

Muswellbrook Hospital Redevelopment Stage 3 – Community Health

Civil and Stormwater REF Report

Health Infrastructure

February 2024

211992

Rev 4

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**Structural
Civil
Traffic
Facade
Consulting
Engineers**

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1. Executive Summary

Taylor Thomson Whitting (NSW) has been engaged by Health infrastructure to provide civil engineering and stormwater drainage management systems designs for the Muswellbrook Hospital Stage 3 Redevelopment.

The Muswellbrook Hospital Stage 3 Redevelopment consists of:

- Internal alterations and additions to the lower ground level of the hospital's main building
- Associated access and footpath works

This report covers the civil infrastructure and stormwater aspects relevant to the site based on information known at the time of report production.

Civil and stormwater design has been undertaken based on the site layout plans as developed by the site architect (dwp) and the design team, and incorporates the following design principals:

- Civil works, including pedestrian and emergency egress paths.
- Stormwater has been designed to ensure that the requirements of the local Council (Muswellbrook Shire Council) are met, that stormwater discharges from the site are not changed or detrimental to the surrounding areas, and that the site is accessible in minor and major rainfall events and is operational in extreme rainfall events.

2. Introduction

TTW were engaged to provide civil and structural engineering consulting services on the Muswellbrook Hospital Redevelopment (MHR) – Stage 3 project. The Stage 3 redevelopment includes the fit-out and refurbishment of the lower ground floor existing Stage 2 building (completed in 2019). The new fitout will house inpatient units, palliative care units, maternity inpatient units and birthing suites.

The proposed development is in accordance with:

- the architectural drawings prepared by dwp
- Site Survey 190809-DET-001-A by adw johnson
- Muswellbrook Local Environmental Plan (LEP) 2009
- Muswellbrook Shire Council Development Control Plan (DCP) 2020

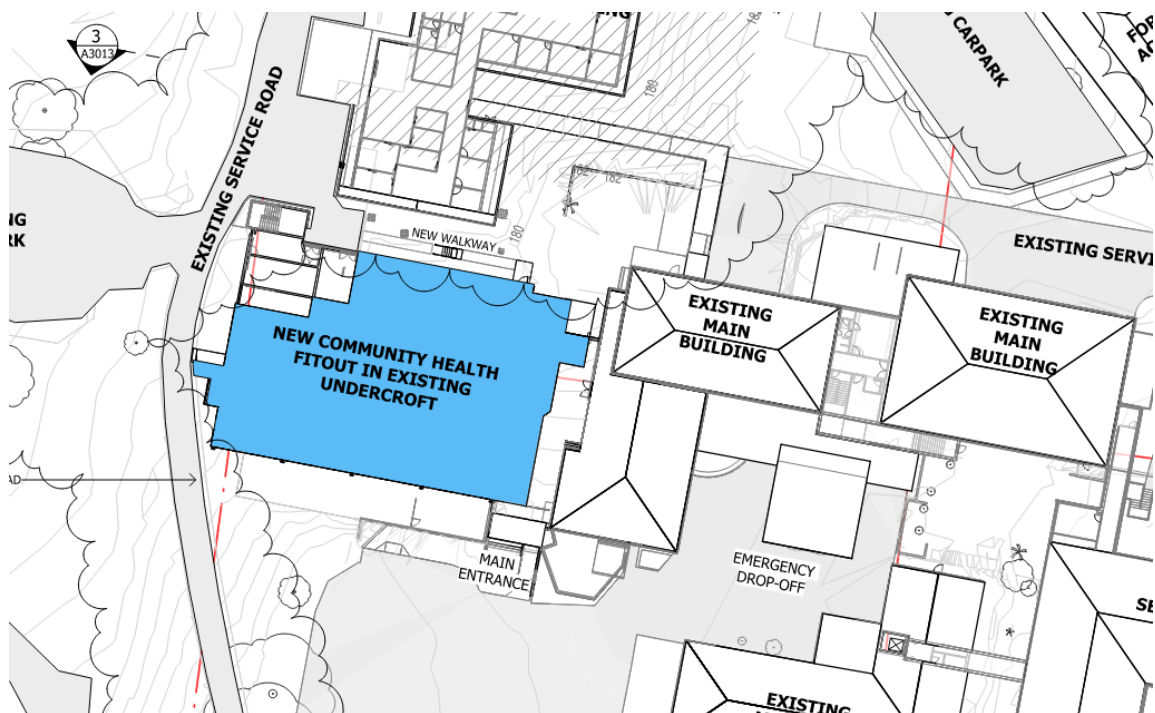


FIGURE 1.1 - Muswellbrook Hospital Stage 3 Location Plan (dwp)

3. Site

Muswellbrook Hospital is proposed on Lot 28 and 27, DP752484, Brentwood Street, Muswellbrook NSW 2333 and falls within the Muswellbrook Council Local Government Area (LGA). The location of the proposed site is shown in Figure 2.1.

The Muswellbrook Hospital is part of the Hunter New England LHD. It has an Emergency Department, Maternity Unit, and is also used for Day Procedures amongst other services. There is currently a separate Community Health Building. The hospital was established in 1919 and the current buildings on site vary in age from 60 years old to 5 years old. The hospital has expanded over time and has undergone several refurbishment projects. The current hospital has an on-grade carpark and an external helipad.

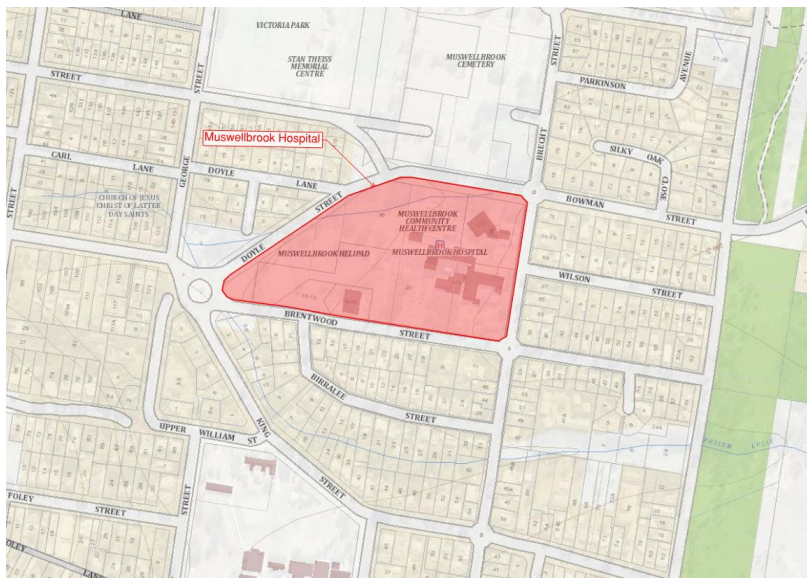


Figure 2.1 Locality Plan (SIX Maps)

During 2015 to 2019, as part of Stage 2 of the redevelopment a new building was built on site and it now houses a medical imaging department, oral health and day stay unit. TTW were engaged to provide civil and structural engineering consulting services on the Muswellbrook Hospital Redevelopment (MHR) – Stage 3 project. The Stage 3 redevelopment includes the fit-out and refurbishment of the existing Stage 2 building (completed in 2019) and minor external footpath works.

3.1 Site Constraints

The major constraints identified include:

- Proximity of existing buildings and services,
- The presence of in-ground services between the existing stage 2 building and the Weildman Wing Building.
- Mapped watercourse on the northern boundary, and a significant upstream catchment that discharges past the site.

3.2 Geotechnical Report and Ground Conditions

There is no bulk excavation or earthworks proposed with all works contained within the existing building footprint.

4. Stormwater

Muswellbrook Shire Councils Development Control Plan (DCP) and Manual of Engineering Standards define the requirements for the control, treatment and discharge of stormwater from development sites within the Council area. This DCP, along with relevant Australian Standards, and industry guides have been used as the basis for the design of the proposed stormwater system.

The proposed development will not involve any new buildings or additional hardstand areas, and as such no new stormwater systems will be constructed.

4.1 On Site Detention

Muswellbrook Shire Council guidelines state:

Development is to be designed so that runoff from low intensity, common rainfall is equivalent to the runoff from a natural catchment. This can be achieved by intercepting and storing runoff in extended storage detention basins and discharging at pre-development rates.

As there is no new buildings and no increase in site discharge, on site detention is not required to maintain discharges at pre-development rates.

4.2 Sediment, Erosion and Dust Controls

The Muswellbrook Shire Council's DCP objective is to minimise the quantity of soil lost during construction due to land clearing and earthworks as the following requirements are met:

- Limit/minimise the amount of site disturbance.
- Isolate the site by diverting clean upstream 'run-on' water around or through the site where possible.
- Control runoff and sediment movement as its point source rather than at one final point.
- Stage earthworks and progressively revegetate the site where possible to reduce the area contributing sediment. This in turn increases the efficiency and effectiveness of the entire sediment control system while decreasing the number and size of controls required.
- Provide an effective major stormwater system economical in terms of capital, operational and maintenance costs, incorporating water quality controls.
- Retain topsoil for effective revegetation works.
- Locate sediment control structures where they are most effective and efficient.

The Soil and Water Management Plan has been based on providing pit surrounds, siltation fences, straw bale sediment filters, and temporary construction exit, which are provided in the civil drawing set (Appendix A). Stormwater Discharge to Council Stormwater and Local Watercourses

Prepared by
TTW (NSW) PTY LTD



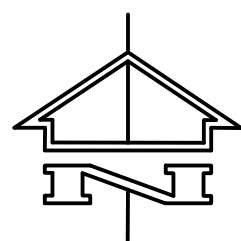
ADRIAN HALL
Associate

Appendix A – Civil Design Drawings

MUSWELLBROOK HOSPITAL

STAGE 3 - REDEVELOPMENT

CIVIL WORKS



LOCALITY PLAN
SCALE NTS

DRAWING SHEET LIST	
DRAWING NO.	DRAWING TITLE
CI-MW-A-01000	COVER SHEET
CI-MW-A-01001	NOTES & LEGEND SHEET
CI-MW-A-01002	SURVEY & SERVICES PLAN
CI-MW-A-01003	EROSION & SEDIMENT CONTROL PLAN
CI-MW-A-01005	SITEWORKS & STORMWATER PLAN

Filename: C:\JH-A-01000 COVER SHEET.dwg USER: jwhs - Plot File Created: Mar 05, 2024 - 10:39am

P4	SCHEMATIC DESIGN	AH	ENS	05.03.24					
P4	SCHEMATIC DESIGN	AH	JW	18.08.23					
P3	30% DO	AH	JW	05.09.22					
P2	SCHEMATIC DESIGN	AH	JW	02.09.22					
P1	DRAFT	AH	JW	09.08.22					
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date

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Project
MUSWELLBROOK HOSPITAL
STAGE 3 REDEVELOPMENT

Sheet Subject
COVER SHEET

SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION

Scale : A1
JW

Drawn
JW

Authorised
SB

Job No
211992

Drawing No
CI-MW-A-01000

Revision
P4

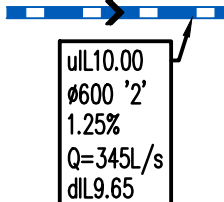
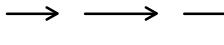
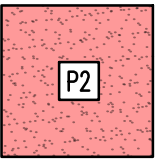
Plot File Created: Mar 05, 2024 - 10:39am

GENERAL NOTES				
1. Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the SUPERINTENDENT. 2. Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise. 3. Make smooth connection with all existing works. 4. Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building footprint. 5. All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority, the Contractor is to ensure that the drawings used for construction have been approved by all relevant authorities prior to commencement site. 6. All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. The Contractor shall obtain these requirements from the Authority. Where the requirements of the Authority are different to the drawings and specifications, the requirements of the Authority shall be applicable. 7. For all temporary batters refer to geotechnical recommendations.				
REFERENCE DRAWINGS				
1. These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.				
Consultant	Dwg Title	Dwg No	Rev	Date
DWP	ARCH SITE PLAN	A1040	K	19.08.22
ADW JOHNSON	SURVEY	DET-001	A	21.04.22
SURVEY AND SERVICES INFORMATION				
SURVEY				
Origin of levels : PM 34527				
Datum of levels : A.H.D. AUSTRALIAN HEIGHT DATUM				
Coordinate system : MGA				
Survey prepared by : ADW JOHNSON				
Setout Points : CONTACT THE SURVEYOR				
Taylor Thomson Whitting does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause whatsoever.				
UNDERGROUND SERVICES - WARNING				
The locations of underground services shown on Taylor Thomson Whittings drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities own use and may not necessarily be updated or accurate.				
The position of services as recorded by the authority at the time of installation may not reflect changes in the physical environment subsequent to installation.				
Taylor Thomson Whitting does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies in the services information shown from any cause whatsoever.				
The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Superintendent.				
The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to; State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.				
Taylor Thomson Whitting plans do not indicate the presence of any survey mark. The contractor is to undertake their own search.				
BOUNDARY AND EASEMENT NOTE				
The property boundary and easement locations shown on Taylor Thomson Whitting drawing's have been based from information received from : No boundary information received.				
Refer surveyor for boundary information and locations				
Taylor Thomson Whitting makes no guarantees that the boundary or easement information shown is correct.				
Taylor Thomson Whitting will accept no liabilities for boundary inaccuracies. The contractor/builder is advised to check/confirm all boundaries in relation to all proposed work prior to the commencement of construction. Boundary inaccuracies found are to be reported to the superintendent prior to construction starting.				

STORMWATER DRAINAGE NOTES	
1 Stormwater Design Criteria : (A) Average exceedance probability – 1% AEP for roof drainage to first external pit 10% AEP for paved and landscaped areas (B) Rainfall intensities – Time of concentration: 5 minutes 1% AEP = 193.2 mm/hr 10% AEP = 123.6 mm/hr (C) Rainfall losses – Imperious areas: IL = 1.5 mm , CL = 0 mm/hr Pervious areas: IL =24.5 mm , CL =0.64 mm/hr	
2. Pipes 300 dia and larger to be reinforced concrete Class *2* approved spigot and socket with rubber ring joints U.N.O. 3. Pipes up to 300 dia may be sewer grade uPVC with solvent welded joints, subject to approval by the engineer 4. Equivalent strength VCP or FRP pipes may be used subject to approval. 5. Precast pits may be used external to the building subject to approval by Muswellbrook shire council. 6. Enlargers, connections and junctions to be manufactured fittings where pipes are less than 300 dia. 7. Where subsoll drains pass under floor slabs and vehicular pavements, unslopped uPVC sewer grade pipe is to be used. 8. Grates and covers shall conform with AS 3996–2006, and AS 1428.1 for access requirements. 9. Pipes are to be installed in accordance with AS 3725. All bedding to be type H2 U.N.O. 10. Care is to be taken with invert levels of stormwater lines. Grades shown are not to be reduced without approval. 11. All stormwater pipes to be 150 dia at 1.0% min fall U.N.O. 12. Subsoil drains to be slotted flexible uPVC U.N.O. 13. Adopt invert levels for pipe installation (grades shown are only nominal).	
SITEWORKS NOTES	
1. Drainage trenches within road reserves to be backfilled with clean sharp sand. 2. All backfillings are to comply with Australian standards. 3. All trench backfill material shall be compacted to the same density as the adjacent material. 4. All service trenches under vehicular pavements shall be backfilled with an approved select material and compacted to a minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1	
CONCRETE FINISHING NOTES	
1. All exposed concrete pavements are to be broomed finished. 2. All edges of the concrete pavement including keyed and doweled joints are to be finished with an edging tool. 3. Concrete pavements with grades greater than 10 % shall be heavily broomed finished. 4. Carbonandum to be added to all stair treads and ramped crossings U.N.O.	

EROSION AND SEDIMENT CONTROL NOTES	
1. All work shall be generally carried out in accordance with (A) Local authority requirements, (B) EPA – Pollution control manual for urban stormwater, (C) LANDCOM NSW – Managing Urban Stormwater: Soils and Construction ("Blue Book"). 2. Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses. 3. Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority. 4. When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits. 5. Minimise the area of site being disturbed at any one time. 6. Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses. 7. All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions. 8. Control water from upstream of the site such that it does not enter the disturbed site. 9. All construction vehicles shall enter and exit the site via the temporary construction entry/exit. 10. All vehicles leaving the site shall be cleaned and inspected before leaving. 11. Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event. 12. Clean out all erosion and sediment control devices after each storm event.	
Sequence Of Works	
1. Prior to commencement of excavation the following soil management devices must be installed. 2. Construct silt fences below the site and across all potential runoff sites. 3. Construct temporary construction entry/exit and divert runoff to suitable control systems. 4. Construct measures to divert upstream flows into existing stormwater system. 5. Construct sedimentation traps/basin including outlet control and overflow. 6. Construct turf lined swales. 7. Provide sandbag sediment traps upstream of existing pits. 8. Construct geotextile filter pit surround around all proposed pits as they are constructed. 9. On completion of pavement provide sand bag kerb inlet sediment traps around pits. 10. Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.	
WATER QUALITY TESTING REQUIREMENTS	
Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:	
- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) - If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.	

SAFETY IN DESIGN	
Contractor to refer to Appendix B of the Civil Specification for the Civil Risk and Solutions Register.	
EXISTING SERVICES	
Contractor to be aware existing services are located within the site. Location of all services to be verified by the Contractor prior to commencing works. Contractor to confirm with relevant authority regarding measures to be taken to ensure services are protected or procedures are in place to demolish and/or relocate.	
EXISTING STRUCTURES	
Contractor to be aware existing structures may exist within the site. To prevent damage to existing structure(s) and/or personnel, site works to be carried out as far as practicable possible from existing structure(s).	
EXISTING TREES	
Contractor to be aware existing trees exist within the site which need to be protected. To prevent damage to trees and/or personnel, site works to be carried out as far as practicable possible from existing trees. Advice needs to be sought from Arborist and/or Landscape Architect on measures required to protect trees.	
GROUNDWATER	
Contractor to be aware ground water levels are close to existing surface level. Temporary de-watering may be required during construction works.	
EXCAVATIONS	
Deep excavations due to stormwater drainage works is required. Contractor to ensure safe working procedures are in place for works. All excavations to be fenced off and batters adequately supported to approval of Geotechnical Engineer.	
GROUND CONDITIONS	
Contractor to be aware of the site geotechnical conditions. Refer to geotechnical report by JK Geotechnics (ref.33438Arpt dated 7.10.20) for details.	
HAZARDOUS MATERIALS	
Existing asbestos products & contaminated material may be present on site. Contractor to ensure all hazardous materials are identified prior to commencing works. Safe working practices as per relevant authority to be adopted and appropriate PPE to be used when handling all hazardous materials. Refer to geotechnical/environmental report by JK Geotechnics (ref.33438Arpt dated 7.10.20) for details.	
CONFINED SPACES	
Contractor to be aware of potential hazards due to working in confined spaces such as stormwater pits, trenches and/or tanks. Contractor to provide safe working methods and use appropriate PPE when entering confined spaces.	
MANUAL HANDLING	
Contractor to be aware manual handling may be required during construction. Contractor to take appropriate measures to ensure manual handling procedures and assessments are in place prior to commencing works.	
WATER POLLUTION	
Contractor to ensure appropriate measures are taken to prevent pollutants from construction works contaminating the surrounding environment.	
SITE ACCESS/EGRESS	
Contractor to be aware site works occur in close proximity to footpaths and roadways. Contractor to erect appropriate barriers and signage to protect site personnel and public.	
VEHICLE MOVEMENT	
Contractor to supply and comply with traffic management plan and provide adequate site traffic control including a certified traffic marshal to supervise vehicle movements where necessary.	

FINISHED SURFACE LEGEND	
× F22.20	FINISHED SURFACE LEVEL
-----22.50-----	MAJOR FINISHED SURFACE CONTOUR 0.5m INTERVAL
-----22.10-----	MINOR FINISHED SURFACE CONTOUR 0.1m INTERVAL
KERBS LEGEND	
=====KG=====	KERB AND GUTTER
=====KO=====	KERB ONLY
=====DD=====	DISH DRAIN
	PEDESTRIAN KERB RAMP
	TAPER KERB TO ZERO HEIGHT OVER 1.0m
STORMWATER LEGEND	
	EXISTING STORMWATER PIPE
	STORMWATER PIPE, FLOW DIRECTION
	STORMWATER PIPE, FLOW DIRECTION UPSTREAM PIPE INVERT LEVEL PIPE SIZE AND STRENGTH CLASS PIPE GRADIENT PEAK DESIGN FLOW DOWNSTREAM PIPE INVERT LEVEL
	JUNCTION PIT
	GRATED INLET PIT
	SAG KERB INLET PIT
	CONCRETE HEADWALL
	GROSS POLLUTANT TRAP
	GRATED DRAIN
	SLOT DRAIN
	SUBSOIL DRAINAGE LINE, #100mm U.N.O.
	FLUSHING POINT
	INTERMEDIATE RISER
	GRASS CATCH DRAIN
	OVERLAND FLOW PATH
EXISTING SERVICES LEGEND	
	EXISTING OVERHEAD ELECTRICAL
	EXISTING UNDERGROUND ELECTRICAL
	EXISTING GAS
	EXISTING TELECOMMUNICATIONS
	EXISTING SEWER
	EXISTING WATER
	EXISTING STORMWATER
PAVEMENT LEGEND	
	CONCRETE PEDESTRIAN PAVEMENT 100mm thickness concrete (f _c = 25MPa) with SL72 fabric mesh (40 cover) on 100mm compacted thickness fine crushed rock (D6&20) on Compacted subgrade to min 3.5% CBR from geotech report

WORKS NEAR EXISTING SERVICES
ALL EXISTING UNDERGROUND SERVICES ARE TO BE LOCATED ON SITE PRIOR TO COMMENCING WORKS

WORKS NEAR EXISTING TREES
PRECAUTIONS ARE TO BE UNDERTAKEN TO ENSURE EXISTING TREES IN THE VICINITY OF WORKS ARE NOT DAMAGED DURING CONSTRUCTION ACTIVITIES

CIVIL SPECIFICATIONS
DRAWINGS TO BE READ IN CONJUNCTION WITH THE CIVIL SPECIFICATION. REFER APPENDIX A FOR INSPECTION HOLD POINTS

HIGH PRESSURE GAS MAIN
PRECAUTIONS ARE TO BE UNDERTAKEN TO ENSURE HIGH PRESSURE GAS MAIN IN THE VICINITY OF WORKS IS NOT DAMAGED DURING CONSTRUCTION ACTIVITIES.
LIAISE WITH THE ASSET OWNER AS REQUIRED

HIGH VOLTAGE ELECTRICAL CABLE
PRECAUTIONS ARE TO BE UNDERTAKEN TO ENSURE HIGH VOLTAGE CABLE IN THE VICINITY OF WORKS IS NOT DAMAGED DURING CONSTRUCTION ACTIVITIES.
LIAISE WITH ASSET OWNER AS REQUIRED

EXISTING STORMWATER ASSETS
SIZE, INVERT LEVEL AND CONDITION OF ALL AFFECTED EXISTING STORMWATER ASSETS TO BE CONFIRMED PRIOR TO COMMENCING WORKS

THIS DRAWING MUST
BE PRINTED IN
COLOUR

NOTE: DRAWINGS TO BE READ IN CONJUNCTION WITH THE CIVIL SPECIFICATION

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Engineer
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Project
MUSWELLBROOK HOSPITAL
STAGE 3 REDEVELOPMENT

Sheet Subject
NOTES & LEGEND
SHEET

Scale : A1
JW

Drawn
JW

Authorised
SB

Job No
211992

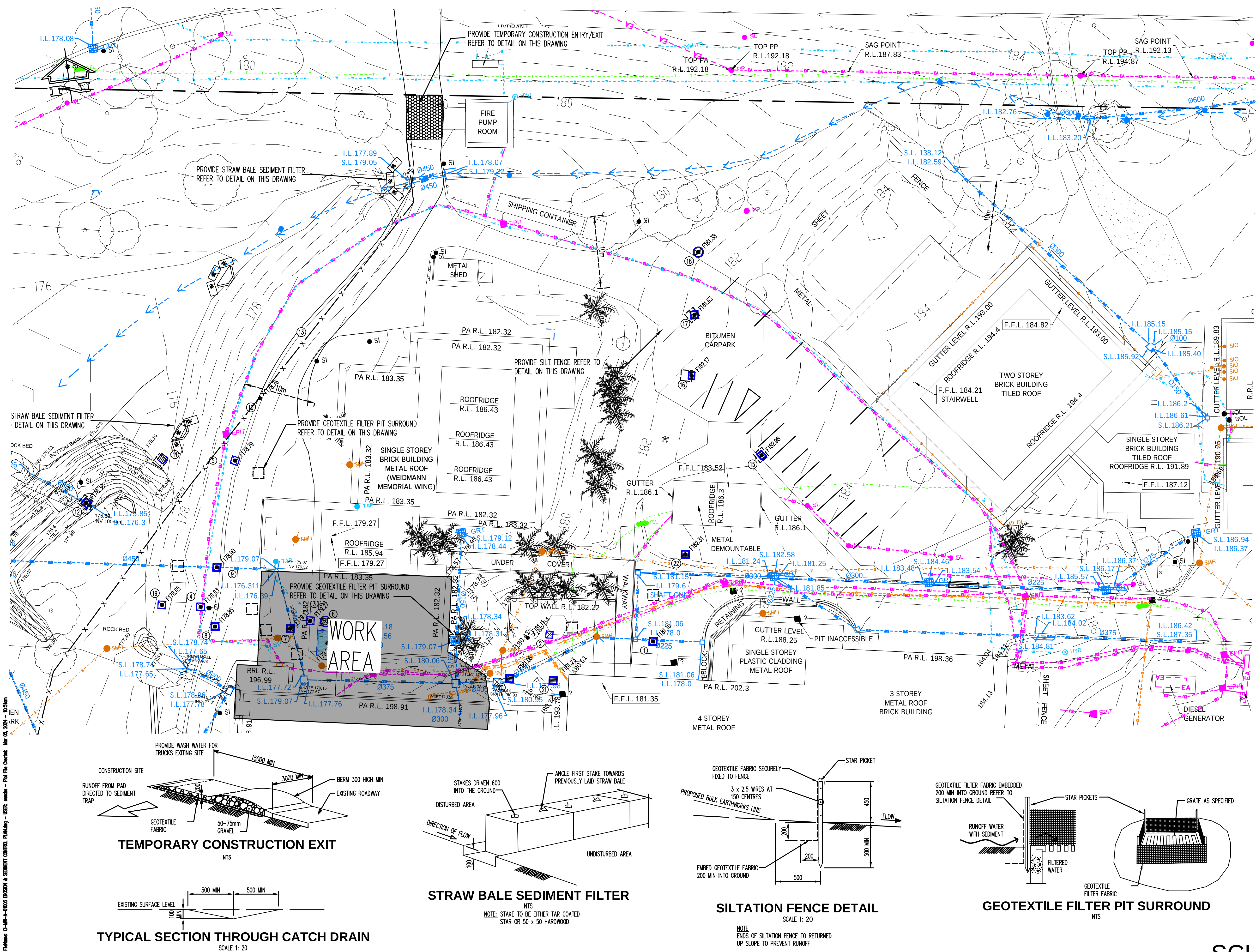
Drawing No
CI-MW-A-01001

Revision
P4

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SCHEMATIC DESIGN

NOT TO BE USED FOR CONSTRUCTION



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EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with:
(A) Local authority requirements,
(B) EPA - Pollution control manual for urban stormwater,
(C) LANDCOM NSW - Managing Urban Stormwater: Soils and Construction ("Blue Book").
- Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around open pits.
- Minimise the area of site being disturbed at any one time.
- Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
- All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
- Control water from upstream of the site such that it does not enter the disturbed site.
- All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
- All vehicles leaving the site shall be cleaned and inspected before leaving.
- Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
- Clean out all erosion and sediment control devices after each storm event.

- Prior to commencement of excavation the following soil management devices must be installed.
 - Construct silt fences below the site and across all potential runoff sites.
 - Construct temporary construction entry/exit and divert runoff to suitable control systems.
 - Construct measures to divert upstream flows into existing stormwater system.
 - Construct sedimentation traps/basin including outlet control and overflow.
 - Construct turf lined swales.
 - Provide sandbag sediment traps upstream of existing pits.
- Construct geotextile filter pit surround around all proposed pits as they are constructed.
- On completion of pavement provide sand bag kerb inlet sediment traps around pits.
- Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre gypsum gas or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hole ball sediment filter in a way that does not pick up sediment that has dropped to the bottom. Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.

EROSION AND SEDIMENT CONTROL LEGEND

	Batter
	Siltation fence
	Stormwater pit with Geotextile filter surround
	Hay bale barriers
	Sandbag sediment trap
	Catch drain
	Overland flow path

SCHEMATIC DESIGN NOT TO BE USED FOR CONSTRUCTION

P5	SCHEMATIC DESIGN	AH	ENS	05.03.24					
P5	SCHEMATIC DESIGN	AH	JW	18.08.23					
P4	30% DD	AH	JW	20.10.22					
P3	30% DD	AH	JW	05.09.22					
P2	SCHEMATIC DESIGN	AH	JW	02.09.22					
P1	DRAFT	AH	JW	09.08.22					
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date

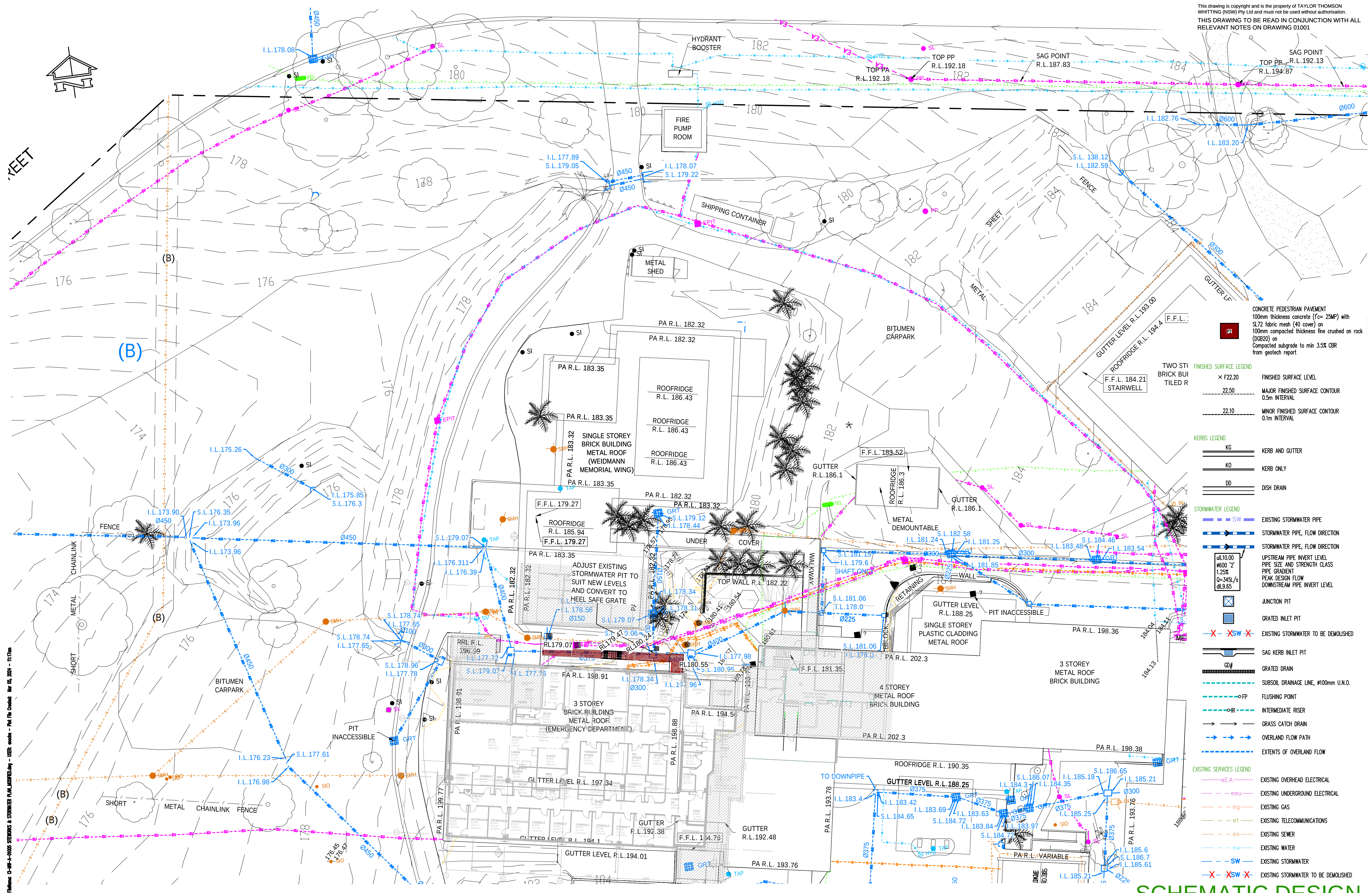
Architect
EJE Architecture
412 KING STREET, NEW CASTLE NSW 2300

Engineer
TTW Structural Civil Traffic Façade
612 9439 7288 | Level 6, 73 Miller Street, North Sydney, NSW 2060

Project
MUSWELLBROOK HOSPITAL
STAGE 3 REDEVELOPMENT

Sheet Subject
EROSION & SEDIMENT
CONTROL PLAN

Scale: A1
1:250
Job No: 211992
Drawing No: CI-MW-A-01003
Revision: P5
Plot File Created: Mar 05, 2024 - 10:51am



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**THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL
RELEVANT NOTES ON DRAWING 01001**

P2

CONCRETE PEDESTRIAN PAVEMENT
100mm thickness concrete ($f_c = 25\text{MPa}$) with
SL72 fabric mesh (40 cover) on
100mm compacted thickness fine crushed on rock
(DGB20) on
Compacted subgrade to min 3.5% CBR
from geotech report

FINISHED SURFACE LEGEND

× F22.20	FINISHED SURFACE LEVEL
----- 22.50 -----	MAJOR FINISHED SURFACE CONTOUR 0.5m INTERVAL
===== 22.10 =====	MINOR FINISHED SURFACE CONTOUR

KERBS LEGEND

	KERB AND GUTTER
	KERB ONLY
	DISH DRAIN

STORMWATER LEGEND

	EXISTING STORMWATER PIPE
	STORMWATER PIPE, FLOW DIRECTION
 u/L1.00 #600 "2" 1.25% Q=345L/s d/L9.65	STORMWATER PIPE, FLOW DIRECTION UPSTREAM PIPE INVERT LEVEL PIPE SIZE AND STRENGTH CLASS PIPE GRADIENT PEAK DESIGN FLOW DOWNSTREAM PIPE INVERT LEVEL
	JUNCTION PIT
	GRATED INLET PIT
	EXISTING STORMWATER TO BE DEMOLISHED
 GD	SAG KERB INLET PIT GRATED DRAIN
	SUBSOIL DRAINAGE LINE, #100mm U.N.O.
	FLUSHING POINT
	INTERMEDIATE RISER
	GRASS CATCH DRAIN
	OVERLAND FLOW PATH
	EXTENTS OF OVERLAND FLOW

EXISTING SERVICES LEGEND

	EXISTING OVERHEAD ELECTRICAL
	EXISTING UNDERGROUND ELECTRICAL
	EXISTING GAS
	EXISTING TELECOMMUNICATIONS
	EXISTING SEWER
	EXISTING WATER
	EXISTING STORMWATER
	EXISTING STORMWATER TO BE DEMOLISHED

SCHEMATIC DESIGN

NOT TO BE USED FOR CONSTRUCTION

[illegible]

Architect
EJE Architecture
412 KING STREET, NEW CASTLE NSW 2300

Engineer

TTW **Structural
Civil
Traffic
Façade**

612 9439 7288 | Level 6, 73 Miller Street, North Sydney, NSW 2060

Project	MUSWELLBROOK HOSPITAL STAGE 3 REDEVELOPMENT
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Sheet Subject

SITEWORKS & STORMWATER PLAN

Job No	Drawing No	Revision
211992	CI-MW-A-01005	P7
Plot File Created: Mar 05, 2024 - 11:17am		

5-Mar-24 09:05 STEINBERG & STORWATER REAN MOOREEN dms - ISSP- mcrho - Plat Ede Credit Mar 05 2024 - 11:17am