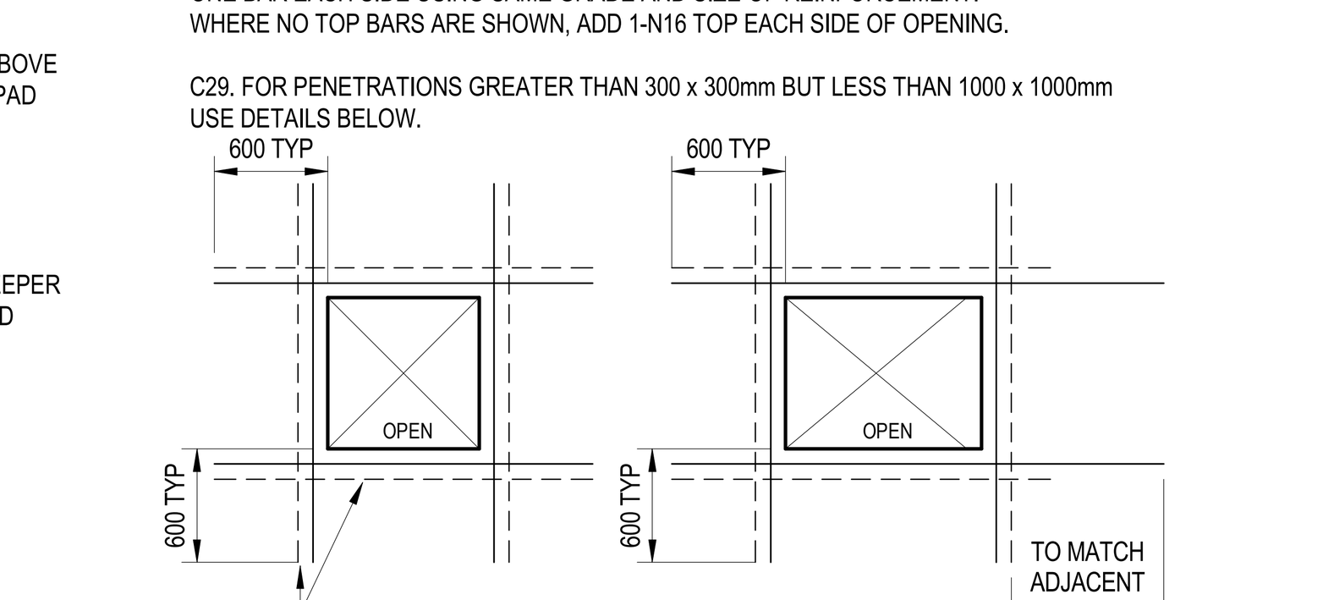
C25. LOCATION OF ALL OPENINGS TO BE TO THE APPROVAL OF ACOR.

C26. FOR OPENINGS LESS THAN 300 x 300mm BARS TO BE RE-ARRANGED AROUND HOLE.

C27. FOR PENETRATIONS GREATER THAN 1000 x 1000mm REFER TO ENGINEER'S PLANS. WHERE OPENINGS ARE NOT DETAILED, CONTACT ENGINEER IMMEDIATELY.

C28. TOP BARS:FOR EVERY TWO BARS THAT ARE TERMINATED BY OPENINGS, ADD ONE BAR EACH SIDE USING SAME GRADE AND SIZE OF REINFORCEMENT. WHERE NO TOP BARS ARE SHOWN, ADD 1-N16 TOP EACH SIDE OF OPENING.

C29. FOR PENETRATIONS GREATER THAN 300 x 300mm BUT LESS THAN 1000 x 1000mm USE DETAILS BELOW.



PIPE PENETRATIONS THROUGH BEAM

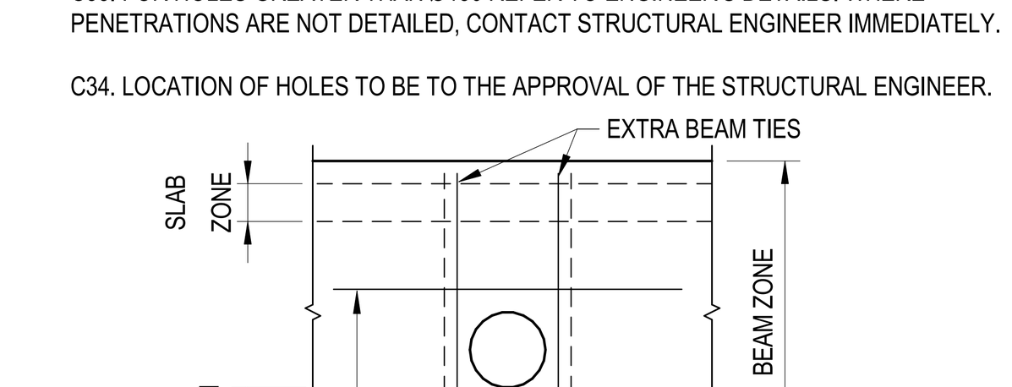
C30. LOCATION OF HOLES TO BE TO THE APPROVAL OF THE STRUCTURAL ENGINEER.

C31. FOR PIPES UPTO 90 DIAMETER, ADD ONE ROW OF TIES EACH SIDE OF PIPE.

C32. FOR PIPES 90 DIAMETER TO 150 DIAMETER, ADD TWO ROWS OF TIES EACH SIDE OF PIPE AND 1-N16 HORIZONTAL BAR 1200 LONG TOP AND BOTTOM OF PIPE AT EVERY VERTICAL TIE LEG.

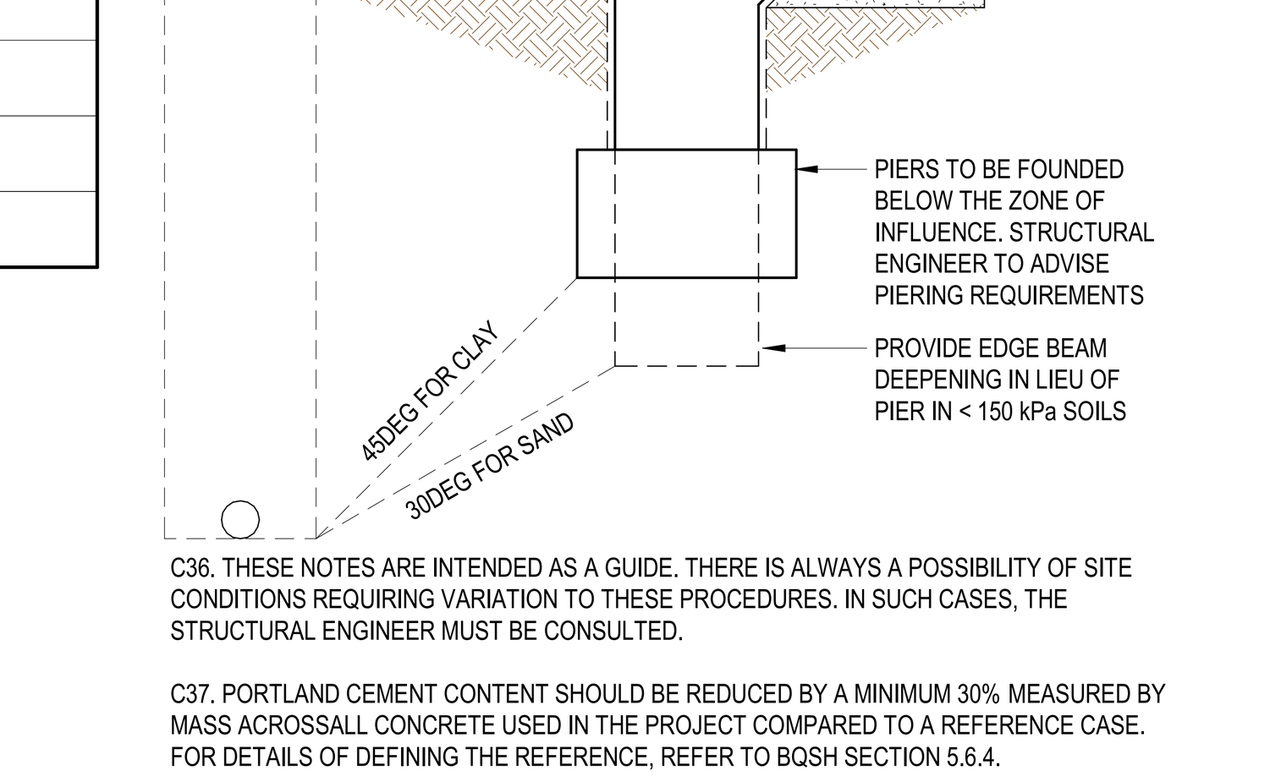
C33. FOR HOLES GREATER THAN Ø150 REFER TO ENGINEER'S DETAILS. WHERE PENETRATIONS ARE NOT DETAILED, CONTACT STRUCTURAL ENGINEER IMMEDIATELY.

C34. LOCATION OF HOLES TO BE TO THE APPROVAL OF THE STRUCTURAL ENGINEER.



PIERING REQUIREMENT

C35. WHERE A SERVICE TRENCH IS PARALLEL TO A SIDE OF THE SLAB, WHETHER THE SLAB BE IN AN EXCAVATED OR FILLED AREA, THEN PIERING TO SUPPORT THE SLAB BESIDE THE SERVICE TRENCH IS ONLY REQUIRED IF THE SERVICE LINE IS BELOW A LINE OF INFLUENCE DRAWN FROM THE BOTTOM OF THE EDGE BEAM. REFER TO DIAGRAM BELOW.



C36. THESE NOTES ARE INTENDED AS A GUIDE. THERE IS ALWAYS A POSSIBILITY OF SITE CONDITIONS REQUIRING VARIATION TO THESE PROCEDURES. IN SUCH CASES, THE STRUCTURAL ENGINEER MUST BE CONSULTED.

C37. PORTLAND CEMENT CONTENT SHOULD BE REDUCED BY A MINIMUM 30% MEASURED BY MASS ACROSSALL CONCRETE USED IN THE PROJECT COMPARED TO A REFERENCE CASE. FOR DETAILS OF DEFINING THE REFERENCE, REFER TO BQSH SECTION 5.6.4.

C38. MIX WATER USED FOR ALL CONCRETE IN THE PROJECT MUST BE DEMONSTRATED TO CONTAIN AT LEAST 50% CAPTURED OR RECLAIMED WATER. REFER TO BQSH SECTION 5.6.4. FOR DETAILS.

C39. AT LEAST 25% OF FINE AGGREGATE (SAND) INPUTS IN THE CONCRETE ARE MANUFACTURED SAND OR OTHER ALTERNATIVE MATERIALS (MEASURED BY MASS ACROSS ALL CONCRETE MIXES IN THE PROJECT) PROVIDED THAT USE OF SUCH MATERIALS DOES NOT INCREASE THE USE OF PORTLAND CEMENT MORE THAN 5kg/m3 OF CONCRETE. ACCEPTABLE TYPES OF ALTERNATIVE COURSE AND FINE AGGREGATE ARE LISTED IN THE CEMENT CONCRETE AND AGGREGATE AUSTRALIA PUBLICATIONS. USE OF RECYCLED IN CONSTRUCTION AND GUIDE TO THE SPECIFICATION AND USE OF MANUFACTURED SAND IN CONCRETE.

CONCRETE PAVEMENT SLAB NOTES

CPS1. ALL WORK TO BE BROOM FINISHED, UNLESS NOTED OTHERWISE IN THE ARCHITECTURAL, CIVIL, LANDSCAPE OR STRUCTURAL DOCUMENTATION.

CPS2. JOINTS AS DETAILED, UNLESS NOTED OTHERWISE.

CPS3. IN CASE OF DOUBT - ASK.

CPS4. BOND BREAKER TO BE TWO (2) UNIFORM COATS OF BITUMEN EMULSION ALL OVER THE EXPOSED SURFACE AND ON ENDS

CPS5. DOWELS AND TIE BARS TO MEET STRENGTH REQUIREMENTS OF STRUCTURAL GRADE STEEL IN ACCORDANCE WITH AS 1302. DOWELS AND TIE BARS SHALL BE:

A) STRAIGHT.

B) TO LENGTH SPECIFIED.

C) CLEAN AND FREE FORM MILL SCALE, RUST AND OIL.

D) SAWN TO LENGTH NOT CROPPED.

CPS6. JOINT TO BE SAWN AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY THAT IT WILL NOT BE DAMAGED BY SAWING. IF AN UNPLANNED CRACK OCCURS THE CONTRACTOR SHALL REPLACE THE WHOLE SLABS EITHER SIDE OF THE CRACK, UNLESS DIRECTED OTHERWISE.

CPS7. DIMENSIONS OF SEALANT RESERVOIR DEPENDENT ON THE SEALANT TYPE ADOPTED. ENGINEER'S APPROVAL TO BE OBTAINED FOR SEALANT, RESERVOIR DIMENSIONS AND DETAIL PROPOSED BY THE CONTRACTOR. REFER TO DETAILS 'A AND 'B' FOR TYPICAL ARRANGEMENT AND SEALANT.

CPS8. REFER TO COMPACTING NOTES FOR PREPARATION OF SUB-BASE AND SUB-GRADE.

STIFFENED RAFT SLAB NOTES

SR1. THE RAFT SLABS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH AS 2870-2011 'RESIDENTIAL SLABS AND FOOTINGS' AND ACCEPTED ENGINEERING PRACTICE. PARTICULAR ATTENTION IS DRAWN TO SECTIONS 5 AND 6 OF THE CODE.

SR2. THESE SLABS HAVE BEEN DESIGNED IN ACCORDANCE WITH AS2870 'RESIDENTIAL SLABS & FOOTINGS'. PARTICULAR ATTENTION IS DRAWN TO CLAUSE 1.3 & APPENDIX C OF AS2870, WHICH REFER TO THE PROBABILITIES OF THE VARIOUS CATEGORIES OF DAMAGE OCCURING.

SR3. TERMITE PROTECTION, IF REQUIRED BY THE BUILDING SURVEYOR, SHALL BE INSTALLED IN ACCORDANCE WITH AS 3660.1-1995, AND OTHER RELEVANT AUSTRALIAN STANDARDS AND LOCAL AUTHORITY REQUIREMENTS.

SR4. ALL VEGETATION AND TOPSOIL SHALL BE REMOVED FROM THE SLAB AREA.

SR5. THE GROUND BELOW SLAB SHALL BE PROOF ROLLED WITH A HEAVY DUTY ROLLER PRIOR TO ANY COMPACTED FILLING BEING PLACED. ANY SOFT SPOTS ENCOUNTERED SHALL BE DUG OUT AND REPLACED WITH COMPACTED CRUSHED ROCK OR APPROVED FILL IN ACCORDANCE WITH AS 2870 AND AS 3798.

SR6. FILLING USED IN THE CONSTRUCTION OF SLAB EXCEPT WHERE THE SLAB IS SUSPENDED SHALL CONSIST OF CONTROLLED FILL OR ROLLED FILL IN ACCORDANCE WITH SECTION 6 OF AS 2870. CONTROLLED FILL DEPTH SHALL BE LESS THAN 0.8m FOR SAND AND 0.4m FOR NON-SAND FILL. ROLLED FILL SHALL NOT EXCEED 0.6m DEPTH FOR SAND AND 0.3m FOR OTHER MATERIAL. THE EXTENT OF CONTROLLED FILL AND ROLLED FILL REQUIRED SHALL BE DETERMINED ON SITE AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

SR7. WHERE DEPTH OF CONTROLLED FILL IS THICKER THAN THAT SPECIFIED ABOVE, FILL MATERIAL SHALL BE SPREAD AND COMPACTED IN UNIFORM LAYERS NOT EXCEEDING 0.2 M THICK. TOP SURFACE LAYER SHALL BE COMPACTED TO MINIMUM 98% STANDARD DRY DENSITY DETERMINED BY METHODS IN ACCORDANCE WITH AS 1289. LOWER LAYERS SHALL BE COMPACTED TO 95% STANDARD DRY DENSITY. THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADJUSTED TO WITHIN 2 % OF THE OPTIMUM MOISTURE CONTENT DURING COMPACTION TO ENSURE THAT THE SPECIFIED COMPACTION IS OBTAINED. COMPACTION TESTS SHALL BE CARRIED OUT AT A RATE OF ONE TEST PER LAYER PER 100 SQUARE METRES OF FILL. TESTS ARE TO BE CARRIED OUT BY NATA REGISTERED LABORATORIES. SUBMIT TEST REPORTS TO THE ENGINEER FOR APPROVAL.

SR8. A 0.3mm POLYTHENE MEMBRANE SHALL BE PLACED UNDER SLAB AND RIBS IN ACCORDANCE WITH SECTION 5.3.3 OF AS 2870. LAP SHEETS BY 200mm MINIMUM AT JOINTS AT TAPED AT ALL SERVICE PENETRATIONS, LAPS & PUNCTURES.

SR9. EXCAVATIONS NEAR THE BUILDING EDGE SHALL BE BACKFILLED IN SUCH A MANNER TO PREVENT READY ACCESS OF WATER TO THE FOUNDATIONS.

SR10. SYMBOLS ON THE DRAWING FOR REINFORCEMENT ARE AS OUTLINED IN THE REINFORCEMENT NOTE.

SR11. MESH SHALL BE PLACED NEAR THE TOP OF THE SLAB IN ACCORDANCE WITH SECTION 5.3 OF AS 2870.

SR12. REINFORCEMENT MESH SHALL BE LAPPED SO THAT EACH PAIR OF TRANSVERSE WIRES AT THE EDGE OF ONE SHEET OVERLAPS EACH CORRESPONDING PAIR OF TRANSVERSE WIRES OF SHEET BEING LAPPED. REINFORCEMENT SHALL BE SUPPORTED IN POSITION PRIOR TO CONCRETING COMMENCING ON DENSE PRECAST CONCRETE SPACER BLOCKS OR BAR CHAIRS ON GALVANISED STEEL DISHES (EITHER OF WHICH MUST NOT DAMAGE THE MEMBRANE) AT 900mm MAXIMUM CENTRES EACH WAY. TRAMPING IN MESH IS NOT PERMITTED.

SR13. REFER TO CONCRETE NOTES FOR CONCRETE STRENGTH GRADE AND REINFORCEMENT COVER.

SR14. TRENCH MESH SHALL BE OVERLAPPED BY THE WIDTH OF THE MESH AT CORNERS AND INTERSECTIONS. THE ENDS OF TRENCH MESH SHALL TERMINATE WITH A CROSSBAR.

SR15. PROVIDE 3N12 x 2000 BARS OR ONE STRIP OF L11TM300 TRENCH MESH x 2000 LONG DIAGONALLY ACROSS RE-ENTRANT CORNERS OF SLAB TIED UNDER THE TOP MESH.

SR16. SLAB AND RIBS ARE TO BE CAST IN ONE CONTINUOUS POUR AND THE SLAB IS TO BE STEEL-FLOAT FINISHED U.N.O.

SR17. THE SLAB SHALL BE CURED FOR 7 DAYS IN ACCORDANCE WITH GOOD PRACTICE TO MINIMISE CRACKING AND SLAB EDGE CURLING DUE TO EARLY DRYING OF THE TOP SURFACE.

SR18. THE BUILDER SHALL COMPLETELY SEAL, BY GROUTING, ANY CRACKS THAT MAY DEVELOP IN THE SLAB, GREATER THAN OR EQUAL TO 1mm IN WIDTH, BEFORE APPLYING ANY FINISHES.

SR19. THE GROUND SURROUNDING SLABS SHALL HAVE THE SURFACE AT LEAST 150mm LOWER THAN THE SLAB AND BE SLOPED AWAY FROM THE SLAB EDGE SO THAT WATER WILL DISCHARGE TO SUITABLE DRAINAGE POINTS AND NOT FLOOD THE SLAB SURFACE.

CONSTRUCTION LOADING ON SLABS

CL1. U.N.O. ON PLANS, SLABS ON GRADE AND SUSPENDED SLABS HAVE BEEN DESIGNED TO SUIT THE END USE AS SHOWN ON THE LOADING NOTES AND HAVE NOTBEEN DESIGNED TO CARRY EXCESS LOADS (EITHER DISTRIBUTED OR POINT LOADS) FROM BUILDERS EQUIPMENT, MATERIALS OR TEMPORARY WORKS.

CL2. IF THE BUILDER WISHES TO STORE MATERIALS OR RUN EQUIPMENT / VEHICLES ON SLABS WHICH ARE IN EXCESS OF THE END USERS REQUIREMENTS THE BUILDER MAY, AT THEIR OWN EXPENSE, EITHER:

A) HAVE THE SLAB DESIGN REVISED TO SUIT THEIR REQUIREMENTS,

B) BRIDGE OVER THE SLAB, OR

C) DELAY INSTALLATION OF THE SLAB UNTIL LATER IN THE CONSTRUCTION PROGRAMME WITH APPROPRIATE JOINTING AND SLAB BACK-PROPPING.

DESIGN AND DOCUMENTATION, & DELAY COSTS ASSOCIATED WITH SUCH WORK SHALL BE BORNE BY THE BUILDER.

ANCHOR BOLT NOTES

AB1. ANCHOR BOLT MATERAIL TO BE GRADE 250 TO AS3678 U.N.O.

AB2. ALL ANCHOR BOLTS SHALL HAVE MIN ONE FLAT WASHER AND ONE NUT U.N.O.

AB3. ALL CHEMICAL ANCHOR BOLTS SHALL BE M20 RAMSET, HILTI OR APPROVED EQUIVALENT, U.N.O.

AB4. ALL ANCHOR BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION.

AB5. RESIN GROUTING OF ANCHOR BOLTS ARE AND/OR DOWEL BARS INTO PREFORMED/DRILLED HOLES SHALL BE CARRIED OUT USING HILTI HIT-HY 200-R EPOXY ADHESIVE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN PROCEDURE, UNLESS NOTES OTHERWISE.

AB6. ALL ANCHOR BOLTS SHALL BE INSTALLED WITH EXPANDED POLYSTYRENE BLOCKOUTS.

A) WIDTH = 3 x BOLT DIAMETER

B) LENGTH = 7 x BOLT DIAMETER

DRILLED IN CHEMICAL AND MECHANICAL ANCHOR NOTES

DA1. DRILLED ANCHORS SHALL BE USED WHERE SHOWN ON THE DRAWINGS, OR WHERE PERMITTED IN WRITING BY THE ENGINEER. SUBMIT DETAILS OF PROPOSED ANCHORS, BEFORE USE, IN WRITING, TO THE ENGINEER FOR REVIEW. INSTALL ANCHORS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN DIRECTIONS. TEST ANCHORS AS SPECIFIED BELOW.

DA2. SPACING AND EDGE DISTANCES SHALL BE AS SHOWN, OR IN ACCORDANCE WITH THE MANUFACTURERS DIRECTIONS, AND SHALL BE APPROPRIATE FOR THE LOAD ON THE ANCHOR. UNLESS SHOWN OTHERWISE OR ALLOWED BY THE MANUFACTURER, THE FOLLOWING MINIMUMS SHALL BE USED FOR M20 CHEMICAL ANCHORS IN CONCRETE:

A) SPACING=150mm

B) EDGE DISTANCE=150mm.

DA3. FOR ATTACHMENT TO HOLLOW MASONRY OR CONCRETE PANELS, USE HILTI HIT HY270 OR EQUIVALENT.

DA4. HOLES IN STEELWORK SHALL BE:
2mm OVERSIZE WHEN THE STEEL IS TO BE USED AS A DRILLING TEMPLATE, OR 6mm MAXIMUM OVERSIZE WHERE THE BOLTS ARE INSTALLED BEFOREHAND.

DA5. DRILLED-IN ANCHOR TESTING:
ANCHOR TESTING LOAD TO BE 150% OF SAFE WORKING LOAD OR 100% OF ULTIMATE LOAD, TO MANUFACTURER'S PRODUCT SPECIFICATION. TESTS TO BE CARRIED OUT BY N.A.T.A. REGISTERED LABORATORY AT THE CONTRACTOR'S EXPENSE.

CHEMICAL ANCHORS
NUMBER OF CHEMICAL ANCHORS TO BE TESTED IS AS FOLLOWS: INSTALLATION FROM ABOVE AND SIDE = 20% OF TOTAL NUMBER IS TO BE TESTED.
INSTALLATION FROM BELOW = 100% OF TOTAL NUMBER IS TO BE TESTED.

MECHANICAL ANCHORS TEST:
10% OF MECHANICAL ANCHORS

FAILURE:
IF ONE ANCHOR IN A GROUP FAILS UNDER TESTING THEN ALL ANCHORS SHALL BE TESTED, AS SPECIFIED ABOVE, AT THE CONTRACTOR'S EXPENSE. ALL ANCHORS THAT FAIL ARE TO BE REPLACED AND RETESTED. FORWARD CERTIFICATES OF ALL TEST RESULTS TO ACOR CONSULTANTS.

REINFORCEMENT NOTES

R1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600, AS4671 AND OTHER RELEVANT AUSTRALIAN CODES.

R2. REINFORCEMENT TYPE AND GRADE.

SYMBOL	TYPE	MPa	DUCTILITY CLASS
N	HOT ROLLED DEFORMED BARS	500	NORMAL
R	HOT ROLLED PLAIN BARS	250	NORMAL
W	COLD DRAWN PLAIN ROUND WIRE	500	LOW
SL	SQUARE WELDED MESH	500	LOW
RL	RECTANGULAR WELDED MESH	500	LOW
LTM	RECTANGULAR WELDED MESH	500	LOW

R3. ALL REINFORCEMENT TO CONFORM TO AS4671, CURRENT EDITIONS WITH AMENDMENTS. REINFORCEMENT NOTATION GIVES THE FOLLOWING INFORMATION: NO. OF BARS, TYPE, SIZE (MM), SPACING (MM), LAYER. FOR EXAMPLE 17N16 -250 T.FABRIC OR MESH NOTATION GIVES THE FOLLOWING INFORMATION: "RL"OR "SL", PRODUCT CODE, LAYER. FOR EXAMPLE SL82 T.

R4. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.

R5. COVER TO REINFORCEMENT -CLEAR COVER TO TO ALL REINFORCEMENT FOR DURABILITY SHALL BE AS INDICATED IN THE CONCRETE NOTES. COVER SHALL NOT BE LESS THAN THE SIZE OF THE AGGREGATE OR THE MAIN BAR. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO REINFORCEMENT. ADDITIONAL COVER MAY BE REQUIRED TO ACHIEVE FIRE RATING -REFER TO DESIGN DRAWINGS. SUPPORT REINFORCEMENT ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS. IN EXPOSED CONDITIONS B2 OR C (TO AS3600)

R6. ALL REINFORCEMENT SHALL BE HELD RIGIDLY IN POSITION WITHIN THE SPECIFIED TOLLERANCES BEFORE AND DURING CONCRETE PLACING WITH APPROVED BAR CHAIRS, NON CORROSIVE BAR CHAIRS SHALL BE USED FOR ALL OFF FORM SURFACES.

R7. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.

R8. WELDING OF REINFORCING BARS MAY BE CARRIED OUT IF APPROVED, PROVIDED THAT THE FOLLOWING IS COMPLIED WITH:

A) THE STEEL IS PREHEATED UNIFORMLY THROUGH AND BEYOND THE PORTION TO BE WELDED

B) THE TEMPERATURE OF THE STEEL DOES NOT EXCEED 450°C

C) THE BAR IS NOT COOLED BY QUENCHING

SHOULD THE BAR BE HEATED TO ABOVE 450°C, THE CHARACTERISTIC YIELD STRESS WILL BE REDUCED TO 250MPa AND THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY FOR ASSESSMENT. THE BAR MAY NOT BE HEATED TO MORE THAN 600°C AS A MAXIMUM LIMIT. PRE-HEATING IS NOT REQUIRED WHEN BARS ARE WELDED IN ACCORDANCE WITH AS/NZS 1554.3: 2014 STRUCTURAL STEEL WELDING PART 3: WELDING OF REINFORCING STEELS. HYDROGEN CONTROLLED ELECTRODES ARE REQUIRED FOR ALL WELD TYPES, AND MATCHING STRENGTH ELECTRODES ARE REQUIRED FOR BUTT WELDS

R9. PROVIDE DISTRIBUTION REINFORCEMENT OR TIE BARS IF NOT SHOWN. WHERE NECESSARY PROVIDE N12-400 CENTRES (SPLICE 450).

R10. SITE BENDING OF N BARS SHALL BE DONE COLD WITH POWER OR MECHANICAL BENDING TOOLS AND A MANDREL OR FORMER WITH A BAR DIAMETER OF 5 TIMES THE BAR SIZE. NOTE: IF N BARS ARE HEATED ABOVE 450°C (LESS THAN RED HEAT) THEY LOSE STRENGTH.

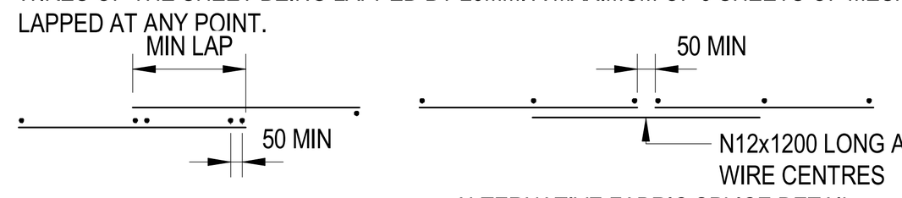
R11. CONDUITS AND OTHER CAST IN ITEMS SHALL BE FABRICATED AND INSTALLED SO THAT NO CUTTING, BENDING OR DISPLACEMENT OF THE REINFORCEMENT FROM ITS PROPER POSITION WILL BE REQUIRED.

R12. REINFORCEMENT LAPS:
LAP REINFORCEMENT ONLY AT LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS OR AS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

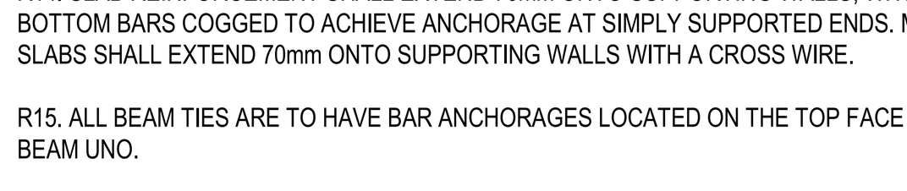
SLAB REINFORCEMENT - LAP LENGTH (mm)			
BAR DIA.	CONCRETE GRADE		
	25 MPa	32 MPa	40 MPa
N12	600	500	450
N16	850	750	650
N20	1100	1000	900

BEAM REINFORCEMENT - LAP LENGTH (mm)						
BAR DIA.	<300mm CONCRETE CAST BELOW THE BAR			>300mm CONCRETE CAST BELOW THE BAR		
	CONCRETE GRADE			CONCRETE GRADE		
	25MPa	32MPa	40MPa	25MPa	32MPa	40MPa
N12	600	500	450	750	650	600
N16	850	750	650	1100	950	850
N20	1100	1000	900	1450	1300	1150
N24	1400	1250	1100	1800	1600	1400
N28	1700	1500	1350	2200	1950	1700
N32	2000	1800	1600	2600	2300	2050
N36	2400	2100	1850	3050	2700	2400

BAR DIA.	COLUMN AND WALL REINFORCEMENT - LAP LENGTH (mm)
N12	500
N16	650
N20	800
N24	950
N28	1150
N32	1300
N36	1450



R13. LAPS IN MESH (FABRIC) SHALL COMPLY WITH AS3600. THE TWO OUTERMOST TRANSVERSE WIRES OF ONE SHEET SHALL OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF THE SHEET BEING LAPPED BY 25MM. A MAXIMUM OF 3 SHEETS OF MESH SHALL BE LAPPED AT ANY POINT.



ALTERNATIVE FABRIC SPLICE DETAIL

R14. SLAB REINFORCEMENT SHALL EXTEND 70mm ONTO SUPPORTING WALLS, WITH 50% OF BOTTOM BARS COGGED TO ACHIEVE ANCHORAGE AT SIMPLY SUPPORTED ENDS. MESH IN SLABS SHALL EXTEND 70mm ONTO SUPPORTING WALLS WITH A CROSS WIRE.

R15. ALL BEAM TIES ARE TO HAVE BAR ANCHORAGES LOCATED ON THE TOP FACE OF THE BEAM UNO.

R16. REINFORCEMENT BAR JOGGLES SHALL BE 1 BAR DIA. OVER A LENGTH OF12 BAR DIA.

CHEMICALLY ANCHORED REINFORCEMENT NOTES

CAR1. WHERE SHOWN ON THE DRAWINGS, REINFORCEMENT BARS SHALL BE CHEMICALLY ANCHORED INTO EXISTING CONCRETE AS DESCRIBED BELOW.

CAR2. PERCUSSION DRILL (CORING NOT PERMITTED) A HOLE TO THE CORRECT DIAMETER AND DEPTH FOR THE PARTICULAR SIZE REINFORCING BAR AS TABULATED BELOW, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

BAR SIZE	HOLE DIA (mm)	HOLE DEPTH (mm)
N12	16	260
N16	22	350
N20	28	420
N24	32	550

CAR3. THOROUGHLY CLEAN THE HOLE USING A ROUND WIRE BRUSH AND BLOW OUT ALL DUST.

CAR4. ENSURE HOLE IS CLEAN AND DRY AND INSERT SUFFICIENT HILTI HIT RE-500 RESIN INTO THE BASE OF THE HOLE TO ENSURE THAT WHEN THE BAR IS INSTALLED RESIN APPEARS AT THE FACE OF THE HOLE.

CAR5. IMMEDIATELY INSERT THE REINFORCING BAR INTO THE HOLE BY ROTATING SLOWLY TO FULLY COAT THE BAR WITH RESIN, AND PUSH FULLY INTO THE HOLE.

CAR6. ENSURE BAR IS NOT DISTURBED WHILST RESIN IS CURING. (APPROXIMATELY 2 HOURS).

CAR7. CURING IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER.

GROUTING OF BASE PLATE NOTES

GB1. ALL GROUT SHALL BE CURED BY THE APPLICATION OF 'MBT AUSTRALIA' 'FLOORSEAL' APPLIED TO THE GROUT STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN PROCEDURE.

GB2. THE THICKNESS OF THE GROUT BED SHALL BE 50mm UNLESS NOTES OTHERWISE.

GB3. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40 Mpa

STRUCTURAL STEELWORK NOTES

S1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH STEEL STRUCTURE -AS 4100 AND WELDING -AS 1554 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENT.

S2. STEEL COMPONENTS SHALL CONFORM TO THE FOLLOWING TABLE U.N.O

COMPONENT	AUS. STANDARD	GRADE
PLATE	3678	250
HOT ROLLED SECTIONS	3679	300
CHS > 80mm DIA.	1163	C350
CHS < 80mm DIA.	1163	C250
RHS & SHS	1163	C350
PURLINS AND GIRTS	1397	450
WELDED BEAMS & COLUMNS	3679	300
FLAT BARS & RODS	3679	250

S3. BOLT DESIGNATION:
ALL BOLTS TO BE 8.8/S UNLESS NOTED OTHERWISE

A) 4.6/S COMMERCIAL BOLTS OF GRADE 4.6 TO AS 1111 SNUG TIGHTENED.

B) 8.8/S HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 SNUG TIGHTENED.

C) 8.8/TB HIGH STRENGTH BOLTS OF GRADE 8.8 TO AS 1252 FULLY TENSIONED TO AS 4100 AS A BEARING JOINT.

D) 8.8/TF HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 FULLY TENSIONED TO AS 4100 AS A FRICTION JOINT WITH CONTACT SURFACES LEFT UNCOATED.

S4. ALL BOLTS SHALL BE M20 GRADE 8.8/S U.N.O.
ALL STUDS, PURLINS & GIRTS SHALL HAVE M20 GRADE 4.6/S BOLTS U.N.O.
NO STEEL TO STEEL CONNECTION TO HAVE LESS THAN 2 BOLTS

S5. ALL PLATES TO BE 10 mm THICK U.N.O. ALL BASEPLATES TO BE 20mm THICK U.N.O.

S6. UNLESS NOTED OTHERWISE, ALL FILLET WELDS SHALL BE:

A) 6mm CONTINUOUS FOR PLATES LESS THAN OR EQUAL TO 12 PL

B) 8mm CONTINUOUS FOR 16 PL

C) 10mm CONTINUOUS FOR 20 PL AND ABOVE.

ELEMENT	WELD CATEGORY
ALL	SP

ALL BUTT WELDS TO BE COMPLETE PENETRATION BUTT WELDS. ELECTRODES TO BE E49XX U.N.O. WELD CATEGORY AS TABULATED ABOVE. ALL WELDS SHALL BE IN ACCORDANCE WITH AS1554.

S7. QUALITY MANAGEMENT OF WELDING SHALL BE IN ACCORDANCE WITH AS1554.1 AND AS/NZS ISO 3834. THE QUALITY ASSURANCE SYSTEM SHALL INCLUDE THAT ALL WELDS SHALL BE UNDERTAKEN BY A SUITABLY QUALIFIED WELDER UNDER THE SUPERVISION OF AND SIGN-OFF OF A QUALIFIED WELDING INSPECTOR USING VISUAL INSPECTION (VT).

S8. WHERE SPECIFICALLY CALLED UP ON THE DRAWINGS OR IN THE SPECIFICATIONS, IN ADDITION TO THE REQUIREMENTS OF THE QUALITY ASSURANCE SYSTEM, THE INSPECTION REGIME SHALL BE EXPANDED TO INCLUDE NON-DESTRUCTIVE TESTING OF A REPRESENTATIVE SAMPLE OF WELDS. AT A MINIMUM THE GREATER OF 5% OR 2No. TESTS OF EACH SPECIFIED WELD SHALL UNDERGO NON-DESTRUCTIVE TESTING OTHER THAN VISUAL INSPECTION (VT) TO VERIFY COMPLIANCE WITH THE STRUCTURAL SPECIFICATION. SUCH NON-DESTRUCTIVE TESTING SHALL BE EITHER RADIOGRAPHY INSPECTION (RT) OR ULTRASONIC INSPECTION (UT). FOR THE ELIMINATION OF DOUBT, WELDS OF VARYING THROAT THICKNESS SHALL BE CONSIDERED AS SEPARATE WELD SPECIFICATIONS AND SHALL EACH MEET THE MINIMUM TESTING REQUIREMENT. IN THE EVENT THAT ANY WELD IS FOUND DEFICIENT OF THE SPECIFICATION, THAT WELD SHALL BE RECTIFIED TO MEET THE MINIMUM REQUIREMENTS. ADDITIONALLY, A FURTHER 5% (OR 2No. TESTS, WHICHEVER IS GREATER) OF THE NON-CONFORMING WELD TYPE SHALL UNDERGO FURTHER NON-VISUAL NON-DESTRUCTIVE TESTING; THIS PROCESS SHALL BE REPEATED UNTIL SUCH TIME AS ZERO NON-CONFORMANCES ARE FOUND. ALL TESTING SHALL BE PERFORMED BY A SUITABLY QUALIFIED TECHNICIAN WORKING UNDER AN APPROVED QUALITY ASSURANCE SYSTEM, AND ALL TESTS INCLUDING RE-TESTING REQUIRED AS A RESULT OF A NON CONFORMING RESULTS SHALL BE UNDERTAKEN AT THE EXPENSE OF THE CONTRACTOR.

S9. THE CONTRACTOR SHALL MAKE THE NECESSARY ALLOWANCES FOR COORDINATING ALL ARCHITECTURAL & STRUCTURAL ELEMENTS IN THE PREPARATION OF STRUCTURAL STEELWORK SHOP DRAWINGS & SUBSEQUENT FABRICATION & ERECTION. CONNECTION DETAILS SHOWN ON STRUCTURAL DRAWINGS ARE TYPICAL ONLY. WHERE A DETAIL IS NOT SHOWN THE FABRICATOR / SHOP DETAILER SHALL PREPARE DETAILS IN ACCORDANCE WITH
AS4100 & THE AISC PUBLICATIONS `DESIGN OF STRUCTURAL CONNECTIONS' & `STANDARDISED STRUCTURAL CONNECTIONS'. THESE DETAILS SHALL TAKE DUE ACCOUNT OF ARCHITECTURAL & SERVICE REQUIREMENTS & SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE ENGINEER WILL SUPPLY LOADS AS REQUIRED. ALL COSTS & TIME IMPLICATIONS ASSOCIATED WITH THESE WORKS ARE TO BE ALLOWED FOR BY THE CONTRACTOR.

S10. NOT ALL SECONDARY STEELWORK IS SHOWN ON THE STRUCTURAL DRAWINGS. CLEATS, CONNECTIONS, HOLES, LINTELS AND OTHER MISCELLANEOUS STEELWORK SHALL BE PROVIDED AS REQUIRED BY THE ARCHITECTURAL OR OTHER CONSULTANT'S DRAWINGS OR SPECIFICATIONS. IN PARTICULAR ADDITIONAL PLATES OR ANGLES WELDED TO LINTELS AS REQUIRED TO SUPPORT DOOR TRACKS. U.N.O., ALLOW FOR PURLINS EACH SIDE OF EACH BOX GUTTER AND 75 X 5 DURAGAL TRIMMERS TO SUPPORT EDGES OF ROOF SHEETS AT HIPS, VALLEYS, PENETRATIONS AND ANY OTHER UNSUPPORTED EDGES.

S11. STEELWORK EXPOSURE CLASSIFICATIONS TO AS2312 AS SPECIFIED IN STRUCTURAL DESIGN LOAD NOTE L7.

S12. STRUCTURAL STEELWORK SHALL HAVE THE FOLLOWING TREATMENT U.N.O:

ELEMENT	SURFACE PREPERATION	PROTECTIVE COATING
INTERIOR MEMBERS	BLAST CLEAN TO CLASS 2 (AS 1627)	ZINC PHOSPHATE PRIMER FILM THICKNESS 0.075mm
EXPOSED TO WEATHER INCLUDING ALL STIFFENERS	PICKLE (AS 1627 PART 5)	HOT DIP GALVANISED REFER TO SPECIFICATIONS.

S13. ALL STRUCTURAL STEELWORK WHICH IS EXPOSED, STEELWORK IN CONTACT WITH EXTERNAL CAVITY BRICKWORK & ALL LINTELS SHALL BE HOT DIP GALVANISED OR STAINLESS STEEL -REFER TO DRAWINGS. GALVANISING OF STRUCTURAL SECTIONS SHALL BE IN ACCORDANCE WITH AS 4680 AND THE GALVANISING OF THREADED FASTENERS SHALL BE IN ACCORDANCE WITH AS 1214.

S14. AFTER FABRICATION ALL EXPOSED STEELWORK AND STEELWORK BUILT IN EXTERNAL WALLS INCLUDING FITMENTS, NUTS, BOLTS, WASHERS AND HOLDING DOWN BOLTS TO BE HOT DIP GALVANISED.

S15. GALVANIZED STEELWORK THAT IS SITE WELDED OR SUSTAINS ANY OTHER KIND OF SURFACE DAMAGE IS TO BE PREPARED TO AS1627:2 CLASS 3 AND PRIMED WITH 2 COATS OF GALVANITE (MANUFACTURED BY JOTUN) TO MANUFACTURERS SPECIFICATION.

S16. FOR PAINT COATING, REPAIR FIELD DAMAGE AND SITE WELDS USING THE SAME PARENT COATING SYSTEM. SUCCESSIVE PAINT LAYERS SHALL BE ABRADED TO A FEATHERED EDGE OF APPROXIMATLEY 25mm WIDTH PER LAYER. MECHANICALLY GRIND SURFACES TO ACHIEVE SMOOTH AND BRIGHT METAL COMPARABLE TO CLASS 2.5 PAINT REINSTATEMENT SHALL FULLT COVER THE FEATHERED PART OF THE SAME LAYER.

S17. ALL STEELWORK BELOW GROUND OR FINISHED SURFACE LEVEL SHALL BE ENCASED IN 75mm MINIMUM CONCRETE ALL ROUND.

S18. THE ENDS OF ALL TUBULAR MEMBERS ARE TO BE SEALED WITH NOMINAL THICKNESS PLATES AND CONTINUOUS FILLET WELD UNLESS OTHERWISE SHOWN ON THE DRAWINGS. GALVANISED TUBULAR MEMBERS ARE TO BE PROVIDED WITH THE APPROPRIATE PROVISION FOR VENTING DURING GALVANISING.

S19. THE SUB-CONTRACTOR SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR ALL ATTACHMENTS WHETHER OR NOT DETAILED ON THE DRAWINGS.

S20. PROVIDE HOOK BOLTS AT EVERY THIRD PURLIN TO CONTROL BRACE SAG.

S21. ALL STEELWORK IS TO BE TEMPORARILY BUT SECURELY BRACED UNTIL ALL FINAL BRACING, CLADDING & STABILISING BRICK OR BLOCKWORK HAVE BEEN COMPLETED.

S22. GRAVITY &/OR GAUGE LINES TO INTERSECT U.N.O.

S23. CONCRETE ENCASED STEELWORK TO BE WRAPPED WITH F41 MESH & TO HAVE 50mm MIN. COVER OF CONCRETE GRADE 25 TO AS3600.

S24. ALL BASEPLATES ARE TO BE FULLY GROUTED WITH CONBEXTRA GP CEMENTITIOUS NON-SHRINK GROUT, OR SIMILAR, WITH A MINIMUM COMPRESSIVE STRENGTH OF 50 MPa.

S25. SHOP DRAWINGS SHALL BE PREPARED BY THE FABRICATOR FOR ALL STRUCTURAL STEELWORK. SUBMIT COPIES OF ALL WORKSHOP DRAWINGS TO ACOR CONSULTANTS FOR STRUCTURAL APPROVAL AT LEAST 14 DAYS PRIOR TO FABRICATION. DO NOT FABRICATE STEELWORK UNTIL WORKSHOP DRAWINGS ARE APPROVED.

S26. ALL EXISTING DIMENSIONS AND LEVELS (INCLUDING HOLDING DOWN BOLTS AS CONSTRUCTED) AFFECTING NEW STEELWORK SHALL BE CHECKED ON SITE AND INCORPORATED IN WORKSHOP DRAWINGS.

S27. ALL BOLT HOLES SHALL BE 2mm LARGER THAN THE NOMINAL BOLT DIAMETER, UNLESS OTHERWISE NOTED.

S28. THE CONTRACTOR SHALL ENGAGE A FIRM EXPERIENCED IN SUPERVISION OF STRUCTURAL STEEL FABRICATION AND ERECTION, AND APPROVED BY THE ENGINEER. A MINIMUM OF 20% OF THE STEELWORK IS TO BE INSPECTED. ERECTION TOLERANCES SHALL COMPLY WITH AS4100 UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.

S29. THE CONTRACTOR SHALL ENSURE THAT THE ERECTION OF THE STEELWORK COMPLIES WITH THE WORK SAFE, INDUSTRY STANDARD, SAFE ERECTION OF STRUCTURAL STEEL FOR BUILDINGS. THE CONTRACTOR SHALL ENGAGE AND PAY FOR THE SERVICES OF AN APPROPRIATELY QUALIFIED AND EXPERIENCED STRUCTURAL STEELWORK ERECTION ENGINEER AS DEFINED IN THE ABOVE MENTIONED WORK SAFE INDUSTRY STANDARD.

PURLINS AND GIRTS:

S30. ALL PURLINS AND GIRTS TO BE COLD FORMED LIGHT-GAUGE STEEL SECTIONS CONFORMING TO ANZ4600 FOR DESIGN AND TO AS1397 FOR MATERIAL PROPERTIES.

S31. THE OVERALL DIMENSIONS OF PURLINS AND GIRTS SHALL NOT BE LESS THAN THE NOMINAL SIZE GIVEN, BOTH FLANGES SHALL BE LIPPED.

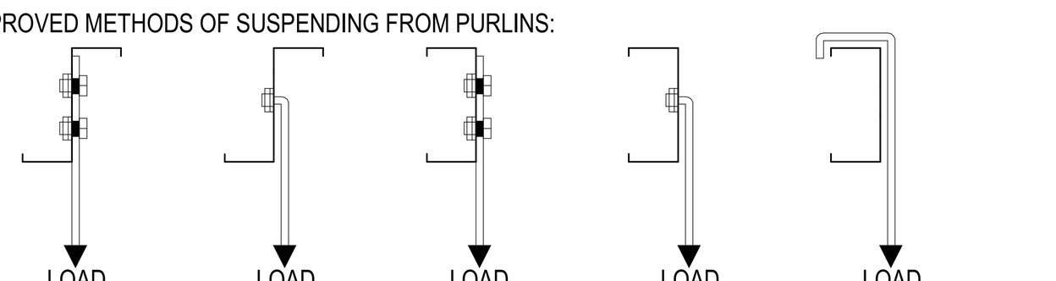
S32. SETOUT OF PURLINS & GIRTS TO BE OBTAINED FROM ARCHITECT'S DRAWINGS OR ROOFING CONTRACTOR.

S33. PROVIDE TRIMMER PURLINS BETWEEN MAIN PURLINS TO SUIT ROOF PROFILE(HIPS, VALLEYS, RIDGE LINES ETC.) AND CONNECT WITH PROPRIETARY CLEATS AS RECOMMENDED BY MANUFACTURER.

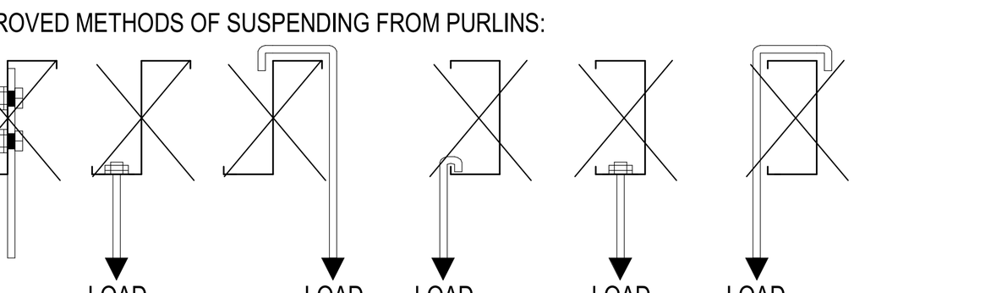
S34. WHERE NECESSARY TO HANG CEILING, SERVICE PIPES, DUCTWORK ETC. FROM PURLINS, THE BUILDER SHALL ONLY USE THE FOLLOWING APPROVED METHODS.

STRUCTURAL STEELWORK NOTES CONTINUED

APPROVED METHODS OF SUSPENDING FROM PURLINS:



NON-APPROVED METHODS OF SUSPENDING FROM PURLINS:



IF IN DOUBT OBTAIN APPROVAL FROM ENGINEER PRIOR TO PROCEEDING WITH INSTALLATION.

S35. PURLINS & GIRTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, WITH PARTICULAR REGARD TO BOLT LOCATIONS AND LAP SIZES.

S36. THE CONTRACTOR SHALL ALLOW FOR BRIDGING & SAG RODS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. BRIDGING & SAG RODS TO EXTEND AND FIX TO SLABS, WALL TIES, DOOR & WINDOW HEADERS, WINDOW SILLS, EAVE BEAMS AND RIDGE BEAMS TO ENSURE CORRECT ALIGNMENT.

S37. A MINIMUM OF 1 ROW OF BRIDGING / SAG RODS SHALL BE PROVIDED TO ALL PURLINS & GIRTS, ADEQUATELY TERMINATED AT A SUPPORT TO ENSURE CORRECT ALIGNMENT.

WEB PENETRATIONS:

S38. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE ALL STRUCTURAL ELEMENTS WITH ANY RELEVANT SERVICES DOCUMENTATION AND / OR ARCHITECTURAL REQUIREMENTS.

S39. ANY PROPOSED PENETRATIONS THROUGH STRUCTURAL STEEL MEMBERS ARE TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR INSTALLATION.

S40. THE ENGINEER WILL SUPPLY LOADS OR ADDITIONAL DESIGN AS REQUIRED. ALL COSTS & TIME IMPLICATIONS ASSOCIATED WITH THESE WORKS ARE TO BE ALLOWED FOR BY THE CONTRACTOR.

S41. HAND FLAME CUTTING WILL NOT BE PERMITTED FOR ANY PENETRATION.

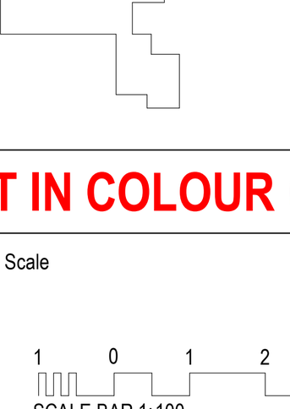
S42. FIRE PROTECTION:
FIRE PROTECTION REQUIREMENTS TO STEELWORK ARE TO BE AS PER FIRE ENGINEERS DETAILS OR ARCHITECTURAL SPECIFICATIONS.

S43. LIGHT WEIGHT STEEL FRAMING:
UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS, ALL STEEL STUD WALL FRAMING AND FIXINGS SHALL BE AS MANUFACTURED BY 'RONDO BUILDING SERVICES PTY. LTD.' OR EQUIVALENT, ALL TO BE IN ACCORDANCE WITH THEIR DESIGN MANUAL AND INSTALLATION MANUALS FOR STEEL STUD WALL SYSTEMS. STEEL STUDS ARE TO BE DESIGNED, CERTIFIED AND CONSTRUCTED BY THE BUILDER.

S44. THE DESIGN SHALL COMPLY WITH AS4600, TO SUIT THE LOADS SPECIFIED IN THE GENERAL NOTES AND THE SPECIFICATION. A REGISTERED STRUCTURAL ENGINEER SHALL CERTIFY THE DESIGN. PROVIDE ALL TRIMMERS, HEADS, NOGGINGS ETC.

Issue.	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESGIN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

Drawing Key



PRINT IN COLOUR

North

Scale
1 0 1 2 3 4 5m
SCALE BAR 1:100

Client
NSW GOVERNMENT | Health Infrastructure

Managing Contractor
capital insight

Architect
architectus

Project
WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

NOT FOR CONSTRUCTION

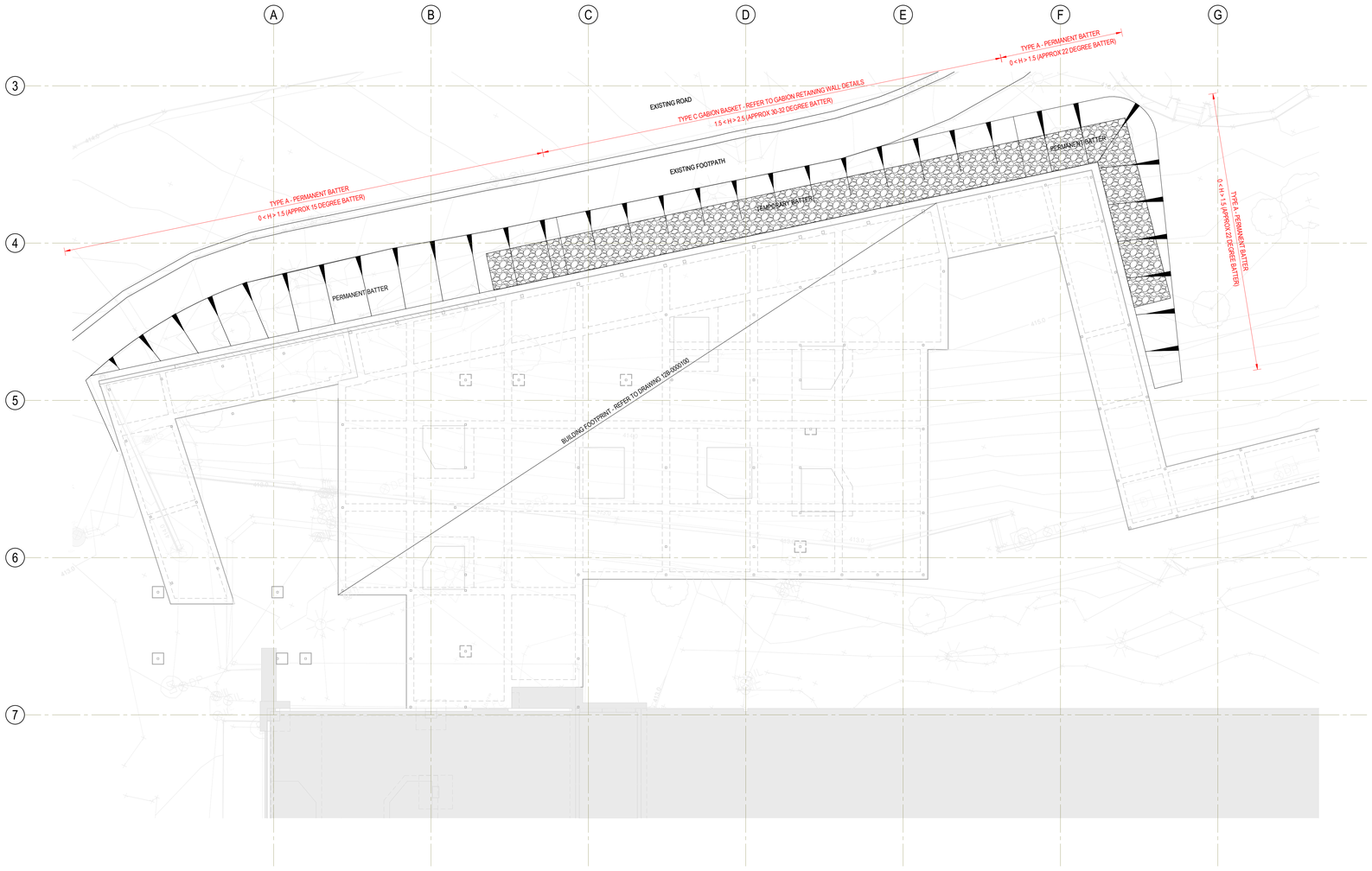
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5098

Drawing Title
STRUCTURAL
GENERAL NOTES - SHEET 1

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL	15.10.2024	1 : 1

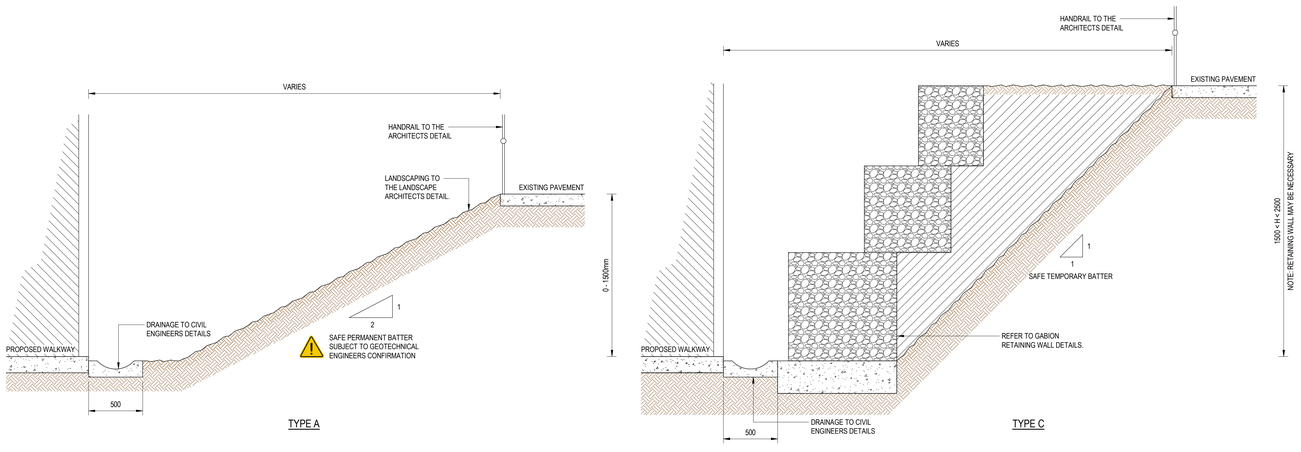
Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-STR-TAM-01A-0000001	E

7/03/2025 4:20:55 PM



EXTERNAL WORKS GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100



TYPE A AND TYPE B - PERMAMENT BATTER

SCALE: 1 : 20

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESIGN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

Drawing Key

PRINT IN COLOUR

North

Scale

1 0 1 2 3 4 5m
SCALE BAR 1:100

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

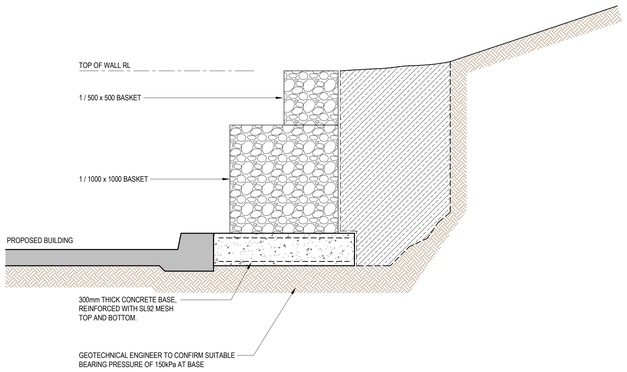
NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5098

Drawing Title

STRUCTURAL
EXTERNAL WORKS GENERAL ARRANGEMENT PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL	15.10.2024	As indicated
Project No.	Drawing No.			Issue
NA230258	WCP-ACR-DRW-STR-TAM-12B-0000100			E



NOTE INSTALLATION OF BASKETS (INCLUDING SPECIFICATION OF ROCK FILL) TO BE CARRIED OUT IN ACCORDANCE WITH GEOFABRICS SPECIFICATIONS AND DETAILS

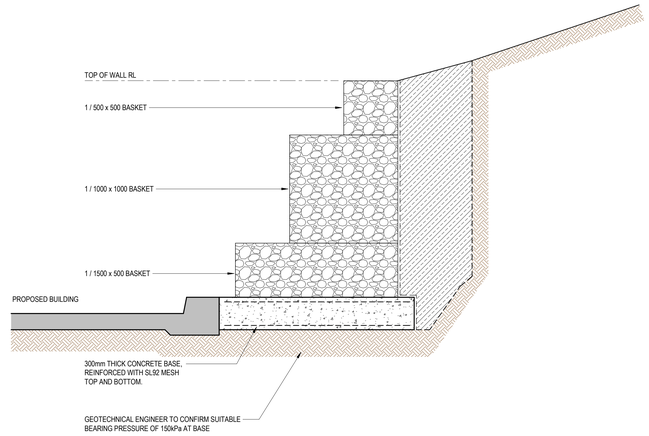
GABION RETAINING WALL - MAX 1.5m

SCALE 1:20

NOTE GEOTECHNICAL INVESTIGATION TO BE CARRIED OUT TO CONFIRM DESIGN ASSUMPTIONS AND CONFIRM SUITABILIIY OF GABION CAGE RETAINING WALL ON EXISTING GROUND AND SLOPE FINAL DESIGN OF WALL TBC UPON RECEIPT OF GEOTECHNICAL REPORT AND ADVICE.

ASSUMED IN-SITU MATERIAL	-	150 kPa ALLOWABLE BEARING PRESSURE, INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED RETAINED MATERIAL	-	INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED INFILL MATERIAL	-	CONTROLLED FILL CLASS

PROPERTIES AND COMPOSITION OF THE IN-SITU MATERIAL, RETAINED MATERIAL AND INFILL MATERIAL TO BE INSPECTED / CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF ANY RETAINING WALLS.



NOTE INSTALLATION OF BASKETS (INCLUDING SPECIFICATION OF ROCK FILL) TO BE CARRIED OUT IN ACCORDANCE WITH GEOFABRICS SPECIFICATIONS AND DETAILS

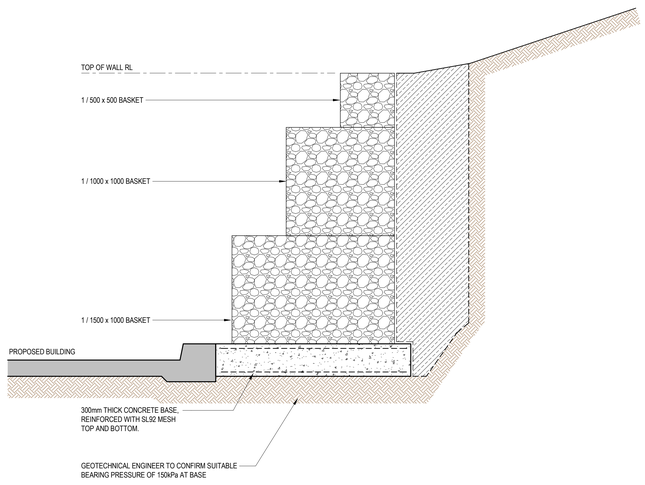
GABION RETAINING WALL - MAX 2.0m

SCALE 1:20

NOTE GEOTECHNICAL INVESTIGATION TO BE CARRIED OUT TO CONFIRM DESIGN ASSUMPTIONS AND CONFIRM SUITABILIIY OF GABION CAGE RETAINING WALL ON EXISTING GROUND AND SLOPE FINAL DESIGN OF WALL TBC UPON RECEIPT OF GEOTECHNICAL REPORT AND ADVICE.

ASSUMED IN-SITU MATERIAL	-	150 kPa ALLOWABLE BEARING PRESSURE, INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED RETAINED MATERIAL	-	INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED INFILL MATERIAL	-	CONTROLLED FILL CLASS

PROPERTIES AND COMPOSITION OF THE IN-SITU MATERIAL, RETAINED MATERIAL AND INFILL MATERIAL TO BE INSPECTED / CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF ANY RETAINING WALLS.



NOTE INSTALLATION OF BASKETS (INCLUDING SPECIFICATION OF ROCK FILL) TO BE CARRIED OUT IN ACCORDANCE WITH GEOFABRICS SPECIFICATIONS AND DETAILS

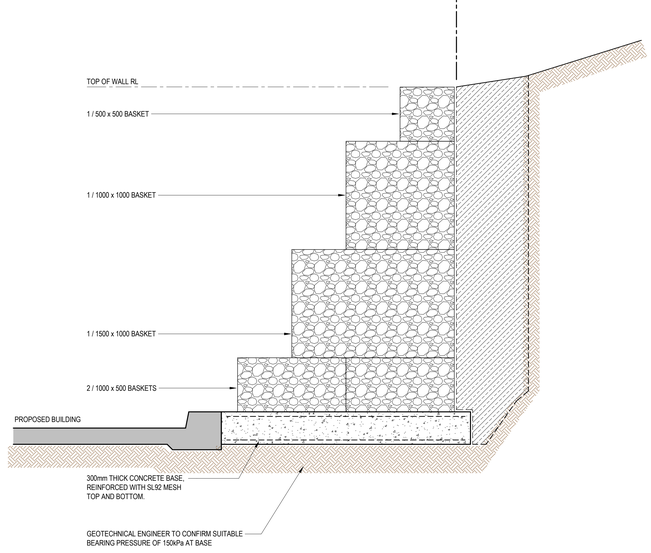
GABION RETAINING WALL - MAX 2.5m

SCALE 1:20

NOTE GEOTECHNICAL INVESTIGATION TO BE CARRIED OUT TO CONFIRM DESIGN ASSUMPTIONS AND CONFIRM SUITABILIIY OF GABION CAGE RETAINING WALL ON EXISTING GROUND AND SLOPE FINAL DESIGN OF WALL TBC UPON RECEIPT OF GEOTECHNICAL REPORT AND ADVICE.

ASSUMED IN-SITU MATERIAL	-	150 kPa ALLOWABLE BEARING PRESSURE, INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED RETAINED MATERIAL	-	INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED INFILL MATERIAL	-	CONTROLLED FILL CLASS

PROPERTIES AND COMPOSITION OF THE IN-SITU MATERIAL, RETAINED MATERIAL AND INFILL MATERIAL TO BE INSPECTED / CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF ANY RETAINING WALLS.



NOTE INSTALLATION OF BASKETS (INCLUDING SPECIFICATION OF ROCK FILL) TO BE CARRIED OUT IN ACCORDANCE WITH GEOFABRICS SPECIFICATIONS AND DETAILS

GABION RETAINING WALL - MAX 3.0m

SCALE 1:20

NOTE GEOTECHNICAL INVESTIGATION TO BE CARRIED OUT TO CONFIRM DESIGN ASSUMPTIONS AND CONFIRM SUITABILIIY OF GABION CAGE RETAINING WALL ON EXISTING GROUND AND SLOPE FINAL DESIGN OF WALL TBC UPON RECEIPT OF GEOTECHNICAL REPORT AND ADVICE.

ASSUMED IN-SITU MATERIAL	-	150 kPa ALLOWABLE BEARING PRESSURE, INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED RETAINED MATERIAL	-	INTERNAL FRICTION ANGLE ϕ = 300
ASSUMED INFILL MATERIAL	-	CONTROLLED FILL CLASS

PROPERTIES AND COMPOSITION OF THE IN-SITU MATERIAL, RETAINED MATERIAL AND INFILL MATERIAL TO BE INSPECTED / CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF ANY RETAINING WALLS.

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESIGN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

Drawing Key

PRINT IN COLOUR

North

Scale

1 0 1 2 3 4 5m
SCALE BAR 1:100

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

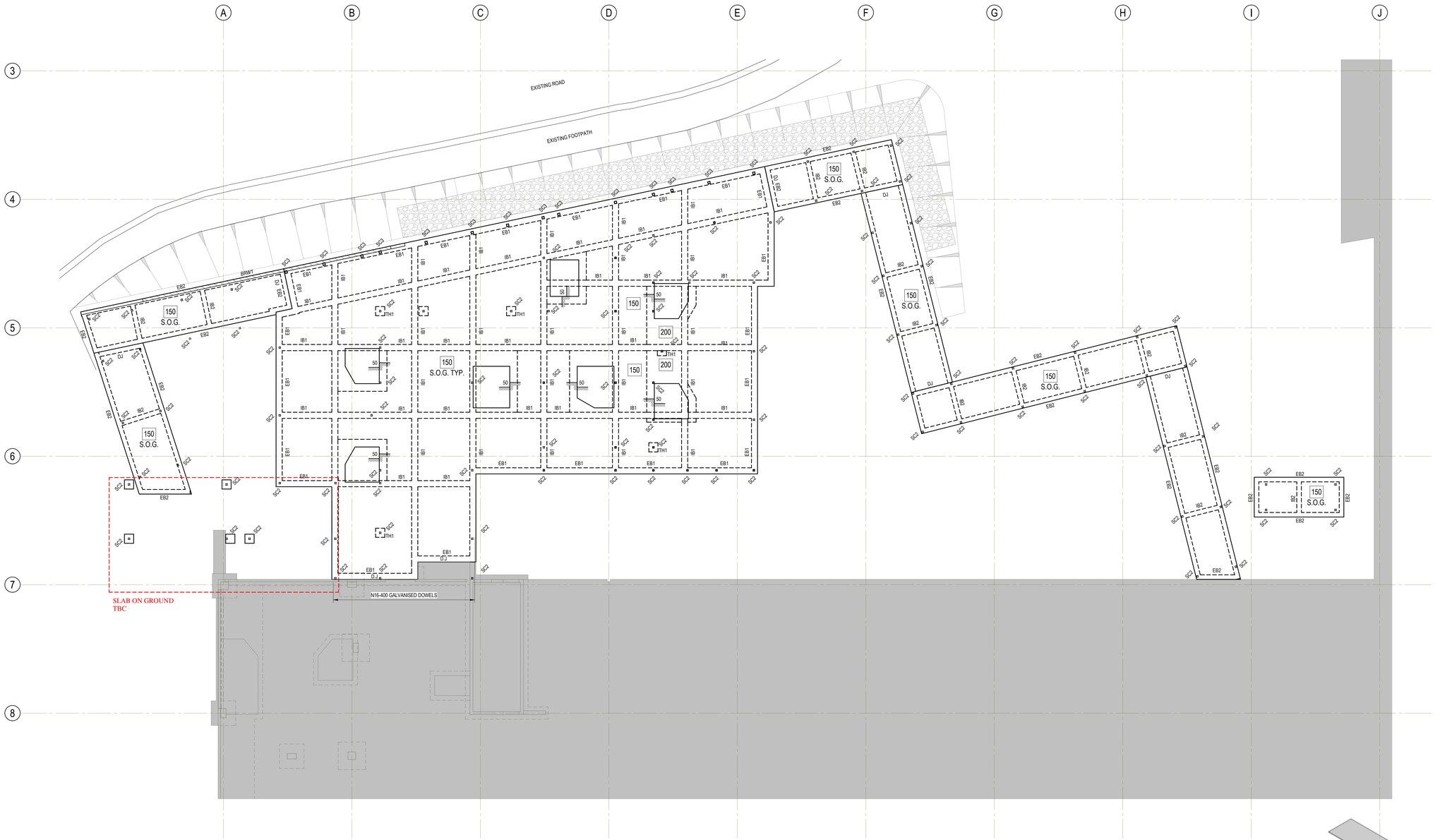
NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5096

Drawing Title

STRUCTURAL
GABION WALL DETAILS - SHEET 1

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL	15.10.2024	1 : 20
Project No.	Drawing No.			Issue
NA230258	WCP-ACR-DRW-STR-TAM-12B-0000110			E



GROUND FLOOR GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100

LEGEND

150 S.O.G.	ALL SLABS ON GROUND TO BE MIN. 150/200mm THICK U.N.O ALL SLABS ON GROUND ARE TO BE POURED ON 300um WATERPROOF MEMBRANE OVERLAYING A 80mm LAYER OF 20mm SINGLE SIZED FREE DRAINING COMPACTED GRANULAR MATERIAL.
200 S.O.G.	SLAB TO BE REINFORCED WITH SL82 MESH TOP AND BOTTOM. f'c=32MPa.
STEP	DENOTES SLAB STEP. REFER TO PLAN FOR VARIATION.
DJ	DENOTES DOWEL JOINT. REFER DETAIL.

NOTES:

- REFER TO ARCHITECTURAL DRAWINGS FOR ALL CONCRETE SETOUT INFORMATION.
- ALL FALLS, SETDOWNS & WATERPROOFING ARE TO ARCHITECT'S DETAILS U.N.O.
- UNLESS NOTED OTHERWISE ALL WET AREA SETDOWNS ARE TO BE A MAXIMUM 50mm.
- NON STRUCTURAL KERBS AND HOBS ARE NOT SHOWN. REFER TO ARCHITECTURAL DRAWINGS FOR EXTENT AND LOCATIONS.
- VERTICAL JOINTS IN WALLS ARE TO MATCH SLAB JOINT LOCATIONS.

CONCRETE BEAM SCHEDULE

MARK	DEPTH (A) x WIDTH (B)		REINFORCEMENT			CONCRETE STRENGTH (MPa)	COMMENTS
	A	B	TOP	BOTTOM	TIES		
EB1	600	400	TBC	TBC	TBC	32	
EB2	300	300	TBC	TBC	TBC	32	
IB1	600	400	TBC	TBC	TBC	32	
IB2	300	300	TBC	TBC	TBC	32	

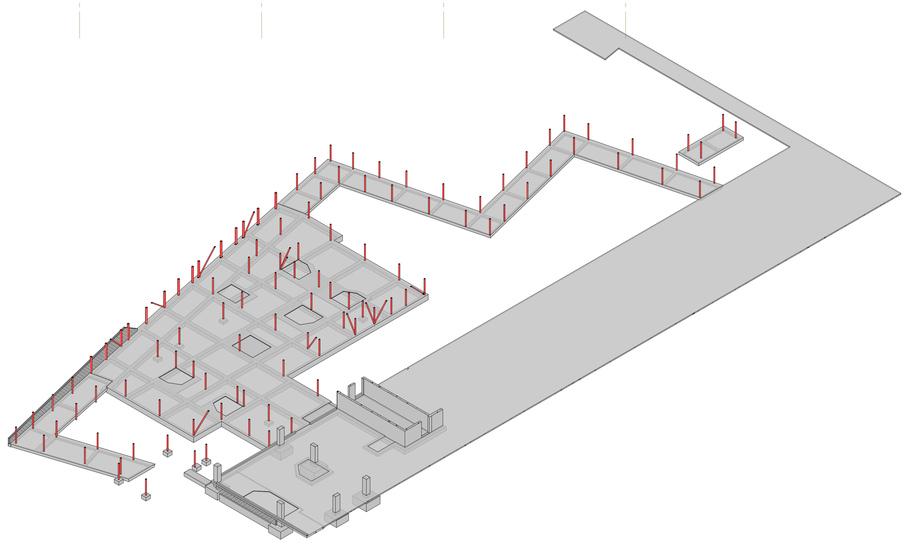
NOTE:
ALLOW 150kg/m² FOR ALL GROUND BEAMS U.N.O.
ASSUMED STIFF CLAY WITH MINIMUM BEARING CAPACITY 320KPA TO BE CONFIRMED BY GEOTECHNICAL ENGINEER* PILES MAY BE REQUIRED IF ALLOWABLE BEARING CAPACITY IS CAN NOT BE ACHIEVED

STEEL COLUMN SCHEDULE

MARK	SIZE	COMMENTS
SC1	89 x 89 x 5 SHS	
SC2	100 x 100 x 5 SHS	
SC3	150 x 150 x 6 SHS	

SLAB THICKENING SCHEDULE

MARK	LENGTH (A) x WIDTH (B) x DEPTH (C)			REINFORCEMENT				COMMENTS
	A	B	C	LAY 1ST	LAY 2ND	LAY 3RD	LAY 4TH	
TH1	600	600	400					



Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESIGN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

Drawing Key

PRINT IN COLOUR

North

Scale

SCALE BAR 1:100

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus

Project

WORLD CLASS END OF LIFE PROGRAM

TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS

ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5098

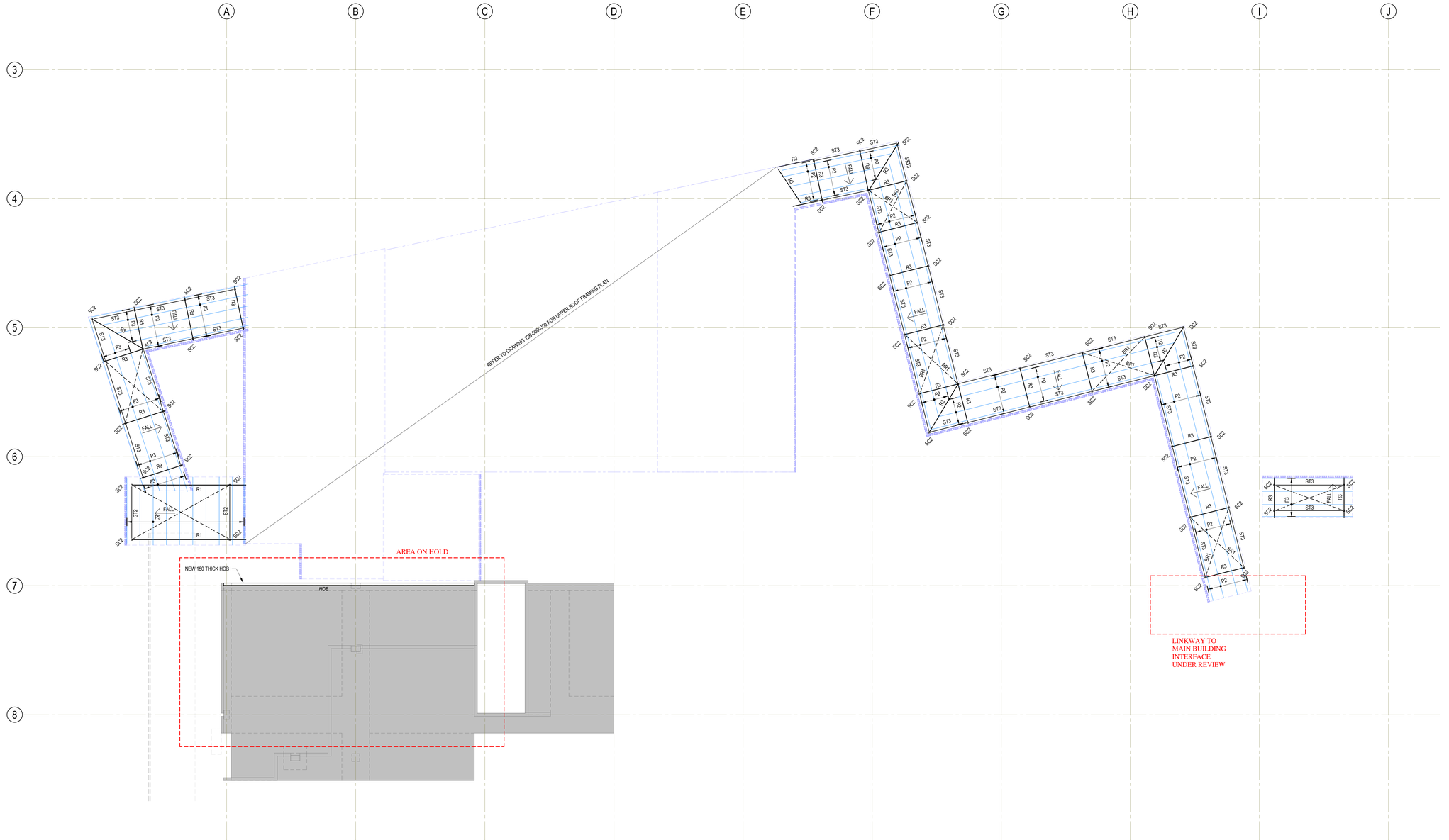
Drawing Title

STRUCTURAL

GROUND FLOOR GENERAL ARRANGEMENT PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL	15.10.2024	1 : 100

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-STR-TAM-12B-0000200	E



LEVEL 01 GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100

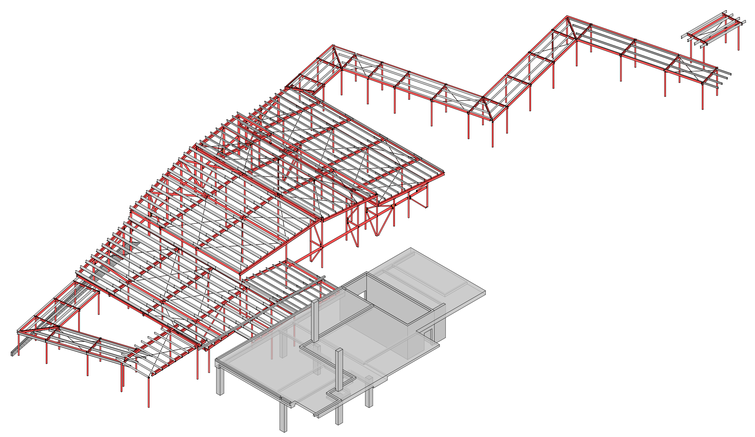
STEEL COLUMN SCHEDULE

MARK	SIZE	COMMENTS
SC1	89 x 89 x 5 SHS	
SC2	100 x 100 x 5 SHS	
SC3	150 x 150 x 6 SHS	

STEEL FRAMING SCHEDULE

MARK	SIZE	COMMENTS
BEAMS & RAFTER		
R1	250UB31.4	
R2	250 PFC	
R3	200UB18.2	
SB1	200 PFC	
SB3	250UB31.4	
PURLINS		
P1	Z20019	PURLINS AT 900 MAX. CTS. WITH 2 ROWS OF BRIDGING AND MIN. 900 LAPPING
P2	C15015	PURLINS AT 900 MAX. CTS. WITH 2 ROWS OF BRIDGING.
P3	C20015	PURLINS AT 900 MAX. CTS. WITH 2 ROWS OF BRIDGING.
STRUT & BRACING		
BR1	16 ROD	ROOF BRACING WITH TURNBUCKLES.
ST1	89 x 89 x 5 SHS	
ST2	100 x 100 x 5 SHS	
ST3	125 x 125 x 4 SHS	
ST4	125 x 125 x 5 SHS	
ST5	150 x 150 x 6 SHS	
VB1	89 x 89 x 5 SHS	

NOTE:
ALL EXTERNAL STEELWORK TO BE HOT DIPPED GALVANISED U.N.O.



Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESIGN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

Drawing Key

PRINT IN COLOUR

North

Scale

SCALE BAR 1:100

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

NOT FOR CONSTRUCTION

ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5096

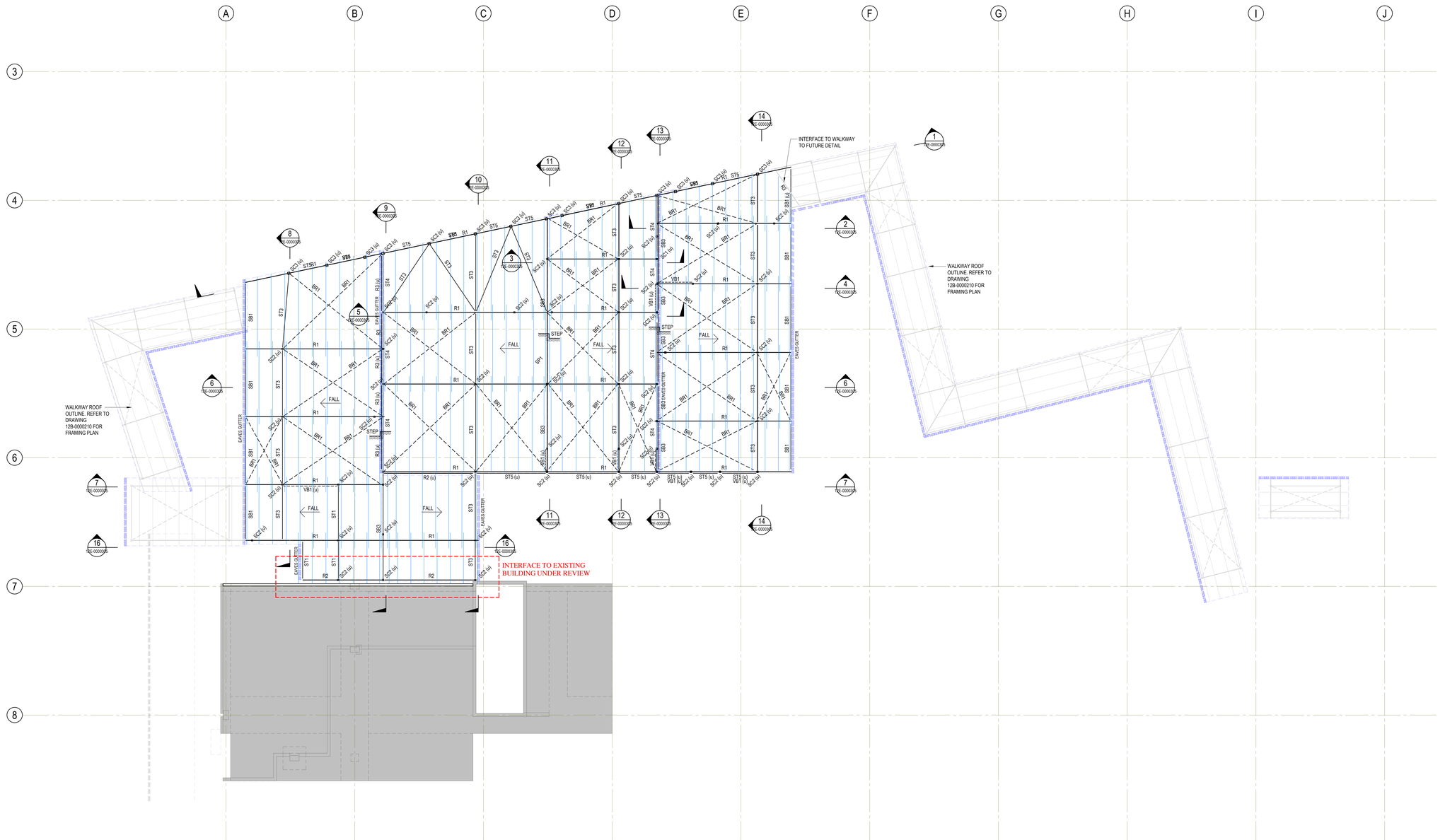
CONSULTANTS

Drawing Title

STRUCTURAL
LEVEL 01 GENERAL ARRANGEMENT PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL		1 : 100

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-STR-TAM-12B-0000210	E



ROOF FRAMING GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100

ALL PURLINS TO BE TYPE 'P1' UNLESS NOTED OTHERWISE

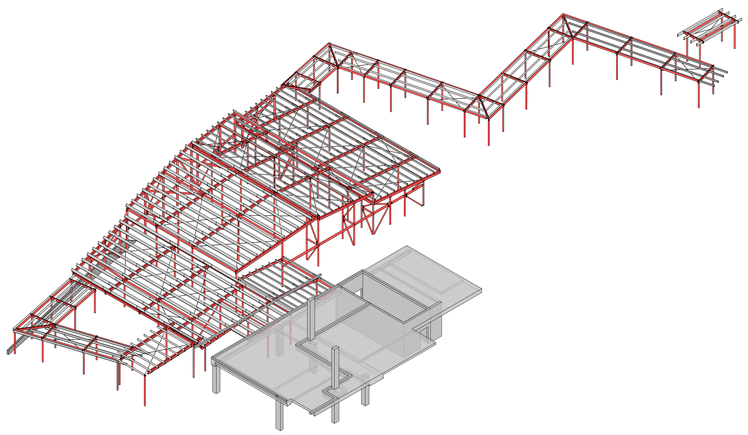
STEEL COLUMN SCHEDULE

MARK	SIZE	COMMENTS
SC1	89 x 89 x 5 SHS	
SC2	100 x 100 x 5 SHS	
SC3	150 x 150 x 6 SHS	

STEEL FRAMING SCHEDULE

MARK	SIZE	COMMENTS
BEAMS & RAFTER		
R1	250UB31.4	
R2	250 PFC	
R3	200UB18.2	
SB1	200 PFC	
SB3	250UB31.4	
PURLINS		
P1	Z20019	PURLINS AT 900 MAX. CTS. WITH 2 ROWS OF BRIDGING AND MIN. 900 LAPPING
P2	C15015	PURLINS AT 900 MAX. CTS. WITH 2 ROWS OF BRIDGING.
P3	C20015	PURLINS AT 900 MAX. CTS. WITH 2 ROWS OF BRIDGING.
STRUT & BRACING		
BR1	16 ROD	ROOF BRACING WITH TURNBUCKLES.
ST1	89 x 89 x 5 SHS	
ST2	100 x 100 x 5 SHS	
ST3	125 x 125 x 4 SHS	
ST4	125 x 125 x 5 SHS	
ST5	150 x 150 x 6 SHS	
VB1	89 x 89 x 5 SHS	

NOTE:
ALL EXTERNAL STEELWORK TO BE HOT DIPPED GALVANISED U.N.O.



Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESGIN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

Drawing Key

PRINT IN COLOUR

North

Scale

1 0 1 2 3 4 5m
SCALE BAR 1:100

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS

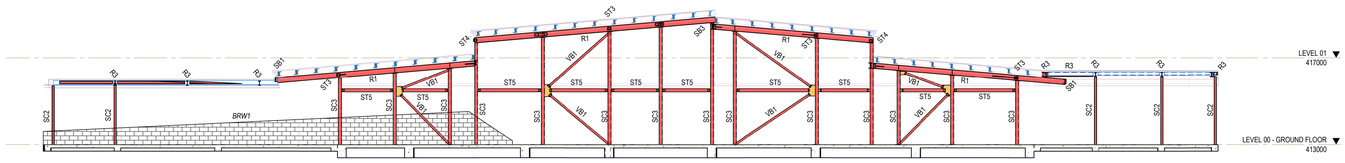
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5098

Drawing Title

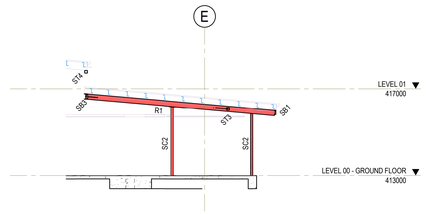
STRUCTURAL
ROOF FRAMING GENERAL ARRANGEMENT PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL	15.10.2024	1 : 100

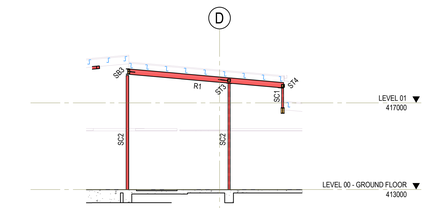
Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-STR-TAM-12B-0000300	E



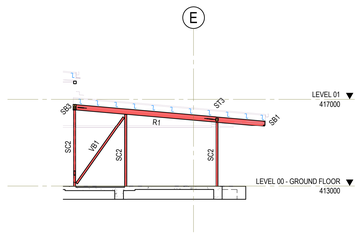
ELEVATION 1
SCALE: 1 : 100 12B-0000300



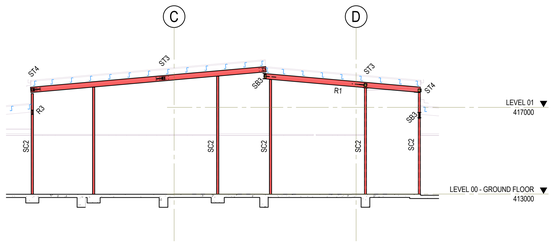
ELEVATION 2
SCALE: 1 : 100 12B-0000300



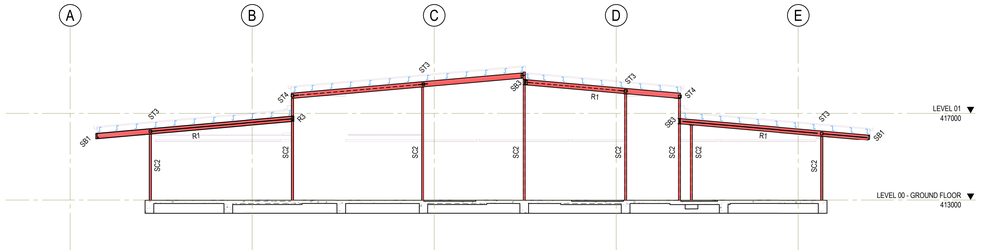
ELEVATION 3
SCALE: 1 : 100 12B-0000300



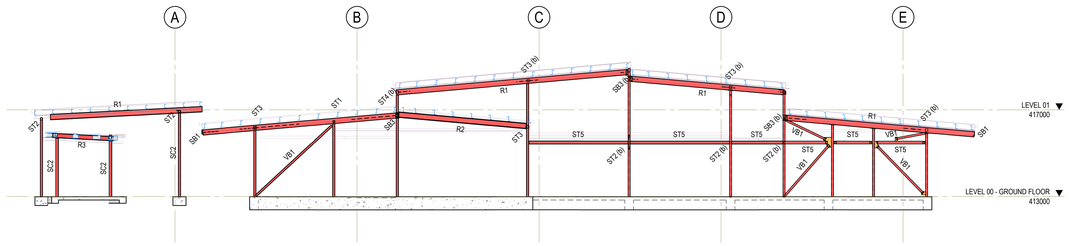
ELEVATION 4
SCALE: 1 : 100 12B-0000300



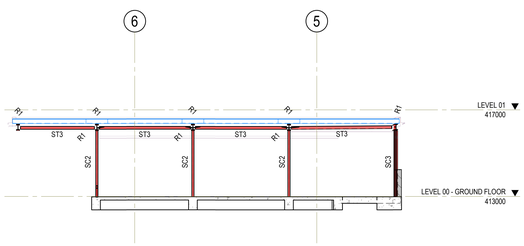
ELEVATION 5
SCALE: 1 : 100 12B-0000300



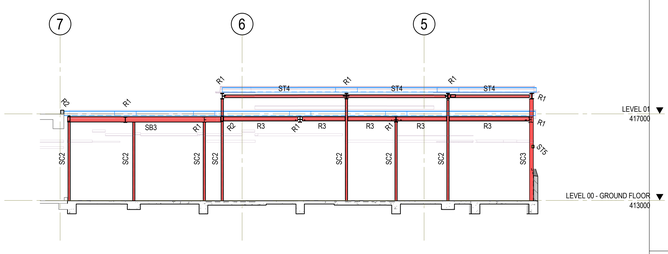
ELEVATION 6
SCALE: 1 : 100 12B-0000300



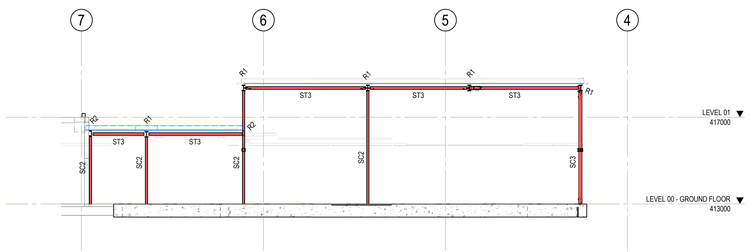
ELEVATION 7
SCALE: 1 : 100 12B-0000300



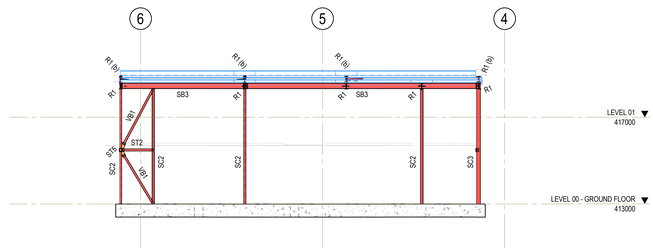
ELEVATION 8
SCALE: 1 : 100 12B-0000300



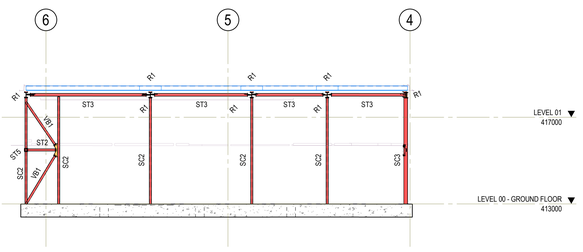
ELEVATION 9
SCALE: 1 : 100 12B-0000300



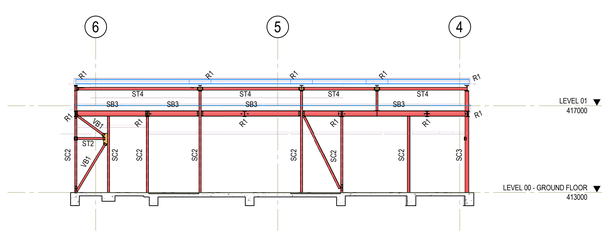
ELEVATION 10
SCALE: 1 : 100 12B-0000300



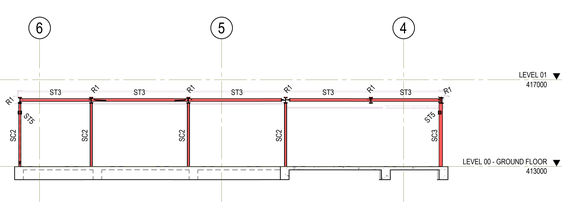
ELEVATION 11
SCALE: 1 : 100 12B-0000300



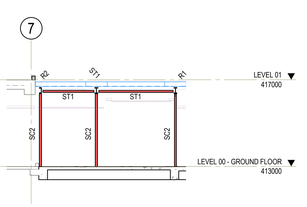
ELEVATION 12
SCALE: 1 : 100 12B-0000300



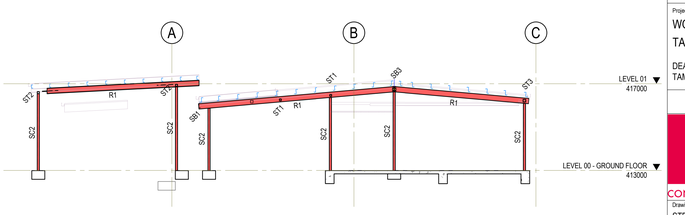
ELEVATION 13
SCALE: 1 : 100 12B-0000300



ELEVATION 14
SCALE: 1 : 100 12B-0000300



ELEVATION 15
SCALE: 1 : 100



ELEVATION 16
SCALE: 1 : 100 12B-0000300

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	15.10.2024	TL	DL
B	SCHEMATIC DESIGN	25.10.2024	DG	DL
C	DD ENGINEERING PUG PRESENTATION	21.01.2025	AJ	DL
D	DD ENGINEERING PUG PRESENTATION	14.02.2025	AJ	DL
E	DRAFT DESIGN DEVELOPMENT	07.03.2025	DG	DL

Drawing Key

PRINT IN COLOUR

North

Scale

SCALE BAR 1:100

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus

Project

WORLD CLASS END OF LIFE PROGRAM

TAMWORTH HOSPITAL

DEAN STREET, NORTH
TAMWORTH NSW 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS

ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T: +61 2 9438 5098

Drawing Title

STRUCTURAL

ROOF FRAMING ELEVATIONS - SHEET 1

Drawn	Designed	Q.A. Check	Date	Scale @ A0
TL	CMR	DL	15.10.2024	1 : 100

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-STR-TAM-12E-0000305	E

Appendix B - Civil Drawings

TAMWORTH HOSPITAL, WORLD CLASS END OF LIFE PROGRAM
DEAN STREET, NORTH TAMWORTH NSW, 2340
CIVIL SERVICES

EXISTING SERVICES LEGEND

- EXISTING WATER
- EXISTING ELECTRICAL
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING STORMWATER PIT (IL411.00)
- EXISTING STORMWATER XXXXX
- EXISTING LIGHT POLE
- EXISTING SEWER MANHOLE
- EXISTING INSPECTION POINT
- EXISTING WATER TAP
- EXISTING WATER VALVE

EXISTING SERVICES NOTE:
EXISTING SERVICE ALIGNMENTS HAVE BEEN PLOTTED UTILISING THE INFORMATION OBTAINED FROM SURVEY PROVIDED BY MONTEATH & POWYS SURVEYORS REF 24/0148 DRAWING 240148D_01, DATED 13.08.24

CIVIL LEGEND

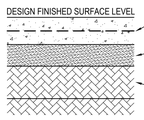
- P411.60 — PROPOSED SURFACE LEVEL
- CL413.20 — PROPOSED COVER LEVEL
- GD1 — GRATED DRAIN AND TYPE
- STORMWATER DRAINAGE PIT
- DEMOLITION LINE
- STORMWATER DRAINAGE LINE WITH;
  - USIL 412.38 — INVERT LEVEL UPSTREAM
  - Ø150 uPVC — PIPE SIZE AND MATERIAL CLASS
  - 9.8 % — PIPE GRADE
  - 15.0 m — PIPE LENGTH
  - DSIL 411.88 — INVERT LEVEL DOWNSTREAM
- PROPOSED OVERFLOW ROUTE LINE
- OSD — ON-SITE DETENTION TANK
- DP — DOWNPIPE CONNECTION (Ø150 uPVC UNO)

SOIL EROSION AND SEDIMENT CONTROL LEGEND

- SEDIMENT FENCE
- PIT WRAP FILTER FABRIC
- SAND BAG SEDIMENT TRAP
- STABILISED CONSTRUCTION EXIT

PAVEMENT LEGEND

PAVEMENT TYPE 1
CONCRETE FOOTPATH
CONCRETE SHALL BE LIGHT GREY OR OFF-WHITE COLOUR TO ACHIEVE AN SR>0.33



125mm THICK CONCRETE (f'c = 32MPa) WITH SL72 CENTRALLY LOCATED
100mm COMPACTED THICKNESS CLASS 3 CRUSHED ROCK COMPACTED TO 98% SMDD
150mm TYPE A COMPACTED THICKNESS CAPPING LAYER AS PER VICROADS SPECIFICATIONS
APPROVED SUBGRADE COMPACTED TO 98% SMDD (MIN CBR 1.5%). SUBGRADE TO BE PREPARED AS PER GEOTECH REPORT RECOMMENDATION

DRAWING INDEX

DRAWING NUMBER	DRAWING TITLE
0000001	COVER SHEET, LEGENDS AND DRAWING INDEX
0000002	NOTES SHEET
0000003	EXISTING SERVICES AND DEMOLITION PLAN
0000004	SOIL EROSION AND SEDIMENT CONTROL PLAN
0000005	SOIL EROSION AND SEDIMENT CONTROL DETAILS
0000006	GENERAL ARRANGEMENT PLAN
0000007	TYPICAL DETAILS
0000008	BULK EARTHWORKS PLAN
0000009	PAVEMENT PLAN

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	17.10.24	JM	GL
B	ISSUE FOR SCHEMATIC DESIGN	22.01.25	DW	GL
C	DD ENGINEERING PUG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client: NSW Government Health Infrastructure

Managing Contractor: capital insight

Architect: architectus™ Conrad Gargett

Project
WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH
NSW, 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
COVER SHEET, LEGENDS AND DRAWING INDEX

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	N.T.S.

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000001	D

GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED.
2. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION
3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.
4. ALL DIMENSIONS ON DETAILS ARE IN MILLIMETRES UNLESS STATED OTHERWISE. ALL PLANS AND LEVELS ARE EXPRESSED IN METRES.
5. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURAL STABILITY OF THE WORKS AND ENSURE NO PARTS BE OVER STRESSED UNDER CONSTRUCTION ACTIVITIES.
6. WORKMANSHIP AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RELEVANT CURRENT S.A.A. CODES INCLUDING ALL AMENDMENTS, AND THE LOCAL STATUTORY AUTHORITIES, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
7. THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM ACOR CONSULTANTS / PRINCIPAL'S REPRESENTATIVE BUT IS NOT AN AUTHORISATION FOR A VARIATION. ANY VARIATIONS INVOLVED MUST BE TAKEN UP WITH ACOR CONSULTANTS / PRINCIPAL'S REPRESENTATIVE BEFORE THE WORK COMMENCES.
8. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE ENGINEER FOR A DECISION BEFORE PROCEEDING WITH THE WORK.
9. THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE FOR ALL ENGINEERING INSPECTIONS. ALL INSPECTIONS AND CERTIFICATIONS TO BE INCLUDED IN CONTRACTORS COST.
10. BUILDING FROM THESE DRAWINGS IS NOT TO COMMENCE UNTIL APPROVED BY THE PRINCIPAL CERTIFYING AUTHORITY.
11. THE WORD 'ENGINEER' USED IN THESE NOTES REFER TO AN EMPLOYEE OR NOMINATED REPRESENTATIVE OF **ACOR CONSULTANTS PTY LTD.**
12. ALL CONSTRUCTION ACTIVITIES SHALL COMPLY WITH THE RELEVANT CURRENT WORKPLACE HEALTH AND SAFETY LEGISLATION.

EXISTING SERVICES AND FEATURES

1. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION, REMOVAL AND DISPOSAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA, AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE PRINCIPAL'S REPRESENTATIVE.
2. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
3. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN WRITTEN APPROVAL OF THEIR PROGRAMME FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
4. EXISTING BUILDINGS, EXTERNAL STRUCTURES, AND TREES SHOWN ON THESE DRAWINGS ARE FEATURES EXISTING PRIOR TO ANY DEMOLITION WORKS.
5. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE PRINCIPAL'S REPRESENTATIVE. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE PRINCIPAL'S REPRESENTATIVE.
6. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL OF PRINCIPAL'S REPRESENTATIVE FOR TIME OF INTERRUPTION.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

E1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.

E2. THE PRINCIPAL'S REPRESENTATIVE WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 2004 (BLUE BOOK).

E3. ALL BUILDERS AND SUB-CONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.

CONSTRUCTION SEQUENCE

E4. THE SOIL EROSION POTENTIAL ON THIS SITE SHALL BE MINIMISED. HENCE WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE :

a. INSTALL SEDIMENT FENCES, TEMPORARY CONSTRUCTION EXIT AND SANDBAG KERB INLET SEDIMENT TRAP.
b. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

E5. DURING WINDY CONDITIONS, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

E6. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

FENCING

E7. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.

E8. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.

E9. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

E10. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

OTHER MATTERS

E11. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

E12. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE PRINCIPAL'S REPRESENTATIVE.

SITE INSPECTION & MAINTENANCE

E13. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.

STORMWATER NOTES

1. ALL 375 DIA. DRAINAGE PIPES AND LARGER SHALL BE CLASS "2" APPROVED SPIGOT AND SOCKET FRC OR RCP PIPES WITH RUBBER RING JOINTS. (U.N.O.) ALL DOWNPIPE DRAINAGE LINES SHALL BE SEWER GRADE uPVC WITH SOLVENT WELD JOINTS. (U.N.O.)
2. EQUIVALENT STRENGTH REINFORCED CONCRETE PIPES MAY BE USED.
3. ALL PIPE JUNCTIONS UP TO AND INCLUDING 450 DIA. AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.
4. MINIMUM GRADE TO STORMWATER LINES TO BE 1%. (U.N.O.)
5. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
6. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
7. PRECAST PITS SHALL NOT BE USED UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER.
8. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN. 50MM CONCRETE BED (OR 75MM THICK BED OF 12MM BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK. IN OTHER THAN ROCK, PIPES SHALL BE LAID ON A 75MM THICK SAND BED. IN ALL CASES BACKFILL THE TRENCH WITH SAND TO 200MM ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL COMPACTED IN 150MM LAYERS TO 98% STANDARD MAX. DRY DENSITY.
9. BEDDING SHALL BE (U.N.O.) TYPE HS2, IN ACCORDANCE WITH CURRENT RELEVANT AUSTRALIAN STANDARDS.
10. WHERE STORMWATER LINES PASS UNDER FLOOR SLABS SEWER GRADE RUBBER RING JOINTS ARE TO BE USED.
11. WHERE SUBSOIL DRAINAGE LINES PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS UNSLOTTED UPVC SEWER GRADE PIPE SHALL BE USED.
12. PROVIDE 3.0M LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK, AT UPSTREAM END OF EACH PIT.

ON-SITE DETENTION NOTES

1. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS, SERVICES AND STRUCTURES ON SITE PRIOR TO COMMENCEMENT OF WORK.
2. ALL WORK SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS AND THE SPECIFICATION.
3. ON COMPLETION OF PROPOSED WORKS ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL, GRASSED & LANDSCAPE AREAS AND ROAD PAVEMENTS. (U.N.O.)
4. CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS.
5. MAKE SMOOTH TRANSITION TO EXISTING SERVICES AND MAKE GOOD.
6. WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
7. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER THESE SERVICES. HAND EXCAVATE IN THESE AREAS.
8. THESE PLANS SHALL BE READ IN CONJUNCTION WITH APPROVED ARCHITECTURAL, STRUCTURAL, HYDRAULIC, AND OTHER SERVICES DRAWINGS AND SPECIFICATIONS.
9. EQUIVALENT STRENGTH FRC PIPES MAY BE USED.
10. ALL PIPE JUNCTIONS, BENDS AND TAPERS UP TO AND INCLUDING 450 DIA SHALL BE VIA PURPOSE MADE FITTINGS.
11. MINIMUM GRADE TO STORMWATER LINES TO BE 1%. (U.N.O.)
12. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
13. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
14. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN. 50mm CONCRETE BED (OR 75mm THICK BED OF 12mm BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK. IN OTHER THAN ROCK, PIPES SHALL BE LAID ON A 75mm THICK SAND BED. IN ALL CASES BACKFILL THE TRENCH WITH SAND TO 200mm ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL COMPACTED IN 150mm LAYERS TO 98% STANDARD MAX. DRY DENSITY.
15. BEDDING SHALL BE (U.N.O.) TYPE H1, IN ACCORDANCE WITH CURRENT RELEVANT AUSTRALIAN STANDARDS.
16. WHERE STORMWATER LINES PASS UNDER FLOOR SLABS SEWER GRADE RUBBER RING JOINTS ARE TO BE USED.
17. PROVIDE 3.0M LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK, AT UPSTREAM END OF EACH PIT.

CONCRETE NOTES

GENERAL

1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600 CURRENT EDITIONS WITH AMENDMENTS, AND THE ACSE CONCRETE SPECIFICATION EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. VERIFY ALL SETTING OUT DIMENSIONS WITH THE ARCHITECT AND/OR THE SURVEYOR.
3. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS.
4. IN CASE OF DOUBT - ASK.

CONCRETE

1. PLACE CONCRETE OF THE FOLLOWING CHARACTERISTIC COMPRESSIVE STRENGTH F'C AS DEFINED IN AS.3600 OR M.R. FORM 609. ADD WATER REDUCING ADMIXTURE EQUAL TO WRDA.

LOCATION	AS.3600 F'c MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
ALL KERB PITS ETC.	25	80	20
VEHICULAR PAVEMENTS	32	80	20

2. USE "A.C.S.E. SPECIFICATION TYPE A" CEMENT.
3. ALL CONCRETE SHALL BE SUBJECT TO PROJECT CONTROL SAMPLE AND TESTING TO AS.3600.
4. CONSOLIDATE BY VIBRATION.

REINFORCEMENT

1. FIX REINFORCEMENT AS SHOWN ON DRAWINGS. THE TYPE AND GRADE IS INDICATED BY A SYMBOL AS SHOWN BELOW. ON THE DRAWING N IS FOLLOWED BY A NUMERAL WHICH INDICATES THE SIZE IN MILLIMETRES. A MARK NUMERAL (IF USED) FOLLOWS THIS NUMERAL.

N. HOT ROLLED DEFORMED BARS, GRADE 500N
R. HOT ROLLED PLAIN BARS, GRADE 250N
W. COLD DRAWN PLAIN ROUND WIRE, GRADE 500L
SL. SQUARE WELDED MESH, GRADE 500L
RL. RECTANGULAR WELDED MESH, GRADE 500L
LTM. RECTANGULAR WELDED TRENCH MESH, GRADE 500L

CURING

1. CURING OF ALL CONCRETE SHALL BE IN ACCORDANCE WITH AS3600 AND SHALL COMMENCE WITHIN 2 HOURS OF FINISHING OPERATIONS.
2. CURING SHALL BE CONTINUAL SATURATION WITH POTABLE WATER FOR 3 DAYS FOLLOWED BY PREVENTION OF MOISTURE LOSS FOR THE NEXT 4 DAYS, USING POLYTHENE SHEETING OR WET HESSIAN PROTECTED BY WIND OR TRAFFIC AND THEN ALLOWING GRADUAL DRYING OUT.
3. CURING COMPOUNDS MAY BE USED PROVIDED THAT THEY COMPLY WITH AS3799 AND NOT AFFECT THE PROPOSED FINISH.
4. THE COMPATIBILITY OF CURING COMPOUNDS WITH THE PROPOSED FINISH AND OTHER CONCRETE ADMIXTURES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING AND APPLICATION.
5. CURING COMPOUNDS ARE APPLIED UNIFORMLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
PVA - BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.
6. CURING SHALL BE UNDERTAKEN BY AN EXPERIENCED CONTRACTOR FAMILIAR WITH THE PROPOSED COMPOUNDS AND THE MANUFACTURER'S SPECIFICATIONS.
7. WHERE SHADE TEMPERATURES EXCEEDS 35°C, SPRAY THE EXPOSED SURFACE OF THE CONCRETE PAVEMENT / SLAB DURING THE PLACING OF FINISHING OPERATION WITH A FINE FILM OR APPROVED ALIPHATIC ALCOHOL. REPEAT THE SPRAY IF THE SPRAY SURFACE HAS BEEN RE-WORKED.
8. ENSURE ADEQUATE SUPPLY OF ALIPHATIC ALCOHOL ON-SITE PRIOR TO CONCRETE WORKS.

CONCRETE PAVEMENT JOINT NOTES

PJ1. CONCRETE MIX PARAMETERS ;
- MAXIMUM AGGREGATE SIZE 20mm
- FLEXURAL STRENGTH AT 28 DAYS = 3.5MPa
- FLEXURAL STRENGTH AT 90 DAYS = 3.85 MPa
- MAXIMUM WATER / CEMENT RATIO = 0.55
- MAXIMUM SHRINKAGE LIMIT = 650 MICRON STRAINS (AS 1012 Pt 13)
- MINIMUM CEMENT CONTENT = 300kg/m3
- CEMENT TO BE TYPE "A" (NORMAL CEMENT) TO AS.1315
- SLUMP = 50mm

PJ2. JOINT TO BE SAWN AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY THAT IT WILL NOT BE DAMAGED BY SAWING. IF AN UNPLANNED CRACK OCCURS THE CONTRACTOR SHALL REPLACE WHOLE SLABS EITHER SIDE OF THE UNPLANNED CRACK, UNLESS DIRECTED OTHERWISE.

PJ3.
a. CONSTRUCT JOINTS AS DETAILED
b. CONSTRUCTION JOINTS WHERE REQUIRED BUT NOT SHOWN, SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER AND CONSTRUCTED AT THE CONTRACTORS EXPENSE.
c. ALL LONGITUDINAL CONSTRUCTION JOINTS SHALL BE FORMED AND INCLUDE DOWEL BARS AS SPECIFIED. ALL TRANSVERSE CONSTRUCTION JOINTS SHALL BE FORMED AND INCLUDE DOWEL BARS AS SPECIFIED.
d. BOND BREAKER TO BE TWO (2) UNIFORM COATS OF BITUMEN EMULSION ALL OVER THE EXPOSED SURFACE AND ON END.

PJ4. DOWELS AND TIE BARS TO MEET STRENGTH REQUIREMENTS OF STRUCTURAL GRADE STEEL IN ACCORDANCE AS. 1302. DOWELS AND TIE BARS SHALL BE ;-
- STRAIGHT
- TO LENGTH SPECIFIED
- CLEAN AND FREE FROM MILL SCALE, RUST AND OIL.
- SAWN TO LENGTH NOT CROPPED.

PJ5. DIMENSIONS OF SEALANT RESERVOIR DEPENDANT ON THE SEALANT TYPE ADOPTED. ENGINEERS APPROVAL TO BE OBTAINED FOR SEALANT AND RESERVOIR DIMENSIONS AND DETAIL PROPOSED BY THE CONTRACTOR. REFER DETAIL "B" FOR TYPICAL ARRANGEMENT AND SEALANT.

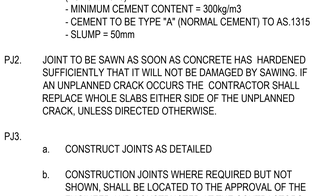
PJ6. PRIOR TO THE PLACEMENT OF CONCRETE IN THE ADJACENT SLAB, SELF EXPANDING CORK FILLER SHALL BE ADHERED TO THE ALREADY CAST AND CLEANED CONCRETE FACE USING AN APPROVED WATERPROOF ADHESIVE. ADHESIVE SHALL BE LIBERALLY APPLIED TO THE FULL FACE OF THE CONCRETE SLAB TO BE COVERED BY THE FILLER, AND ON THE FULL FACE OF THE FILLER TO BE ADHERED.

PJ7. REFER TO COMPACTION NOTES FOR PREPARATION OF SUB-BASE AND SUB-GRADE.

PJ8. ALL WORK TO BE BROOM FINISH.

VEHICULAR PAVEMENT JOINTING

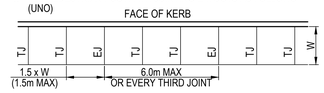
1. ALL VEHICULAR PAVEMENT TO BE JOINTED AS SHOWN ON DRAWINGS.
2. KEYED CONSTRUCTION JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 6m CENTRES.
3. SAWN JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 6m CENTRES OR 1.5 x THE SPACING OF KEYED JOINTS, WHERE KEY JOINT SPACING IS LESS THAN 4m, WITH DOWELLED EXPANSION JOINTS AT MAXIMUM OF 30m CENTRES.
4. PROVIDE 10mm WIDE FULL DEPTH ISOLATION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS.
5. VEHICULAR PAVEMENT JOINTING AS FOLLOWS.



CJ = CONTRACTION JOINT (SCJ OR CDJ AS NOTED ON PLAN)

PEDESTRIAN FOOTPATH JOINTING

1. DOWELED JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 6.0m CENTRES.
2. TOOLED JOINTS ARE TO BE LOCATED AT A MAX 1.5 x WIDTH OF THE PAVEMENT.
3. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND/OR ADJACENT PAVEMENT JOINTS.
4. ALL PEDESTRIAN FOOTPATH JOINTING LAYOUTS AS FOLLOWS (UNO)



5. ALL RAMPED CROSSINGS SHALL BE DOWELED INTO ADJOINING PATH PAVEMENT

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	17.10.24	JM	GL
B	ISSUE FOR SCHEMATIC DESIGN	22.01.25	DW	GL
C	DD ENGINEERING PLIG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client: NSW GOVERNMENT Health Infrastructure

Managing Contractor: capital insight

Architect: architectus / Conrad Gargett

Project
WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH
NSW, 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
NOTES SHEET

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	N.T.S.

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000002	D

Issue	Description	Date	Drawn	Approved
A	NOT ISSUED	-	-	-
B	NOT ISSUED	-	-	-
C	NOT ISSUED	-	-	-
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client

NSW GOVERNMENT | Health Infrastructure

Managing Contractor

capitalinsight

Architect

architectus™
Conrad Gargett

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH
NSW, 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
EXISTING SERVICES AND DEMOLITION PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
RP	GL	GL	07.03.25	1:100

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000003	D

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	17.10.24	JM	GL
B	ISSUE FOR SCHEMATIC DESIGN	22.01.25	DW	GL
C	DD ENGINEERING PUG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus™
Conrad Gargett

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH
NSW, 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS

ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
SOIL EROSION AND SEDIMENT CONTROL PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	N.T.S.

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000004	D

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

E1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.

E2. THE PRINCIPAL'S REPRESENTATIVE WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 2004 (BLUE BOOK).

E3. ALL BUILDERS AND SUB-CONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.

CONSTRUCTION SEQUENCE

E4. THE SOIL EROSION POTENTIAL ON THIS SITE SHALL BE MINIMISED. HENCE WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE :

a. INSTALL SEDIMENT FENCES, TEMPORARY CONSTRUCTION EXIT AND SANDBAG KERB INLET SEDIMENT TRAP.
b. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

E5. DURING WINDY CONDITIONS, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

E6. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

FENCING

E7. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.

E8. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.

E9. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

E10. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

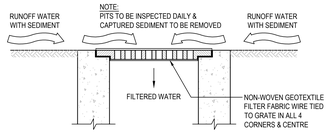
OTHER MATTERS

E11. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

E12. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE PRINCIPAL'S REPRESENTATIVE.

SITE INSPECTION & MAINTENANCE

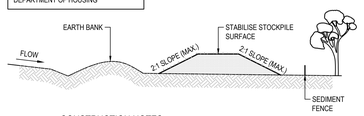
E13. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.



INLET TRAP
N.T.S.

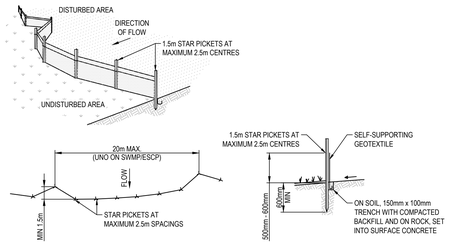
NOTE
TO BE USED IN PAVED AREAS WHERE TRAFFIC ACCESS IS REQUIRED

SOURCE:
MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION. THIRD EDITION, AUGUST 1998 PRODUCED BY THE DEPARTMENT OF HOUSING



CONSTRUCTION NOTES
1. LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT, ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-2) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-7) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

STOCKPILES
N.T.S.



PLAN SECTION DETAIL

CONSTRUCTION NOTES
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND, 2.5 METRES APART (MAX). ENSURE STAR PICKETS ARE FITTED WITH SAFETY CAPS.
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

SEDIMENT CONTROL FENCE
N.T.S.

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	17.10.24	JM	GL
B	ISSUE FOR SCHEMATIC DESIGN	22.01.25	DW	GL
C	DD ENGINEERING PUG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client
NSW GOVERNMENT Health Infrastructure

Managing Contractor
capital insight

Architect
architectus™
Conrad Gargett

Project
WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH
NSW, 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
SOIL EROSION AND SEDIMENT CONTROL DETAILS

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	1:100
Project No.	Drawing No.			Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000005			D

ADDITIONAL SCOPE HAS BEEN ADDED LATE IN THE DESIGN DELIVERABLE PROCESS, THIS WILL BE INCORPORATED IN THE NEXT ITERATION.

EXISTING STORMWATER KERB INLET PIT. CL413.95 IL412.90

EXISTING STORMWATER PIPE TO BE RE-ROUTED AND CONNECTED INTO DOWNSTREAM STORMWATER SYSTEM

TW 413.30 BW 412.90

EXISTING STORMWATER PIPE TO BE RE-ROUTED AND CONNECTED INTO DOWNSTREAM STORMWATER PIT. MAKE GOOD CONNECTION TO EXISTING STORMWATER PIT (IL411.00)

ON SITE DETENTION TANK 22.5m³

PROPOSED GABION WALL TO STRUCTURAL ENGINEER'S DETAIL

200mm WIDE SPOON DRAIN AS SHOWN AROUND EXTENTS OF BATTER

PROPOSED STORMWATER OVERFLOW LINE TO BYPASS ON-SITE DETENTION SYSTEM AND CONNECT INTO THE EXISTING STORMWATER NETWORK DOWNSTREAM

FFL 413.00

OSD

TW 415.90 BW 413.70

TW 414.40 BW 413.70

TW 413.60 BW 413.00

TW 413.90 BW 412.90

TW 414.70 BW 413.70

TW 414.00 BW 413.00

USIL 412.38 Ø150 uPVC 1.0 % 50.3 m DSIL 411.88

450x450 CLASS B GRATE AND FRAME STORMWATER PIT. CL412.89 PIT DEPTH APPROX 400mm

450x450 CLASS B GRATE AND FRAME STORMWATER PIT. CL412.81 PIT DEPTH APPROX 400mm

200mm WIDE GRATED DRAIN. COVER LEVEL = 412.95. DRAIN DEPTH = 150mm WITH INTERNAL DROPPER TO IL412.55

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	17.10.24	JM	GL
B	ISSUE FOR SCHEMATIC DESIGN	22.01.25	DW	GL
C	DD ENGINEERING PUG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client: NSW GOVERNMENT Health Infrastructure

Managing Contractor: capital insight

Architect: architectus™ Conrad Gargett

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH
NSW, 2340

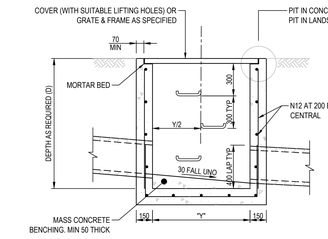
NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
GENERAL ARRANGEMENT PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	1:100

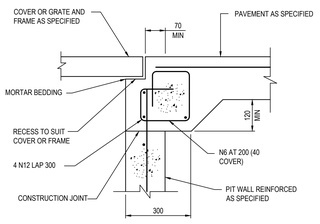
Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000006	D



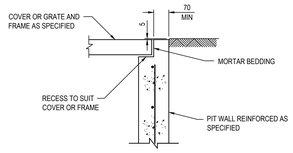
SECTION 1
SCALE 1:20

MINIMUM INTERNAL PIT DIMENSIONS		
"D"	"X"	"Y"
D ⩽600	450	450*
D ⩽900	600	600*
D ⩽1200	600	900
D >1200	900	900

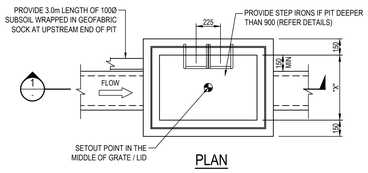
NOTE
PITS DENOTED * SHALL BE USED ONLY WHERE SPECIFIED IN DRAINAGE SCHEDULE OR ON PLAN.



PIT EDGE DETAIL "A"
SCALE 1:10

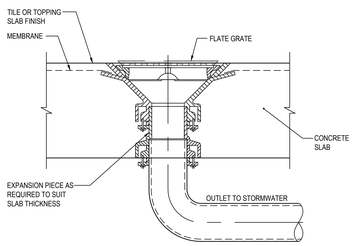


PIT EDGE DETAIL "C"
SCALE 1:10

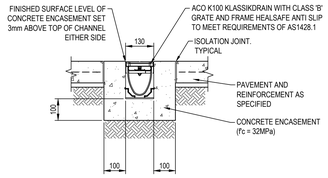


PLAN

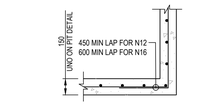
SURFACE INLET/JUNCTION PIT
SCALE 1:20



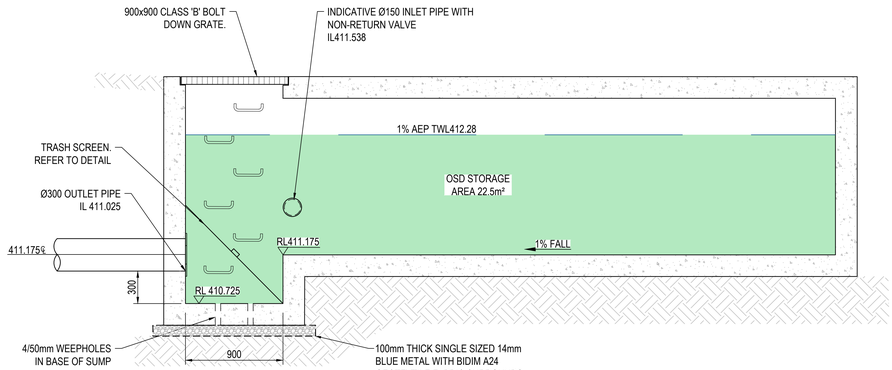
RAINWATER OUTLET DETAIL
N.T.S.



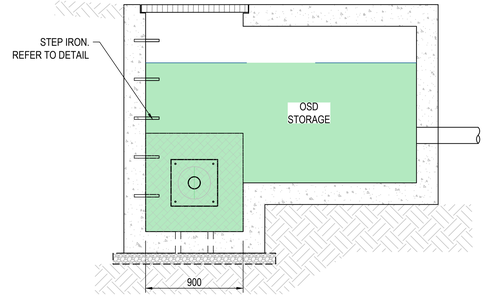
GRATED DRAIN
SCALE 1:10



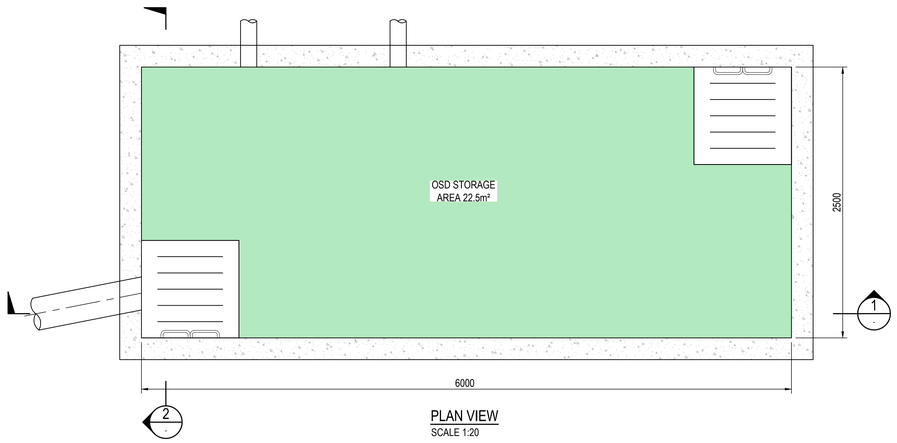
TYPICAL PIT CORNER DETAIL
SCALE 1:20



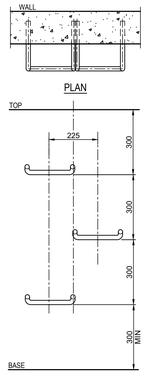
SECTION 1
SCALE = 1:20



SECTION 2
SCALE = 1:20

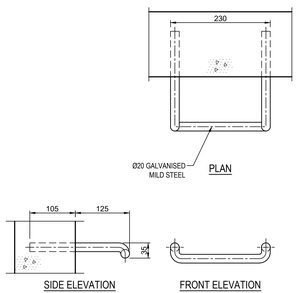


PLAN VIEW
SCALE 1:20

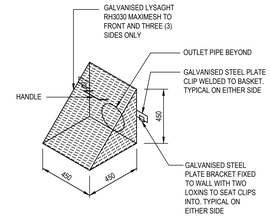


ELEVATION

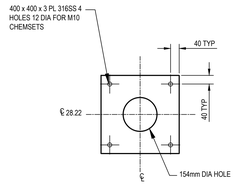
STEP IRON PLACEMENT
SCALE NTS



STEP IRON DETAIL
SCALE NTS



TRASH SCREEN DETAIL
NTS



50% AEP ORIFICE PLATE
SCALE 1:10

Issue	Description	Date	Drawn	Approved
A	DRAFT SCHEMATIC DESIGN	17.10.24	JM	GL
B	ISSUE FOR SCHEMATIC DESIGN	22.01.25	DW	GL
C	DD ENGINEERING PUG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client
NSW GOVERNMENT Health Infrastructure

Managing Contractor
capital insight

Architect
architectus
Conrad Gargett

Project
WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL
DEAN STREET, NORTH TAMWORTH
NSW, 2340

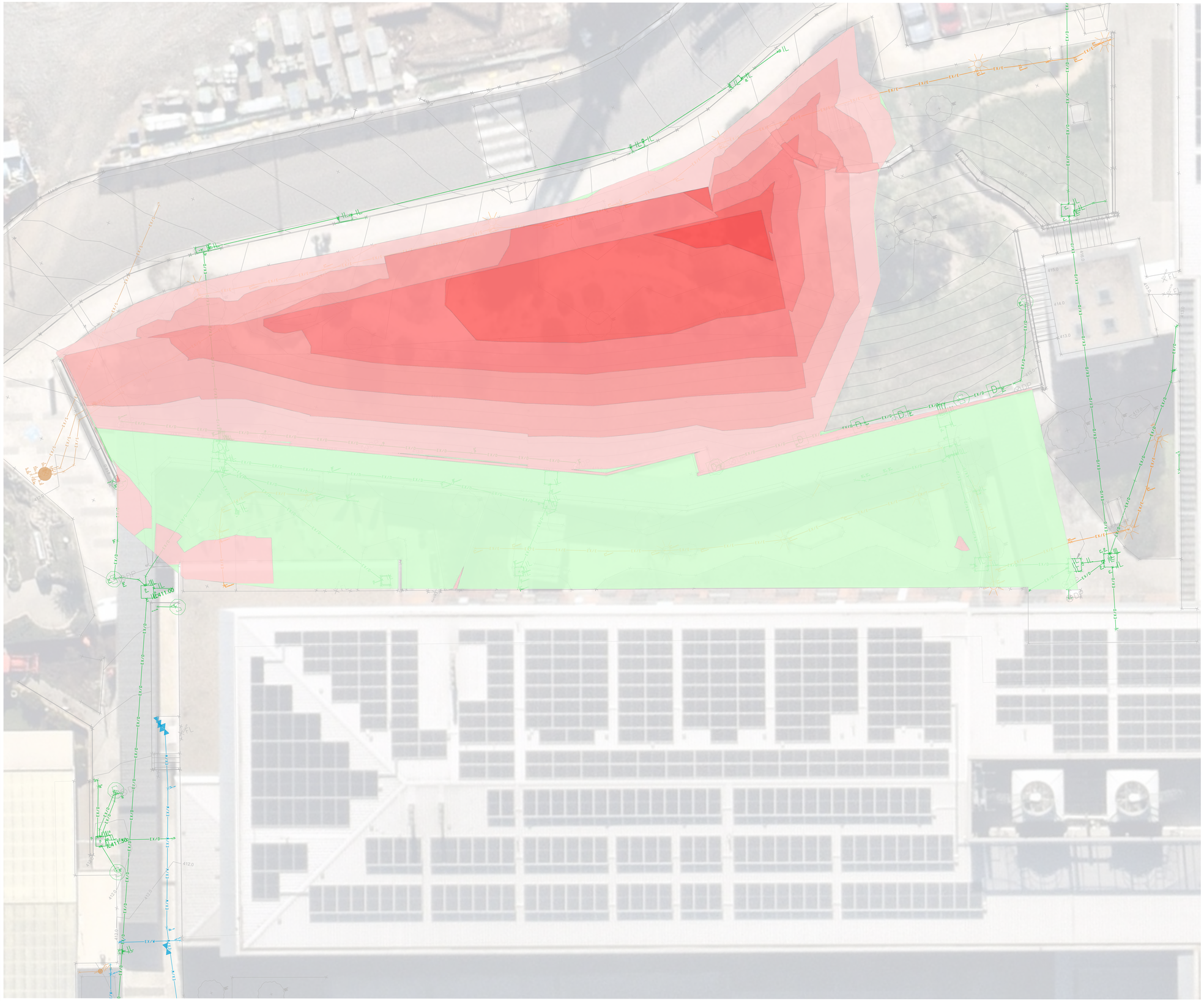
NOT FOR CONSTRUCTION

ACOR CONSULTANTS
ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
TYPICAL DETAILS

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	AS SHOWN

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000007	D



NOTE: ALL EARTHWORKS QUANTITIES ARE THEORETICAL AND INDICATIVE ONLY, BASED UPON BANKED VOLUMES WITH NO ALLOWANCE FOR BULKING FACTORS. CONTRACTOR TO MAKE THEIR OWN ASSESSMENT OF EARTHWORKS QUANTITIES

CUT / FILL QUANTITIES	
TOTAL CUT	-1,245m³
TOTAL FILL	135m³
TOTAL BALANCE	-1,110m³ (CUT)

EARTHWORKS CUT AND FILL NOTES:

1. BULKING AND COMPACTION FACTORS HAVE NOT BEEN APPLIED TO THE CUT AND FILL QUANTITIES.
2. DETAILED BULKING AND CUT / FILL QUANTITIES FOR STRIP TOPSOIL, FOOTINGS, PAVEMENT BOXING, TRENCHING AND THE LIKE HAS NOT BEEN INCLUDED IN THE CUT AND FILL ASSESSMENT.
3. NO ALLOWANCE FOR TOPSOIL AND FRIABLE SOIL LAYERS HAS BEEN ALLOWED FOR IN LANDSCAPED AREAS. REUSE OF STRIPPED TOPSOIL HAS BEEN ASSUMED.
4. ALL TOPSOIL SHALL BE RETAINED ON THE DEVELOPMENT SITE AND UTILISED EFFECTIVELY TO ENCOURAGE APPROPRIATE RE-VEGETATION.
5. NO ALLOWANCE HAS BEEN MADE TO QUANTIFY ROCK EXCAVATION. CONTRACTOR TO ENSURE APPROPRIATE ALLOWANCES FOR EXCAVATION IN ROCK, CRUSHING AND REUSE ON SITE AND/OR DISPOSAL OFF SITE.

Issue	Description	Date	Drawn	Approved
A	NOT ISSUED	-	-	-
B	ISSUE FOR SCHEMATIC DESIGN	12.11.24	DW	GL
C	DD ENGINEERING PUG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus
Conrad Gargett

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH TAMWORTH
NSW, 2340

NOT FOR CONSTRUCTION

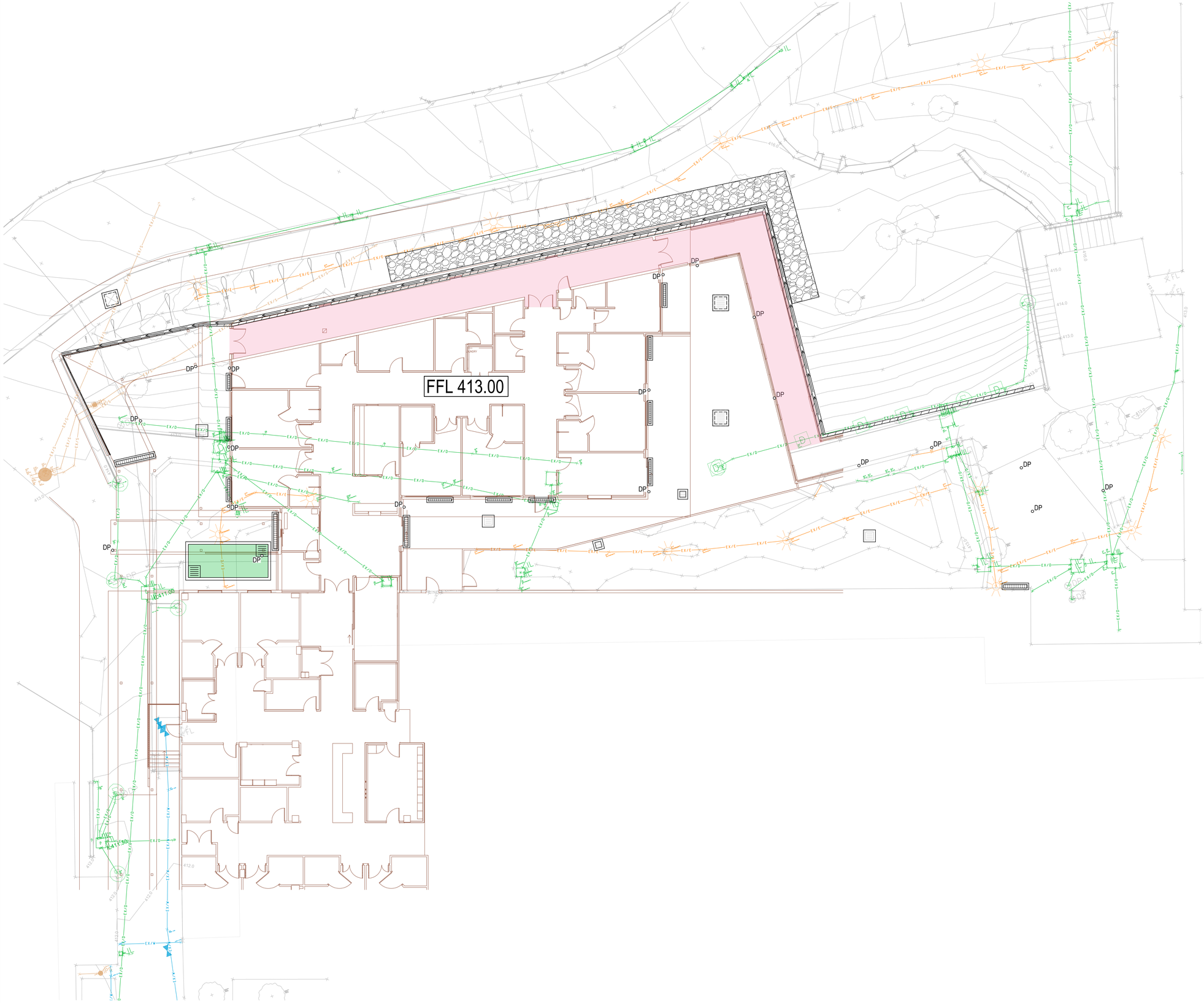
ACOR CONSULTANTS

ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
BULK EARTHWORKS PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	1:100

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000008	D



Issue	Description	Date	Drawn	Approved
A	NOT ISSUED	-	-	-
B	NOT ISSUED	-	-	-
C	DD ENGINEERING PUG 2 PRESENTATION	17.02.25	RP	GL
D	DRAFT DESIGN DEVELOPMENT	07.03.25	RP	GL

Drawing Key

PRINT IN COLOUR

North

Scale

Client

NSW GOVERNMENT Health Infrastructure

Managing Contractor

capital insight

Architect

architectus™
Conrad Gargett

Project

WORLD CLASS END OF LIFE PROGRAM
TAMWORTH HOSPITAL

DEAN STREET, NORTH TAMWORTH
NSW, 2340

NOT FOR CONSTRUCTION

ACOR CONSULTANTS

ACOR Consultants Pty Ltd
Suite 2, Level 1, 33 Herbert Street
St Leonards NSW 2065
T +61 2 9438 5098

Drawing Title
CIVIL SERVICES
PAVEMENT PLAN

Drawn	Designed	Q.A. Check	Date	Scale @ A0
JM	GL	GL	07.03.25	1:100

Project No.	Drawing No.	Issue
NA230258	WCP-ACR-DRW-CIV-TAM-01A-0000009	D