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Date: 12 March 2021

Jim Betts
Planning Secretary
Department of Planning, Industry and Environment
GPO Box 39
Sydney NSW 2001

Dear Jim Betts,

RE: St Matthews Catholic College (SSD 9872): Submission of Construction Environmental Management Plan – Conditions C9

I refer to the St Matthews Catholic College State Significant Development approved on the 16 December 2020.

In accordance with SSD 9872 Development Consent Conditions C9, the Construction Environmental Management Plan (CEMP) and associated sub-plans (Attachment 1) are submitted to the Department of Planning, Industry and Environment.

It is noted that these documents may be periodically updated to respond to the changing project environment; if any such updates are made, the documentation will be resubmitted to the Department as required per the conditions of consent.

Please do not hesitate to contact me should you have any enquiries.

Kind Regards,

Isaac Conway
Assistant Project Manager

TSA
Best for Project

Level 4, 25 Watt Street, Newcastle NSW 2300
M: +61 (0)401 526 236
Isaac.Conway@tsamgt.com
tsamgt.com

Attachment 1 – Construction Environmental Management Plan (CEMP) and associated sub-plans

north

BUILDING WITH TRUST

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Project Name: St Matthews Catholic School Mudgee-Secondary Campus

Project Number: 22110

Address: 48 Broadhead Road, Spring Flat

AUTHORITY FOR USE: This Integrated Management Plan is issued with the authority of the following persons:

Rev #	Date	Senior Project Manager	Construction Manager	Safety Manager	Site Manager	System Administrator
1		Nick Windsor	Tom Longhurst	Howard Elliott		Tom Glynn
2						
Initialed						

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1 SSD COMPLIANCE MATRIXES

CONDITION C9 – CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN COMPLIANCE MATRIX

(i) hours of work;	Please see section 2.1.3 of this document
(ii) 24-hour contact details of site manager;	Please see section 2.1.6 of this document
(iii) management of dust and odour to protect the amenity of the neighbourhood;	Please see section 2.2.12 of this document
(iv) stormwater control and discharge;	Please see appendix 5 section 3.1
(v) measures, including fencing, to prohibit access into the Exclusion Area to prevent construction work impacts	Please see section 2.1.7- builders fencing will close off the Exclusion Area.
(vi) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;	Please see section 2.1.7- cattle grid at exit will mitigate sediment onto roadways.
(vii) external lighting in compliance with AS4282-2019 control of the obtrusive effects of outdoor lighting:	Please see "Light Spill" of this document
(viii) community consultation and complaints handling as set out in Community Communication Strategy required by condition C6	Please see "external & community communication" of this document
(b) Construction Traffic and Pedestrian Management Sub-Plan CTPMSP (see condition C11);	Please see appendix 1
(c) Construction Noise and Vibration Management Sub-Plan CNVMSP (see condition C12);	Please see appendix 2
(d) Construction Waste Management Sub-Plan CWMSP (see condition C13);	Please see appendix 3
(e) Construction Soil and Water Management Sub-Plan CSWMSP (see condition C14);	Please see appendix 4
(f) Construction Flood Emergency Response Sub-Plan FERSP (see condition C15)	Please see appendix 5
(g) Unexpected finds protocol for contamination & associated communications procedure	Please see "Contamination" of this document
(h) Unexpected finds protocol for Aboriginal & non-Aboriginal Heritage	Please see "Aboriginal & European Heritage" of this document

CONDITION C11 – CONSTRUCTION TRAFFIC MANAGEMENT SUB-PLAN COMPLIANCE MATRIX

(a) be prepared by a suitably qualified and experienced person(s);	TTPP – Suitably qualified
(b) be prepared in consultation with Council and TfNSW (RMS);	Consultation in train.
(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;	Please see appendix 1 – CTPMSP. Entire report also covers the requirements of this clause.
(d) detail on- site construction worker parking arrangements	Please see appendix 1- CTPMSP- section 4.6 & 4.7
(e) detail heavy vehicle routes, access and parking arrangements;	Please see appendix 1- CTPMSP- section 4.8, 5.5 & 6.4

CONDITION C12 – CONSTRUCTION NOISE & VIBRATION MANAGEMENT SUB PLAN COMPLIANCE MATRIX

(a) be prepared by a suitably qualified and experienced noise expert;	Prepared in consultation with RAPT Consulting- Suitably qualified
(b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009);	Please see appendix 2 section 2.1 & 2.2
(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;	Please see appendix 2 section 6
(d) include strategies that have been developed with the community for managing high noise generating works;	Please see appendix 2 section 6
(e) describe the community consultation undertaken to develop the strategies in condition C12(d); and	Please see appendix 2 section 6
(f) include a complaints management system that would be implemented for the duration of the construction.	Please see appendix 2 section 7.4
(g) Include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the management measures in accordance with condition C8	Please see appendix 2 section 6

CONDITION C13 – CONSTRUCTION WASTE MANAGEMENT REPORT - COMPLIANCE MATRIX

(a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations;	Please see appendix 3 section 6.1
(b) removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of construction	Please see appendix 3 section 6.1- No hazardous materials will be used during construction.

CONDITION C14 – CONSTRUCTION SOIL & WATER MANAGEMENT SUB PLAN - COMPLIANCE MATRIX

(a) be prepared by a suitably qualified expert, in consultation with Council;	Prepared in Consultation with Triaxial- Suitably Qualified
(b) describe all erosion and sediment controls to be implemented during construction as a minimum, in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the Blue Book	Please see appendix 4 section 3.2
(c) include an Acid Sulfate Soils Management Plan, if required, including measures for the management, handling, treatment and disposal of acid sulfate soils, including monitoring of water quality at acid sulfate soils treatment areas.	Please see appendix 4 section 2.2
(d) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site);	Please see appendix 4 section 3.3
(e) detail all off-Site flows from the Site; and	Please see appendix 4 section 2.1 & drawing C3.0

(f) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 5-year ARI and 1 in 100-year ARI).	Please see appendix 4 section 3.3

CONDITION C15 – FLOOD EMERGENCY RESPONSE SUB-PLAN - COMPLIANCE MATRIX

(a) be prepared by a suitably qualified expert& experienced person	Prepared in consultation with Triaxial- Suitably qualified
(b) address the provisions of the Floodplain Risk Management Guidelines (EESG)	Please see appendix 5 section 2.2
(c) include details of **(I) the flood emergency responses for both construction & operation phases of the development** **(ii) predicted flood levels** **(iii) flood warning time & notification** **(iv) assembly points & evacuation routes** **(v) awareness training for employees & contractors, and students**	Please see appendix 5 Section 3.3, 3.4 & 3.5 Appendices A, B & C Section 3.2 Section 3.3 Appendix A, B & C Appendix A, B & C

2 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

PROJECT DETAILS

St Matthews Catholic School is a brand new School located within Mudgee, the new secondary school will cater for 680 secondary school students year 7-12 and will comprise of a cluster of five low-rise school buildings. Project works include the construction of 5 new school buildings, carparking, bus zone & infrastructure upgrades to roads, water & sewer.

Buildings will be identified as follows;

- Block A – Administration (Professional Hub & offices)
- Block B - Chapel
- Block C – Multi-purpose hall, Music/Drama & canteen)
- Block D – STEM (Science, Art, Technology)
- Block E - General Learning Hubs (General Teaching spaces & Wellness Centre)

2.1.1 Site Location

2.1.2 Programme Details

The works are estimated to commence in March 2021 with an aim to complete construction for occupation of the facility for second half of the School year in 2022

2.1.3 Working Hours

The site will be in operation during the working hours of:

- between 7am and 6pm, Mondays to Fridays inclusive; and
- between 8am and 1pm, Saturdays.

2.1.4 Client

Catholic Education Office, Diocese of Bathurst (ABN TBC)
Address: Gilmour Street, Kelso 2795
Phone: 02 6338 3000

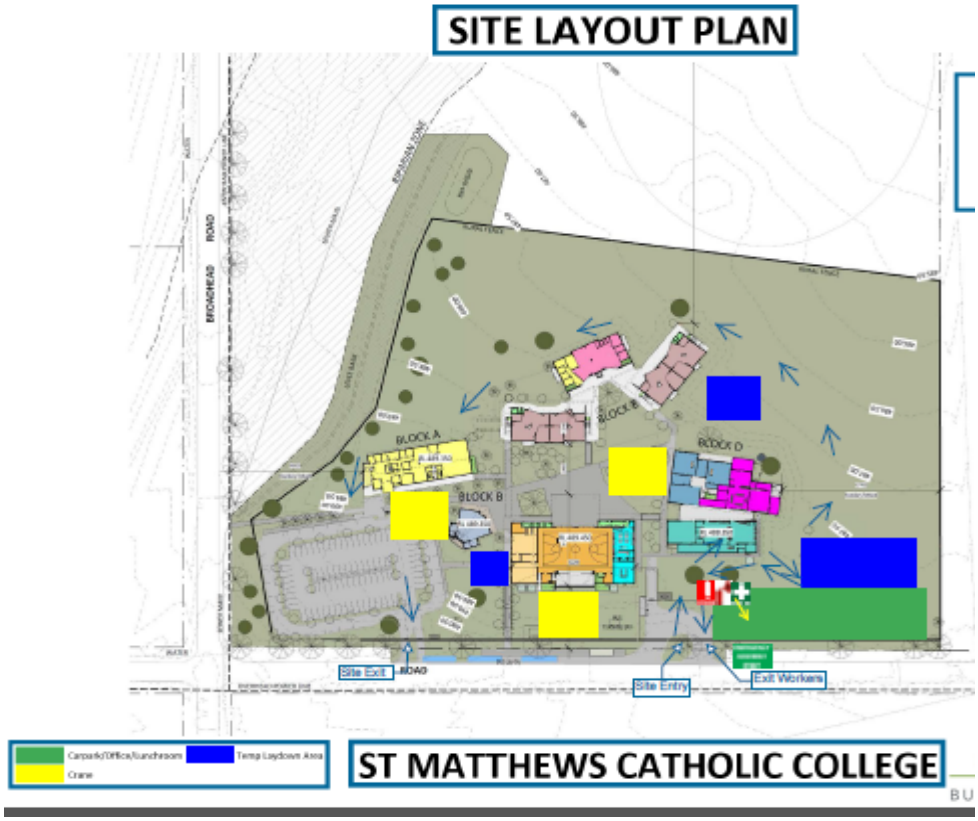
2.1.5 Head Contractor

North Construction & Building Pty Ltd (ABN 15 147 507 702)
Address: Level 5, Suite 501, 1 Bryant Drive, Tuggerah NSW 2259
Phone: 02 4323 2633

2.1.6 24 Hour Site Contact

Nick Windsor 0428 053 481

2.1.7 Site Setup Layout



OBJECTIVES OF THE SITE SPECIFIC PROJECT ENVIRONMENTAL MANAGEMENT PLAN

- Ensure environmental safeguards are implemented correctly;
- Ensure compliance with the requirements of all relevant environmental legislation, conditions of any applicable Licence, approval and permit;
- Ensure that works are managed to reduce adverse impacts on the environment; and
- Ensure all requirements of SSD 9872 are achieve

CONTENT OF THE SITE SPECIFIC PROJECT ENVIRONMENTAL MANAGEMENT PLAN

- This section is the site specific management plan for this project
- assignment of responsibility for planning, approving, implementing, maintaining, assessing and monitoring of environmental controls
- details of the potential environmental effects and the operational control measures which are to be implemented to comply with statutory requirements and provide environmental protection in accordance with the requirements of the Contract
- details of how environmental protection will be maintained for each subcontractor's activities, including full details in accordance with above
- environmental monitoring program and report forms for recording all monitoring activities, including periodic inspections and inspections essential for monitoring high risk events, of the adequacy of operational controls together with measurements for aspects where compliance limits have been specified
- locations of environmental controls and environmentally sensitive areas, with particular reference to how the effectiveness of such controls will be ensured in any environmentally sensitive areas
- how actions will be taken to ensure compliance and improvement issues are controlled and managed
- communication procedures
- emergency response procedures for containing environmental damage and procedures for planning restoration activities
- environmental training and induction program
- details of how the changes to environmental management documentation and data are to be identified and communicated to relevant project personnel
- mechanism for regular evaluation of environmental performance
- Environmental auditing program

RECORDS OF ENVIRONMENTAL ACTIVITIES

Refer to the procedures set out in the PRO023 Control of Records.

TRAINING

The Project Manager and Site Foreman have compiled this document and will be responsible for its implementation. This document will continue to be developed as the project progresses and evolves. Prior to subcontractors starting onsite the Site Foreman will ensure that they have an understanding of their requirements of this plan and will, if required, implement environmental controls into their SWMS. Once the subcontractors enter the site, the site foreman will induct workers to ensure that they are made aware of their requirements under this Plan. The site foreman will monitor compliance with this plan through work inspections, and HSE walks which include SWMS compliance to ensure that the subcontractor's obligations are met.

ENVIRONMENTAL PLAN IMPLEMENTATION

2.1.8 Site Induction & Internal Communication with Workers

Prior to working on site, all personnel and subcontractors will undertake an environmental site induction. This induction will form part of the site specific induction. The induction addresses a range of issues including, but not limited to:

- Legal requirements including due diligence and duty of care.
- Environmental responsibilities.
- Conditions of any licences, permits and approvals.
- The North Environmental Policy.
- Significant environmental issues and sensitive environmental areas of the site.
- Environmental Incident management and reporting process.
- Emergency Response Plans.
- Protection and maintenance of environmental controls.
- Storage location of hazardous materials and SDS Register.
- Finding heritage (Indigenous / Non-Indigenous) items on site.
- Mitigating dust during construction works.
- Environmental control installation must be in place before construction works begins.

2.1.9 Training Records

Records of all training would be kept and maintained on site in accordance with PRO023 Control of Records and should include:

- Who was trained
- When the person was trained
- The name of the trainer
- A general description of the training content

2.1.10 Training

- The Project Manager and Site Foreman will be familiar with the environmental issues raised in the Site Specific Project Environmental Management Plan.
- Relevant environmental issues will be passed onto the subcontractors prior to entering the site and during the site induction;
- If required, regular tool box talks will be scheduled to remind site workers of the environmental issues and their required compliance;
- If there is a change to the Site Specific Project Environmental Management Plan (Section 27 of this document) or environmental requirement, the Contracts Administrator will alert the subcontractors in writing and ensure SWMS are adjusted to suit. Where necessary the Site Supervisor will call a site meeting / tool box talk and alert all relevant site personnel.
- Site induction records of environmental issues will be kept along with minutes from tool box talks / site meetings.

2.1.11 Compliance and Improvement Issues

North Construction will apply non-conformance control and corrective and preventive action procedures in accordance with the quality system to address any environmental management deficiencies. As part of this the detected non-conformance will be reviewed and developed to enable corrective action to eliminate the cause of non-conformities. This would include both the determination of immediate action to prevent recurrence, as well as long term corrective action.

2.1.12 Consequences of non-compliance

Consequences may include contractual recourse, fines or legislative recourse, programme and cost impacts, if North Construction fails to comply with its environmental obligations under the Contract. Failure includes:

- Comply with, and to ensure compliance by subcontractors with, any requirements of the Specification involving environmental control or rehabilitation; or
- Act promptly when environmental controls are observed not to be effective by the Contractor, Client, or by any Statutory Authority having jurisdiction over the Works.

Notification to governing bodies to be made immediately if any non-compliances are identified.

AIR QUALITY & DUST CONTROL

2.1.13 During Construction

- Review Sediment & Erosion control measures in Appendix 4in addition to the below requirements.
- North Constructions will ensure that all its construction facilities erected on the site are operated to minimise the emission of odours, smoke, dust, cement dust and other substances into the atmosphere.
- Construction methods will be employed as required that will keep air pollution to a minimum, to ensure that airborne pollutants from activities onsite do not cause undue disruption or inconvenience.
- Where appropriate and/or required by the client, removal of mud from the wheels and bodies of haulage equipment before they enter public roads or other sealed pavements by means of facilities such as truck wash downs and wheel washes.
- NCB will cease dust generating activities which cannot be adequately controlled by water or other means;
- Where applicable;
    - plant and equipment not be left idling when not in use.
    - Stabilise unsealed construction access routes through use of coarse aggregates;
    - Progressively rehabilitate and revegetate areas of disturbance including, where necessary undertaking short-term stabilisation of temporary stockpiles and disturbed areas.
    - Limiting areas of vegetation and soil disturbance through delineating work areas to minimise the potential for erosion.
    - Delivery of raw materials (gravel and sand) in load covered trucks.
- Trucks not to be overfilled so that excavated material drops onto the roadways. All loads carried on public roads or in areas that could affect private property, to be covered.
- Any excessive materials dropped onto externally sealed roads to be cleaned up as soon as possible.
- Truck tailgates to be securely closed before leaving the site.
- All vehicles and machinery must comply with the Office of Environment & Heritage requirements and be fitted with properly maintained emission controls relevant to their date of manufacture.
- The area of construction disturbance to be minimised wherever possible.
- The burning of timber and other combustible materials shall not be permitted.

EXTERNAL & COMMUNITY COMMUNICATION

Community Liaison Works will be under the control of the Catholic Education Office Diocese of Bathurst for this project. NCB will coordinate with the Principal to assist with any construction related announcements. Construction relation communication will adhere to the below requirements.

2.1.14 Prior to Construction

- A dilapidation Report of adjacent roads and properties will be undertaken prior to construction.
- All community relevant announcements and safety documentation is to be sent to the Principal for their upload to the Public website for the project. This includes:
    - Approvals
    - Reports
    - Community Communication Strategy
    - Construction Updates
    - Traffic Management details
    - Commencement of Construction Notices
- All personnel performing works on Site (including subcontractors) are to be made fully aware during their site inductions that complaints received from the general public must be courteously directed to the North Construction & Building site supervisor.

2.1.15 During Construction

- The community should be kept informed of any disruptions which may affect the community via submissions to the Principal for their inclusion on the Project Website.
- A contact number / email address will be provided for the community to call to lodge any concerns on site notices.
- Monthly construction update reports will be submitted to the Principal for their inclusion on the Project Website.
- The local community shall be kept informed of any construction activities outside normal working hours which may generate noise via submissions to the Principal for their inclusion on the Project Website.
- Signage will be erected in a prominent position on any work site on which work is being carried out stating that "unauthorised entry to the work site is prohibited"
- The North Construction site signage will include contact telephone number(s) for the person in charge of the work site for all hours.

ABORIGINAL HERITAGE

2.1.16 Prior to Construction

- The Local Aboriginal Land Council will be given the opportunity to be present on commencement of site work.
- The local Indigenous community was consulted with prior to SSD submission
- A qualified professional was engaged to prepare a ACHAR & carry out a AHIMS search

2.1.17 During Construction

- Should any unidentified objects potentially being of Aboriginal heritage be discovered on site, works in the area are to cease, and contact is to be made to Artefact (The Aboriginal Cultural experts engaged on this project).
- Works are not to commence until such time that the unidentified object has been investigated, catalogued and clearance provided by Artefact.

EUROPEAN HERITAGE

- Should any item be encountered which is suspected to be a relic of heritage value, all construction work will cease that might affect the item and protect the item from damage or disturbance. The Clients representative will be notified by North Construction immediately, who will then arrange for an officer of the Office of Environment & Heritage to be consulted.
- Any heritage relics or sites discovered during construction shall be reported to the NSW Heritage Office and the immediate area made secure. If disturbance to any suspected relics or site is proposed, an excavation permit (s140 Heritage Act) if required, shall be sought from the Heritage Council.

CONTAMINATION

2.1.18 Prior to Construction

- If there is any evidence of contamination not previously identified in the contamination assessment (Asbestos, heavy metals, etc.), Works in the area shall cease and further testing should be carried out by an appropriately trained contractor to identify the level of contamination and determine the appropriate procedure for works to continue.

2.1.19 During Construction

- In the event that construction personnel unearth potentially contaminated soils (due to suspicious odour or appearance) works must cease and the North Construction Environmental Manager contacted;
- NCB and its subcontractors will comply with the Contaminated Land Management Act 1997 in relation to disturbance or treatment of potentially contaminated ground.
- Further testing should be carried out by a qualified consultant.
- Soil which is required to be disposed of offsite will be classified against the guideline values presented in the Office of Environment & Heritage NSW (1999) Environmental Guidelines, Assessment, Classification and Management of Liquid and Non-Liquid Wastes before being transported and disposed of to a suitably licensed waste treatment facility.
- Any unexpected suspicious material will be stockpiled, tested and then disposed of to an Office of Environment & Heritage approved landfill or facility according to the results of the testing.

PLANT AND EQUIPMENT

2.1.20 During Construction

- All plant/equipment operators and employees shall be instructed to confine operations to within the clearly marked area of site operations.
- Vehicles or equipment hauling material over public roads shall be fitted with tight tailgates, dust covers and be free of soil.

- All exhausts from plant/equipment shall be visually monitored to ensure they are kept to a minimum acceptable level.
- All plant/equipment shall be inspected daily to avoid leakage of fuel, oil or hydraulic fluid. Machinery found to be leaking shall be repaired or replaced.
- Mufflers shall be fitted to all construction plant and equipment to meet Environment Protection Authority requirements.
- Cleaning out of batched concrete mixing plant at approved areas within the site for drying out and recycling.
- Operators of plant/equipment shall be instructed to carry out re-fuelling and maintenance within a bunted area. No vehicle maintenance permitted outside the construction compounds.
- All machinery shall be secured against vandalism outside working hours.
- All plant/equipment shall be washed out in an appropriately protected and bunted area to prevent erosion and pollution the permanent drainage system.
- Utilisation of appropriately sized plant and machinery for each application in order to minimise the production of waste and to minimise consumption of resources.

2.1.21 Post Construction

- All false work, formwork or piles used during construction and not forming part of the permanent works, shall be completely removed from the site.
- All work sites shall be restored in a satisfactory manner and where necessary in accordance with the appropriate regulations.

SITE COMPOUND AND WORKING AREA

2.1.22 Prior to Construction

- A construction compound shall be appropriately secured and shall be made safe to the public.
- The site compound shall include a site office, meal and wash sheds, toilet facilities, storage for fuel, oil, chemical and other materials, waste/rubbish facilities and shall display emergency procedure signs.
- The site working area for construction shall be located within the designated area as identified on the site plan.
- Designated appropriate area for parking that will minimise any impact upon the environment.
- Designate appropriate areas for plant maintenance and repairs; fuel and chemical storage; stockpiles; storage; that will minimise any impact upon the environment.

FUEL AND CHEMICALS

2.1.23 Prior to Construction

- The use and storage of all chemicals will be in accordance with HRPRO011 Hazardous Chemicals.
- The spillage of a chemical, fuel or lubricant must be rectified and contained immediately to prevent drainage to any nearby water way or groundwater.
- A secure, lockable storage area shall be provided for storage of fuel, oil and other chemicals within the site compound/storage shed.
- Products and processes that are non-toxic or less hazardous to the environment are to be encouraged at the procurement stage.

2.1.24 During Construction

- Chemical, fuel and lubricant storage areas must be suitably located and protected to minimise the impact of any spillage or contamination on or around the site.
- If any contaminant material (for example leachate, waste oil, drums of chemicals and asbestos) is encountered during excavation and piling, then all work shall cease at that site until the nature and extent of the material has been established and an appropriate disposal strategy has been developed.

- Subcontractors are strongly encouraged to purchase non-toxic or less hazardous products that will not (or have less impact) harm the wellbeing of people and the surrounding environment. They will also be required to provide SDS for all products used on the site.
- Contaminated materials collected after an accidental spill shall be handled and disposed of in accordance with SDS and Statutory requirements.

2.1.25 Post Construction

- Any contaminated material (empty drums, rags, contaminated soils etc) shall be removed immediately from the site and disposed of in accordance with the appropriate regulations.

FLORA AND FAUNA

- Please review Appendix 12 for Fauna & Fauna Management Sub-Plan

HERBICIDES AND OTHER CONTAMINANTS

- For this project it is not expected that Herbicides will be used on site
- If Herbicides or other contaminants are required on site, then a risk assessment will be conducted to determine the potential impacts and appropriate controls that will be put in place (based of the HoC) prior to them the chemical being used on site.

ENVIRONMENTAL/POLLUTION INCIDENT RESPONSE MANAGEMENT

2.1.26 Environmental Issue/ Community Complaint/Incident reporting

All workers on site are required to report incident immediately to the site supervisor/foreman. North will report and investigate the incident in accordance with PRO022 Incident Reporting and Investigation.

Monitoring and close out of corrective actions will be conducted in accordance with PRO021 Corrective & Preventative Action.

North Construction will, within one (1) working day of receiving a complaint about any environmental issue, arising from the work under the Contract, supply a written report to the Client detailing the complaint and immediate action taken to alleviate the problem. A final report with proposed measures to prevent the occurrence of a similar incident must be submitted to the Client within five (5) (insert actual reporting timeframe) working days using the Standard Form NCB016 Incident Report & the "Incident Investigation & Report" form NCB017.
A complaints register will be kept on site as part as part of the incident reporting and investigation records file, which is within the North's Site Folder.

2.1.27 Liaison with Authorities

NCB will notify the appropriate authority of pollution incidents on or around the site which have occurred in the course of the project activities in the following circumstances:

- if the actual or potential harm to the health or safety of human beings or ecosystems is not trivial,
- If actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds $10,000.

In the event of a pollution incident NCB will notify each relevant authority (identified below) when material harm to the environment is caused or threatened. The following information and procedures may assist those responsible for reporting a pollution incident.

- Firstly, call 000 if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service are the first responders, as they are responsible for controlling and containing incidents.
- If the incident does not require an initial combat agency, or once the 000 call has been made, notify the relevant authorities in the following order. The 24-hour hotline for each authority is given when available:
- the appropriate regulatory authority for the activity under the POEO Act (usually the EPA or local authority – the local authority is a local council of an area under the Local Government Act 1993),
- the EPA, phone Environment Line on 131 555
- the Safework Authority – phone 13 10 50

North Construction will notify the Client in writing within 24 hours of any pollution incidents which involve the Office of Environment & Heritage. North Construction will prepare a report, using standard form NCB017 on each occasion when the site is visited by the Office of Environment & Heritage, notifying the Client (where appropriate) of the purpose and outcome of the Office of Environment & Heritage visit and of all actions being taken by the Contractor in response to the Office of Environment & Heritage visit. *This report should be submitted to the Client within 5 working days of the Office of Environment & Heritage site visit*

ENVIRONMENTAL ACTIONS MONITORING

Daily monitoring along with weekly site inspections (NCB010) will be conducted to check that the environmental control measures are being employed. This will be adjusted and addressed to suit the stage of the project at the time of inspection.

2.1.28 Auditing

Weekly inspections (NCB010) will be kept onsite along with the quarterly audit (NCB011) that is completed by the Project Manager / Site Foreman. The quarterly audit will include aspects of the Site Specific Project Environmental Management Plan (section 27) to verify targets and requirements are being met.

Should an environmental incident or non-compliance occur, an out of sequence Quarterly Audit (NCB011) is to be undertaken, and all plans reviewed for effectiveness. Updates are to be made to ensure issues do not recur.

HERBICIDES AND OTHER CONTAMINANTS

- For this project it is not expected that Herbicides will be used on site
- If Herbicides or other contaminants are required on site, then a risk assessment will be conducted to determine the potential impacts and appropriate controls that will be put in place (based of the HoC) prior to them the chemical being used on site.

LIGHT SPILL

External lighting will be in compliance with AS4282-2019 control of obtrusive lighting effects of outdoor lighting. Consideration will be made with regards to light spill, particularly at night. Site Manager shall be responsible for ensuring all lights are turned off at the end of the day to ensure no light spill at night. Any security lights are to be aimed at the ground, not upwards.

ROLES AND RESPONSIBILITIES

Refer to Project roles & Responsibilities

Environmental Manager	• North Construction & Building Safety Manager (John Melvin) is the Company's Senior Management representative for Environment. The Safety Manger has a general overview of the project and provides reports to the Managing Director North Construction.
Project Manager	• Development of project specific environmental management plans & communicating adequately to site supervisors • Ensuring compliance with Environmental Protection Authority legislation, regulations, standards and codes for each project. • Developing emergency procedures for site, and implementing same. • Ensuring site personnel complete risk assessments • Determining procedures for managing environmentally sensitive areas • Determining procedures for managing hazardous products including its removal from site • Reviewing the Development Consent for the Project and ensuring the appropriate controls are included in this Plan • Reporting of environmental incidents to the relevant Authorities and to the Client if required. • Assessing subcontractors and suppliers abilities to comply with Environmental Management System requirements. • reviewing and authorising the Project Environmental Management Plan and other project plans; • assigning Environment responsibilities to all project personnel; • ensuring all project personnel are suitably trained, and possess the necessary skills, to undertake their designated Environment responsibilities; • continually monitoring of Environment performance to ensure compatibility and continued effectiveness with the policy and objectives; • communicating Environment performance to the Senior Project Manager; • providing sufficient resources to ensure the Site Specific Project Environmental Management Plan practices are implemented; • participating in the review of the project Environment system and other relevant Environment meetings and programs; • ensuring appropriate training in Environment is provided to all project personnel. • ensuring the Site Specific Project Environmental Management Plan is correctly implemented to meet the requirements of the project; • liaising with project staff in the monitoring of environmental controls; • ensuring nonconforming environmental controls and practices are reported; • reviewing environmental monitoring & inspection reports and ensuring any actions required are initiated; • ensuring subcontractors fulfill their environment obligations; • attending meetings called to discuss environment issues; • identifying and documenting environment system problems; • assisting with the updating of the Site Specific Project Environmental Management Plan; • reviewing environmental activities in Inspection and Test Plans, Project Forms/Checklists; • registering and investigating environmental complaints • liaising with the Environment assurance representative from the client, stakeholders and Interested Parties

	• assisting in the auditing/assessment of suppliers/subcontractors;
Site Foreman/ Site Supervisors	• Ensuring compliance with EPA legislation, regulations, standards and codes at a site based level. • Developing and implementing emergency procedures for site. • Ensuring site personnel complete environmental risk assessments • Ensuring the workplace is protected & safe • Determining procedures for managing unsafe materials, plant and equipment • Verifying, by way of inspections and tests, that work areas, work methods, materials, plant and equipment comply with EPA legislation, regulations, standards and codes. • Implementing corrective actions to prevent recurrences of work site incidents and illness/injury. • Undertaking environmental hazard identification and risk assessment and implementing appropriate risk controls. • Initial reporting of environmental incidents to the Project Manager • ensuring environmental controls are established prior to commencement of construction activities; • ensure environmental aspects are included in the preparation of ITP's and Safe Work Method Statements; • performing Environment inspections as required by the system; • identifying and reporting environmental nonconformance and notifying the PM of the suspected nonconformance; • ensuring and verifying that corrective action is taken when required for nonconforming work. • ensuring procedures in the Site Specific Project Environmental Management Plan are followed; • perform surveillance and monitoring of environmental controls to ensure that they are established and maintained with requirements; • ensuring that environmental protection requirements are communicated to all personnel and subcontractors; • carrying out the agreed rectification works after identification of nonconformance.
Workers	• Are charged with complying with and participating in the active management of the Site Specific Project Environmental Management Plan, including implementation of agreed policy and procedures, review of the procedures and the use of personal common sense. • Preparation of trade specific Safe Work Method Statements & environmental risk assessments. • Details of the activities each subcontractor will be performing and the environmental implications; • The environmental controls the subcontractor will plan, implement and monitor regarding environmental protection measures and how environmental records will be kept; • How environmental protection measures on subcontracted work interface with adjacent work areas

SUBCONTRACTORS

North Construction will monitor the subcontractor's environmental compliance and the effectiveness of the subcontractor's environmental protection measures through the following methods.

SUB-CONTRACTOR ENVIRONMENTAL COMPLIANCE			
Sub-contractor	Activity	Proposed Environmental Controls	Monitoring of Environmental Compliance by Principal Contractor
Earthworks	Excavate & Fill to site, compaction of material	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Concrete	Detail Excavation, formwork, concrete	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Structural Steel	Installation of structural steel	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Masonry	Laying of Blocks, Bricks	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Roofing and Cladding	Installation of cladding and roofing products	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Linings	Installation of Plasterboard and Linings	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Tiling	Installation of Floor and Wall Tiles	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.

Painting	Applications of paint to various surfaces	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Floor Finishes	Application of epoxy paints and floor toppings	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Electrical Services	Installation of all electrical services	Will follow all the relevant environmental safeguards of within Section this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.
Hydraulic Services	Installation of all Hydraulic Services	Will follow all the relevant environmental safeguards of within this document	• Inspection of work practices on a daily basis • Site H.S.E. Inspection Checklist (NCB010) to be completed weekly.

RELEVANT LEGISLATION

North Construction will comply with the relevant local, state & federal environmental legislations were appropriate. Please see the following acts environmental legislation which may apply: (Note: Copies of all legislation are available online)

Environmental Planning Legislation
Environmental Planning and Assessment Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/epaaa1979389/*
Local Government Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/lga1993182/*
Roads Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/ra199373/*
Soil Conservation Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/sca1938215/*
National Parks and Wildlife Conservation Act, (Cwlth) *http://www.austlii.edu.au/au/legis/cth/num_act/npawca1975390/*

Conservation and Heritage Legislation
Native Vegetation Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/nva2003194/*
National Parks and Wildlife Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/npawa1974247/*
Threatened Species Conservation Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/tsca1995323/*
Environment Protection and Biodiversity Conservation Act, (Cwlth)
http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Noxious Weeds Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/nwa1993182/*
Water Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/wa191283/*
Water Management Act (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/wma2000166/*
Heritage Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/ha197786/*
Australian Heritage Commission Act, (Cwlth) *http://www.austlii.edu.au/au/legis/cth/num_act/ahca1975311/*
Aboriginal and Torres Strait Islander Heritage Protection Act, (Cwlth)
http://www.austlii.edu.au/au/legis/cth/consol_act/aatsihpa1984549/

Pollution and Waste Management Legislation
Protection of the Environment Operations Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/poteoa1997455/*
Waste Avoidance and Recovery Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/waarra2001364/*

Contaminated Land Legislation
Contaminated Land Management Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/clma1997238/*

Fire Control
Rural Fires Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/rfa1997138/*

Hazardous Substances
Environmentally Hazardous Chemicals Act, (NSW) *http://www.austlii.edu.au/au/legis/nsw/consol_act/ehca1985373/*

Tasks will be reviewed prior to commencing and the site team will assess if these tasks fall within the requirements of the development application or legislative acts. If this is the case, an application will be made to the relevant legislative body.

3 APPENDIX 1 – SUB PLAN - CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT (CONDITION C11)

St Matthews Catholic School Mudgee – Secondary Campus

Construction Traffic and Pedestrian Management Sub-Plan

Prepared for:

North Construction

25 February 2021

The Transport Planning Partnership

St Matthews Catholic School Mudgee – Secondary Campus

Construction Traffic and Pedestrian Management Sub-Plan

Client: North Construction

Version: V01

Date: 25 February 2021

TTPP Reference: 18472

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	25/02/21	Clinton Cheung	Santi Botross	Ken Hollyoak	

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APPENDICES

1 Introduction

1.1 Overview

On 16th December 2020, a State Significant Development Application (SSD 9872) was approved for the development of a new high school for St Matthews Catholic School at 48 Broadhead Road, Spring Flat.

The SSD Consent Conditions C.11 and C.16 require a Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) and a Driver Code of Conduct to be prepared. Additionally, the CTPMSP is to be prepared in consultation with Mid-Western Regional Council (Council) and Transport for NSW (TfNSW).

The Transport Planning Partnership (TTPP) has prepared this CTPMSP behalf of the Proponent to assess the traffic implications of the proposed construction activities as part of this project.

This CTPMSP has been prepared to satisfy the relevant Consent Conditions. Table 1.1 lists the conditions of consent and the corresponding sections/ chapters where they are addressed.

Table 1.1: Conditions of Consent – C11 and C16

Condition	Addressed in
Consent Condition 11	
The Construction Traffic and Pedestrian Management Sub-Plan must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following: (a) Be prepared by a suitably qualified and experienced person(s);	Section 1.2 and Section 2
(b) Be prepared in consultation with Council and TfNSW	Chapter 2
(c) Detail the measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;	Chapter 6
(d) Detail on-site construction worker parking arrangements; and	Section 4.7
(e) Detail heavy vehicle routes, access and parking arrangements.	Section 4.8
Consent Condition 16	
A Driver Code of Conduct must be prepared and communicated by the Applicant to heavy vehicle drivers and must address the following: (a) minimise the impacts of earthworks and construction on the local and regional road network; (b) minimise conflict with other road users; (c) minimise road traffic noise; and (d) ensure truck drivers use specified routes;	Appendix E

1.2 Purpose of this Plan

The overall principles of traffic management during the construction phase include:

- Maintain access to/ from adjacent properties.
- Restrict construction vehicle movements to designated routes to/ from the site.
- Manage and control construction vehicle activity in the immediate area of the site.
- Provide an appropriate, convenient and safe environment for pedestrians and cyclists.
- Minimise the impact on pedestrian and cyclist movements.
- Maintain appropriate public transport access.
- All construction activity is to be carried out in accordance with SSD 9872 Development Consent approved hours of work.

This construction traffic and parking assessment report has been checked by engineers who hold the TfNSW *Prepare a Work Zone Traffic Management Plan* certification.

2 Consultation with Agencies

During the preparation of this CTPMSP, Mid-Western Regional Council and Transport for NSW were consulted for additional aspects which required further assessment.

<TO BE UPDATED FOLLOWING CONSULTATION>

Evidence of consultation with Council and TfNSW has been provided in Appendix A.

3 Existing Conditions

3.1 Site Location

The subject site is located at 48 Broadhead Road, Spring Flat (Lot 40, DP 756894) and is located within the local government area of Mid-Western Regional Council. The site, which is currently classified as greenfield land, is to be developed to accommodate the high school portion of the existing St Matthews Catholic School.

The site is zoned as RU4 Primary production small lots. Surrounding land uses comprise R1 General residential, R2 Low density residential, B5 Business development and IN1 General industrial. The subject site is located south-east of the Mudgee township as shown in Figure 3.1.

Figure 3.1: Subject Site and Surrounds

Basemap Source: Esri ArcGIS, map viewed online 18/02/2021

3.2 Road Network

Castlereagh Highway (B55) is a State classified road that runs from north of Lithgow through north-western NSW. In the vicinity of the subject site, Castlereagh Highway is generally aligned in the north-south direction having one lane in each direction and a signposted speed of 80 km/h. In the Mudgee township the posted speed limit is reduced to 50 km/h.

Spring Flat Road is a two-way local road generally aligned in the north-south direction with 6 m wide carriageway. It provides access to/from Castlereagh Highway in the north. It is a sealed road without kerb and gutter. There is no road shoulder and kerbside parking. The posted speed limit is 100 km/h.

Lions Drive is a local road running in the east-west direction to the north of the site. It provides access to residential dwellings and has a 9 m wide carriageway. Kerb side parking is permitted on both sides of the road and there is a posted speed limit is 50 km/h.

Bruce Road is a two-way local road which forms the southern boundary of the subject site. Bruce Road has an 8 m wide carriageway. Between Broadhead Road and Spring Flat Road, it is an unsealed road; partial road upgrades are proposed as part of the development (as discussed in Chapter 4). The signposted speed limit is 50 km/h.

Broadhead Road is a local road with a north-south configuration forming the western boundary of the subject site. It is a sealed road without kerb and gutter and road shoulder, and has a carriageway width of 7-8m wide. Partial road upgrades are proposed along Broadhead Road as part of the development (as discussed in Chapter 4). The posted speed limit is 50 km/h.

3.3 Surrounding Intersections

Key intersections located along the proposed vehicle access route to/from the site include the following:

- Castlereagh Highway – Lions Drive,
- Lions Drive – Broadhead Road, and
- Broadhead Road – Bruce Road.

The above-mentioned intersections are all priority-controlled intersections. The location of these intersections in relation to the subject site are shown in figure 3.2

As per the Traffic, Parking and Transport Impact Assessment prepared for the SSD Application, a SIDRA Network model of the surrounding road network was prepared which included the above junctions. The results of the modelling analysis identified that these intersections are operating at a level of services A (very good) under existing conditions in peak periods.

Figure 3.2: Surrounding Intersections

Basemap Source: Esri ArcGIS, map viewed online 18/02/2021

3.4 Public Transport Services

School Bus Services

Ogden's Coaches operates school bus services during morning and afternoon periods along Lions Road, Broadhead Road, and Bruce Road. These bus services include:

- South (Mudgee) AM and PM (MA01)
- Queen's Pinch AM and PM (MA03)
- Carcalgong AM and PM (MA04)

Maps showing the routes used by the above bus services are contained in Appendix B.

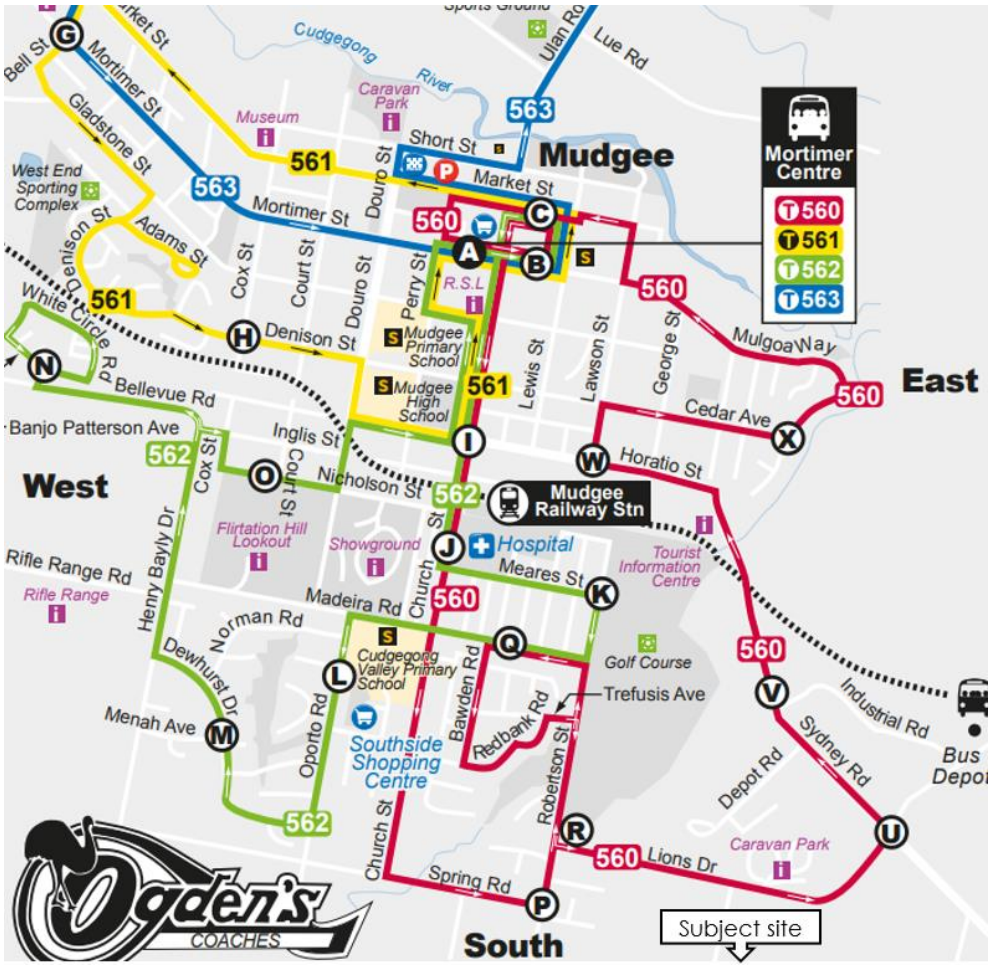
Local Public Bus Services

Local bus services in Mudgee township include:

- 560 – Mudgee east loop
- 561 – Mudgee west loop
- 562 – Mudgee south loop
- 563 – Mudgee north loop.

Buses operate on weekdays only offering two mid-morning services and two afternoon services. The nearest bus stop is located on Lions Road, approximately 1.6 km from the site as indicted as 'R' in Figure 3.3.

Figure 3.3: Local Bus Network Map



Source: Ogden's Coaches – Mudgee Bus Timetable

Regional Coach Services

On weekdays and weekends Countrylink operate long-distance coach services between Coonabarabran, Baradine, Gulgong and Lithgow train station which stop at Gulgong, Mudgee and Ilford. Generally, the Countrylink bus route would utilise Castlereagh Highway.

3.5 Pedestrian and Cyclist Facilities

The subject site is currently a greenfield site. As such, there are no existing pedestrian or cycling facilities surrounding the future school site. The nearest discontinued footpath connections are located 400 m north and west of the subject site adjacent to residential dwellings.

4 Overview of Construction Activities

4.1 Description of Works

The works would include leveling of the existing greenfield site, and the construction of new buildings and facilities for the future high school. The following construction activities are required:

- Cut and fill across the site with inground services
- Construction of new ground slabs and steel framing
- External roofing and wall cladding and window glazing
- New electrical , hydraulic and mechanical services throughout
- External landscaping with paths , trees and sports oval
- Detention basin and new school car park
- Upgrades works on Broadhead Road , Bruce Road and nominated local intersections.

There is no demolition work required since the site is currently vacant. During the excavation stage, the balance of cut to fill of material on-site would be optimised in order to mitigate costs. Therefore, it is not proposed to haul material from the site for disposal and the import of engineered materials would be limited as much as possible.

4.2 Duration and Staging of Works

Construction works are to be carried out over a duration of 14 months commencing in March 2021. The planned construction staging, and indicative start dates are presented in Table 4.1.

Table 4.1: Indicative Construction Staging and Duration

Stage	Start	Duration
Site Establishment	March 2021	I month
Excavation	March 2021	2 months
Construction	May 2021	4 months
Fit-out/ Finishes & Commissioning	July 2021	8 months
External Works & Civil Works	September 2021	8 months

4.3 Work Hours

Construction activities would be carried out in accordance with the SSD approved hours of construction (Condition D.4) as follows:

- 7:00am-6:00pm Monday to Friday (11 hours)
- 8:00am-1:00pm on Saturday (5 hours)
- No works on Sunday or public holidays.

Any works outside the above work hours will be subject to a separate application to Council.

4.4 Work Zone

All works during construction are proposed to be undertaken wholly within the site. For context of the site, the estimated construction footprint equates to less than 20% of the total site area that is available. Therefore, no work zone is proposed on-street as all works would be accommodated within the site boundary.

4.5 Materials and Handling Area

All materials and handling equipment are to be wholly stored on-site within the works site. Council's road would not be utilised for such purposes.

4.6 Construction Workforce

The number of construction workers on-site is expected to vary throughout the project. The number of workers estimated during each construction phase is summarised in Table 4.2.

Table 4.2: Construction Workforce

Stage	Number of Staff On-site
Site Establishment	Up to 10 per day
Excavation	Up to 20 per day
Construction	Up to 120 per day
Fit-out/ Finishes & Commissioning	Up to 150 per day
External Works & Civil Works	Up to 100 per day

4.7 Construction Staff Parking

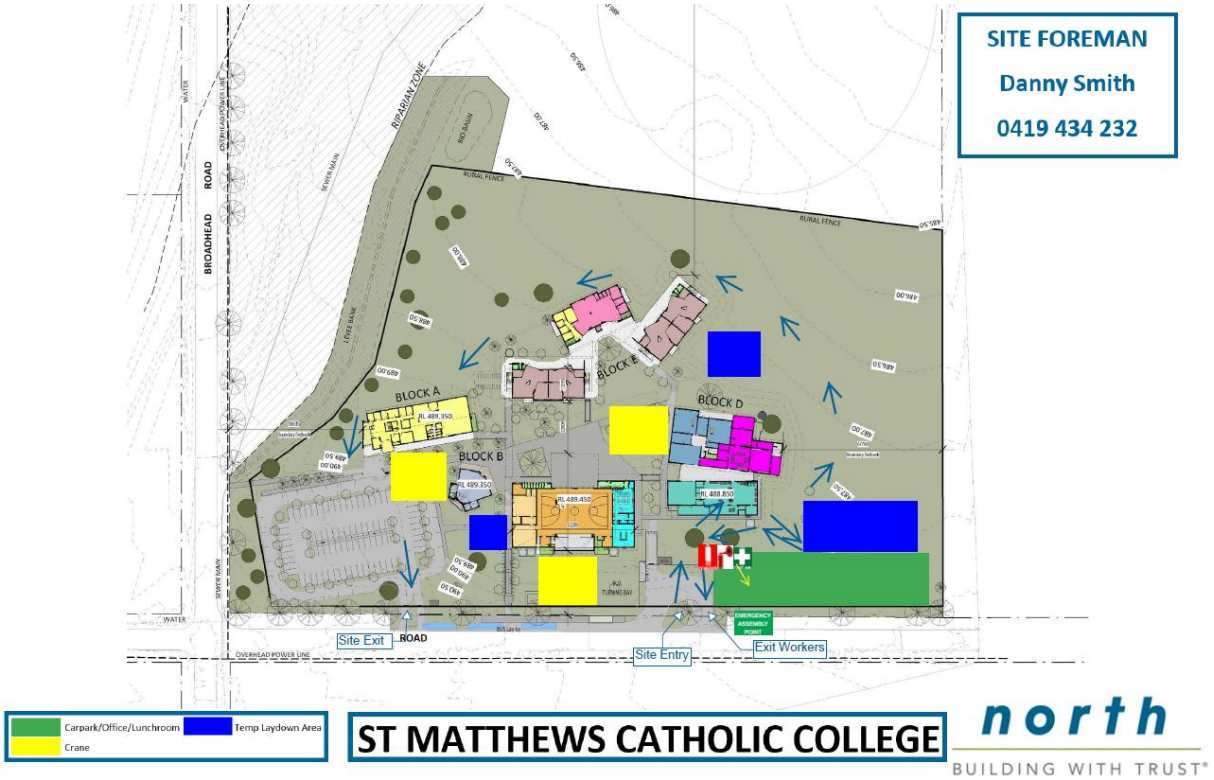
Parking for construction personnel would be provided on-site. There would be up to 100 parking spaces provided. It is unlikely for these parking spaces to be used every day to full capacity. During the busiest construction period, there would be up to 150 construction personnel at the site per day. During all stages of construction, and particularly during busy periods, workers would be encouraged to carpool where possible.

Notwithstanding this, overflow parking areas would be available on-site to accommodate all associated parking demand within the premises.

Parking on local streets by construction workers would not be permitted. Any such activity would be monitored and actioned by the Construction Manager or Site Supervisor.

The site plan is given in Figure 4.1 which indicates the general location of on-site construction staff parking.

Figure 4.1: Construction Site Plan



Source: North Construction

4.8 Site Access and Haulage Routes

Construction vehicles would have origins and destinations from various areas across the Central West region, and would therefore utilise Castlereagh Highway when travelling to/from the site. Between the highway and the site, designated heavy vehicle routes would be utilised by construction vehicles. These haulage routes are as follows:

- **Arrival Route:** from B55 Castlereagh Highway, vehicles would turn left or right onto Lions Roads, turn left onto Broadhead Road, turn left onto Bruce Road, and turn left into the site access driveway.
- **Departure Route:** Vehicles would exit the site by turning right out onto Bruce Road, turn right onto Broadhead Road, turn right onto Lions Road and turn left or right onto Castlereagh Highway.

The proposed haulage route is shown in Figure 4.2.

Figure 4.2: Construction Vehicle Haulage Route

As discussed with Council and TfNSW during the SSD application process, the direction was that all construction vehicles would arrive and depart the site via Broadhead Road and Lions Road. Specifically, access to/from Castlereagh Highway via Spring Flat Road and the unsealed section of Bruce Road (east of the site) was to be avoided. The construction site access points were clearly shown on the site plan submitted in the SSD application as per above.

5 Construction Traffic Assessment

5.1 Access Arrangements

The site is currently a greenfield site and so there are currently no pre-existing access driveways to the site. As such, during the site establishment stage vehicle access driveways will be constructed off Bruce Road as per the construction site layout plan (Figure 4.1). Separate ingress and egress access driveways are proposed off Bruce Road, spaced approximately 70 m apart. The egress driveway for site personnel (light vehicles) is to be separate from construction heavy vehicles; that is, the egress driveway for site personnel would be located east of the site ingress driveway.

All construction vehicles will enter and exit the site in a forward direction (no reverse-in movements to the site would be permitted). Vehicles would enter the site by turning left-in and exit by turning right-out via Bruce Road.

5.2 Swept Path Analysis

Swept paths for the longest heavy vehicle at the site access driveways are provided in Appendix C. The swept path analysis has been undertaken for a 19m semi trailer entering left-in and exiting right-out of the site via Bruce Road.

It is noted that construction of the school car park, school access driveway and median would occur towards the end of the project (during the External Works & Civil Works phase), at which point articulated trucks would not be accessing the site. Therefore, the exit turning movement for the semi-trailer could occur sufficiently via the proposed heavy vehicle egress driveway.

5.3 Construction Stages

Site Establishment

Demolition works would not be required due to the greenfield nature of the site. During site establishment, temporary fencing will be installed, site sheds delivered and erected, and initial site survey completed. The site would be stripped of topsoils and some bulk earthworks would commence.

During this phase of work, it is anticipated that there would be up to 8 heavy vehicle trips per day. These works are anticipated to generate between 1-2 vehicle trips per hour.

Excavation

During the excavation stage, the balance of cut to fill of material on-site would be optimised in order to mitigate costs and reduce the number of deliveries to/from the site. Therefore, it is not proposed to haul material from the site for disposal and the import of engineered materials would be limited as required.

Earthmoving machinery would be transported at the start and end of their use with all loading activities occurring on-site, within the site boundary.

During this phase of work, it is anticipated that there would be up to 15 heavy vehicle trips per day. It is anticipated to generate between 1-2 vehicle trips per hour.

Construction

During construction there will be deliveries of reinforcing , concrete, frames , trusses and structural stee , roofing and wall cladding .

Mobile cranes would be set up within the site as shown in Figure 4.1 and would be used for the upper levels of construction, specifically for lifting steel/ formwork/ scaffolding and roofing It is proposed to use concrete pumps on each slab pour with an estimated 10 separate pours. The maximum size of mobile crane required is 80-tonne.

The daily traffic generation would be between 40-50 vehicle trips per day (4-5 vehicles per hour) and 10-15 heavy vehicle trips per day (1-2 vehicles per hour) during concrete pours. Therefore, construction traffic is not expected to cause a noticeable impact on the surrounding road network.

Concrete trucks typically weigh 20-25 tonnes and have a length of approximately 8 m, which is the size of a medium rigid vehicle.

Fit-Out & Finishes

The construction works involve interior fit out such as new services, fittings and fixtures, joinery and floor finishes and the like. No large plant and machinery would be required for this phase of works.

The daily traffic generation would be between 50-60 vehicle trips per day (5-6 vehicles per hour), which would mostly comprise small and medium rigid vehicles. Occasionally, a longer heavy rigid vehicle that is up to 12.5m in length would be used to deliver internal linings.

External Works & Civil Works

During this stage, there would be deliveries of elevated work platforms (EWPs), scissor lifts and access equipment. There will be deliveries of roofing and cladding for external building protection. Some minor civil components will be undertaken during these works such as pouring paths and landscaping .

The school car park will be completed with these works with asphalt being laid during the end of the project.

The daily traffic generation would be between 10-20 vehicle trips per day which would generate an average of 1-2 vehicle trips per hour.

5.4 Trip Generation Summary

The estimated construction vehicle movements associated with each stage of works are summarised in Table 5.1.

Table 5.1: Summary of Construction Traffic Generation

Stage	Hourly Vehicle Trips (Average)	Daily Vehicle Trips (Maximum)
Site Establishment	1-2 trips / hr	8 trips / day
Excavation	1-2 trips / hr	15 trips / day
Construction	4-5 trips / hr, and 1-2 trips / hr during concrete pours	50 trips / day, and 15 trips / day during concrete pours
Fit-out/ Finishes & Commissioning	5-6 trips / hr	60 trips / day
External Works & Civil Works	1-2 trips / hr	20 trips / day

Construction of the proposed development would be expected to generate in the order of 15-20 vehicle trips per day on a typical day, or 50-60 vehicle trips per day during the busier phases of construction. On an hourly basis, there would be approximately 1-2 vehicles trips per hour during regular construction periods and between 5-6 trips per hour during the peak construction period.

SIDRA network modelling analysis has identified that the surrounding road network is operating at a level of service A (very good). Therefore, there is spare capacity along the proposed haulage route to accommodate additional trips generated by the construction activities without having a negative impact on the road network safety and operation.

For light vehicles/ cars accessing the site, peak periods would be between 6:00am-7:00am (before the start of the workday) and 6:00pm-7:00pm (at the end of the workday). These periods fall outside of the road network peaks, and therefore, there would be minimal impact caused by site-generated traffic during the local road network peaks.

5.5 Oversize and Overmass Vehicles

Oversize deliveries would be required for the project; specifically, a 20-tonne excavator and road grader would be required for Civil Works. Each delivery would generate two trips i.e. one trip prior to commencement of works plus one trip once the works are complete.

According to the National Heavy Vehicle Regulator's website, a Class 1 Oversize Overmass (OSOM) permit may be required for a vehicle should it not comply with the mass, dimensions or operating requirements set out in the gazette notice. In NSW, the *Multi-State Class 1 Load Carrying Vehicle Dimension Exemption Notice 2020 (No.1)* authorises the use of Class 1 Load Carrying Vehicles up to 5.5 m wide, 35 m long and 5 m high.

At least one month prior to the works, the contractor shall review the relevant gazette notice documentation and submit an application for the OSOM permit through the NHVR portal should the special access permit be required.

Details for the *Multi-State Class 1 Load Carrying Vehicle Dimension Exemption Notice 2020 (No.1)* and supporting documentation is available online via the NHVR website: https://www.nhvr.gov.au/road-access/access-management/applications/oversize-overmass-permit

5.6 Crane Details

During the Construction Phase, three (3) 80-tonne mobile cranes would be required on-site for each slab pour. Generally, mobile cranes would be positioned on-site as shown in the construction site plan in Figure 4.1.

A Grove GMK4080-1 80-tonne crane or similar crane would be used as part of the for concrete pours on-site. During transportation, the crane vehicle would have the following dimensions:

- Length: 12.12 m
- Width: 2.54 m
- Height: 3.85 m.

Depending on the exact crane to be used, an OSOM vehicle permit may be required for travel on NSW roads. When the cranes are to be commissioned, the construction contractor and/or the crane supplier would obtain the necessary permits for travel of these vehicles on NSW roads.

Further details of the craning operation are provided in the overarching Construction Management Plan.

5.7 Pedestrian and Cyclist Activities

The site is currently a greenfield site with no pedestrian footpaths along the site perimeter. Notwithstanding this, temporary fencing would be installed around the site perimeter.

Through the Driver Code of Conduct and Staff Induction, construction workers and heavy vehicle operators would be instructed to be alert of any pedestrians and cyclists when travelling to/from site using local roads.

5.8 Emergency Vehicles

A site-specific Emergency Management Plan would be developed for the site outlining the procedure to be followed in the event of an emergency. Evacuation plan with emergency contact details would be posted in relevant locations around the site.

Access to the subject site by emergency vehicles would not be affected by the construction works since there are no construction works proposed outside of the site boundary on Broadhead Road and Bruce Road. Emergency protocols on the site would include a requirement for suitably accredited site personnel to assist with emergency access from the street.

Liaison would be maintained with the police and emergency services agencies throughout the construction period and a 24-hour contact would be made available for 'out-of-hours' emergencies and access.

5.9 Public Transport

The proposed construction works would not affect bus services in the vicinity of the site.

Through the Driver Code of Conduct and Staff Induction, construction workers and heavy vehicle operators would be instructed to be alert of buses travelling on common local routes; namely, on Bruce Road, Broadhead Road, and Lions Road.

5.10 Neighbouring Properties

Construction traffic would not impinge on access to neighbouring properties.

6 Construction Traffic Management Measures

6.1 Traffic and Pedestrian Control Plans

A site-specific Traffic and Pedestrian Control Plan (TPCP) has been prepared and included in Appendix D. A brief description of the TPCP is provided below:

- Advisory road signage to be installed to inform motorists travelling on surrounding local roads of construction vehicles turning into and out of the construction site driveways. This signage is to be temporarily fixed on approach to the construction site access driveways.
- Advisory road signage on Castlereagh Highway to be installed to inform construction vehicle travelling to site to travel via Lions Road (and not Spring Flat Road).
- 1.8m high temporary fencing along the site boundary to provide separation from the construction works.

All advisory road signage shall be installed in accordance with AS1742.3 Manual of uniform traffic control devices – Traffic control devices for works on roads and the RMS Traffic Control at Worksites Manual. Signs shall be installed and maintained throughout the construction period.

6.2 Site Induction

All staff employed on the site by the Contractor (including sub-contractors) would be required to undergo a site induction. The site induction would cover details on the nominated vehicle routes to and from the site, as well as standard environmental, workplace health and safety, driver protocols and emergency procedures.

6.3 Driver Code of Conduct

The Driver Code of Conduct specific to this site shall be included with all new site inductions for all heavy vehicle drivers accessing the site. One-off truck delivery drivers must agree to abide by the Driver Code of Conduct by having read and signed the Code.

Prior to commencement of construction works, all drivers shall be provided with a copy of the Driver Code of Conduct. It is intended that all truck drivers would have signed the Driver Code of Conduct declaration and agreed to be bound by its behavioural requirements before entering the site.

6.4 Nominated Haulage Routes

To minimise impacts on local traffic routes, the following would be adhered to:

- The site induction must include procedures for construction vehicles accessing the site.
- Drivers must adhere to the nominated construction vehicle routes.
- Drivers must be aware of the local areas traffic, pedestrian and cyclist activities.
- Drivers must be aware of buses travelling along common routes.
- Drivers should be aware of the local area speed limits.

6.5 Site Inspections and Record Keeping

A daily inspection before the start of the construction activity should be carried out to ensure that conditions accord with those stipulated in the plan and prevent potential hazards. Any possible problems would be recorded and dealt with if they occur.

6.6 Contingency Plans

The types of unplanned incidents that may occur during construction works include, but are not limited to:

- Motor vehicle crashes
- Environmental spills
- Construction type incidents
- Inclement weather conditions.

All issues would be reported to the Construction Manager who would inform the appropriate personnel. The relevant authorities responsible for controlling hazards/ emergencies are shown in Table 6.1.

Table 6.1: Emergency Authorities

Potential Incident	Action Plan	Contact Details
Law enforcement. Emergencies	Police	Mudgee Police Station Address: 94 Market Street, Mudgee 2850 Phone: 02 6372 8599 Open 24 hours
Fire, Hazardous Material	Fire and Rescue NSW	Mudgee Fire Station Address: 95-97 Horatio Street, Mudgee 2850 Phone: 02 6372 6772

Table 6.3 outlines an action plan, in respect to traffic management, which would be applied for these types of incidents.

Table 6.2: Contingency Plans

Potential Incident	Action Plan
Equipment Breakdown	Modify traffic control arrangement to accommodate equipment breakdown
Work Vehicle Breakdown	Construction Manager to call tow truck company. Cease work if necessary.
Poor Weather Conditions	Assess all possible risk / hazards, if necessary postpone and reprogram works. Continually monitor working and traffic conditions, and if necessary cease work.
Unplanned Incidents	Where possible, cease work. Modify traffic control and manage site until emergency services arrive. Support emergency services.

6.7 Complaints and Compliments Register

A complaints and compliments register detailing matters such as truck driver behaviours and truck related noise issues shall be developed and maintained by the Contractor.

The register shall be reviewed every three months to determine if any systematic issues are arising from the implementation of the CTPMSP and Driver Code of Conduct.

Positive and negative feedback shall be documented using a Customer, Community and Stakeholder Complaint/ Compliment Form. The Contractor shall gather as much information as possible which would allow them to take appropriate action. Appropriate action may include:

- Arranging a meeting to discuss and/or resolve issues.
- Calling the customer, member of community or stakeholder to acknowledge feedback.
- Writing a letter responding to the feedback.

Drivers shall also be provided the opportunity to give feedback on the implementation of the Driver Code of Conduct and other measures which could be considered for implementation into the Code.

7 Conclusion

Based on the findings of the report, it is concluded that:

- The construction of the proposed development is expected to generate in the order of 15-20 vehicle trips per day on a typical day, or 50-60 vehicle trips per day during the busier phases of construction. On an hourly basis, there would be approximately 1-2 vehicles trips per hour during regular construction periods and between 5-6 trips per hour during the peak construction period.
- SIDRA network modelling analysis has identified that the surrounding road network is operating at a level of service A (very good). Therefore, there is spare capacity along the proposed haulage route to accommodate additional trips generated by the construction activities without having a negative impact on the road network safety and operation.
- The busiest periods for cars accessing the site are anticipated to be between 6:00am-7:00am (before commencement of shift) and 6:00pm-7:00pm (following completion of shift), respectively. These periods fall outside of the surrounding road network peaks, therefore, there would be minimal impact caused by site-generated traffic during the local road network peaks.
- Adequate car parking for construction workers will be provided on-site. Parking on-street would not be permitted on surrounding local streets.
- No pedestrian or cyclist facilities would be impacted as a result of the construction activities.
- There would be no requirement for a work zone on-street. Rather, all loading and unloading activities would occur wholly within the site.
- To ensure safety of motorists, pedestrian and cyclists around the site, driver protocols shall be enforced and monitored during the construction phase as outlined within this CTPMSP and the Driver Code of Conduct.
- Truck drivers would be instructed to use the nominated haulage routes to/from the site and shall conform to this, as agreed in the staff induction.

Overall, the construction traffic and transport impacts would be minor, and proposed management measures are considered acceptable for this project.

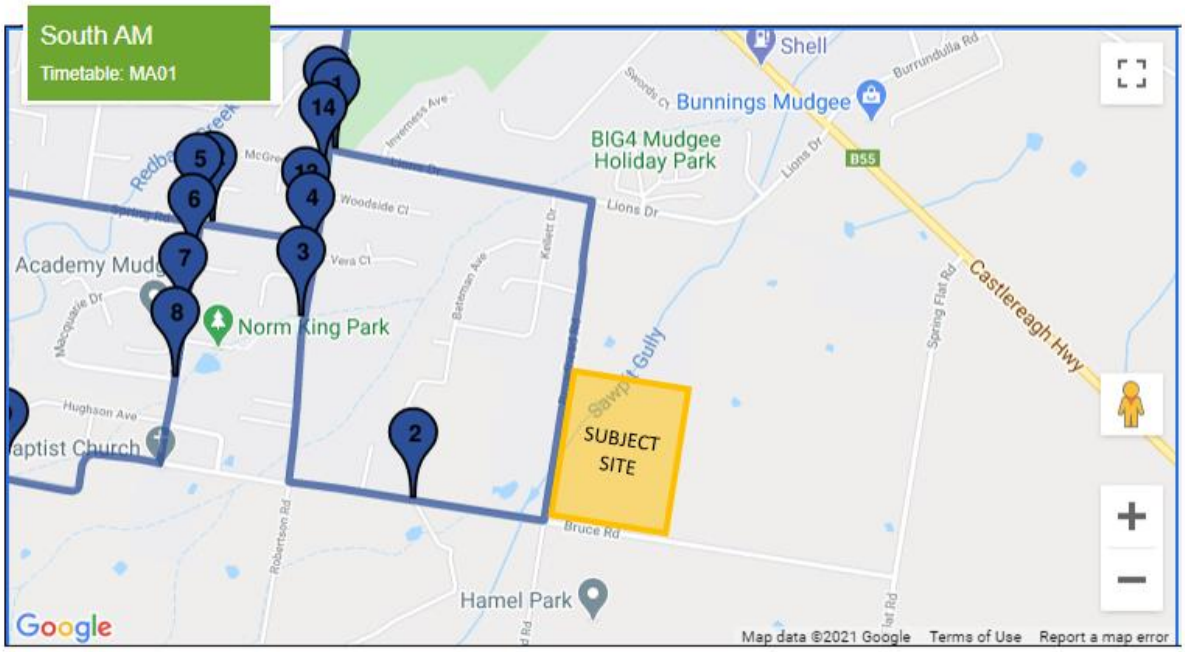
Appendix A

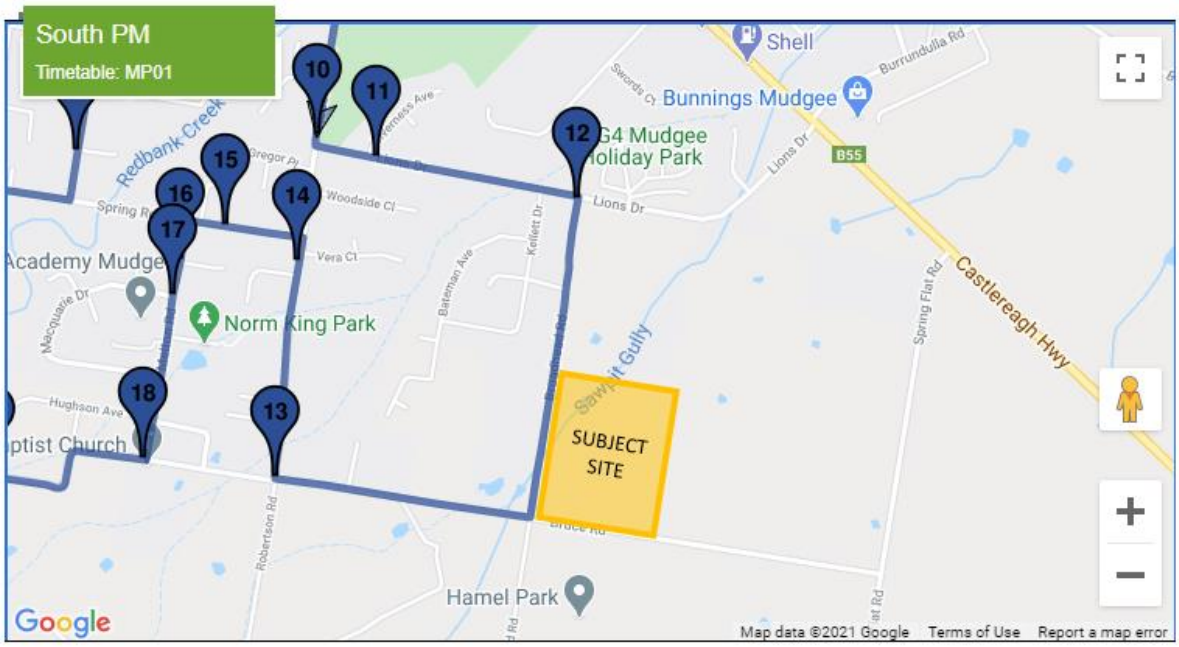
Consultation with Agencies

Appendix B

School Bus Route Maps (MA01, MA03 and MA04)

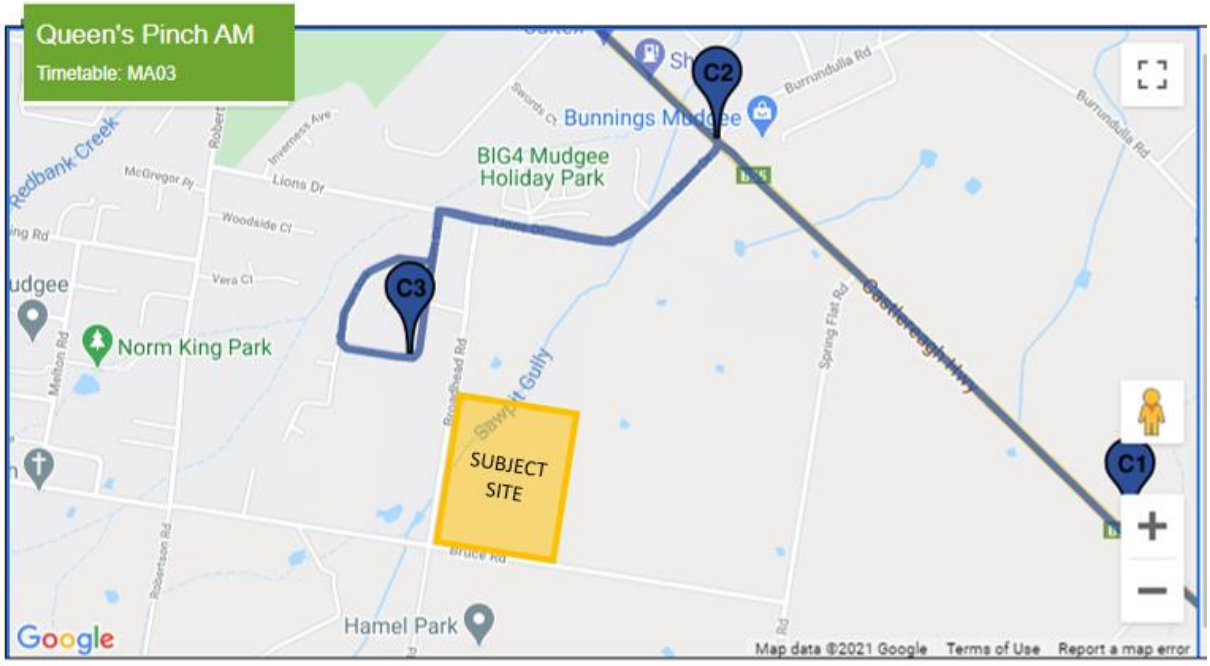
South (Mudgee) School Bus Route

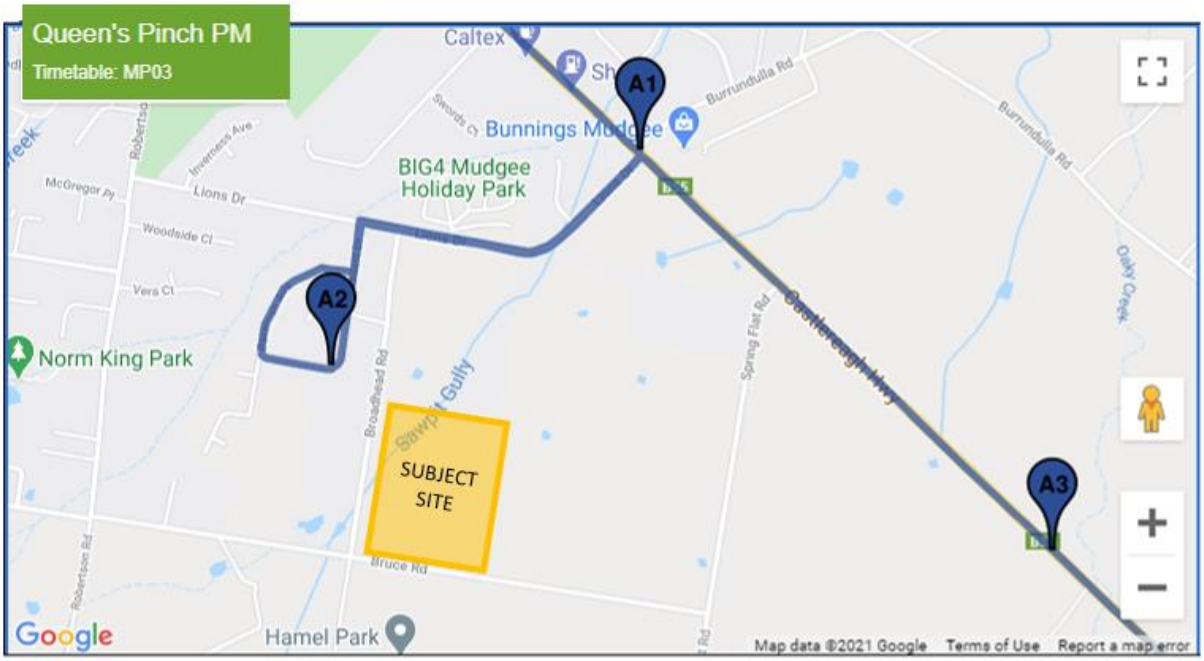




Source: Ogden's Coaches Mudgee School, viewed online 18/02/2021

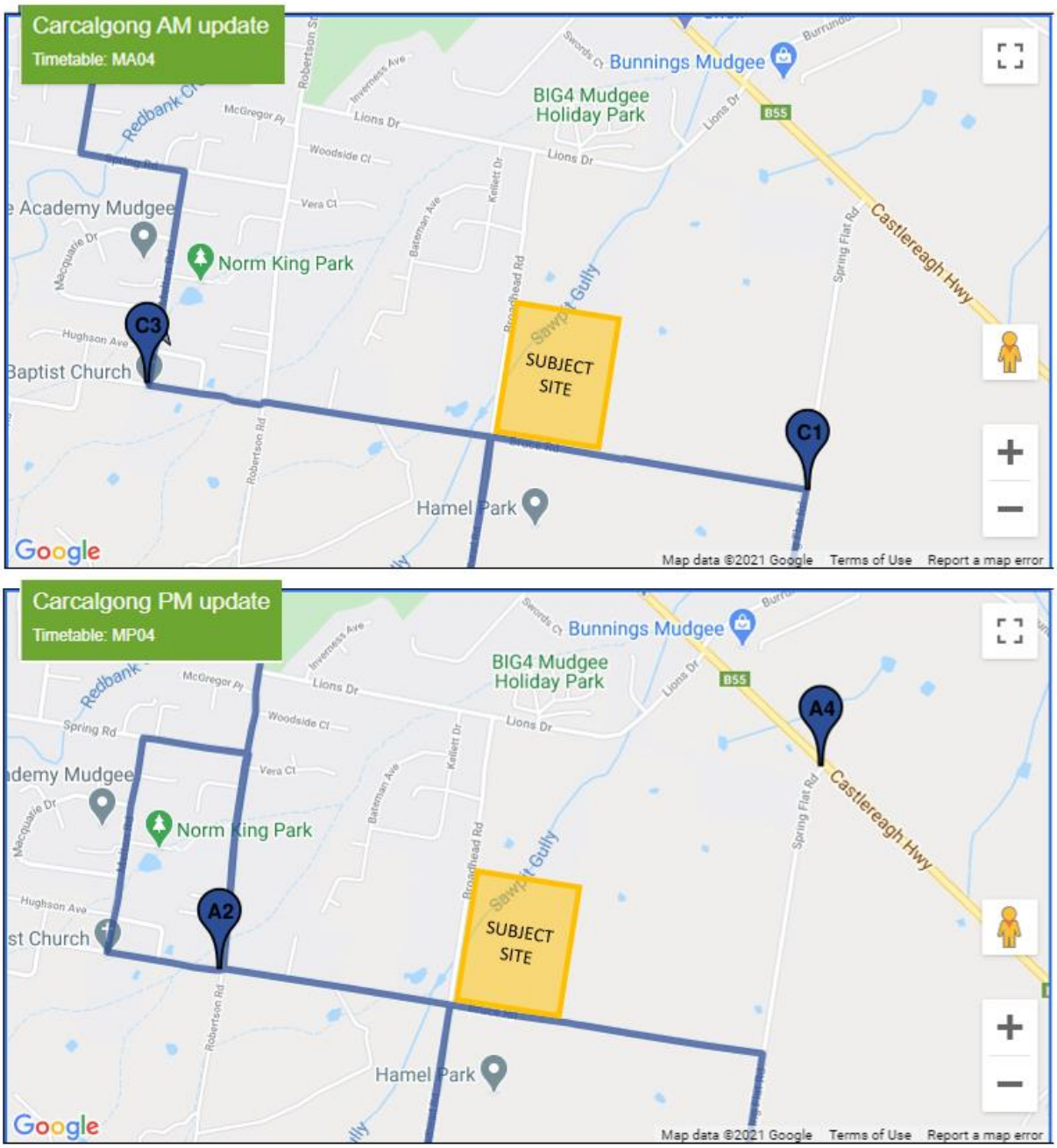
Queen's Pinch School Bus Route





Source: Ogden's Coaches Mudgee School, viewed online 18/02/2021

Carcalgong School Bus Route



Source: Ogden's Coaches Mudgee School, viewed online 18/02/2021

Appendix C

Swept Paths

VEHICLE ENTERING

VEHICLE EXITING

BLOCK C

RL 489.450

2890

10825

GREASE ARRESTOR

LPG TANK

FRONT FENCE & SLIDING GATE

WASTE & DELIVERY BAY

BUS TURNING BAY

NEW FENCE

17705

Turning Bay setback

2

A.330

19m FH13 Articulated Vehicle

AY SHELTER

490.0

1

DA012

Car Parking = 82 cars

FEN-D

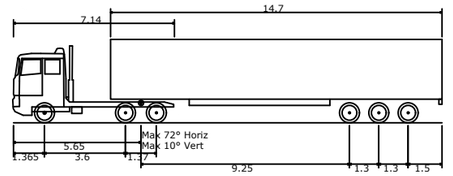
FRONT FENCE & SLIDING GATE

Fire Hydrant Bo

School Sign Boa

2.0W x 1.0H

491.0



19m FH13 Articulated Vehicle

Overall Length	19000mm
Overall Width	2500mm
Overall Body Height	3695mm
Min Body Ground Clearance	332mm
Track Width	2500mm
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	7550mm

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

By: Karl.maistrado
Date: 25 February 2021
Filename: 18472CAD008-210225-SWEPT PATH.dwg

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	SB	KH	21/02/21

ttpp transport planning

PROJECT: ST MATTHEWS CATHOLIC COLLEGE, MUDGEE

TITLE: SWEPT PATH ANALYSIS
19m FH13 ARTICULATED VEHICLE

DWG No. 18472CAD008
FIGURE 1

DATE STAMP 25 FEBRUARY 2021

PROJECT No.	SCALE	REV.
18472	1:300 @A3	A

Appendix D

Traffic and Pedestrian Control Plan

CERTIFICATION

THE UNDERSIGNED HAS OBTAINED "PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN" CERTIFICATION.

CERTIFICATE NO: TCT1002862
SANTI BOTROSS

LEGEND
- SUBJECT SITE
- SITE ACCESS
- SIGNPOST

CONSTRUCTION ACCESS TO BROADHEAD ROAD VIA LIONS DRIVE

CONSTRUCTION ACCESS TO BROADHEAD ROAD VIA LIONS DRIVE

50m

TRAFFIC MANAGEMENT NOTES:

1. NOT ALL DIMENSIONS SHOWN ARE TO SCALE.
2. LOCATION OF SIGNS ARE TO BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY.
3. ALL SIGNS TO BE MINIMUM SIZE A.
4. ALL SIGNS TO BE CLASS 1 REFLECTIVE OR DIAMOND GRADE.
5. ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN.
6. ALL TRAFFIC CONTROL PLANS ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE RMS "TRAFFIC CONTROL AT WORK SITES" MANUAL, VER5 (RMS 2018) AND AUSTRALIAN STANDARDS AS1742.3:2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS.
7. THIS TRAFFIC CONTROL PLAN MUST BE SETUP BY A PERSON HOLDING AN "APPLY TRAFFIC CONTROL PLANS" (YELLOW TICKET) AND THE RTA TRAFFIC CONTROL AT WORK SITES CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION.
8. IT IS THE SITE FOREMAN'S RESPONSIBILITY TO ENSURE THE FOLLOWING:
   - THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURES THROUGH TO THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND DEVICES. THE CORRESPONDING RECORDS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
   - VEHICULAR ACCESS AND SERVICING REQUIREMENTS ARE TO BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES
   - PEDESTRIAN ACCESS AROUND THE WORK AREA TO BE MAINTAINED AT ALL TIMES EXCEPT ALONG FOOTPATH CLOSURES INDICATED ON THE PLAN.
   - AT ALL TIMES UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHOULD BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE
   - IF THERE IS NO DESIGNATED SITE FOREMAN, THE RESPONSIBILITY SHALL FALL ON THE CONTRACTOR OF WORKS
9. ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2009
10. ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH THE SECTION 2.5.2 OF AS1742.3:2009. HOWEVER, MODIFICATIONS MADE TO SUIT SITE CONDITIONS.
11. ALL CONSTRUCTION VEHICLE ACTIVITY SHOULD BE MINIMISED, WHERE POSSIBLE, DURING PEAK PERIODS.
12. ROAD WORK SIGNS TO BE COVERED OR REMOVED WHEN WORKERS ARE NOT ON SITE
13. NO TRUCK QUEUING OR PARKING WILL BE PERMITTED IN ANY PUBLIC ROAD
14. VEHICLES ALREADY ON THE ROAD WILL HAVE A RIGHT OF WAY. AS SUCH EVERY VEHICLE LEAVING THE SITE MUST WAIT UNTIL A SUITABLE GAP IN TRAFFIC ALLOWS THEM TO EXIT UNDER THE DIRECTION OF QUALIFIED TRAFFIC AND PEDESTRIAN CONTROLLER

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	SB	KH	18/02/21

ttpp transport planning

PROJECT: ST MATTHEW'S CATHOLIC SCHOOL, MUDGEE

TITLE: TRAFFIC CONTROL PLAN

DWG No. 18472CAD007 FIGURE 1

DATE STAMP 18 FEBRUARY 2021

PROJECT No.	SCALE	REV.
18427	NTS	A

Filename: 18472CAD007-210218-TCP.dwg Date: 18 February 2021 By: Karl.magistrado

Appendix E

Driver Code of Conduct

north

BUILDING WITH TRUST®

DRIVER CODE OF CONDUCT

FOR

48 BROADHEAD ROAD, SPRING FLAT (ST MATTHEWS CATHOLIC SCHOOL MUDGEE – SECONDARY CAMPUS)

Driver Code of Conduct

This document sets out the requirements for heavy vehicle operators performing work at 48 Broadhead Road, Spring Flat (St Matthews Catholic School Mudgee – Secondary Campus).

DECLARATION

I, the undersigned, hereby agree to abide by the Driver Code of Conduct for the above project.

I have read and understand the requirements outlined in the Code and will, to the best of my ability, comply and assist with their implementation, requirements and ongoing administration.

Driver

Full Name: _____

Organisation: _____

Signature: _____

Date: _____

1.0 General Requirements

The Driver Code of Conduct is to be distributed to all heavy vehicle driver personnel accessing the site prior to the commencement of works. The Code is to be provided to each driver to read and sign to confirm they have understood and pledge to follow the haulage instructions. Once completed, a copy of the signed Code would be supplied by the sub-contractor or personnel to North Construction and Building Pty Ltd for record keeping.

All drivers travelling to and from the site must:

- Have read and signed the Driver Code of Conduct (this document) prior to entry to the site;
- Hold a valid driver's license for the class of vehicle that it being operated;
- Operate the vehicle in a safe manner while on site and public road network;
- Comply with the direction of authorised site personnel when onsite;
- All drivers are to use seat belts when driving; and
- All drivers are to drive to the sign posted speed limit, both on public roads and within the site.

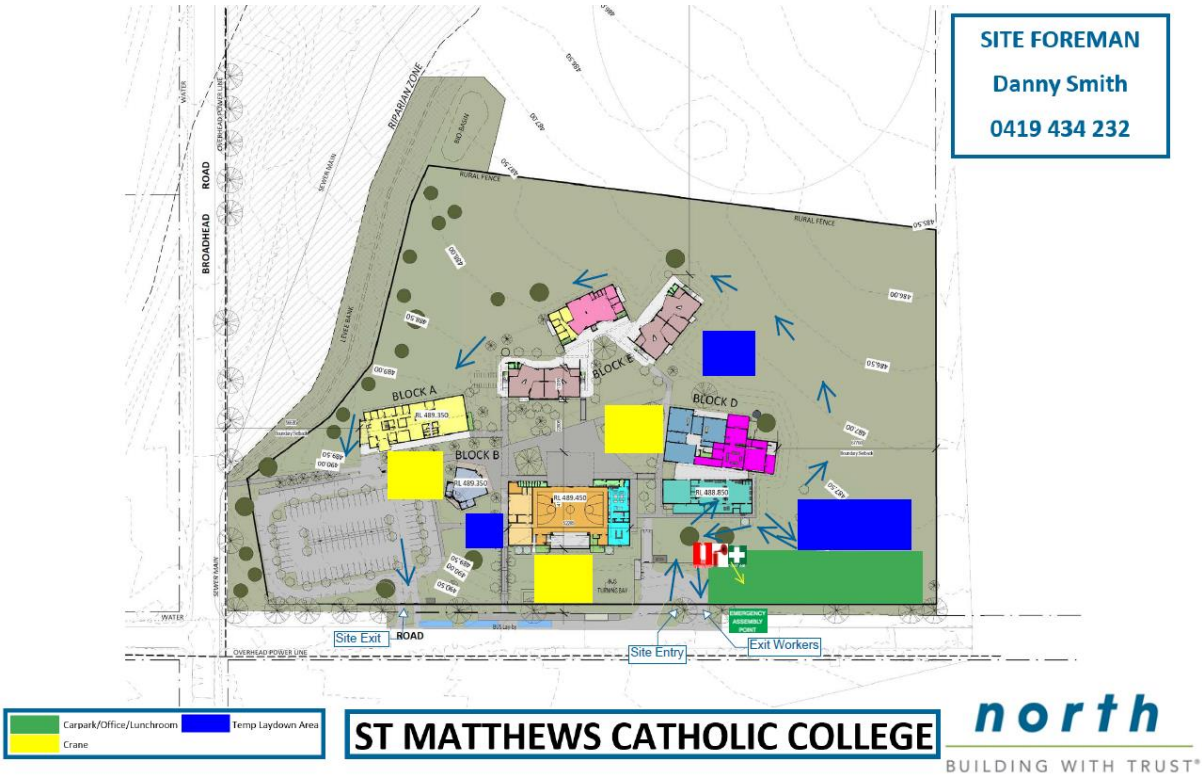
2.0 Occupational Health and Safety

All personnel entering the site are required to follow occupational health and safety legislation. This means that you must:

- Carry out your duties in a way which does not adversely affect your own health and safety or that of others.
- Cooperate with measures introduced in the interest of workplace health and safety;
- Perform any WH&S training provided; and
- Report all matters which may affect workplace health & safety to your supervisor immediately.

3.0 Site Access

All vehicles are to enter and exit the construction site via the site access driveways located off Bruce Road, as shown below.



Heavy vehicles are to enter the site via the "Site Entry" driveway.

Heavy vehicles will exit the site via the "Site Exit" driveway.

All vehicles must enter and exit the site in a forward direction. Whilst on-site all vehicles must follow the internal circulation route through the site as shown above.

4.0 Heavy Vehicle Haul Routes

All heavy vehicle drivers must adhere to the designated truck routes to/from the site as follows:

- **Arrival Route**: from B55 Castlereagh Highway, turn left or right onto Lions Roads, turn left onto Broadhead Road, turn left onto Bruce Road, and turn left into the site access driveway.
- **Departure Route**: Exit the site by turning right out onto Bruce Road, turn right onto Broadhead Road, turn right onto Lions Road, and turn left or right onto Castlereagh Highway.

The above-mentioned heavy vehicle haulage routes are shown below.

Heavy vehicle drivers are <u>not</u> to travel via Spring Flat Road.

5.0 Speed Limit

All drivers must comply with the Australian Road Rules with travelling along public roads. Drivers are to observe the posted speed limits, and adjust speed appropriately to suit the road and weather conditions at the time.

Speed limits on routes to the site from areas surrounding Mudgee vary between 40 km/h (school zones) up to 110 km/h. The maximum speed that a vehicle must travel is the signposted speed.

A default speed limit of 50 km/h applies in built-up urban areas where there is no signposted speed limit.

Warning signs indicating a reduction in speed ahead must also be obeyed. These signs are shown below.

NSW Road Speed Limit Signs

Speed Reduction Ahead Warning Sign

The speed limit within the site is 10 km/h (walking speed), unless signposted otherwise in an area. The speed limit on-site is to be strictly obeyed.

6.0 Parking

All heavy vehicle operators must park vehicles in the designated spaces on-site.

Parking on-street along Bruce Road, Broadhead Road or any other local roads in the vicinity is not permitted.

Heavy vehicles are not permitted to layover/ wait on any public roads.

7.0 Noise Control

Where possible, heavy vehicle operators should not use engine brakes near residences and built up areas.

All heavy vehicles must be fitted with audible reversing alarms. However, to minimise disturbance to neighbouring residents, reversing should be minimised on-site where possible.

8.0 Load Covering

All loaded trucks arriving at and departing from the construction site are required to have an effective cover over their load for the duration of the journey, except loads carrying metals (steel reinforcement, heavy steel, etc.). The load cover may be removed only upon arrival at the destination (ie. at the site).

Care must be taken to ensure that all loose debris from vehicles and wheels is removed prior to exiting the site.

Site management is to monitor loose material on the side of the haul route and take appropriate action regularly.

9.0 Other Safety Considerations

All drivers travelling to/from the site must be aware of the following:

- Concealed driveways – drivers are to drive with caution around any signposted concealed driveways
- Wet/ foggy weather safety – drivers should adjust their driving speed to suit weather condition at the time.
- Other road users – drivers should stay alert to other drivers, motorcyclists, cyclists and pedestrians whilst driving to/ from the site.

The Transport Planning Partnership
Suite 402 Level 4, 22 Atchison Street
St Leonards NSW 2065

P.O. Box 237
St Leonards NSW 1590

02 8437 7800

info@ttpp.net.au

www.ttpp.net.au

4 APPENDIX 2 – SUB PLAN - CONSTRUCTION NOISE AND VIBRATION MANAGEMENT (CONDITION C12)

RAPT CONSULTING

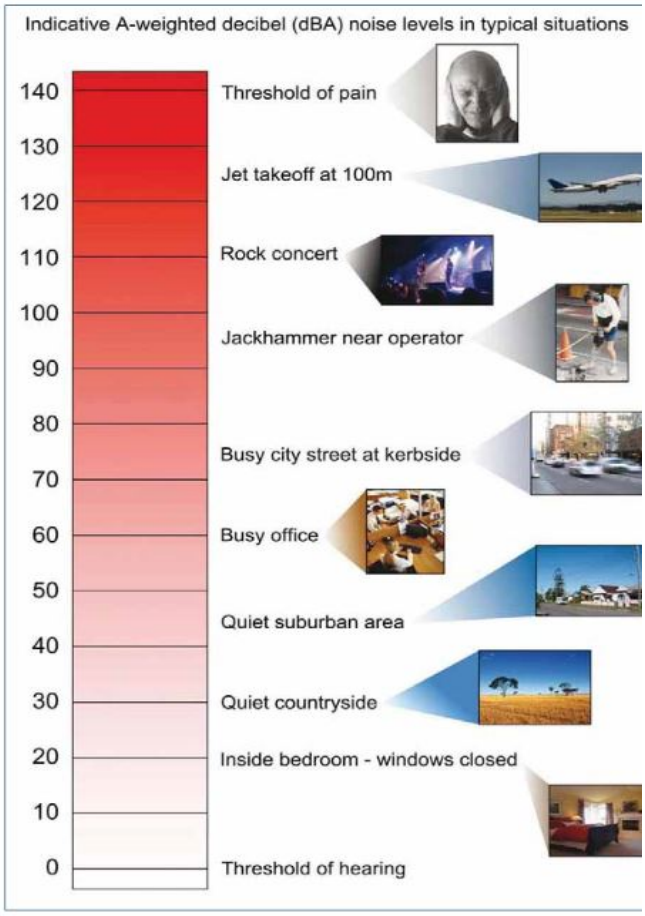
North Construction

Construction Noise and Vibration Management Plan – St Matthews Catholic School, Mudgee NSW

Relationships Attention Professional Trust

Revision	Date	Author
Rev 0	19 February 2021	Gregory Collins

Glossary of Acoustic Terms

Term	Definition
dB	Decibel is the unit used for expressing the sound pressure level (SPL) or power level (SWL) in acoustics. The picture below indicates typical noise levels from common noise sources. 
dB(A)	Frequency weighting filter used to measure 'A-weighted' sound pressure levels, which conforms approximately to the human ear response, as our hearing is less sensitive at very low and very high frequencies.
$L_{Aeq(period)}$	Equivalent sound pressure level: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring.
$L_{A10(period)}$	The sound pressure level that is exceeded for 10% of the measurement period.
$L_{A90(period)}$	The sound pressure level that is exceeded for 90% of the measurement period.
L_{Amax}	The maximum sound level recorded during the measurement period.
Noise sensitive receiver	• An area or place potentially affected by noise which includes: • A residential dwelling.

	• An educational institution, library, childcare centre or kindergarten. • A hospital, surgery or other medical institution. • An active (e.g. sports field, golf course) or passive (e.g. national park) recreational area. • Commercial or industrial premises. • A place of worship.
Rating Background Level (RBL)	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period.
Feasible and Reasonable (Noise Policy for Industry Definition)	**Feasible** mitigation measure is a noise mitigation measure that can be engineered and is practical to build and/or implement, given project constraints such as safety, maintenance and reliability requirements. Selecting **Reasonable** measures from those that are feasible involves judging whether the overall noise benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the mitigation measure. To make a judgement, consider the following: • Noise impacts • Noise mitigation benefits • Cost effectiveness of noise mitigation • Community views.
Sound power level (SWL)	The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in dB(A).

1. Introduction

1.1 Background

RAPT Consulting has been engaged to prepare a construction noise and vibration management plan (CNVMP) on behalf of North Construction for the St Matthews Catholic School, Mudgee NSW.

SSD 9872 Condition C12 states a Construction Noise and Vibration Management Plan (CNVMP) is required as shown in Figure 1.

C12. The Construction Noise and Vibration Management Sub-Plan (CNVMSP) must address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced noise expert;

(b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009);

(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;

(d) include strategies that have been developed with the community for managing high noise generating works;

(e) describe the community consultation undertaken to develop the strategies in condition C12(d);

(f) include a complaints management system that would be implemented for the duration of the construction; and

(g) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the management measures in accordance with condition C8.

Figure 1 SSD 9872 Condition 12 CNVMP Requirements

1.2 Purpose of this plan

This CNVMP has been prepared in response to the requirements outlined in Section 1.1.

This CNVMP should be read in conjunction with the Construction Management Plan and other management plans.

This Plan is to ensure all members of the project team and other project stakeholders understand the objectives and the procedures and processes in place as necessary for the successful execution of works under the contract.

1.3 Objectives

The primary objective of this plan is to comply with the noise and vibration requirements of the Contract and to ensure that no works significantly impact on local background noise and vibration levels.

The objective of the CNVMP can be summarised as follows:

- Ensure that construction works do not significantly impact background noise levels around the site, and that applicable guidelines and regulations are met;
- Identification and management of critical locations for noise and vibration levels in neighbouring properties
- Ensure all equipment operates within the applicable noise levels;
- Ensure that construction works do not cause sufficient vibration to damage surrounding buildings and comply with the applicable guidelines and regulations.
- Cooperative and responsive management principles

2. Legislation and Guidelines

2.1 Legislation

Key environmental legislation relating to noise and vibration management includes:

- Protection of the Environment Operations Act (1997)
- Environment Planning and Assessment Act (1979)
- Local Government Act (1993)
- Protection of the Environment Operations (Noise Control) Regulation 1999 NSW EPA Environmental Noise Control Manual

2.2 Guidelines and Standards

The key references relevant to noise and vibration management of project include:

- DIN 1999, DIN 4150: Part 3 – 1999 Effects of vibration on structures, DIN, Germany
- EPA Interim Construction Noise Guideline
- DEC 2006, Assessing vibration – a technical guideline, Department of Environment and Conservation, Sydney NSW
- DECC 2009, Interim Construction Noise Guideline, NSW Department of Environment and Climate Change, Sydney NSW
- RTA 2001, Environmental Noise Measurement Manual, Roads and Traffic Authority, Sydney NSW
- EPA 2017 Noise Policy for Industry
- AS 1055 Parts 1 to 3 Acoustics: Description and management of environmental noise;
- AS 2659 Sound level metres;
- AS 2659.1 Guide to the use of sound measuring equipment;
- AS 2072 Acoustics: Methods for measurement of traffic noise;

3. Communication

Following the completion and implementation of an approved CNVMP, there are several key measures, which will be undertaken by the site team to ensure effective and positive communication with all affected parties.

3.1 Ongoing Cooperative Management

The site teams will apply a pro-active approach to all aspects of the project to ensure a high level of control is exercised and any potential problems can be identified (and responded to) as early as possible.

The project team pro-actively manage the project by focusing closely on planning, programming, forecasting and monitoring activities. This focus minimises the potential for problems to occur. The team will continue to develop contingency plans to address the possibility of problems actually arising. This approach is fundamental to the successful delivery of the project.

Despite the best endeavours of all stakeholders, problems or unforeseen circumstances may arise. The team will actively resolve or help to resolve such problems in the most expedient and efficient way possible. Project staff with the experience and skills needed to solve complex problems in projects of this nature will remain committed to this project. In the event that unforseen problems are encountered, the team will immediately initiate and implement a problem resolution plan to minimise any impacts.

The team will encourage and promote a co-operative and harmonious project environment. This applies to relationships between clients, employees, consultants, suppliers, subcontractors, unions and other stakeholders. The objective will be to eliminate conflict wherever possible and at all levels, as this can be a major impediment to progress and meeting project objectives.

3.2 Response Management

While noise and vibration management and mitigation measures will assist in meeting project objectives, it is understood the potential exists for concerns from affected parties throughout different stages of the project.

Efficiently and effectively providing comprehensive response management procedures for each individual concern throughout the project will be fundamental to complete the works to the satisfaction of all parties.

An obligation exists to quickly and adequately act on concerns if and when they arise. it is the site responsibility to effectively close out these issues and concerns regardless of liability, ensuring affected parties are completely satisfied in a timely manner to the best of our ability.

3.3 Forecasting and Notification

A key communication tool is the provision of ongoing forecasting and early notification of activities to potentially affected parties. This provides early warning of the stages of the projects, provides an opportunity for review and comment by affected parties and helps

outside parties generally understand the construction process and why certain activities occur.

By providing this open form of communication affected parties have a higher level of understanding of the works and it encourages feedback into other party's activities, which may affect scheduled works or change for whatever reason. Through early warning site management can assist in re-programming works to suit the requirements of the affected party without affecting the overall construction programme. Early warning and notifications both ways is necessary for the ongoing success of the project.

3.4 Contractor Management

The site team will ensure the CNVMP will be a contract document for its contractors, notably civil works, and will be further developed and amended in conjunction with leading contractors. Site management will listen to their concerns and innovations with consideration to the requirements of the contract to ensure an effective balance of community management, environmental management and onsite production.

Site Management will ensure that the noise and vibration requirements and plans are;

- Contract documents for all contractors
- An integral part of individual project site inductions
- Monitored daily through site environmental hazard sheets
- Adequate site management resources throughout all project phases
- An assessment criteria for the selection of contractors
- Are continually updated throughout the course of the works as required

The transfer of knowledge and requirements, while maintaining overall project responsibility, will be integral to ensuring effective site management. Site management recognise this communication link with site contractors is important to maintaining effective overall management of the project to the satisfaction of all affected parties.

4. Noise and Vibration Guidelines

4.1 Site and Surrounding Area

The site and surrounding area including nearest receptors and noise monitoring locations is shown in Figure 2.

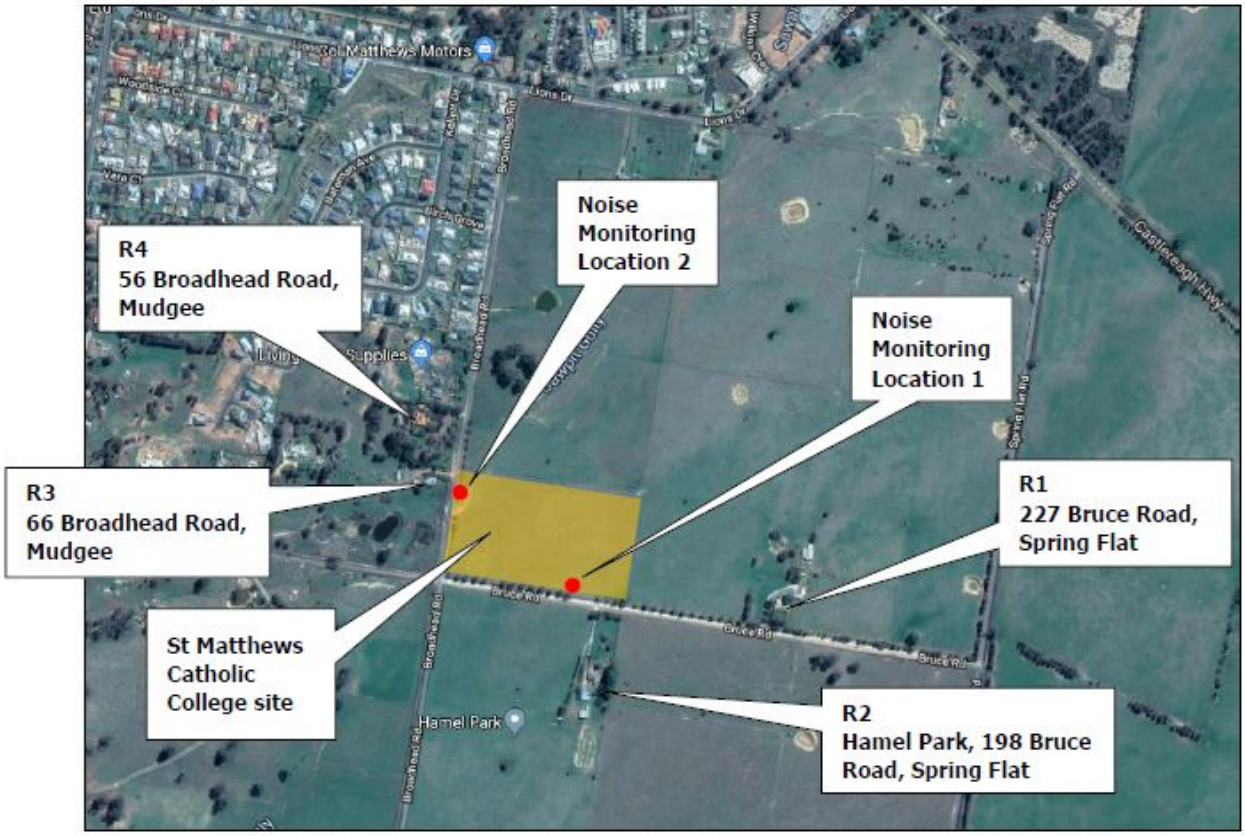


Figure 2 Site Location Lot 40 DP 756894 – 48 Broadhead Road, Spring Flat (Mudgee).

4.2 Construction Noise

Construction noise is assessed with consideration to DECCW Interim Construction Noise Guidelines (ICNG) (July 2009). The INCG is a non-mandatory guideline that is usually referred to by local councils and other NSW government entities when construction / demolition works require development approval. The ICNG recommend standard hours for construction activity as detailed in Table 1.

Table 1 ICNG Recommended Construction Hours

Work type	Recommended standard hours of work
Normal construction	Monday to Friday: 7 am to 6 pm. Saturday: 8 am to 1 pm. No work on Sundays or Public Holidays.

Work type	Recommended standard hours of work
Blasting	Monday to Friday: 9 am to 5 pm. Saturday: 9 am to 1 pm. No work on Sundays or Public Holidays.

However, construction hours outlined in SSD-9872 Condition D4 – D7 are provided below:

Construction Hours

D4. Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:

(a) between 7am and 6pm, Mondays to Fridays inclusive; and

(b) between 8am and 1pm, Saturdays.

No work may be carried out on Sundays or public holidays.

D5. Activities may be undertaken outside of the hours in condition D4 if required:

(a) by the Police or a public authority for the delivery of vehicles, plant or materials; or

(b) in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or

(c) where the works are inaudible at the nearest sensitive receivers; or

(d) where a variation is approved in advance in writing by the Planning Secretary or his nominee if appropriate justification is provided for the works.

D6. Notification of such construction activities referenced in Condition D5 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

D7. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:

(a) 9am to 12pm, Monday to Friday;

(b) 2pm to 5pm Monday to Friday; and

(c) 9am to 12pm, Saturday.

The ICNG provides noise management levels for construction noise at residential and other potentially sensitive receivers. These management levels are to be calculated based on the adopted rating background level (RBL) at nearby locations, as shown in Table 2.

Table 2 Recommended Construction Noise Management Levels

Period	Management Level $L_{Aeq(15\ min)}$
Residential Recommended standard hours	Noise affected level: RBL + 10 Highly noise affected level: 75 dB(A)
Residential Outside recommended standard hours	Noise affected level: RBL + 5
Classrooms at schools and other educational institutions	Internal Noise Level 45 dB(A) (applies when properties are being used)
Offices, retail outlets	70 dB(A)

The above levels apply at the boundary of the most affected residences / offices or within 30 m from the residence where the property boundary is more than 30 m from the residence.

The *noise affected level* represents the point above which there may be some community reaction to noise. Where the *noise affected level* is exceeded all feasible and reasonable work practices to minimise noise should be applied and all potentially impacted residents should be informed of the nature of the works, expected noise levels, duration of works and a method of contact. The *noise affected level* is the background noise level plus 10 dB(A) during recommended standard hours and the background noise level plus 5 dB(A) outside of recommended standard hours.

The *highly noise affected level* represents the point above which there may be strong community reaction to noise and is set at 75 dB(A). Where noise is above this level, the relevant authority may require respite periods by restricting the hours when the subject noisy activities can occur, considering:

- Times identified by the community when they are less sensitive to noise (such as mid-morning or mid-afternoon for works near residences).
- If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

As part of the development application, noise monitoring was undertaken by Wilkinson Murray *ST MATTHEWS CATHOLIC COLLEGE MUDGEE NOISE AND VIBRATION IMPACT ASSESSMENT REPORT NO. 19120 VERSION B APRIL 2020* from 14 to 23 May 2019. The noise monitoring locations are shown in Figure 2 taken from the abovementioned report.

Based on this construction noise trigger levels for have been derived, as shown in Table 3.

Table 3 Construction Noise Management Levels dB(A) Leq(15min)

Receiver	Within Recommended Standard Hours	Outside Recommended Standard Hours	
		Evening (6pm-10pm)	Night (10pm-7am)
Residential	45	35	35
Classrooms at schools and other educational institutions	45(internal)	45(internal)	45(internal)
Offices, retail outlets	70	70	70

4.3 Vibration Guidelines

Vibration during construction and operational activity is expected to primarily originate from trucks and machinery during stages of construction and activities. All piling is to be screw piling. RAPT Consulting also understand that blasting and heavy ground impact activities is not expected to occur during the works.

4.3.1 Human Exposure

Vibration goals during the were sourced from the DECCW's *Assessing Vibration: a technical guideline*, which is based on guidelines contained in British Standard (BS) 6472–1992, *Evaluation of human exposure to vibration in buildings (1–80 Hz)*.

Intermittent vibration is assessed using the vibration dose value (VDV), fully described in BS 6472 – 1992. Acceptable values of vibration dose are presented in Table 4.

Table 4 Acceptable Vibration Values for Intermittent Vibration ($m/s^{1.75}$)

Location	Daytime [1]		Night-time [1]	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical areas [2]	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

4.4 Building Damage

Currently, there is no Australian Standard that sets the criteria for the assessment of building damage caused by vibration. Guidance of limiting vibration values is attained from reference to the following International Standards and Guidelines:

- British Standard BS7385.2 - 1993 *Evaluation and Measurement for Vibration in Buildings*, Part 2 - Guide to damage levels from ground borne vibration; and
- German Standard DIN 4150-3: 1999-02 Structural Vibration – Part 3: *Effects of vibration on structures*.

BS7385.2 – 1993 is utilised in this case in the assessment of potential building damage resulting from ground borne vibration produced by the proposed activity.

The recommended Peak Particle Velocity (PPV) guidelines for the possibility of vibration induced building damage are derived from the minimum vibration levels above which any damage has previously been encountered and are presented in Table 5.

Table 5 Transient Vibration Guideline Values for Potential Building - Cosmetic Damage

Building Type	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
Unreinforced or light framed structures. Residential or light commercial type buildings.	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Unlike noise which travels through air, the transmission of vibration is highly dependent on substratum conditions between the source/s and receiver. Also dissimilar to noise travelling through air, vibration levels diminish quickly over distance, thus an adverse impact from vibration on the broader community is not typically expected. Vibration during works is considered an intermittent source associated with two main types of impact; disturbance at receivers and potential architectural/structural damage to buildings. Generally, if disturbance issues are controlled, there is limited potential for structural damage to buildings.

5. Noise and Vibration Sources

5.1 Noise Sources

The individual sound power levels (SWL) for the anticipated type of construction plant have been referenced from RAPT Consulting's database of noise sources and the RMS Construction Noise Estimator. Typical noise levels from construction plant and equipment most likely to be used during the construction works are provided in Table 6.

Table 6 Construction Noise Sources

Equipment/Process	Sound Power Level dB(A)
20 Tonne Excavator with Breaker (Demolition and Civil Works)	118
Grader (Civil Works)	113
Concrete Pump (Civil Works)	102
Concrete Truck (Civil Works)	109
Road Truck (Demolition and Civil Works)	108
Roller (Civil Works)	109
D9 Dozer (Civil Works)	116
Mulcher (Civil Works)	116
Site Crane (Civil Works)	98

5.2 Vibration Sources

The relationship between vibration and the probability of causing human annoyance or damage to structures is complex. This complexity is mostly due to the magnitude of the vibration source, the particular ground conditions between the source and receiver, the foundation-to-footing interaction and the large range of structures that exist in terms of design (e.g. dimensions, materials, type and quality of construction and footing conditions). The intensity, duration, frequency content and number of occurrences of vibration, are all important aspects in both the annoyances caused and the strains induced in structures.

Energy from construction equipment is transmitted into the ground and transformed into vibrations, which attenuates with distance. The magnitude and attenuation of ground vibration is dependent on the following:

- The efficiency of the energy transfer mechanism of the equipment (i.e. impulsive; reciprocating, rolling or rotating equipment)
- The Frequency content;
- The impact medium stiffness;
- The type of wave (surface or body)
- The ground type and topography.

Due to the above factors, there is inherent variability in ground vibration predictions without site-specific measurement data. Due to the nature of the works, the vibration risk is low.

The NSW RMS Publication Construction Noise and Vibration Guideline provides guidance for ground vibration and minimum safe working distances. Table 7 outlines recommended safe working distances for vibration intensive plant from sensitive recievers.

Table 7 Minimum Working Distances from Sensitive Receivers

Plant Item	Rating / Description	Minimum Distance Cosmetic Damage		Minimum Distance Human Response (NSW EPA Guideline)
		Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	
Vibratory Roller	<50 kN (1-2 tonne)	5m	11m	15m to 20m
	<100 kN (2-4 tonne)	6m	13m	20m
	<200 kN (4-6 tonne)	12m	15m	40m
	<300kN (7-13 tonne)	15m	31m	100m
	>300kN (13-18 tonne)	20m	40m	100m
	>300kN (>18 tonne)	25m	50m	100m
Small Hydraulic Hammer	300kg (5 to 12 t excavator)	2m	5m	7m
Medium Hydraulic Hammer	900kg (12 to 18 t excavator)	7m	15m	23m

Plant Item	Rating / Description	Minimum Distance Cosmetic Damage		Minimum Distance Human Response (NSW EPA Guideline)
		Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	
Large Hydraulic Hammer	1600kg (18 to 34 t excavator)	22m	44m	73m
Vibratory Pile Driver	Sheet Piles	2m to 20m	5m to 40m	20m
Pile Boring	≤ 800mm	2m (nominal)	5m	4m
Jack Hammer	Hand Held	1m (nominal)	3m	2m

The minimum working distances are indicative and will vary depending on the particular item of plant and local geotechnical conditions.

Based on distances from the proposal to nearest receivers and items of plant to be used, vibration goals are expected to be met. However, if hammering is to occur, it is recommended this activity does not exceed the medium hydraulic hammer specification.

6. Mitigation Measures

The following noise mitigation measures will be adopted to minimise any potential noise and vibration impacts for the project.

Table 8 Noise and Vibration Mitigation Measures

Action Required	Applies to	Details
Management Measures		
Working Hours	Airborne Noise Ground –borne noise & vibration	Ensure strict compliance with construction hours. This requirement to be communicated to all staff through inductions and toolbox meetings.
Out of Hours Works	Airborne Noise Ground –borne noise & vibration	Where work is required to be conducted outside normal construction hours, the out-of-hours works protocol shall be followed to minimise the impact
Site Induction	Airborne Noise Ground –borne noise & vibration	All employee, contractors and subcontractors are to receive an environmental induction. The induction must at least include: • All relevant project specific and standard noise and vibration mitigation measures • Relevant licence and approval conditions • Permissible hours of work • Any limitations on high noise generating activities • Location of nearest sensitive receivers • Construction employee parking areas • Designated loading/unloading areas and procedures • Site opening/closing times • Environmental incident procedures
Behavioral Practices	Airborne Noise	No swearing or unnecessary shouting or loud radios on site.

Action Required	Applies to	Details
		No dropping of materials from height, throwing of metal items and slamming of doors
Education	Airborne Noise Ground –borne noise & vibration	Provide education of supervisors, operators and sub-contractors on the need to minimise noise through Toolbox meetings and on-site coaching
Noise Monitoring	Airborne Noise Ground –borne noise & vibration	A noise monitoring program is implemented in accordance with this plan any approval and licence conditions. In the event of noise complaints during operations, noise monitoring will be undertaken. A report will be prepared comparing noise results against noise management measures. If noise management levels are exceeded while monitoring, site management will be notified to make adjustments to ensure compliance.
Vibration Monitoring	Vibration	A vibration monitoring program is implemented in accordance with this plan any approval and licence conditions
Consultation	Airborne Noise Ground –borne noise & vibration	A Community and Stakeholder Manager shall to be appointed by the contractor prior to the commencement of any works. The Manager will provide information to neighbours before and during construction to advise of expected noisy works, the duration of the works and what is being done to minimise the noise. A community telephone number and email address will be established for consultation purposes. Community notifications will be prepared and distributed at least 7 days prior to commencement of any works.
Noise & vibration complaints	Airborne Noise Ground –borne noise & vibration	A protocol will be developed for handling noise and vibration complaints that

Action Required	Applies to	Details
		includes recording, reporting and acting on complaints.
Planning		
Dilapidation Survey	Vibration	Prior to commencement of works, undertake a dilapidation survey to detail the current structural condition of the site and adjoining areas, including all existing fences, adjoining buildings, infrastructure, roads, crossovers etc.
Construction hours and scheduling	Airborne Noise Ground –borne noise & vibration	Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods and higher levels of neighbourhood noise.
Maximise Shielding	Airborne Noise	Use temporary site buildings and materials stockpiles as noise barriers Where possible, schedule construction of permanent walls so they can be used as early as possible
Equipment selection	Airborne Noise Ground –borne noise & vibration	Use quieter and less vibration emitting construction methods where feasible. Ensure all fixed plant at the work sites is appropriately selected, and where necessary, fitted with silencers, acoustical enclosures and other noise attenuation measures where practicable.
Equipment Placement	Airborne Noise Ground –borne noise & vibration	Position noisy plant and equipment as far apart as is practicable from each other and consider whether orientation and location of the plant can reduce noise impacts at sensitive receivers.
Vehicle Movements	Airborne Noise Ground –borne noise & vibration	Arrange work sites to avoid or minimise truck movements, and ensure vehicles enter and exit work sites in a forward direction.
Reversing Alarms	Airborne Noise	Avoid the use of reversing alarms by designing the site layout to avoid reversing.

Action Required	Applies to	Details
		Where possible, install non-tonal and / or automatically adjusting reversing alarms on site equipment
Maximum noise levels	Airborne Noise	The noise levels of plant and equipment must have operating Sound Power or Sound Pressure levels complaint with the criteria set in OEH guidelines.
Construction		
Rock Breaking	Airborne Noise Ground –borne noise & vibration	Reduce the use of rock-hammering where feasible and use alternative measures such as rock-saws and rippers where possible.
Equipment selection	Airborne Noise Ground –borne noise & vibration	Select appropriate sized equipment for the task, such as vibratory compactors and rock excavation equipment.
Equipment Maintenance	Airborne Noise Ground –borne noise & vibration	Regular maintenance and testing of all plant and equipment onsite to ensure they continue to meet the noise and vibration criteria
Equipment Operation	Airborne Noise Ground –borne noise & vibration	Ensure equipment is operated in the correct manner and adequately maintained - including replacement of engine covers, repair of defective silencing equipment, tightening of rattling components, repair of leakages in air lines and shutting down equipment not in use
Work Methods	Airborne Noise Ground –borne noise & vibration	Careful selection of all work methods to be used on the project to ensure they meet the noise and vibration criteria.
Site Entrances	Airborne Noise Ground –borne noise & vibration	The site entry and egress points will be set as far from receivers as practical and will be designed to distribute the movements rather than directing all movements through a single gate.
Relief Periods	Airborne Noise Ground –borne noise & vibration	Provide periods of relief when practical during noise intensive activities such as rock breaking.

Action Required	Applies to	Details
Noisy fabrication works	Airborne Noise	Carry out noisy fabrication work at another site (for example, within enclosed factory premises) and then transport to site.
Generators/ compressors	Airborne Noise	Use only silenced generators and compressors
Vehicle queuing	Airborne Noise Ground –borne noise & vibration	Prevent vehicles and plant queuing and idling outside the site, particularly prior to the construction start time.
Vehicle maintenance	Airborne Noise	Ensure that equipment is operated in the correct manner including repair of defective mufflers, tightening/correction of rattling parts and components and repair of leakages in compressed airlines.
Auditing and Monitoring		
Noise Monitoring	Airborne Noise Ground –borne noise & vibration	Where identified, undertake regular monitoring of overall noise levels at sensitive receivers to check for compliance. Where non-compliances are identified, modify work practices to achieve compliance.
Vibration Monitoring	Vibration	Undertake vibration monitoring during works at sensitive receivers to check for compliance. Where non-compliances are identified, modify work practices to achieve compliance.
Community Consultation	Airborne Noise Ground –borne noise & vibration	Undertake community consultation and respond to complaints in accordance with project procedures

7. Site Specific Management and Mitigation Measures

7.1 Management Measures

Management of Noise and Vibration issues rest in the first instance with the Project Manager. Working closely with the Site Manager and their team the Project Manager will ensure resources and support is available to allow the Site Manager to effectively management of all aspects of this Noise and Vibration Plan and its resulting requirements.

7.2 Planning

Planning for control of Noise and Vibration is the key to successful outcomes. With proper planning in place many potential problems resulting in complaints can be averted thus maintaining confidence with stakeholders that all possible measures are in place.

Where potential problems are anticipated following the planning and risk review process site management will communicate outcomes and potential problems to the stakeholders concerned to avoid surprises.

Examples of planning measures are as follows:

- Careful selection of all work methods to be used on the project to ensure they meet the noise and vibration criteria.
- Where practicable, increase the use of offsite manufactured elements in the design to eliminate site manufacturing.
- Create dedicated truck routes for heavy vehicles. It will be important to establish and agree early in the project approved truck routes, not just for close neighbours, but for the community as a whole. The preferred strategy is to choose a route that minimises disruption to neighbours and the community and enforce it throughout the works.

7.3 Plant and Equipment

- Careful selection of all plant and equipment to be used on the project to ensure they meet the noise and vibration criteria.
- Regular maintenance and testing of all plant and equipment onsite to ensure they continue to meet the noise and vibration criteria.
- Where identified, set up anti vibration pads for any vibrating plant and other temporary plant and equipment.

7.4 Management

In addition to noise and vibration mitigation, site management will establish an emergency contact point for any complaints, should there be an immediate issue, which requires immediate action. This will enable the public to make a direct phone call to the site manager to stop a work area or address a problem should the need arise.

8. Successful Management of Noise and Vibration

In summary the overall process to be implemented includes:

- Understand the project and contract requirements
- Identify the specific project risks and sensitive locations and provide a detailed risk assessment for each location in specific relation to noise and vibration requirements
- Set clear criteria and guidelines prior to works commencing
- Further develop the Noise and Vibration Management Plan in conjunction with affected parties throughout the course of the works
- Management the implementation of the plan through the allocation of appropriate resources and ensuring the requirements of the plan are transferred to all contractors and site workers
- Provide ongoing cooperative management throughout all phases of the project. Understand that it is our obligation, regardless of contractual requirements, to act in a cooperative manner at all times with all affected parties and stakeholders
- Provide adequate response management for any issue.
- Provide adequate contractor management to ensure common guidelines and restrictions with the managing contractor requirements. Actively monitor the contractors on the project in a detailed and regular fashion through site and contractual management
- Allocate sufficient overall site management resources in all facets of the project to ensure issues are understood, allow correct forecasting and planning, allow adequate consultation and communication, comprehensive daily management and adequate response management
- Implement project monitoring and provide constant feedback to monitoring data as required
- Implement comprehensive physical mitigation measures in plant and equipment used and construction techniques
- Draw on existing experience on noise and vibration sensitive sites, and experience and methods used in similar confined sites with nearby sensitive receivers.
- Understand site obligations to be cooperative, responsive and constantly adjust processes to suit affected parties, stakeholders and the greater community
- In accordance with the project conditions, approval will be sought to complete any out of hour's works – if required.

9. Training

In addition to other training requirements inductions are required and are to address:

- Sensitivity of the site and proximity to sensitive receivers
- Awareness of noise and vibration created during construction and the requirement to operate equipment is in the quietest possible manner in consideration of surrounding residents / land uses
- Strict adherence to the approved hours of operation
- Delivery hours and locations
- Notification of the Project Manager/Site Supervisor of any works likely to cause significantly high vibration / noise emissions

10. Limitations

The purpose of the CNVMP is to provide an independent set of management measures for the St Matthews Catholic School at Mudgee, NSW.

It is not the intention of the plan to cover every element of the acoustic environment, but rather to conduct the plan with consideration to the prescribed work scope.

It is the nature of environmental assessments that all variations in environmental conditions cannot be assessed and all uncertainty concerning the conditions of the ambient environment cannot be eliminated. Professional judgement must be exercised in the investigation and interpretation of observations.

In preparing this CNVMP, current guidelines for noise and vibration were referred to. This work has been conducted in good faith with RAPT Consulting's understanding of the client's brief and the generally accepted consulting practice.

No other warranty, expressed or implied, is made as to the information and professional advice included in this report. It is not intended for other parties or other uses.

11. The Author

This plan has been prepared by Gregory Collins of RAPT Consulting. Greg has over 27 years' experience in a wide range of Acoustics and Air Quality projects. Having previously been the Air and Noise Technical Service line leader and The Global Environmental Technical Sector Leader for international professional service firms, Greg has a reputation for technical excellence, combined with innovative, cost effective solutions for clients. Greg has provided environmental management, assessment and monitoring services for noise and air parameters across a range of sectors including transport, utilities, industry and resources. Greg has significant experience in the assessment of noise and air quality from establishment of goals to calculation, modelling and control of impacts. Greg's noise and air project experience includes; transportation infrastructure including road, rail and port developments, mining, power generation infrastructure from large coal fired power stations and smaller gas fired generators through to power transmission networks and suburban substation facilities, assessment and control from industrial premises, impact and management from construction activities, land use planning and residential and commercial noise control in building design.

5 APPENDIX 3 – SUB PLAN - CONSTRUCTION WASTE MANAGEMENT (CONDITION C13)

BARKER RYAN STEWART

North Construction Pty Ltd

Construction Waste Management Plan

St Matthews Catholic School

February 2021

ENGINEERING
PLANNING
SURVEYING
CERTIFICATION

brs.com.au

Project No.	210076
Author	BM
Checked	LW
Approved	BM

Rev No.	Status	Date	Comments
1	Draft	23/02/2021	
2	Final	26/02/2021	

REPORT DISCLAIMER
This report has been prepared for the client identified in section 1.0 only and cannot be relied on or used by any third party. Any representation, statement, opinion or advice, expressed or implied in this report is made in good faith but on the basis that Barker Ryan Stewart are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in any respect of any representation, statement, or advice referred to above.

This report is for development application purposes only and is not to be relied upon for construction purposes. The waste calculations included in the report are an estimate only, based on the plans and documents supplied by the client and waste generation guidelines from Council, the EPA and other third parties. This report is a guideline only and should not be used as a basis for feasibility studies, safety procedures, operational costs, demolition / construction estimates or bills of quantities. Should waste generation be higher than expected, the site manager shall make appropriate adjustments to accommodate additional waste. Any equipment recommended in this report shall be assessed by the supplier and site manager to determine it is fit for the intended purpose.

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1 Author and Project Details

Author Details	
Name	Barker Ryan Stewart
Address	Studio 5, 78 York Street, East Gosford
Phone number(s)	02 4325 5255
Email	coast@brs.com.au

Development Details	
Approved Project Details	Construction of a new high school to cater for up to 680 students comprising: • Construction of five buildings including administration areas, a chapel, teaching spaces, specialist and performing arts spaces; and • Associated works including car parking, drop-off/pick-up facilities, signage, tree removal, landscaping and infrastructure upgrades.
Address of Development	48 Broad Head Road, Spring Flat. Lot 40 DP 756894
Existing Buildings and other structures currently on the site	No buildings or other structures exist on the site.
This development achieves the waste objectives set out in the DCP. The details on this form are the provisions and intentions for minimising waste relating to this project. All records demonstrating lawful disposal of waste will be retained and kept readily accessible for inspection by regulatory authorities such as council, OEH or WorkCover NSW.	
Contact Name	Ben Miller
Signature	
Date	26/02/2021

2 Introduction

Barker Ryan Stewart have been engaged by North Constructions Pty Ltd to prepare a Construction Waste Management Plan to accompany an application for a Construction Certificate for the approved St Matthews Catholic School (SSD Application no: SSD 9872).

This Construction Waste Management Plan has been prepared to address Condition C13 as follows:

> *C13. The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the following:*
> *a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; and*
> *b) removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of construction.*

This CWMP will enable contractors and site management to meet specific waste objectives.

3 Waste Avoidance and Reduction

It is recommended that Contractors should be instructed to review this CWMP with contract staff during indications to outline primary ways to manage waste and divert excess construction materials from landfill. Opportunities for divert excessive waste to landfill include:

- Utilising all suitable topsoil on site for landscaping purposes.
- Explore opportunities for inert fill excavated from the site to be transported to approved development sites to be reused where additional inert fill is required.
- All waste identified with contaminants to be disposed at approved waste facilities.
- Information on the importance of early waste separation and in- situ characterisation of waste to be provided to all staff;
- Methods to enable identification of waste and construction materials to be provided to all staff;
- Appropriate instructions for documenting volumes of waste and methods of disposal;
- Site Manager field observations and audits designed to ensure that contractors are adhering to the construction waste strategy;
- Reduce stockpiling of waste where possible as it becomes difficult to characterise specific materials for recycling when certain materials cannot be visually identified;
- Specific waste characterisation areas should allow waste to be sorted in a safe environment away from immediate construction danger;
- Procedures to be prepared prior to construction for Site Managers or persons responsibility for site waste to undertake a final inspection of landfill waste to ensure the materials have been characterised correctly;
- Procedure to be prepared for potential reuse of construction materials on site.

4 Waste Avoidance and Reduction

4.1 Construction Waste Monitoring and Reporting

Documentation of construction waste generation totals, methods of removal and on site reuse, off site reuse, off site recycling and off-site disposal should be maintained by contractors to ensure waste removal is documented. Where possible, Site Managers should be responsible for the preparation of monthly reporting to ensure waste objectives are being met.

A Waste Register is to be kept by all contractors documenting the following:

- Type of waste;
- Total tonnage and volume of waste;
- Category of waste (recycling, reuse, landfill);
- Destination for reuse, recycling or landfill; and
- Landfill and waste contractor receipts.

Any waste removal issues throughout construction should be identified immediately and Site Managers should undertake any actions required to prevent the issue reoccurring.

4.2 Excavation Waste Reuse

Cut and fill requirements are generally neutral with a minor excess of 43m^3 resulting.

A Detailed Site Investigation Report was prepared by Martens which confirmed that the site was not contaminated and remediation was not required. Accordingly, any topsoil or excavated material will remain on site for use in landscaping and waste classification in accordance with the NSW EPA Waste Classification Guidelines (2014) will not be required.

4.3 Roles and Responsibilities

Table 1 identifies typical roles and responsibilities associated with contractor waste disposal in large construction sites. Note roles and responsibilities will be assigned by the contractor and the following information is provided as a guide only.

Table 1: Typical Waste Roles and Responsibilities

Role	Typical Responsibility
Site Management or Waste Managers	Responsible for the organisation of waste removal within the site area including monitoring, reporting and delegating of tasks to ensure waste is to be diverted from landfill where possible.
Construction personnel	Responsible for daily waste characterisation and maintenance to ensure waste objectives are being met. Construction personnel should be educated on the requirement of the waste strategy and any potential impacts.
WHS Managers	Typically, responsible for management of site safety and induction of all workers prior to construction. This may include discussion of the waste management strategy and hierarchy associated with waste disposal on and off the site.
External Waste Contractors	Responsible for the collection and disposal of waste to recycling facilities or landfill. External waste contractors should report to the Site Managers or Waste Managers to ensure the waste strategy is being adopted and documentation of waste leaving the site is prepared.

4.4 Waste Avoidance and Reduction Methods

- All fixtures and fittings will be made to measure wherever possible;
- All materials will be ordered in accordance with a bill of quantities;
- Recycled materials will be utilised on site or on nearby sites where ever possible to reduce transport costs and impacts to the environment;

- Measures will be taken to ensure the construction contractor is aware of the waste management procedures and adheres to appropriate guidelines;
- Salvage materials for recycling and reuse during the construction process; and
- The remaining waste to be transported to a recognised builders recycling yard or waste facility.

4.5 End Destination for Waste Streams

See below details of the Construction Waste Management contractor/s engaged to undertake construction waste removal from the site.

Table 2: Waste Stream Destinations

Contractor	Address	Type of Waste
JR Richards	20B Sydney Road, Mudgee	General waste
JR Richards	20B Sydney Road, Mudgee	Cardboard/ Recycling
Mudgee Scrap and Steel Depot	30 Industrial Avenue, Mudgee	Metal/ scrap steel

5 Demolition

The greenfield site is vacant and demolition is not required.

Refer to section 4.2 for details of excavation reuse.

6 Construction

6.1 Waste Generation

Table 2 identifies expected waste generation during construction based on review of the approved Architectural and Civil Engineering Plans.

Please note end destination for waste streams is provided in section 4.5.

Table 3: Estimated Construction Waste Generation

Type of Waste Generated	Reuse	Recycle	Disposal	Comment
	Estimate Volume (m^3)	**Estimate Volume (m^3)**	**Estimate Volume (m^3)**	**Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used (refer section 4.5)**
Excavation material	43m^3	-	-	Excavated materials will be reused as fill on other developments or on-site.
Gyprock / Cladding	30m^3	30m^3	-	Transferred to waste management facility or recycling facility.
Concrete	25m^3	-	-	Any excess concrete will be retained on site for crushing and reuse.

Type of Waste Generated	Reuse	Recycle	Disposal	Comment
	Estimate Volume (m^3)	**Estimate Volume (m^3)**	**Estimate Volume (m^3)**	**Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used (refer section 4.5)**
Masonry (Hebel Block/Fibre cement sheeting/ Pavers)	-	$35m^3$	-	Transferred to waste management facility or recycling facility.
Tiles (roof)	-	-	-	No tiles used.
Metal (roofing / framing / façade)	-	$25m^3$	-	Transferred to waste management facility or recycling facility.
Glass	-	-	-	All glass will be made to order
Furniture	-	-	-	All furniture will be made to order.
Fixtures / fittings	$6m^3$	-	-	Fixtures will generally be made to order. Any excess will be utilised by the contractor or supplier at other sites.
Floor coverings	$6m^3$	$10m^3$	-	Reused by the supplier/ contractor or transferred to a waste recycling facility.
Packaging (used pallets / pallet wrap)	$21m^3$	$14m^3$	$9m^3$	Pallets will be reused by delivery contractors or transferred to a Material Recovery Facility. Wrap and packaging will be a transferred to waste recycling or waste management facility.
Garden organics	$5m^3$	$8m^3$	-	Organics will be ordered to size in accordance with the quantity survey. Any excess will be returned to provider, reused on site or another development site or transferred to a waste recycling facility.
Containers (cans / plastic / glass)	-	$19m^3$	$3m^3$	Containers will be a transferred to Councils Waste Management Facility.
Paper / cardboard	-	$16m^3$	-	Transferred to waste management facility or recycling facility.
Residual waste	-	-	$44m^3$	Residual waste will be transferred to Councils Waste Management Facility.
Hazardous / special waste (specify)	-	-	-	No hazardous materials will be utilised in the construction.
Other (Asphalt)	$12m^3$	$19m^3$	-	Reused on another development site or transferred to waste recycling facility.

7 Conclusion

This Construction Waste Management Plan has been prepared to guide waste management processes associated with the construction of the St Matthews Catholic School at 48 Broad Head Road, Spring Flat.

Subject to any unexpected finds during excavation works, 100% of the excavated material (43m^3) will be reused on site for landscaping.

The quantity of waste materials to be generated onsite are estimates based on the information provided.

Site management are responsible for proactive waste protocols during the construction phase to ensure that waste is diverted from landfill wherever possible.

6 APPENDIX 4 – SUB PLAN - CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN (CONDITION C14)

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CONSULTING

COMPLEX PROBLEMS
RESOLVED SIMPLY

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PROVISION OF CONSULTING ENGINEERING SERVICES

ST MATTHEWS CATHOLIC SCHOOL
BROADHEAD ROAD, MUDGEE

SOIL AND WATER MANAGEMENT REPORT

21 FEBRUARY 21
REFERENCE: TX13798.00-08.RPT.JD

Document Control:

Client	North Construction & Building Pty Ltd		
Prepared By:	Triaxial Consulting Ltd		
Report Author	Jim Disher		
File Reference:	TX13843.08.rpt.jd – Rev 1		
Report Date:	4th February 2021		
Current Revision:	**1**		
Revision History:	**Report Author**	**Reviewed By**	**Report Date**
0	JD	MD	21/02/21
1	JD	MD	04/03/21

INDEX

1 INTRODUCTION

Triaxial have been engaged by North Construction and Building to undertake the civil and stormwater design of the proposed Catholic School located at Lot 40, Broadhead Road, Mudgee.

The design consists of internal and external road upgrades, bulk earthworks and stormwater design. This report is to be read in conjunction with civil engineering plans produced by Triaxial Consulting. The relevant plans referenced in this report are attached in Appendix A.

Refer Appendix A – Triaxial Consulting plans TX13843.00-C3.0 and C3.1

2 EXISTING SITE CONDITIONS

2.1 DEVELOPMENT SITE

The proposed development site is located at the intersection of Bruce Road and Broadhead Road. Bruce Road is unsealed along the frontage of the site. Broadhead Road is sealed with a narrow pavement of 6m width constructed from the Northern side of the site. Towards the Southern end of the site Broadhead Road has been recently upgraded to a 7m wide sealed road with table drains either side.

A large 3 cell culvert has been constructed under Broadhead Road, consisting of 3 x 2.4m wide by 0.9m high culvert cells to allow the passage of stormwater. A diversion bank has been constructed on the outlet of this culvert to divert upstream stormwater towards an existing farm dam located towards the Northern end of the site.

Bruce Road has 2 x 900mm stormwater culverts currently allowing stormwater to cross the Western side of the Broadhead Road intersection where it continues to flow towards the new 3-cell culvert under Broadhead Road.

The site slopes gradually towards the North East.

2.2 ACID SULPHATE SOIL

Extensive Geotechnical investigations conducted by both Martens Consulting (2019) and Barnson Consulting (2017) did not detect the presence of acid sulphate soils on the site. No additional measures are required for acid sulphate soil management.

3 CONSTRUCTION SITE CONDITIONS

3.1 STORMWATER CONTROL AND SITE STORMWATER DISCHARGE

Erosion and sediment control measures as outlined on Triaxial Consulting plans are to be installed prior to any disturbance of the existing site being undertaken.

Erosion and sediment control measures to be implemented include:

- Designated site entry locations.
- Silt fence around the perimeter of the disturbed area of the site.
- Existing site areas with established vegetation cover to remain undisturbed.
- Topsoil stockpile locations to be nominated and protected with silt fencing.

Stormwater discharging from site is to be monitored by North Construction & Building (NCB) with weekly inspections during the construction period, with any sediment control features requiring maintenance, repair or replacement to be undertaken immediately.

Site stormwater discharge is to be to the Northern end of the site over land currently vegetated with established grass cover and used as grazing land, in the area nominated to construct the bioretention basin. In accordance with existing stormwater conditions on site, sheet flow is to be promoted from the discharge location to lessen the impact of channelising stormwater flow from the site.

This is to be achieved by providing 5m wide rock lined outlets from the stormwater collection point and ensuring existing vegetated areas downstream of the site remain undisturbed.

3.2 SEDIMENT CONTROL

Sediment leaving site from stormwater runoff will be controlled by the measures outlined on Triaxial Consulting plans.

North Construction and Building will monitor construction equipment including subcontractor machinery leaving the construction site to ensure sediment is not conveyed on machinery including all tyres, tracks and bodywork.

Site entry is to be only in the areas nominated. Care should be taken to ensure areas of site downstream from the construction site should be disturbed, as they are currently covered with low level vegetation cover which is an effective sediment removal measure.

3.3 STORM MEASURES

For all storms events up to and including the 1% AEP event, construction of the diversion banks along the perimeter of the Bruce Road frontage of the site, and the levee bank adjacent to the existing culverts under Broadhead Road will ensure stormwater from the upstream catchment will be diverted along the Bruce Road reserve and towards the riparian zone, without entering the site.

Management of the site earthworks and disturbed areas will be as per the adopted Erosion and Sediment Control Plan (ESCP).

All storage of materials and equipment on site is to occur at a minimum of 500mm above ground level, to ensure safe storage in a minor (5-year) or major (100-year) event. Stabilisation of highly trafficked areas of the site including the site entry location is to occur as per the ESCP.

3.4 GROUNDWATER MANAGEMENT

Groundwater was not observed in any borehole testing competed on the site, with borehole depth varying between 1.5m and 7.0m.

Whilst no site works are scheduled for depths of 7.0m or more, we recommend the following measures be implemented if groundwater is encountered during construction works.

- All plant and machinery to be removed from close proximity to ground water.
- North Construction and Building inspect all plant and equipment upon arrival to ensure the equipment does not have any leaking fluids or the like.
- Enforce daily plant inspections by the subcontractor completed within their pre-starts.
- Spillage of any hazardous material to be immediately remediated.

APPENDIX A – TRIAXIAL PLANS TX13843.00-C3.0 AND C3.1

NOTES:

1. ALL EROSION & SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.
2. ALL EROSION & SEDIMENT CONTROL MEASURES TO BE INSPECTED & MAINTAINED DAILY BY SITE MANAGER.
3. SILT FENCES TO BE RETAINED AND MAINTAINED UNTIL FINAL COMPLETION, UNLESS APPROVED OTHERWISE BY COUNCIL/ENGINEER.
4. CONTRACTOR SHALL MINIMISE THE PASSAGE OF CONSTRUCTION TRAFFIC OVER THE LAND SO AS TO PREVENT DISTURBANCE OF NATURAL GROUND.
5. EXISTING VEGETATION AND TOPSOIL SHALL NOT BE STRIPPED FROM AREAS THAT DO NOT REQUIRE FILLING, ANY AREAS THAT ARE STRIPPED SHALL BE PROTECTED BY SILT FENCES TO THE REQUIREMENTS OF THE COUNCIL/ENGINEER.
6. BATTERS TO BE STABILISED BY VEGETATING, TURFING OR OTHER APPROVED METHOD WITHIN 30 DAYS OF COMPLETION.
7. DUST MINIMISATION CONTROL BY WATERING TO BE IMPLEMENTED BY SITE MANAGER AS REQUIRED OR AS PER COUNCIL SPECIFICATIONS.
8. ROADS & FOOTPATHS TO BE SWEPT DAILY. NO MUD OR DIRT ALLOWED ON PUBLIC FOOTPATH OR ROAD PAVEMENTS.
9. VEHICLE TRAFFIC SHALL BE LIMITED TO 15KM/H.
10. CONSTRUCTION TRAFFIC TO BE LIMITED TO ONE ENTRY/EXIT POINT.
11. NO MATERIAL TO BE STOCKPILED ON SITE. EXCESS MATERIAL WHICH IS NOT UTILISED AS BULK FILL, SHALL BE REMOVED AND DISPOSED OFF SITE.

LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS.
TYPICAL (N.S.O.P.)

- SILT FENCE ONLY (UNLESS NOTED OTHERWISE)
- CONTOUR 1m INTERVALS

EROSION & SEDIMENT CONTROL PLAN

SCALE 1:1000 AT A1

10m 0 10 20 30 40 50 60 70 80 90 100m

SCALE 1:1000 AT A1 SHEET | 1:2000 AT A3 SHEET

AMENDMENTS	DATE	ISSUE	BY
ISSUED FOR CONSTRUCTION	15.02.21	0	JI.D.

FOR CONSTRUCTION

ARCHITECT
ALLEANZA ARCHITECTURE

CLIENT
TSA MANAGEMENT
LEVEL 15, 207 KENT ST
SYDNEY, NSW, 2000

PROJECT
PROPOSED SCHOOL
LOT 40 BROADHEAD ROAD
MUDGEE, NSW, 2850

DESIGNED	DRAWN	DATE	SIZE	CAD REF
JI.D.	JO.M.	MAY '19	A1	TX13843.00 - C01

TRIAXIAL CONSULTING
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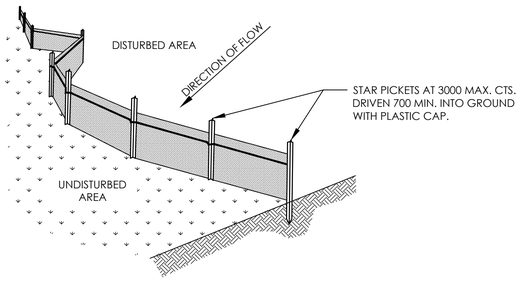
PO BOX 1075, MUDGEE NSW 2850

ADELAIDE | BAROSSA | DARWIN | MUDGEE | PARRAMATTA | SYDNEY

DRAWING TITLE
EROSION & SEDIMENT CONTROL PLAN

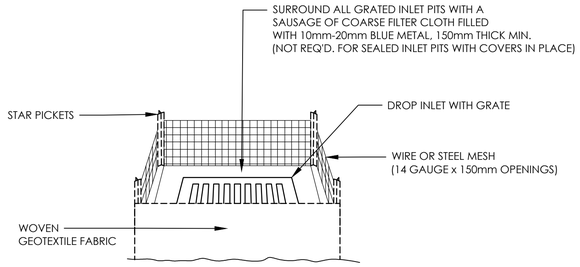
PROJECT No.	DRAWING No.	ISSUE
TX13843.00 -	C3.0	0



SILT FENCE DETAIL

NOT TO SCALE

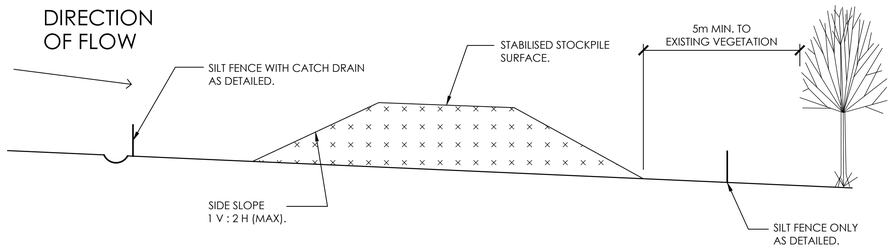
NOTE :
PROVIDE 1m RETURNS AT 30m INTERVALS. TYPICAL.



GRATED INLET PIT FILTER DETAIL

NOT TO SCALE

NOTE :
ADOPT ABOVE DETAIL AROUND ALL PITS WITHIN
AREA ENCOMPASSED BY SILT FENCE.



TYPICAL STOCKPILE DETAIL

N.T.S.

STOCKPILE NOTES:
1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1 V: 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/Ha.
5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.

NOTES :
ALL EROSION & SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED PRIOR TO COMMENCEMENT OF SITE WORKS.

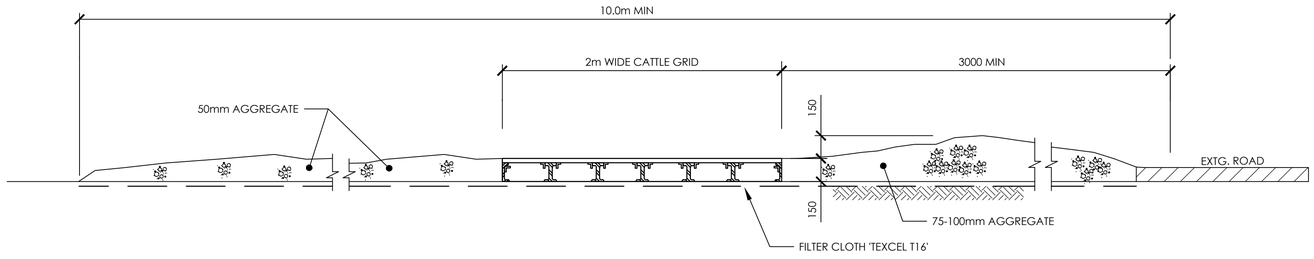
ALL EROSION & SEDIMENT CONTROL MEASURES TO BE INSPECTED & MAINTAINED DAILY BY SITE MANAGER.

MINIMISE DISTURBED AREAS.

ROADS & FOOTPATHS TO BE SWEPT DAILY.
NO MUD OR DIRT ALLOWED ON FOOTPATH OR ROAD PAVEMENTS.

BATTERS TO BE STABILISED BY VEGETATING, TURFING OR OTHER APPROVED METHOD WITHIN 30 DAYS OF COMPLETION.

DUST MINIMISATION CONTROL BY WATERING TO BE IMPLEMENTED BY SITE MANAGER AS REQUIRED OR AS PER COUNCIL SPECIFICATIONS.



STABILISED CONSTRUCTION ENTRANCE 'SHAKER PAD'

NOT TO SCALE

NOTE:
TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY WORKS.

AMENDMENTS	DATE	ISSUE	BY
ISSUED FOR CONSTRUCTION	15.02.21	0	JI.D.

FOR CONSTRUCTION

ARCHITECT
ALLEANZA ARCHITECTURE

CLIENT
TSA MANAGEMENT
LEVEL 15, 207 KENT ST
SYDNEY, NSW, 2000

PROJECT
PROPOSED SCHOOL
LOT 40 BROADHEAD ROAD
MUDGEE, NSW, 2850

DESIGNED	DRAWN	DATE	SIZE	CAD REF
JI.D.	JO.M.	MAY '19	A1	TX13843.00 - C1.0

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ADELAIDE | BAROSSA | DARWIN | MUDGEE | PARRAMATTA | SYDNEY

DRAWING TITLE
EROSION & SEDIMENT CONTROL DETAILS

PROJECT No.	DRAWING No.	ISSUE
TX13843.00 -	C3.1	0

7 APPENDIX 5 – SUB PLAN – FLOOD EMERGENCY SUB-PLAN (CONDITION C15

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ST MATTHEWS CATHOLIC SCHOOL MUDGEE
SECONDARY CAMPUS
BROADHEAD ROAD, MUDGEE

SSD9872
FLOOD EMERGENGY RESPONSE SUB PLAN
CATHOLIC EDUCATION DIOCESE OF BATHURST
RESPONSE TO SSD9872 CONSENT CONDITION C15

22 FEBRUARY 2021
REFERENCE: TX13798.00-06.RPT.JD-REV1

Document Control:

Client	North Construction & Building		
Prepared By:	Triaxial Consulting Ltd		
Report Author	Jim Disher BE(Civil), ME (Civil & Structural), MIE Aust		
File Reference:	TX13843.06.rpt.jd – Rev 1		
Report Date:	1st February		
Current Revision:	1		
Revision History:	**Report Author**	**Reviewed By**	**Report Date**
0 - Draft	JD	MD	09/02/21
1	JD	MD	22/02/21

INDEX

1 INTRODUCTION AND PROJECT DESCRIPTION

1.1 PROJECT OVERVIEW

Triaxial have been engaged by North Construction and Building to undertake the civil and stormwater design of the proposed Catholic School located at 48 Broadhead Road, Spring Flat (DP756894, Lot 40) (the site).

The SSD DA gives consent for the construction of a new multi-purpose secondary education facility within the Mudgee Region that meets future demands for the developing region.

The new secondary school to be known as St Matthews Catholic School Mudgee – Secondary Campus will cater for 680 secondary school students (4-Stream Year 7-12) and will comprise of a cluster of five low-rise school buildings (1-2 storeys) including;

- Block A - Professional Hub (office and administration)
- Block B - Spiritual Hub (Chapel)
- Block C - Community Hub (Multi-purpose hall, Music/Dance Studio, and canteen)
- Block D – STEM Research Hub (teaching spaces)
- Block E - Knowledge and Learning Hubs (General Teaching spaces)
- Yarning Circle (Outdoor learning area)
- Outdoor Student Assembly Area and COLA
- Student free play area
- Staff and student amenities
- Associated site landscaping and public domain improvements
- On-site parking and access arrangements off Bruce Road, including:
    - On-grade car park for staff, students, and visitors (82 spaces – including 2 accessible spaces)
    - A 24-bay student drop-off and pick-up area
    - A 3-bay bus drop-off and layover area
    - Bus turning area and servicing access
    - Dedicated separate driveway for service vehicles
    - Bicycle parking for 36 bicycles
- Associated earthworks, civil works, perimeter roadworks, fencing, services and utilities connections and augmentation, including:
    - Roadworks to Broadhead Road and Bruce Road to the full extent of the site frontages
    - Roadworks to the Broadhead Road and Bruce Road intersection to cater for bus movements
    - Footpath along the site frontage of Broadhead Road and suitable pedestrian crossing to connect to existing footpath.
    - Stormwater infrastructure upgrades adjacent to and within the site, including new culverts and drains, levee, and bioswale.

- Connection to existing sewer line within the site
- Electrical and water connections into the site

1.2 THE SITE

Figure 1: Existing Site

1.3 ALIGNMENT OF THE STRATEGY WITH CONSENT REQUIREMENTS

Table 1 below present the references within this strategy as they relate to the requirements set out by consent condition C15.

Condition	**Requirement**	**Report Reference**
C15	The Flood Emergency Response Sub-Plan must address, but not be limited to the following:	
C15 (a)	Be prepared by a suitably qualified and experience person	Refer to cover page
C15 (b)	Address the provisions of the floodplain risk management guidelines (EESG)	Section 2.2
C15 (c)	Include details of	
C15 (c) (i)	The flood emergency responses for both construction and operation phase of the development	Section 3.3, 3.4 & 3.5 Appendix A, B, C
C15 (c) (ii)	Predicted flood levels	Section 3.2
C15 (c) (iii)	Flood warning time and flood notification	Section 3.3
C15 (c) (iv)	Assembly points and evacuation routes	Appendix A, B, C
C15 (c) (v)	Evacuation and refuge protocols	Appendix A, B, C
C15 (c) (vi)	Awareness training for employees and contractors, and students	Appendix A, B, C

Table 1: Consent condition alignement with Strategy reference.

2 EXISTING SITE CONDITIONS

2.1 DEVELOPMENT SITE

The site is proposed to be developed as a secondary school, in line with the approved architectural plans provided.

The proposed development site is located at the intersection of Bruce Road and Broadhead Road in Mudgee as shown in Figure 1.

Bruce Road is unsealed along the frontage of the site. Broadhead Road is sealed with a narrow pavement of 6m width constructed from the Northern side of the site. Towards the Southern end of the site Broadhead Road has been recently upgraded to a 7m wide sealed road with table drains either side.

A large 3 cell culvert has been constructed under Broadhead Road, consisting of 3 x 2.4m wide by 0.9m high culvert cells to allow the passage of stormwater. Bruce Road has 2 x 900mm stormwater culverts currently allowing stormwater to cross the Western side of the Broadhead Road intersection where it continues to flow towards the new 3-cell culvert under Broadhead Road.

2.2 STORMWATER CATCHMENT

The proposed site sits within a large natural catchment that is noted as "Sawpit Gully" on extends well into Avisford Nature Reserve to the South and West of Mudgee township.

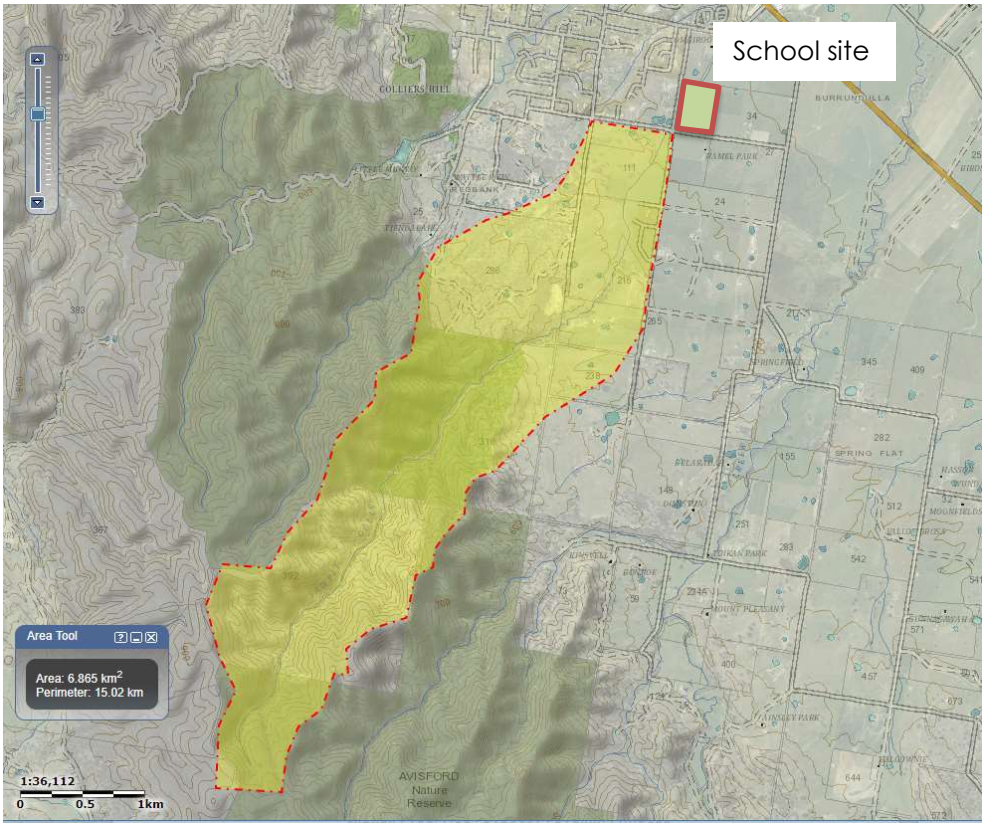


Figure 2: Catchment draining through proposed school site.

The total size of the catchment at the school site was measured as 686Ha. The length of the catchment from top to bottom was calculated at 6.7km.

The catchment is separated into two defined sub-catchments which combine near the intersection of Bruce and Broadhead Road.

At the upper end of the catchment the flow is contained in well defined channels and creek beds, however when the channel descends into the lower part of the catchment it spreads to become overland sheet flow, especially after the flow crosses Plenty Road, 600m upstream from the School site. At the school site the stormwater from the catchment flows through the existing twin 900mm diameter culverts under Bruce Road and through the larger culverts on Broadhead Road before heading North East towards the Castlereagh Highway.

The existing culverts under Bruce Road have capacity to take the minor flows up to the 2-year event, but anything above these flow rates will be inundated.

Sawpit gully flow rates were assessed as part of a previous study on the catchment completed in 2010 by Insites Pty Ltd. Previous studies on sawpit gully have been completed by Northrop Pty Ltd and Worley Parsons Pty Ltd.

Flow rates generated from the study of the upstream catchment are listed below:

	100yr Event	**20yr Event**	**5yr Event**
Inflow 1 – Flow Rate (m^3/s)	41.1	23.5	8.75
Inflow 2 – Flow Rate (m^3/s)	8.1	5.2	2.6

Table 1: Flow rates used at the School site based on catchment analysis.

The flow rates generated in the modelling were obtained using a RAFTS model with the following characteristics:

- Initial loss = 25mm/hr
- Continuing loss = 2.5mm/hr
- Catchment fraction impervious = 15% for rural areas, 0% for natural undisturbed areas (heavily vegetated).

The critical storm was identified as the 1% AEP, 2-hour event.

These parameters are in line with previous catchment studies completed within the Mudgee region.

2.3 CURRENT FLOODING CONDITIONS

The Sawpit Gully catchment is not part of the existing Mudgee Floodplain Management Study and Plan (2002, Bewsher Consulting). The catchment was also not included as part of the Mudgee Local Creeks Flood Study (2008, Lyall and Associates).

The Sawpit Gully catchment will be included in the latest Mudgee Flood Study, which is in draft form and is yet to be adopted by council.

Preliminary information from the updated flood study provided by Mid Western Regional Council (in September 2020) and included in the preparation of the stormwater design for the project indicates that a large proportion of the upstream catchment flows through the school site in a broad sheet flow rather than being contained in existing stormwater channels as was previously though in the studies by Insites and Worley Parsons.

In order to determine the effectiveness of the flood mitigation measures and to determine the effect of these on the downstream flow, a TUFLOW model was developed.

TUFLOW was adopted due to the need to model the flow in two dimensions and fully capture the sheet flow that the catchment experiences during a major storm event.

The TUFLOW model was developed using the following input:

- Catchment elevation data from ELVIS website (ANZLIC Committee on Surveying and Mapping). Mudgee region 1m LiDAR survey.
- Bing maps aerial imagery.
- School buildings positioned on site with finished floor levels as documented on the architectural plans.

The TULFOW model was then run using the following input:

- 1m elevation grid (to AHD).
- 1 second timestep. 4-hour model run time to capture the critical storm duration and development through the catchment.
- Downstream boundary condition was representative of the existing ground slope at the model boundary.
- Hydrographs were input for each of the inflow upper boundaries corresponding to the 1%AEP inflow hydrograph for the major catchment (Inflow 1) and the minor catchment (Inflow 2).

An image of the 1% AEP flood flow depths across the site in the existing undeveloped state is shown below:

Figure 3: Catchment draining through proposed school site.

As can be seen the sheet flow inundates the proposed school site at depths of between 100mm – 300mm.

3 RECOMMENDED MANAGEMENT MEASURES

3.1 PROPOSED FLOOD MITIGATION WORKS

As part of the School development, it is proposed to mitigate the effects of the large shallow sheet flow from the catchment draining through the site by the following measures:

- Upgrade to the existing culverts under Bruce Road to have sufficient capacity to allow flood waters under Bruce Road and Broadhead Road to pass through and around the site. Currently the flood waters are constricted by the existing 2 x 900mm culverts under Bruce Road. Upgrading these culverts will allow the passage of stormwater through the Bruce Road and Broadhead Road intersection along the North Western side of the school site.
- The approach to the existing Bruce Road culverts has no defined pathway, with water overtopping Bruce Road before it has the chance to flow through the existing culverts. As part of the external works a defined, stabilised pathway will be

constructed to divert water towards the new culverts and minimise the amount of water pooling at the intersection in minor storm events.

- Construction of a minor (500mm minimum) high bund running along the perimeter of the school frontage on Broadhead and Bruce Roads to divert the minor low level sheet flow.
- Reconstruction of Bruce Road along the school frontage including new kerb and gutter and a defined table drain along the Southern side of Bruce Road to divert water along the Bruce Road frontage of the site.
- Increase in the finished level of Broadhead Road around the intersection with Bruce Road to encourage more stormwater through the proposed new culverts.
- Finished floor levels of the site buildings to be above the 100yr flood level with a minimum of 150mm freeboard.

These upgrades to existing stormwater infrastructure are shown on Triaxial engineering plans along with the extent of the existing and future flooding.

In order to confirm the effectiveness of the proposed levee bank and culvert upgrades on the school site, the TUFLOW model was rerun with the following properties:

- Design surface input from Triaxial Consulting plans. The ortho-rectified 3D surface from the finished levels earthworks design that incorporates the above flood mitigation measures was developed and exported from CAD software to the TUFLOW model.

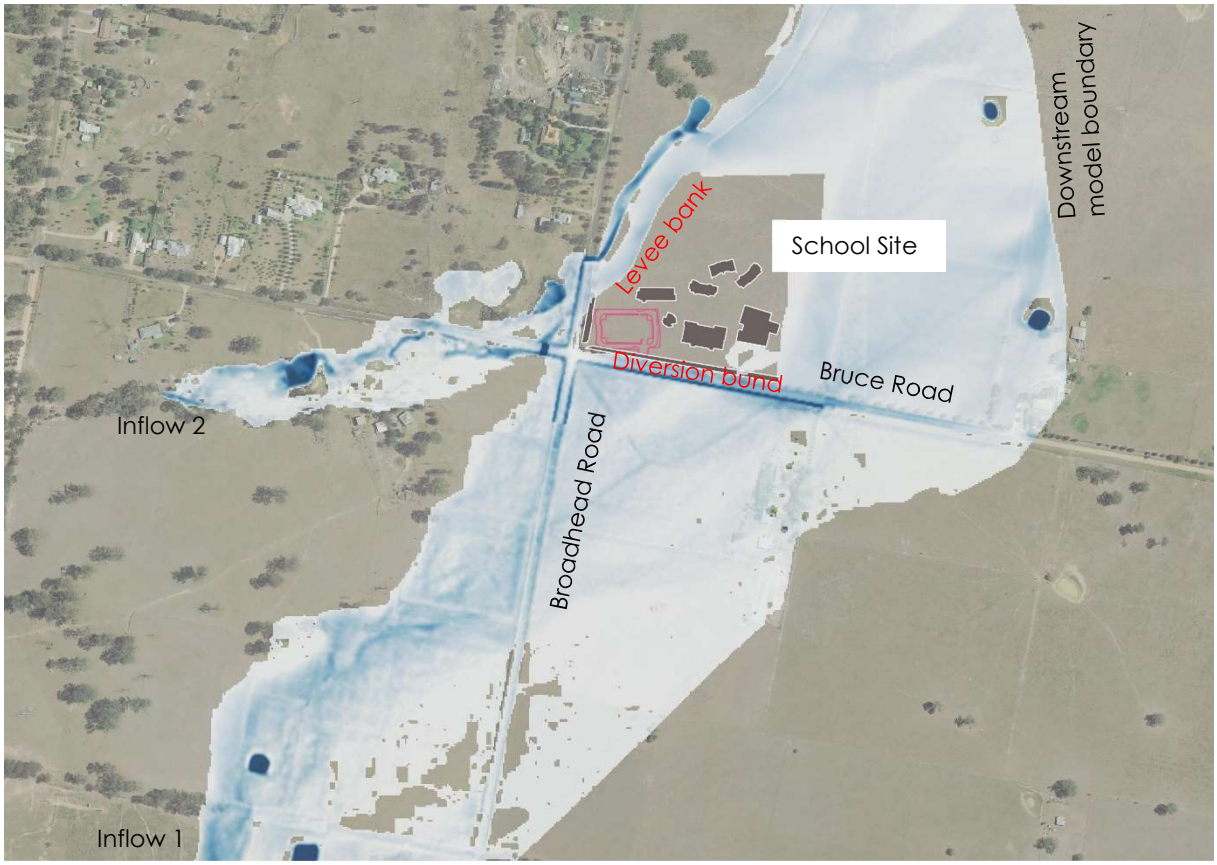


Figure 4: Post development site with levee bank protection along Broadhead and Bruce Road.

3.2 PREDICTED FLOOD LEVELS

As can be seen from Figure 4, the site is protected by the new levee bank and diversion bund.

The bund along Bruce Road was input as a minor landscaped bund approximately 500mm high to divert the low-level sheet flow away from the site and along the Bruce Road road reserve.

The levee bank along the riparian corridor was input as a minimum of 800mm – 1m high levee bank with 1:6 side slopes for ease of maintenance.

The results from the modelling indicate that the school site will not be affected during the 100yr event.

Predicted flood levels along the levee bank taken at the cross-section location (in red) is shown below.

Figure 5: Cross section through flood model along Broadhead Road

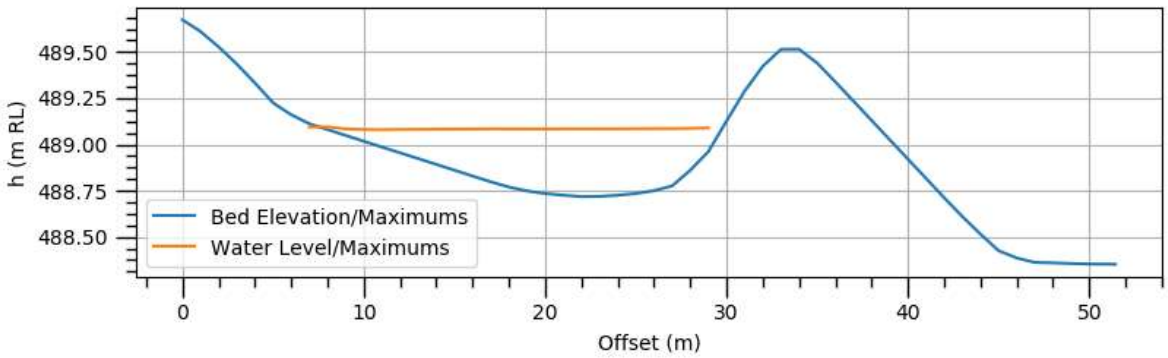


Figure 6: Cross section through flood model along Broadhead Road

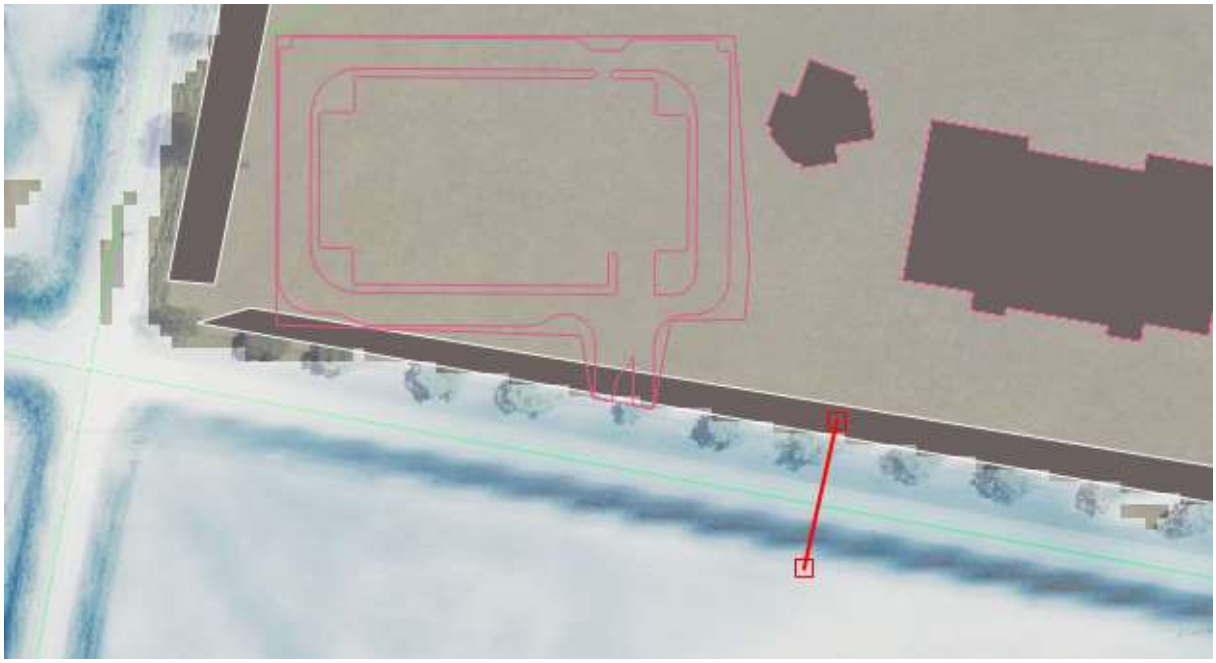


Figure 7: Cross section through flood model along Bruce Road

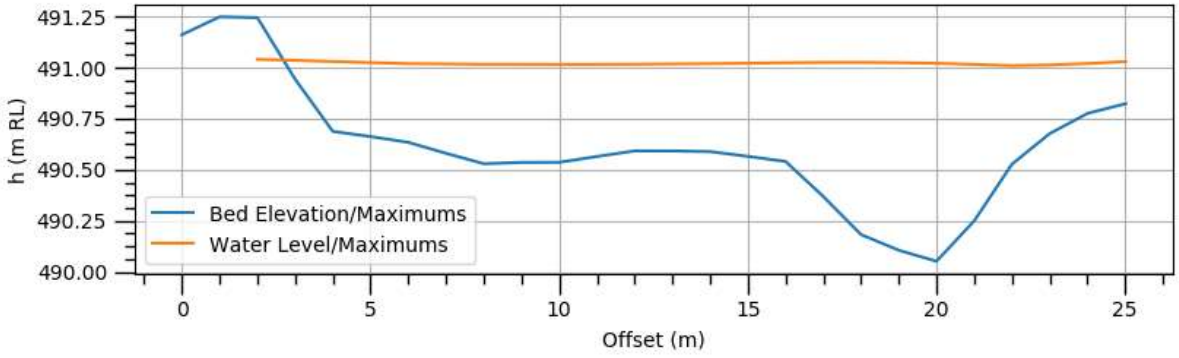


Figure 8: Cross section through flood model along Bruce Road

3.3 FLOOD WARNING TIME AND NOTIFICATION

Warning of significant rainfall events that have the potential to cause flooding can significantly reduce damages and risk to life and studies have shown that flood warning systems generally have substantial benefit if sufficient warning time is provided.

Currently the SES and Bureau of Meteorology provide storm and flood warnings for all expected major and intense storm events. It is important to note that flood warnings for major river systems cannot be relied on for the site-specific flooding in this case as the major river systems may be affected more by more prolonged, less intense rainfall events.

Based on our analysis of the site catchment, we anticipate that the peak flow through the sawpit creek catchment will occur during the 1% AEP 2-hour storm event. Similar results were obtained for the 1% AEP 90-minute event.

We recommend that the following rainfall events should trigger a possible flood event for the sawpit creek catchment.

- Rainfall events exceeding 40mm in any 30-minute period.
- Rainfall events exceeding 55mm in one hour.
- Rainfall events exceeding 110mm in any 12-hour period.

Should rainfall events exceeding the above parameters be forecast, we recommend consideration be given to the issue of a flood warning for the school.

We further recommend that the Bureau of Meteorology website be referenced as it provides data on the last 1 hour, last 3 hour and 24-hour rainfall conditions, as well as river flooding conditions.

3.4 ASSEMBLY POINT AND EVACUATION ROUTES

Subject to significant notification of rainfall events likely to trigger a flood event the proposed evacuation route and assembly position should be as follows:

Refer Appendix A – Flood Evacuation Plan

The proposed school evacuation route should be to travel along Broadhead Road to higher ground on the Northern side of the Broadhead Road culverts as shown in the image below:

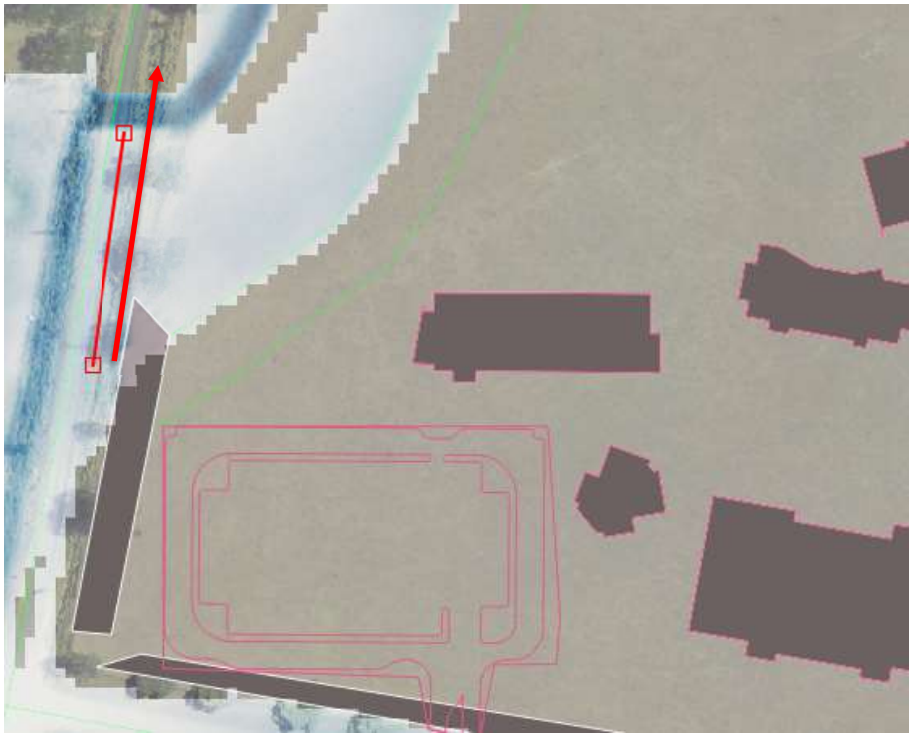


Figure 9: Cross section through flood model along Broadhead Road

The evacuation route will be by way of the proposed new 2.5m wide footpath and elevated walkway that extends over the new culvert. The depth and velocity of flood water during the 100yr flood event is shown on the image below.

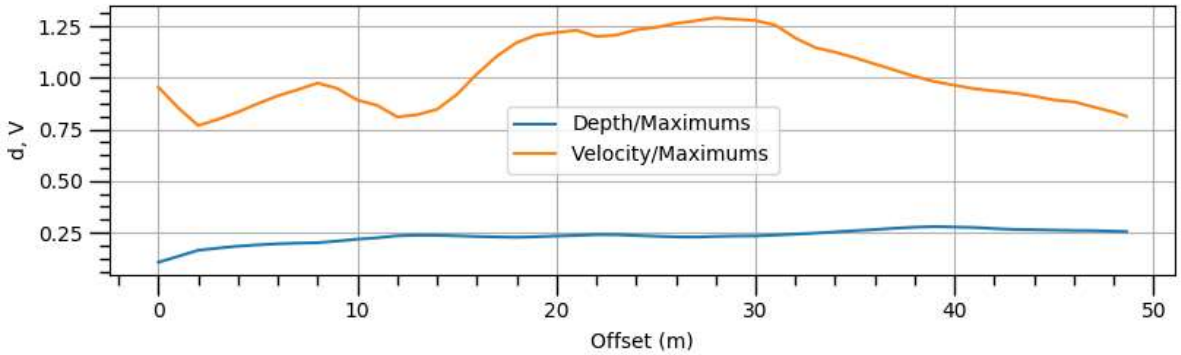


Figure 10: Cross section through flood model along Broadhead Road showing depth and velocity.

The extent of flooding along Broadhead Road will continue for 120m North of the Intersection with Bruce Road. Once the crossing of the culvert has been reached the flood waters will no longer flow over Broadhead Road and safe passage will be available through to Lions Drive and Castlereagh Highway.

As can be seen from Figure 10, the depth of flow across Broadhead Road during the 1% AEP event is expected to be 0.26m deep with a velocity of 1.26m/s. In the worst case scenario of the site needing to be evacuated, this would still be possible during the 1% AEP event for adults and children.

As a measure of ability to traverse through flood water, AR&R nominates a depth x velocity product (DV). The generally accepted safe DV is taken as 0.4, which assumes safe travel through flood water for all but infants, small children and frail or elderly persons. The DV product in this case during the 1% AEP event equates to 0.28.

The image below from AR&R shows the general accepted limits for DV in flooding events.

DV (m^2s^{-1})	Infants, small children (H.M ≤ 25) and frail/older persons	Children (H.M = 25 to 50)	Adults (H.M > 50)
0	Safe	Safe	Safe
0 – 0.4	Extreme Hazard; Dangerous to all	Low Hazard[1]	Low Hazard[1]
0.4 – 0.6		Significant Hazard; Dangerous to most	
0.6 – 0.8		Extreme Hazard; Dangerous to all	Moderate Hazard; Dangerous to some[2]
0.8 – 1.2			Significant Hazard; Dangerous to most[3]
> 1.2			Extreme Hazard; Dangerous to all

[1] Stability uncompromised for persons within laboratory testing program at these flows (to maximum flow depth of 0.5 m for children and 1.2 m for adults and a maximum velocity of 3.0 ms^{-1} at shallow depths).
[2] Working limit for trained safety workers or experienced and well equipped persons (D.V < 0.8 m^2s^{-1})
[3] Upper limit of stability observed during most investigations (D.V > 1.2 m^2s^{-1})

Figure 11: AR&R project 10 Appropriate Safety Criteria for People

3.5 CONSTRUCTION PHASE

The construction phase of the school is intended to take place over a period of 18 months commencing from March 2021.

During the construction phase there will be varying amounts of workers on site, with estimates ranging up to 150 construction workers during the construction of the school buildings.

It is anticipated that the levee bank and diversion bunds will be installed in the early bulk earthworks stages of the project this will provide protection for the construction works prior to the external roadworks being completed.

As outlined above, the safe path of travel from the site should be along Broadhead Road and the evacuation procedure outlined in the sections above should be adopted for all workers on site during the construction phase.

The procedure for responding to a Flood Emergency is detailed in the appended North Company Policy PR0017 Emergency Response (Appendix B). This procedure provides guidelines for the emergency preparedness for potential emergency situations on North Construction sites, and considerations to be made when preparing a management or rescue plan.

It addresses:

- Responsibilities of North (NCB) staff
- Identification and Assessment of the Risk
- Procedures in the Flood event including Emergency Response
- Training / Induction and Competency for all persons onsite
- Evacuation Drills
- Site Emergency Response Plan

3.6 OPERATIONAL PHASE

We propose that the evacuation measures outlined above be adopted for the operational phase of the school including the proposed flood warning triggers, sensitivity to SES flooding alerts and the proposed evacuation procedures outlined in Appendix C be adopted.

APPENDIX A – FLOOD EVACUATION PLAN

Assembly Point

APPENDIX B – NORTH COMPANY POLICY PR0017 EMERGENCY RESPONSE

north

BUILDING WITH TRUST®

PRO017 EMERGENCY RESPONSE

Project Name	St Matthews Catholic School Mudgee – Secondary Campus
Project Number	22110
Nominated First Aid Officer	Josh Wilson
Nominated Fire Warden	Josh Wilson

1. PURPOSE

To protect all workers from the risk of further injury post incident and comply with all regulations and standards regarding the emergency response and evacuation of North sites.

2. SCOPE

This procedure provides guidelines for the emergency preparedness for potential emergency situations on North Construction sites, and considerations to be made when preparing a management or rescue plan.

3. RESPONSIBILITIES

PROJECT MANAGER

- To ensure that all high risk construction work has an emergency response plan.
- To report any breach of this procedure to the Senior Project Manager and the System Administrator.

OFFICE ADMINISTRATION

- To maintain documentation (this procedure). To distribute the emergency response plan to subcontractors as requested.

SITE FOREMAN

- To review (and amend/update/prepare if necessary) emergency response plans for high risk works, and emergency evacuation plans for site.
- To communicate the emergency management plans to all subcontractors, workers, visitors, and any other affected parties.
- To conduct emergency evacuation drills and record response details. To report findings of the evacuation drills to the Project Manager.

SENIOR PROJECT MANAGER

- To provide adequate resources for this procedure to be implemented and maintained. To ensure that this procedure has been implemented on site.

SYSTEM ADMINISTRATOR

- To review the findings of emergency evacuation drills across all sites and ensure effectiveness.
- To ensure all NCB site supervisors and project managers have access to this procedure and train in its implementation.
- To provide support and advice to project teams in the implementation of this procedure and site specific requirements.

4. PROCEDURE

4.1 EMERGENCY RESPONSE: Emergency response procedures should be site specific and include:

- General Evacuation Procedure – (remove all persons from site and account for at muster point)
- Emergency Response to All High Risk Work – (Trapped in confined space, Electrocution, Live Services Exposure/Release of Chemicals, Fall from Height rescue/Suspension trauma etc)

The North Site Foreman shall be familiar with all High Risk Construction work on site, and the relevant emergency response plan. Generally, the emergency response procedure for any high risk construction works will be attached to the back of the SWMS for the relevant trades.

Should the Emergency response procedure not be supplied by the subcontractor, the North Site Foreman may choose to provide a relevant response plan from this procedure to the subcontractor and amend to make site specific.

4.2 TRAINING AND COMPETENCY

All workers are told of the site specific emergency evacuation plan as part of their site induction. All workers are required to partake in quarterly evacuations of site to be familiar with the process and so that North can be confident in the effectiveness of the procedure in place (and amend/alter as required to address any weakness).

All workers must be inducted into their SWMS prior to conducting works on site. Any trades which include high risk construction works will have a relevant and site specific emergency response procedure included in their SWMS.

Annually, the North Site Foreman will be required to attend a Scenario Training Session which includes training in Emergency response to a High Risk Construction process, and familiarity in this procedure.

5. EVACUATION DRILLS

Evacuation Drills shall be performed within the first two months of establishment on site, and then every three months thereafter.

5.1 PURPOSE

The purpose of the evacuation drill form is to allow North staff to record and review the effectiveness of their emergency response procedures, and the on-site workers understanding of, and ability to follow, these procedures.

Procedure:

1. The Site Foreman is to open the Evacuation Drill Form on Procore.
2. The Site Foreman or his delegate will sound the air horn.
3. The Site Foreman will retrieve the Pre- Start Sign In Register (NCB009) from the site office.
4. All workers will assemble at the "Emergency Evacuation Point" as shown on the emergency evacuation site plan, with the site supervisor recording the time taken by workers to evacuate the site using NCB014.

5. The site supervisor or his delegate will conduct a "role call" of all workers that are signed in to the register (NCB009), recording on the register all workers who are present at the evacuation point. A copy of this register is to be attached to the completed NCB014 form.
6. Any workers not present will be contacted via mobile telephone.
7. The Site Foreman is then to complete the NCB014 form detailing the outcomes of the drill, any issues encountered and any actions that need to be taken as a result of the drill, in the section provided on the form.
8. The Site Foreman is to note any further comments on the NCB014 form in the section provided.
9. The Site Foreman is to provide the NCB014 form, with a copy of NCB009 attached, to the Construction Manager during the next Foreman Review for discussion.

Evacuation Drills must be completed when the site has reached an average of **10 workers onsite** within a fortnight or **within a month of the project commencing on site**, whichever is first. Then repeated **3 monthly** or in the event of changes to the Site Specific Emergency Plan or if NCB STD form NCB028, Project Risk Assessment, dictates.

6. EMERGENCY RESPONSE PLAN

All North Sites require emergency response procedures suitable to the works being conducted on site.
The intent of an emergency response plan is to ensure that there has been consideration for the safety and wellbeing for all workers on NCB sites, including the availability for emergency treatment following a serious incident (ie. How are emergency personnel going to access the worker? And how are emergency personnel going to extract an injured worker from the workface?)

For high risk construction works, the emergency response procedure shall form part of the subcontractor's SWMS, and/or agreed within the Permit issued for the works – ie. Harness rescue would be included in the SWMS of a roofer, or other trade operating with a harness. A confined space rescue from collapse of an excavation would be included in the SWMS of a civil contractor or other operator of an excavator, and reviewed/confirmed within the Excavation Permit.

An emergency response procedure should be easily understood, and communicated to all affected workers, including opportunity for input by the persons affected.

When developing an emergency response procedure, such considerations may include;

- Distance / time from nearest hospital/ambulance/medical centre
- First aid personnel on site to assist
- Site specific hazards (eg. proximity to snakes/bushland, water/risk of drowning etc) and relevant emergency personnel that may be required (eg. WIRES, Maritime services etc)
- Egress paths through site to extract an immobile person (ie. Access paths that would accommodate a stretcher)
- Accessibility to the worker (such as a suspended worker, or accessing intermediate floors of a building, working at height (tree loppers etc) and method for extraction.
- Facilities and resources available for an emergency rescue such as;
- Ambulances – paramedics, stretchers, wheeled stretchers, specialized services such as Westpac/Careflight helicopters
- Fire brigade – ladders, cherry pickers, specialized demolition equipment

- Police – restraining measures, riot squads, sniffer dogs, specialized support such as bomb squads, helicopters etc.
- Maritime Services – boats, pontoons, EPIRBs/Sat phones, floatation devices

Sample emergency response procedures can be seen in Appendix A of this procedure.

Sample Emergency Response Action Charts are contained for each of the following scenarios:

- General site evacuation
- Serious medical incident
- Scaffolding
- Bomb threat
- Structural collapse
- Contact with overhead power lines
- Excavation collapse
- Plant and vehicle rollover
- Major plant failure
- Chemical spills
- Fire
- Poisonous animal bite
- Civil / industrial action
- Damage to underground gas service
- Power failure
- Fatality on site
- Fall arrest rescue (harness rescue)
- Drowning rescue
- Unauthorised access

6.1 EMERGENCY ASSESSMENT

The following checklist outlines various assessment and action criteria that can be used by site foreman / fire warden or 1st aid officer to assist them in determining response actions.

ASSESSMENT	ACTION
Verify the report	• Confirm the accuracy of the information provided. • Alert the workplace.
Assess the scope of the emergency	• What is the emergency? • Has the worst already happened? • Can the situation get worse? • Where is it – is it close enough to be a threat?
Assess the danger	• How is the hazard behaving? • Is it getting bigger or smaller? (i.e. fire or gas cloud) • Is it getting closer or moving away? • Is it moving quickly or slowly – is it affected by weather conditions (i.e. bushfire, smoke, gas cloud)?
Confirm the report	• Notify the appropriate Emergency Service on 000 if appropriate and if it has not already been done
Identify safe areas	• Which areas and access routes cannot be used? • Is it best to remain indoors, or leave the building? • How far does the danger area extend?
Move to safe areas if appropriate	• Seal buildings if remaining indoors. • Implement procedures as appropriate

6.2 GENERAL SITE EVACUATION

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Assist injured persons where safe to do so.
	3.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
Fire Warden/ Site Foreman	1.	Determine need for total or partial evacuation.
	2.	Take whatever steps are necessary to minimise further injuries or damage prior to evacuation.
	3.	Determine number of injured personnel and extent of injuries.
First Aid Officer	1.	Administer immediate first aid.
	2.	Contact emergency ambulance service - 000 - if necessary
	3.	Notify personnel trained in CPR and First Aid to provide the required assistance prior to the arrival of the professional medical help
	4.	At earliest possible time, obtain complete description of accident and fill out accident report.
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	If necessary, arrange for next of kin to be notified via normal Police procedures.
	4.	Advise Client and Superintendent for the project.
	5.	Undertake corrective measures where applicable to prevent repeat of incident.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate
	4.	Notify legal counsel and Insurers, as appropriate

6.3 SERIOUS MEDICAL INCIDENT

JOB TITLE	DUTIES	
All Personnel Site	1.	Inform the Site Foreman/Fire Warden/1st Aid Officer and give location, type and extent of injury.
	2.	Assist 1st aid officer if and when requested
Site Foreman	1.	Initiate evacuation procedure if deemed necessary by 1st Aid officer.
First Aid Officer	1.	Administer immediate first aid.
	2.	Determine need for medical assistance and/or evacuation
	3.	Contact emergency ambulance service - 000
	4.	Do not move victim unless absolutely necessary
	5.	Liaise with Ambulance personnel or local doctors.
	6.	Notify personnel trained in CPR and First Aid to provide the required assistance prior to the arrival of the professional medical help
	7.	Prepare patient for medical evacuation.
	8.	If required, accompany patient to hospital.
	9.	Ensure any necessary personal effects accompany patients, eg. Medications and ID.
	10.	Setup an exclusion zone around the area where the emergency occurred
	11.	At earliest possible time, obtain complete description of accident and fill out accident report.
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	If necessary, arrange for next of kin to be notified via normal Police procedures.
	4.	Advise Client and Superintendent for the project.
	5.	Undertake corrective measures where applicable to prevent repeat of incident.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate
	4.	Notify legal counsel and Insurers, as appropriate

6.4 SCAFFOLDING

Scaffolding is regularly used on North Construction sites and should be considered in the emergency evacuation and emergency response plans for the site.

Access is required to all areas of NCB sites for emergency personnel, including scaffolding, which may be in the form of scaffold ladders, scaffold stairs, or other means such as internal stairs or adjoining structures.

Emergency Evacuations : The expected number of workers should be considered in the scaffold design and reviewed by the NCB site foreman to ensure that there is adequate access for workers to evacuate an area in the event of an emergency – ie. Ladders are only to be used as the only egress path where there is infrequent use of an area, or there are very few workers using the ladder as to access their workface. For larger sites, there may be a need for multiple sets of stairs, or for wider stair sets to be incorporated into the scaffold design.

The site evacuation plan should be updated when scaffolding is in use on NCB sites to clearly show emergency egress paths in/out of the workfaces, and stairs/access available during an emergency evacuation. The SIMP is to be updated with revised emergency evacuation paths, and distributed to all subcontractors.

Emergency Response: All workfaces and accessed in NCB sites, including those accessed via a scaffold should be considered when developing an emergency response plan. A set of stretcher stairs is not specifically required, but there must be an agreed and practicable method of extracting a worker in a reasonable timeframe, including essential emergency support facilities, the cooperation of other support staff that may be required to assist. Examples of other support staff may include; Crane operators in control of a man box, EWP operators in control of a boom/scissor lift, or other contractors and workers on site who may be required to alter a structure for a swift extraction process (such as removing a temp fence panel, unlocking an alternate access gate/door, moving a piece of plant etc).

6.5 BOMB THREAT

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Stay calm.
	3.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	4.	Proceed to Emergency Assembly Point and wait for further instruction.
Fire Warden/ Site Foreman	1.	If you receive a bomb threat over the telephone, attempt to write down the exact wording of threat. Under no circumstance are you to hang up the phone.
	2.	Keep caller on the line as long as possible. Ask questions as follows; • When is the bomb going to explode? • Where did you put the bomb? • When did you put it there? • What does the bomb look like? • What kind of bomb is it? • What will make the bomb explode? • Did you place the bomb? • Why did you place the bomb? • What is your name? • Where are you? • What is your address?
	3.	If an evacuation is required follow the building/area evacuation procedures as directed by your warden.
	4.	If a suspicious package/bag is found and it cannot be identified by anyone on site advise emergency services. **No-one is to touch or move the package/bag.**
	5.	In the event a written bomb threat is received, the site supervisor is to immediately contact police and follow directions. It is important that the letter is handled by as few people as possible to preserve any evidence until police arrived.
	6.	Only if safe to do so, the site supervisor is to setup an exclusion zone around the area where the bomb is located. This will allow the area to remain un-tampered with until the police conduct any investigations.
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.6 STRUCTURAL COLLAPSE

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	3.	Proceed to Emergency Assembly Point and wait for further instruction.
Fire Warden/ Site Foreman	1.	Initiate the evacuation procedure
	2.	Contact emergency services
	3.	Advise project manager
	4.	The list of unaccounted for workers is be passed on to the emergency authorities on arrival.
	5.	Establish an exclusion zone around the area where the incident occurred and ensure no one enters the area until further notice.
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.7 CONTACT POWER LINES

JOB TITLE	DUTIES	
Injured person	1.	Do not exit the plant/machinery unless life is in danger
	2.	DO NOT touch any person or plant that is in contact with live power
	3.	IF THE WORKER NEEDS TO EVACUATE THE PLANT – Hop or shuffle with two feet together away from the energy source until at least 8m away – DO NOT WALK OR RUN
All Personnel Site	4.	Advise Site Foreman of the situation
	5.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	6.	Keep minimum 8m clear of the person/plant/item
	7.	Proceed to Emergency Assembly Point and wait for further instruction.
Fire Warden/ Site Foreman	1.	Initiate the evacuation procedure
	2.	DO NOT touch any person or plant that is in contact with live power
	3.	An attempt should be made to break the contact with live power (operator not to exit the plant until contact has been broken)
	4.	IF THE WORKER NEEDS TO EVACUATE THE PLANT – Hop or shuffle with two feet together away from the energy source until at least 8m away – DO NOT WALK OR RUN
	5.	Contact energy supplier company
	6.	Advise project manager
	7.	If required, contact emergency services.
	8.	Establish an exclusion zone around the area where the incident occurred and ensure no one enters the area until further notice.
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.8 EXCAVATION COLLAPSE

JOB TITLE	DUTIES	
All Personnel Site	8.	Advise Site Foreman of the situation
	9.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	10.	Proceed to Emergency Assembly Point and wait for further instruction.
Fire Warden/ Site Foreman	9.	Initiate the evacuation procedure
	10.	Contact energy supplier company
	11.	Advise project manager
	12.	If required, contact emergency services.
	13.	Establish an exclusion zone around the area where the incident occurred and ensure no one enters the area until further notice.
First Aid Officer	3.	Assist Fire Warden/ Site Foreman
	4.	Administer 1st aid as required
Project Manager	6.	Advise as necessary Government departments, including WorkCover.
	7.	Advise and liaise with North Construction Senior Management and keep fully informed.
	8.	Liaise with emergency services as required.
	9.	Undertake corrective measures where applicable to prevent repeat of incident.
	10.	Advise Client and Superintendent for the project.
Senior Management	5.	Ensure emergency contacts have been notified and necessary steps taken.
	6.	Liaise with Government Departments as appropriate.
	7.	Notify other North Construction personnel as appropriate.
	8.	Notify legal counsel and Insurers, as appropriate.

10.9 PLANT AND VEHICLE ROLLOVER/MALFUNCTION

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	3.	Proceed to Emergency Assembly Point and wait for further instruction.
Fire Warden/ Site Foreman	1.	Initiate the evacuation procedure to ensure that no workers enter the area
	2.	If required contact emergency services
	3.	Initiate the Rescue Procedure, giving consideration to the following; • Assessing risks – fuel, fire, stability – Control as possible with Spill kit, Extinguishers, battery isolation
	4.	Advise project manager
	5.	Establish an exclusion zone around the area where the incident occurred and ensure no one enters the area until further notice.
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.10 MAJOR PLANT HIRE

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	3.	Proceed to Emergency Assembly Point and wait for further instruction.
Fire Warden/ Site Foreman	1.	Initiate the evacuation procedure to ensure that no workers enter the area
	2.	If required contact emergency services
	3.	Advise project manager
	4.	Establish an exclusion zone around the area where the incident occurred and ensure no one enters the area until further notice.
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.11 CHEMICAL SPILL

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	3.	Proceed to Emergency Assembly Point and wait for further instruction.
Fire Warden/ Site Foreman	1.	Secure the area and alert other site personnel.
	2.	Evacuate area/site as necessary
	3.	Deal with the spill in accordance with the instructions described in the MSDS.
	4.	Contain the spill with available equipment (pads, booms, absorbent powder, etc.).
	5.	Contact the Fire Department to perform a large chemical spill cleanup.
	6.	If toxic fumes are present, secure the area (with caution tapes or cones) to prevent other personnel from entering
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.12 FIRE

JOB TITLE	DUTIES	
All Personnel Site	1.	Immediately notify the site supervisor
	2.	If safe to do so assist any person in immediate danger
	3.	Confine the fire, e.g. closing the doors etc.
Fire Warden/ Site Foreman	1.	Evacuate area/site as necessary
	2.	Remove any fuel sources if safe to do so
	3.	Fight the fire with the correct type of fire extinguishers and/or other fire equipment, if extinguishers available and fire is not too large (e.g. 1m x 1m)
	4.	When safe to do so, the site supervisor must set up an exclusion zone around the area where the emergency occurred, and is to ensure no one enters the area until further notice. This will allow an investigation into the incident to be conducted.
	5.	Notify the Project Manager
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.13 POISONOUS ANIMAL BITE

JOB TITLE	DUTIES	
All Personnel Site	1.	Immediately notify the site supervisor.
	2.	If safe to do so assist any person in immediate danger
	3.	If safe to do so isolate the animal which has bitten the person
Fire Warden	1.	Initiate emergency evacuation procedures
	2.	Contact project manager and advise on situation
	3.	If possible keep a visual contact on the animal.
First Aid Officer/ Site Foreman	1.	First aid is to follow the Immobilisation/Pressure Bandage Technique
	2.	Contact emergency services.
	3.	The following details should be given to the emergency service's provider: • Species of animal involved • Exact location of the incident • Time bite occurred • Time when first aid was applied • Where the bite occurred on the body • Type of bite (eg glancing, full, multiple bites) • Mobile telephone number of the site foreman • Any other information required by the emergency service
	4.	Immobilisation is critical. The patient should not move.
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.14 CIVIL/INDUSTRIAL ACTION

JOB TITLE	DUTIES	
All Personnel Site	1.	Avoid any physical confrontation wherever possible.
	2.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
Fire Warden/ Site Foreman	1.	Notify the Police
	2.	Lock all doors and windows
	3.	Follow the instructions of the Police
	4.	Do not risk injury or attack in protecting any North or client property
	5.	Always attempt to withdraw from any situation where there is an immediate threat of physical violence.
	6.	Ensure all workers avoid physical conflict with the demonstrators, even if provoked
	7.	Advise the Project Manager
First Aid Officer	1.	Assist Fire Warden/ Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
Senior Management	1.	Advise Client and Superintendent for the project.
	2.	Ensure emergency contacts have been notified and necessary steps taken.
	3.	Liaise with Government Departments as appropriate.
	4.	Notify other North Construction personnel as appropriate.
	5.	Notify legal counsel and Insurers, as appropriate.

6.15 DAMAGE TO UNDERGROUND GAS SERVICES

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	3.	Proceed to Emergency Assembly Point and wait for further instruction.
	4.	
Site Foreman	1.	Initiate the evacuation procedure to ensure that no workers enter the area
	2.	If required contact emergency services and gas service provider
	3.	Advise project manager
	4.	Establish an exclusion zone around the area where the incident occurred and ensure no one enters the area until further notice.
	5.	Shut off mains gas service if possible
First Aid Officer	1.	Assist Fire Warden/Site Foreman
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.16 POWER FAILURE

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of the power loss situation
	2.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
	3.	If safe to do so assist others in need.
	4.	If directed proceed to Emergency Assembly Point and wait for further instruction.
Site Foreman	1.	If deemed necessary initiate the evacuation procedure to ensure that no workers enter the area
	2.	Identify if there are any workers/visitors in areas that require artificial lighting and check these areas for any workers/visitors
	3.	Evacuate any basements that have basement pumps installed
	4.	Unplug all electrical equipment from the Power Outlets to prevent damage from power surge
	5.	If required contact emergency services and power service provider
	6.	Advise project manager
	7.	Establish an exclusion zone around the area where the incident occurred and ensure no one enters the area until further notice.
	8.	Shut off mains gas service if possible
First Aid Officer	1.	Assist Fire Warden
	2.	Administer 1st aid as required
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.17 FATALITY ON SITE

JOB TITLE	DUTIES	
All Personnel Site	1.	The person finding the deceased person/s to alert the Site Foreman / Fire Warden immediately.
	2.	Follow Fire Warden / 1st Aid Officer / Site Foreman's instructions
Site Foreman	1.	Initiate the Site Evacuation Procedure
	2.	Isolate the scene
	3.	Remove all persons other than witnesses from the scene.
	4.	If possible provide comfort to witnesses
	5.	Alert the Project Manager and North Construction Senior Management
First Aid Officer	1.	Avoid any contact with blood and other body fluids
	2.	Cover the body if possible
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.18 FALL ARREST RESCUE

Refer to PRO008 Falls & Falling Objects Prevention Procedure in SIMP

JOB TITLE		DUTIES
All Personnel Site	1.	Inform the Site Foreman/Fire Warden/1st Aid Officer and give location, type and extent of injury.
	2.	Assist 1st aid officer if and when requested
Fire Warden	1.	Initiate evacuation procedure if deemed necessary by 1st Aid officer.
First Aid Officer/Foreman	1.	Administer immediate first aid.
	2.	Determine need for medical assistance and/or evacuation
	3.	Contact emergency ambulance service – 000 & advise fall arrest rescue required
	4.	Seek means to remove suspended worker from the fall arrest safely. Detail rescue procedure below and include as a minimum; ○ If possible, talk with patient and ask them to ○ move their legs in the harness and push against any footholds, where these movements are possible. In some instances, the harness design and/or any injuries received may prevent this movement ○ move their legs as high as possible and the head as horizontal as possible, where these movements are possible ○ Use the suspension loops (where required) ○ Commence rescue by lowering the EWP (where applicable and safe to do so) ○ Commence rescue by trained rescue worker using "Gotcha kit" or other rescue device without placing the rescue worker at risk.(where applicable and safe to do so) ○ Insert any site specific rescue equipment/process as determined by PRA and/or the Task specific risk assessment
	5.	Liaise with Ambulance personnel or local doctors.
	6.	If required, accompany patient to hospital.
	7.	Ensure any necessary personal effects accompany patients, eg. Medications and ID.
	8.	Setup an exclusion zone around the area where the emergency occurred
	9.	At earliest possible time, obtain complete description of accident and fill out accident report.
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	If necessary, arrange for next of kin to be notified via normal Police procedures.
	4.	Advise Client for the project.(where required)
	5.	Undertake corrective measures where applicable to prevent repeat of incident.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate

6.19 UNAUTHORISED ACCESS

JOB TITLE	DUTIES	
All Personnel Site	1.	On discovery of unauthorised personnel on site, question them on who they are and why they are on site.
	2.	Inform the site supervisor and if necessary, and safe to do so, escort individuals from the site.
	3.	Follow instructions of Fire Warden / 1st Aid Officer/ Site Foreman
Foreman	1.	If an intruder is acting in a dangerous fashion contact police and request assistance.
	2.	Notify the Project Manager.
	3.	As far as practical keep the intruder away from all plant and structures so as to ensure that damage is minimised.
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	Liaise with emergency services as required.
	4.	Undertake corrective measures where applicable to prevent repeat of incident.
	5.	Advise Client and Superintendent for the project.
Senior Management	1.	Ensure emergency contacts have been notified and necessary steps taken.
	2.	Liaise with Government Departments as appropriate.
	3.	Notify other North Construction personnel as appropriate.
	4.	Notify legal counsel and Insurers, as appropriate.

6.20 DROWNING RESCUE

Refer to PRO008 Falls & Falling Objects Prevention Procedure in SIMP

JOB TITLE	DUTIES	
All Personnel Site	1.	Inform the Site Foreman/Fire Warden/1st Aid Officer either with air horn or verbal/phone, noting type and extent of injury.
	2	Assist 1st aid officer if and when requested
Fire Warden	1.	Initiate evacuation procedure if deemed necessary by 1st Aid officer.
	2.	Contact emergency ambulance service – 000
First Aid Officer/Foreman	1.	Seek means to remove worker from the water safely. Detail rescue procedure below and include as a minimum; ○ If possible, talk with patient and ask them to ○ Swim to the ladder/edge if possible ○ Grab onto a rescue ring as second option Note : Enter water to assist with rescue as last option ○ Commence rescue by removing worker from water (where applicable and safe to do so) ○ Seek assistance in retrieving body from water Insert any site specific rescue equipment/process as determined by PRA and/or the Task specific risk assessment
	2.	Administer immediate first aid.
	3.	Determine need for medical assistance and/or evacuation
	4.	Contact emergency ambulance service – 000
	5.	Liaise with Ambulance personnel or local doctors.
	6.	If required, accompany patient to hospital.
	7.	Ensure any necessary personal effects accompany patients, eg. Medications and ID.
	8.	Setup an exclusion zone around the area where the emergency occurred
	9.	At earliest possible time, obtain complete description of accident and fill out accident report.
Project Manager	6.	Advise as necessary Government departments, including WorkCover.
	7.	Advise and liaise with North Construction Senior Management and keep fully informed.
	8.	If necessary, arrange for next of kin to be notified via normal Police procedures.
	9.	Advise Client for the project.(where required)
	10.	Undertake corrective measures where applicable to prevent repeat of incident.
Senior Management	4.	Ensure emergency contacts have been notified and necessary steps taken.
	5.	Liaise with Government Departments as appropriate.
	6.	Notify other North Construction personnel as appropriate

6.21 FLOOD EMERGENCY SITE EVACUATION

JOB TITLE	DUTIES	
All Personnel Site	1.	Advise Site Foreman of any emergency situation
	2.	Assist injured persons where safe to do so.
	3.	Follow instructions of Fire Warden / 1st Aid Officer / Site Foreman
Fire Warden/ Site Foreman	1.	Monitor automatic Flood Warning alerts from BOM and determine need for total or partial evacuation.
	2.	Take whatever steps are necessary to minimise further injuries or damage prior to evacuation.
	3.	Determine number of injured personnel and extent of injuries.
First Aid Officer	1.	Administer immediate first aid.
	2.	Contact emergency ambulance service - 000 - if necessary
	3.	Notify personnel trained in CPR and First Aid to provide the required assistance prior to the arrival of the professional medical help
	4.	At earliest possible time, obtain complete description of accident and fill out accident report.
Project Manager	1.	Advise as necessary Government departments, including WorkCover.
	2.	Advise and liaise with North Construction Senior Management and keep fully informed.
	3.	If necessary, arrange for next of kin to be notified via normal Police procedures.
	4.	Advise Client and Superintendent for the project.
	5.	Undertake corrective measures where applicable to prevent repeat of incident.
Senior Management	6.	Ensure emergency contacts have been notified and necessary steps taken.
	7	Liaise with Government Departments as appropriate.
	8.	Notify other North Construction personnel as appropriate
	9.	Notify legal counsel and Insurers, as appropriate

7. INCIDENT INVESTIGATION AND REPORTING

7.1 INCIDENT REPORTING

In the event of an incident that has required more than minor 1st aid medical treatment or is classed as a near miss incident the foreman is required to record the details of the incident using the North standard form NCB016 Incident Report. As soon as practical after the incident the foreman is required to fill in all areas of the form, This form is to be provided to both the project manager and construction manager within 24 hours of the Incident occurring.

The Project Manager and members of the Senior Management Team (including the Systems Administrator) will discuss the incident and agree on any further action required.

7.2 SERIOUS INCIDENT REPORTING

A formal investigation is required to be completed in the event of a Fatality, Serious Injury, Medical Treatment Injury, Lost Time Injury or Near Miss Incident.

Once the foreman in control of the site has advised the project manager and Senior Management an Investigation Team is to be established, this team will consist of a the Project Manager, Site Foreman, Safety Officer, Systems Administrator and/or Safety Manager. The Project Manager is responsible for establishing this team. The Investigation team is to make their way to the site as quickly as possible.

North Constructions standard form for Incident Investigation and Report (NCB017) is to be completed by the lead investigator. This form is to be used as a tool in completing the investigation and must be fully completed and provided to Senior Management within seven days along with any other relevant documents or information.

The Investigation Team will be required to carry out the following;

1. Establish the Incident Scene
2. Interview Witnesses
3. Collect Evidence
4. Report Outcomes of the Investigation and any Corrective Actions

Once this review has been completed the signed off form is to be stored within the project folders on site, with a copy being displayed on the site notice board. A copy is to be provided to the project manager who shall file it within the project folders at the head office. The Systems Administrator also keeps a copy of all completed incident reports for the future collation of safety data statistics and for the annual review of systems policies and procedures.

If the investigation identifies that the incident was caused through a non-conformance by a worker or subcontractor on site a Non Conformance Report needs to be issue to the company noting the corrective actions that are required to be implemented.

7.2 REHABILITATION

North Construction recognises that the approach to an effective occupational health and safety program is twofold. Firstly, a policy aimed at prevention of work related accidents or illness and secondly, the development of a comprehensive rehabilitation scheme which is aimed at returning the injured employee to the workforce and society.

Please refer to the North Construction and Building Return to Work Program and Program Summary for further information.

North Construction's Rehabilitation Coordinator is:

Mend Services Pty Ltd
Phone: 02 9660 8611 | Fax: 02 9660 8777 | Email: info@mendservices.com.au

8. CRITICAL INCIDENT REPOSE MANAGEMENT

North Construction & Building recognises that critical incidents can arise that may seriously impact on the safety of employees and/or the company's business continuity. A critical incident is an event which has caused death or total permanent disability to person or where a major structural failure of a building or temporary structure has occurred. These events may cause, or are likely to cause, extreme physical and or emotional distress to employees and other workers or visitors to the company and which may be regarded as outside the normal range of experience of the people affected.

8.1 CRITICAL INCIDENT COORDINATION TEAM (CICT)

In the event of a critical incident a team will be formed to coordinate the management of the incident. North's CICT will consist of the following individuals:

- Site manager
- Project manager
- Safety manager (John Melvin)
- Systems Administrator (Tom Glynn)
- Safety Officer (Howard Elliot)
- Managing director (Matthew Cook)

8.2 IMMEDIATE ACTIONS AND PROCEDURES IN THE EVENT OF A CRITICAL INCIDENT

The following procedures will be implemented as a minimum standard, and will be initially actioned and/or delegated by the Site Manager. Further input/response will be provided by the CID following the establishment of a CICT:

PHASE 1. ACTION AT THE TIME OF OCCURRENCE OF A CRITICAL INCIDENT

- Immediately inform emergency services (if required) as soon as it is safe to do so
- Ensure injured and/or traumatised employees and members of the public are provided with an appropriate emergency response
- Inform the relevant Project Manager and/or Construction Manager.
- Ensure support for employees, relatives and others is available in the event an incident is still continuing.

PHASE 2. ACTION IMMEDIATELY AFTER A CRITICAL INCIDENT

- Allow employees to contact their family/close friend to advise them of the situation.
- Assist members of the public with contacting their family/close friend, or assist them by arranging transport for them if needed

- Ensure the site or anything associated with the incident is not disturbed in relation to a Police matter or when an investigation is required by Safework
- Provide people who have been exposed to the critical incident with emotional support and practical assistance
- Inform the Systems Administrator and Safety Manger of the situation
- Inform all worksite employees about what has occurred as necessary

PHASE 3. ACTION FOLLOWING A CRITICAL INCIDENT

- Encourage employees to have an individual appointment with the Systems Administrator and/or Safety Manager to assess the need for further intervention
- Provide an incident debriefing for employees involved in the critical incident
- Provide a professional post trauma counselling service if necessary
- Return the worksite to normal operation as soon as practicable.

PHASE 4. ACTION POST CRITICAL INCIDENT

- An investigation of the incident shall be conducted using standard form NCB007 as a minimum standard. Further expansion/detailed description of the investigation will be required as an appendix to the standard investigation form.
- The investigation should be commenced within 24 hours of the incident to record factual data about the occurrence and develop a good understanding of what it was and how it happened, so that decisions regarding necessary preventative action can be made.

8.3 EMPLOYEE COUNSELLING

North's recognise that being involved in a critical incident can be a frightening experience with potential for lasting effects. Each person will react differently to a critical incident.

After experiencing a critical incident, individuals may find themselves experiencing some of the following reactions:

- Physical: sleep disturbance, fatigue, appetite changes, shakes, headaches, nausea, easily startled.
- Emotional: fear and anxiety, guilt, numbness, anger and irritability, depression, helplessness.
- Mental: confusion, nightmares, disorientation, slowed thinking, difficulty making decisions, memory problems, intrusive thoughts or images, concentration issues.

North's are committed to minimising the ongoing trauma caused by critical incidents. In the event of a critical incident North's will offer counselling to affected personnel. The Managing Director (or delegated other) will offer one-on-one internal counselling. Additionally the affected person will be offered counselling by a qualified external counsellor with the appropriate experience to deal with trauma arising from critical incidents.

9. DEFINITIONS

10. FILING OF COMPLETED PAPERWORK (RECORDS)

- Records are stored on Procore in the project directory.
- Any associated forms (toolbox talks/sign in sheet etc) are to be filed on site with toolbox talks.
- All records are to be kept and maintained in accordance with North's Document Control Procedure.

11. FORMS

- Evacuation Drill (Procore form)

12. RELATED PROCEDURES & FORMS

- Incident Report
- Incident Investigation
- SWMS Checklist
- Incident Reporting Procedure
- Corrective and Preventative Action
- Relevant High Risk Work Procedure (HRPRO)

13. RELATED CODES OF PRACTICE & AUSTRALIAN STANDARDS

https://www.legislation.nsw.gov.au/#/view/regulation/2017/404/chap3/part3.2/div4/sec43

APPENDIX A

HARNESS RESCUE

North Construction & Building Pty Ltd

HARNESS RESCUE PLAN

PROJECT: **JOB NO:**

ACTIVITY: **PERSON REVIEWING RESCUE PLAN:**

SIGN: **DATE:**

Work at Height Sequence	Action	Definition/Controls
Prior to Working at height	Preparation/ Risk Assessment	EWP to be available on site for rescue. Ensure that there is a secondary method for getting down from heights. All EWP operators willing to assist in rescue of fallen worker. Assess site and establish location of secondary EWP List working in harness on toolbox talk Nominate rescuer/team members and site First Aid Officer Minimum of one nominated person to remain on ground. List working in harness on Daily Prestart Hazard Assessment Inform North Site Foreman of work to be performed and submit toolbox talk. SWMS to include working at height, and all to understand and adhere to control measures stipulated
Worker falls and is suspended by harness:	Rescue of suspended Worker	Ladders/Mobile Scaffold are not adequate to rescue worker. Scissor lift preferred rescue device Inform first aid officer Position EWP under worker and delicately raise so that worker can be pulled into the basket. Ensure that the SWL of the EWP will not be exceeded. Follow correct rescue techniques as shown in guide.
	Additional First Aid Required	North first aid officer to be notified immediately Paramedics to be called North Foreman to report the incident immediately First aid to be assessed and attended by North First Aid Officer Evacuation to take place

north

EWP RESCUE (MULTIPLE SUBCONTRACTORS)

north
BUILDING WITH TRUST

North Construction & Building Pty Ltd

RECORD OF SUBCONTRACTOR TOOL BOX TALK

Workplace/Site: Newcastle Light Rail Depot **Date:** 18th July 2018

Supervisor/Trade: All EWP users

Subject: EMERGENCY RESCUE + BARRICADING. **Duration:**

Persons Present

By signing below I confirm that I was present and understood the above dated tool box talk and had the opportunity to discuss and raise any concerns regarding the content of the tool box talk or any additional items.

Print Name	Signature	Print Name	Signature
Brian Lawson		Glen McClew	
Jack Percival	J Percival	Troy Foley	
Alan Mitchell		D Farnes	
Garreth Day		D. Johnson	
Adam Mitchell		B. Parisswamy	
Brad Eggington		B ROBB	

Comments & Points Raised

Health, Safety & Environment Issues: *(note any safety issues that have arisen along with the proposed corrective actions)* EMERGENCY RESCUE PROCEDURES.
We have Multiple EWP's on site using harnesses as fall protection. All users of harnesses have work@heights tickets + Emergency Rescue Plans but we need to agree as a group to cooperate for a rescue that requires a secondary EWP. 1st priority is to perform a rescue ~~from~~ by lowering the EWP using ground controls. (by spotter). In event of a rescue taking place, the air horn should be sounded to initiate an Emergency Rescue. NCB to be informed.

~~Site Set-Up Changes:~~ Prior to using the EWP – During establishment, access should be confirmed so that a 2nd EWP can get there should it be needed.

~~Deliveries and Materials Storage:~~

BARRICADING OF WORK AREAS.
There has been some relaxing of barricading around EWP's. Please be aware of this requirement. It is a very easy one to be defected on and we don't want this to be an ongoing issue for transport.

~~Upcoming Works:~~

Other:

Corrective Action	Action By	Action Complete	
		Sign Off	Date

WORKING ON ROOFS (NO SCAFFOLD ACCESS)

North Construction & Building Pty Ltd

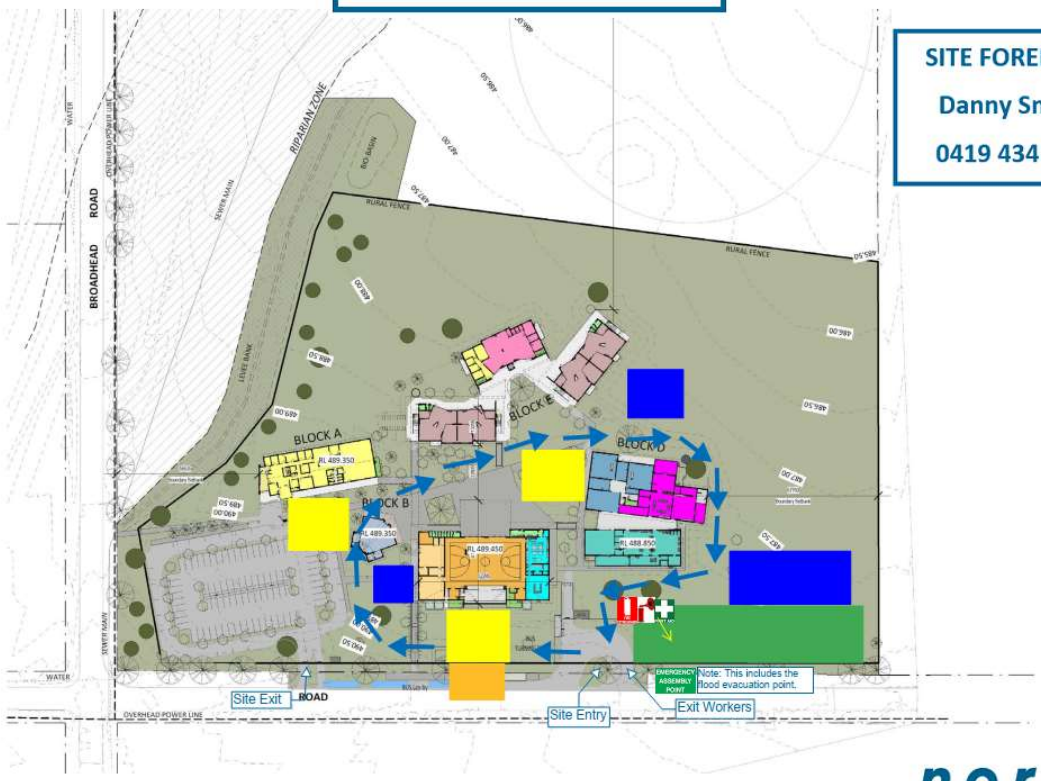
RECORD OF SITE TOOLBOX TALK

PROJECT: NEWCASTLE LIGHT RAIL **Job No:** 2173A

Supervisor/Presenter:	DEAN DONOVAN
Date:	25/7/18
Subject:	EMERGENCY MANAGEMENT OF ROOF ACCESS
Duration:	5 MINUTES.
AGENDA ITEMS	***MINUTES OF DISCUSSIONS AND COMMENTS (allow all meeting attendees to contribute)***
Work, Health, Safety & Environment Issues *(note any safety issues that have arisen along with the proposed corrective actions)*	- THE STRETCHER STAIRS ARE BEING REMOVED TODAY - THERE IS SAFE ACCESS TO THE PLANT DECK FROM A LADDER AND A LADDER WILL BE SET UP FROM THE PLANT DECK TO THE ROOF. - IF THERE IS AN INJURY WHERE A WORKER CANT WALK A BOOM LIFT MAY BE AVAILABLE TO RETRIEVE THE WORKER. - IF TREATMENT FROM A PARAMEDIC IS REQUIRED THEY CAN USE THE LADDER ACCESS. - IN THE UNLIKELY CIRCUMSTANCE THAT A WORKER IS IMMOBILISED AND CANNOT COME DOWN THE LADDER OR BE RETRIEVED BY THE BOOM THE CAREFLIGHT HELICOPTER CAN BE CALLED

APPENDIX B

SITE LAYOUT PLAN



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APPENDIX C – OPERATIONAL FLOOD EVACUATION PLAN