

Construction Environmental Management Plan

GOSFORD NORTH TOWER

26-30 MANN ST GOSFORD

Project Number 21012

ST HILLIERS PROPERTY



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Part A. Client Checklist

This checklist has been designed to assist Government agencies and other customers in assessing their service providers' Construction Environmental Management Plans. It may also assist service providers in developing their Construction Environmental Management Plans (CEMP). An agency/customer may specify other items that will be addressed in the service providers' Construction Environmental Management Plans to support the control of risks. The number references are to clause numbers in the current AS/NZS ISO 14001 *Quality management systems – Requirements*.

Key to symbols to be used in check boxes is: ✓ = Yes ✗ = No ○ = Not applicable

#	Guideline	Relevant plan section

Part B. Project Specific Information

B.1 - Preliminary

B.1.1 - Version Control

Table 1 Version Control

Revision #	Date	Version Description	Approved by
1	13/06/2022	Construction	Scott Steward

B.1.2 - Revision Details

Table 2 Revision Details

Revision	Details

B.1.3 - Distribution

Table 3 Distribution List

Copy	Recipient
Andrew Cummins	Project Manager
Justin Ng	Client

B.2 - Introduction

B.2.1 - Purpose

These plans and their referenced documents describe how St Hillier's propose to manage the construction of the Gosford North Tower Project so that corporate, project objectives and targets are realised. These plans have been split into 3 sections:

Part A – Where applicable client supplied checklists are inserted here. This is done to make finding the important information easier.

Part B – This part contains information that is specific at a project level

Part C – This part contains the information that is specific to each plan.

These Plans have been developed in accordance with the St Hillier's Management System, establishes responsibilities and practices to be followed by the project team throughout the project from the Point of Handover from the Bid Team. The Plan aims to deliver the project in accordance with client requirements and without safety and environmental incident to employees and the community. It is a tool to clearly identify HSE Risk, Hazards and Aspects, and then develop controls and improvements to manage these issues.

Project Specific Information

The Environmental Plan details environmental management aspects and controls specific to this project in accordance with St Hillier's Integrated Management Systems and project requirements. St Hillier's aims to have zero environmental incidents on the project. Project specific environmental objectives or targets include:

- St Hillier's target of 80% waste recycling/reuse
- Green Star (best practice not accredited)

St Hillier's National Health and Safety (HSE) Manager has Corporate Responsibility for maintaining systems in accordance with ISO 9001, ISO 14001 & ISO 45001 requirements.

Andrew Cummins is St Hillier's Project Manager with executive responsibility for safety, quality and the environment and responsible for implementation of the requirements of the Project Plan in accordance with individual position descriptions.

The intent of this Project Plan is to be a "Live" Document that is established at the point of Handover from the Bid Team and revised to reflect the changing nature of the project.

B.3 - Project Description

B.3.1 - Project Background and Scope

- SSD Development Stage 1 Northern Tower – 24 Storey Mixed Use Tower including 136 Apartments / 621m2 Commercial Floor space / 183 Car parking spaces / Landscaping

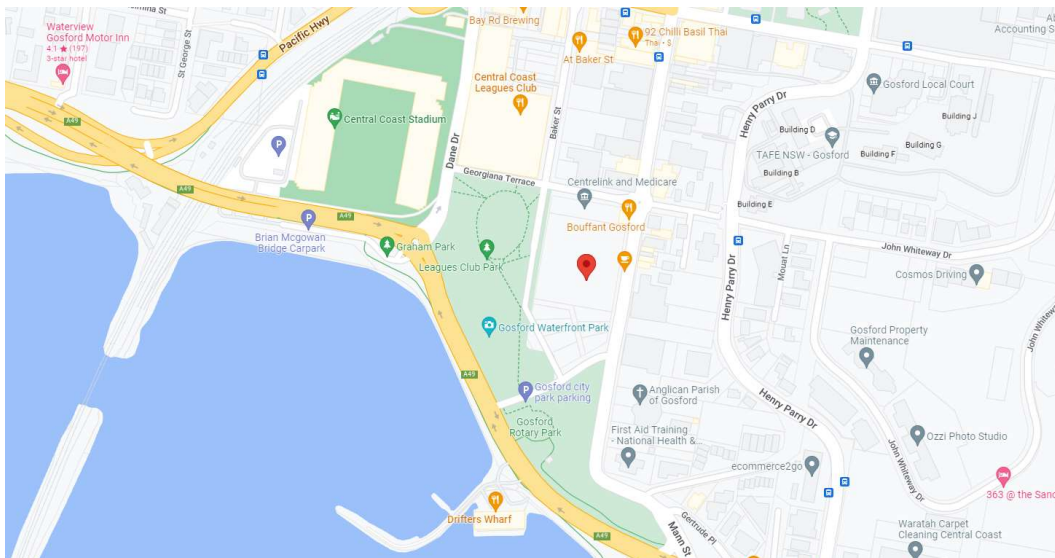
B.3.2 - Project Stakeholders

St Hillier's recognises the following Stakeholders to the Project

- St Hillier's Property {Client}
- Local environmental groups
- Local community

B.3.3 - Project Site

The project is located at the vacant property at 26-30 Mann Street, Gosford NSW. Adjacent areas include the Central Coast Stadium and the Brisbane Water river.



B.3.4 - Type of Contract

<<TBC>>

B.3.5 - Milestone Dates

St Hillier's has prepared a Program after careful consideration of all inputs, e.g., weather, resourcing, tasks and ensured that the planning methodology has been placed within the sequence logic to ensure a realistic, efficient project delivery is achievable.

Table 4: Gosford North Tower key milestones

Project Milestones	Date
DA Approved	31/03/2022
Commence Site Establishment	27/06/2022
Stage 1A Practical Completion	09/03/2024

B.4 - Organisation and Responsibility**B.4.1 - Overview**

The management of the Project is organised under the control of the Project Manager, as depicted in the Project Organisation structure included as Annexure A. These will be supplemented by informal lines of communication to facilitate efficiency and effectiveness of the management team.

The organisational structure and arrangements will be dynamic and responsive to meet the demands of each of the various aspects of delivery, as well as each of the Project locations.

B.4.2 - Project Team

The St Hillier's Project Team are available for an immediate project start in relation to their specific project roles and responsibilities. The Project Team are available to St Hilliers Property Subcontractors and Suppliers for any enquiries relating to the construction activities.

The Project Team will be directly supported by the St Hillier's Senior Management and Corporate Support Team.

All St Hillier's team members can be contacted on (07) 3212 6300

Table 5: Key Personnel

Position	Name	Signature	Date
Project Manager	Andrew Cummins		05/07/2022
Design Manager	Justin Rodgers		09/06/2022
Operations Safety Manager	Peter Barrett		05/07/2022

Project Specific Information

Position	Name	Signature	Date
Site Manager	Scott Steward		05/07/2022
Snr Project Engineer	Kirk Thompson	Kirk Thompson	05/07/2022
Snr Contracts Administrator	Alex Mitchell		05/07/2022
Project Engineer	Eamon Wright	ewright	05/07/2022
Project Engineer	Edward Casey	Edward Casey	05/07/2022
Cadet	Lachlan Wong	Lachlan	05/07/2022

* - Must be signed by Senior Management

NOTE:

Signatures on this page acknowledge that.

- St Hillier's staff have been consulted in the development of this Project Plan and associated annexures,
- Understand and accept their responsibilities and roles documented within this Project Plan and,
- Are committed to complying with these

B.4.3 - Responsibilities

Collectively, the Project Team will provide the following delivery phase services to achieve Completion by the Date for Completion:

- Project Management
- Procedural and process control
- Tendering and procurement management
- Construction control
- Contract administration and cost control
- Site management and construction supervision
- Time control and programming
- Quality control, monitoring and reporting
- Environmental control, monitoring and reporting
- Implementation of ESD initiative for construction
- Safety monitoring and reporting
- Consultation, liaison and interface management with St Hillier's Property representatives.
- Authority and approvals coordination
- Commissioning and Handover management

B.5 - St Hillier's Policies

St Hillier's Quality, Health, Safety and Environmental policies are included in Annexure D and communicate St Hillier's commitment to delivering this project safely, without impact to the environment and in accordance with client requirements.

B.5.1 - Definitions

Responsibility – this is the person with responsibility for ensuring the specific task is completed. Only one person can be responsible.

Role – this is the person (s) with delegated authority to complete the task.

B.5.2 - Management System Overview

The Management System for this project has been built by extracting relevant processes and controls from the St Hillier's Integrated Management System (IMS). This Management Plan is a subset of those project controls relevant to construction and operations of project sites.

The IMS is periodically reviewed at the corporate, business unit and project levels. Modifications and improvements resulting from reviews are integrated into the management system and communicated to promote consistent, best practice standards and continual improvement across all our operations.

B.5.3 - References

B.5.3.1 - St Hillier's Documents

This plan is part a suite of management plans that are intrinsically linked and collectively provide a complete and coherent system of requirements and processes to ensure all project requirements are met. Additional management plans will be created as a specific need is identified.

The full suite of Management Plans for the Gosford North Tower are listed below:

Reference	Plan name
	Commissioning and Hand Over Plan
	Environmental Management Plan
	ESD and WOL Plan
	Site Management Plan
	Work Health and Safety Plan
	Quality Plan

B.5.3.2 - Statutory requirements

Site specific legal and other requirements shall be documented in Project-specific versions of the relevant jurisdictional parts of the:

- Legal Requirements Register (WHS) Form F09 (NSW Form F09d, and
- Legal Requirements Register (Env) Form F09 (NSW Form F09e

The template copies of the registers are available on the St Hillier's intranet and shall be made site specific after reviewing the contract documents, (specification, approvals etc) and relevant environmental (see also WI F08) and WHS legislation, regulations, standards, permits, licenses, code of practice, guidelines, customer requirements, local government consent and third-party requirements. To assist this process St Hillier's Intranet provides weblinks to currently applicable legal and other requirements and the registers may also contain hyperlinks to relevant legislation, codes, guidance notes etc.

B.5.4 - Responsibilities

B.5.4.1 - St Hillier's Project Team

The St Hillier's Project Team will be available for an immediate project start in relation their specific project roles and responsibilities.

Collectively, the Project Team will provide the following Construction Phase services, specific to this plan, in order to achieve Completion by the Date for Completion.

Table 6: Rolls and Responsibilities

Ref #	Control Procedure Summary	Responsibility	Role
B.8.1	Site Inspections	Project Manager	Site Manager, Subcontractors
B.8.2	Report Monthly Performance	HSE & Systems Manager	Project Manager
B.8.3	Manage Enquiries and Complaints	HSE & Systems Manager	Project Manager
C.5.1	Induct Personnel	Project Manager	Site Manager, Subcontractors, Health, Safety & Environment Manager
C.5.2	Conduct Toolbox Talks	Project Manager	Site Manager, Subcontractors, Project Engineer
C.5.3	Conduct Daily Pre-Start Meetings	Project Manager	Site Manager, Subcontractors, Project Engineer
C.5.4	Perform Project Safety Risk Analysis	Project Manager	Health, Safety & Environment Manager, Site Manager
C.5.5	Review Subcontractor Environmental Controls	Project Manager	Site Manager, Subcontractor, Operations Safety Manager
C.5.6	Community Consultation & Complaints	Project Manager, Superintendent	Project Manager, Superintendent
C.6.1	Traffic & Pedestrian Management	Project Manager	Site Manager, Operations Safety Manager
C.6.2	Air Quality / Dust Control	Project Manager	Site Manager, Operations Safety Manager
C.6.3	Asbestos	Project Manager	Asbestos Removalist, Team Leader, Asbestos Permit Issuer, Asbestos Permit Holder
C.6.4	Contaminated Land	Project Manager	Contaminated Land Consultant, Regional Environmental Officer, Site Manager, Operations Safety Manager
C.6.5	Cultural Heritage	Project Manager	Site Manager, Operations Safety Manager, Archaeologist
C.6.6	Erosion and Sediment	Site Manager	Operations Safety Manager, Site Manager, Project Team
C.6.7	Flora and Fauna	Project Manager	Site Manager, Project Engineer, Operations Safety Manager

Ref #	Control Procedure Summary	Responsibility	Role
C.6.8	Hazardous Substances and Dangerous Goods	Project Manager	Site Manager, Operations Safety Manager
C.6.9	Noise	Project Manager	Operations Safety Manager, Site Manager
C.6.10	Vibration	Project Manager	Site Manager
C.6.11	Waste Management	Project Manager	Site Manager, Operations Safety Manager and/or delegate, all Site Personnel
C.6.12	Surface Water Quality	Project Manager	Project Team
C.6.13	Essential Services	Project Manager	Site Manager, Operations Safety Manager
C.7.1	"Chance finds" procedure- for unexpected finds	Project Manager	Project Team, Subcontractors, Client
C.7.2	Conduct Audits	Project Manager	Project Team, Subcontractors, Client
C.7.3	Perform Environmental Baseline and Conditioning Monitoring	Project Manager	Project Team, Operations Safety Manager, Consultant
C.7.4	Site Inspections	Project Manager	Operations Safety Manager, Site Manager, Subcontractor, Project Engineer, Client
C.7.5	Report Monthly Environmental Performance	Operations Safety Manager	Project Manager
C.7.6	Report Environmental Incidents	Operations Safety Manager	Project Manager
C.7.7	Manage Enquiries and Complaints	Project Manager	Site Manager
C.7.8	Manage Incident Involving Hazardous Substance	Project Manager	Environmental Protection Agency, Consultant

B.5.4.2 - Subcontractors

The construction of the works will be delivered by trade or work package subcontractors and suppliers. The identification, selection, tendering, evaluation and nomination of suitable subcontractors and suppliers are the function of the Project Team.

All subcontractors and suppliers will be required to comply with the specific site security procedures, site safety, environmental, industrial relations, quality assurance and other such performance requirements implemented under the Project Plans. The St Hillier's Project Team remains at all times, responsible for the proper management and performance of its subcontractors and suppliers. Awareness will always be taken when working within the sensitive and high security environments.







The subcontractors on site will always have suitable and adequate managerial and supervisory personnel, including first aid and/or Workplace Health and Safety (WHS) representatives, whilst their works are in progress. The subcontractor supervisors will be required to attend weekly Subcontractor Coordination Meetings or other regular workshop meetings with the Project Team, to plan, coordinate, review works progress, report on status and take corrective actions where required on all construction matters.



All subcontractor supervisors will have their contact details available to the Project Team for daily, regular contact and after hour's emergency response requirements.


B.6 - Key Issues on Site

St Hillier's have identified several key quality management issues for the execution of the Project and have outlined proposed strategies (Table 7 below) to minimise the risk associated with the delivery of this aspect of the Project.

Table 7: Key Issues

Risk/Issue	Mitigation Strategy	
Conservation and protection of Flora and Fauna	<p>No threatened flora or fauna has been identified on the site in the PSI.</p> <p>Existing trees within the site not requiring removal will be protected and segregated from works.</p>	
Aboriginal Heritage <i>Damage to aboriginal relics or locations</i>	<p>No known sites within 26-30 Mann Street, Gosford</p> <p>Training for recognition & respect (Cultural awareness) will be provided to site operatives.</p> <p>Management of potential heritage items or place discoveries will be as per the chance finds' procedure; however in summary, works would stop, and process approval would be sought after with the client.</p>	
Erosion Prevention <i>Loss of topsoil, long term damage to site</i>	<p>Erosion Controls to be documented, maintained, and inspected for adequacy. Weekly reviews to be completed to ensure all established environmental controls are maintained and adequate throughout the lifecycle of the project (including independent auditing as per contract requirements).</p> <p>Note: Controls are to take into consideration the overland flow/ outflows from adjacent properties particularly upstream/ above the site.</p>	
Hazardous Material <i>Risks to safety and potential land contamination</i>	<p>Hazardous Materials will be handled and stored in accordance with the Contract, our Work Health and Safety Plan and the relevant Materials Safety Data Sheet (SDS) on the product.</p> <p>Hazardous waste will be stored in a dedicated waste container in the Site Compound and removed as required by a licensed waste contractor to an approved waste facility offsite.</p>	
Waste Materials <i>Protection from possible contamination</i>	<p>Throughout the construction, we will:</p> <ul style="list-style-type: none"> Target 80% recycling of construction waste and demolition waste Utilise recycled materials where possible, such as gravels for temporary areas Keep records of waste removal from site through an authorised contractor <p>Separate recycled materials on site where appropriate.</p> <p>St Hilliers will maintain all records relating to imported recycled materials (Soil materials) are tracked to show non-contamination.</p>	
Air Quality especially Dust <i>Irritant/safety risk to personnel and plant</i> <i>Public safety risk to surrounding roads and public spaces</i>	<p>The regular dampening of the works during civil works (road construction, bulk earthworks and building pad preparation) including monitoring and suppression as required to minimise dust generation.</p> <p>Minimisation of disturbance to areas, speed limitations on vehicles, and covering of loads.</p> <p>Covering of material stockpiles where required.</p>	

Risk/Issue	Mitigation Strategy
<p>Fuel / Oil spill</p> <p><i>Prevention and management of potential hydrocarbon spill and protection of the environment</i></p>	<p>All fuel storage facilities (tanks, trucks) to be undertaken in allocated fuel areas which are appropriately protected by bunds or spill capture facilities.</p> <p>All storage of fuels and oils to be a minimum of 50m from drainage lines and watercourses and in accordance with AS194.0</p> <p>The site will not discharge or dump any deleterious materials into drains. Stormwater drains will be protected where affected by our works.</p> 
<p>Noise</p> <p><i>Including:</i></p> <ul style="list-style-type: none"> - Plant operations (working adjacent to) <p><i>Airfield operations</i></p>	<p>Noise monitoring will be regularly conducted audibly by persons onsite. In the event that there is suspected excessive noise exceeding acceptable limitations, or there is noise complaints, then either if those noise related activities can be avoided at such times they will be re organised to do so, or if those noise works are required at those times than noise testing will be to establish what is deemed acceptable and the works will be agreed than with Gosford North Tower as to how to proceed to mitigate disruption.</p> <p>Noise controls will be implemented in accordance with statutory requirements to ensure exposure limits are not exceeded throughout the works.</p> <p>The site working hours (for construction activities) is 7am to 6pm.</p> <p>Workers will be required to be in possession of hearing protection (in accordance with AS 1270) and through induction, and daily site pre-start consultation advised of when this hearing protection will be required to be utilised.</p>
<p>Asbestos Containing Materials</p>	<p>The 26-30 Mann Street Gosford Asbestos Reports have been reviewed prior to works commencing. There is ACM within the works zones and controls will include:</p> <ul style="list-style-type: none"> • An ACM management sub-plan (as a sub-plan to this CEMP) will be created by the licensed subcontractor completing the works in consultation with a Hygienist which will be engaged to oversee all ACM removal works. The plan will document how controls will be implemented in relation to Demolition of Buildings that contain ACM and how they will be managed, such as: <ul style="list-style-type: none"> – Non-friable asbestos (chrysotile) was identified in some external fixtures such as eaves, mastic around window frames, electrical bituminous backing board and packers, and packers beneath the building – Non-friable asbestos (chrysotile) was identified inside the residence in the vinyl flooring, panel infill and fibre cement sheeting on the walls and falls. Suspected SMF was noted in the ceiling void, garage area and insulation associated with the hot water system. – Air monitoring will be completed during the works. – Safe exclusion zones will be established; waste handling and collection by operatives using PPE and breathing apparatus; and disposal into contained waste bins for disposal offsite to approved waste disposal facilities. <p>All previous PSI documents will be supplied to the Hygienist for review prior to completing a <i>destructive survey inspection</i>.</p> <p><i>The destructive survey conducted by the hygienist will allow to investigate areas that may not have previously been accessible and will assist in ensuring the correct controls are implemented in the ACM Management Sub Plan</i></p> 

Risk/Issue	Mitigation Strategy
	<p><i>During Construction activities, St Hillier's will ensure a competent person (Asbestos Awareness training) is on hand during initial excavation works (or brought in as a result of a potential ACM discovery).</i></p> <p><i>St Hillier's will ensure controls are agreed in consultation with the St Hillier's Property and stakeholders. The controls will comprise of those similar to the listed above for where ACM is discovered during excavation works, however will additionally include testing and treatment measures to enable identification and safe handling.</i></p>
Stockpile of Excavated Material	<p>Stockpile of surplus excavated material will be onsite. No materials are to be relocated offsite as documented within the project documentation, unless agreed and directed by the Clients rep.</p> 
Contaminated Soils (Ash)	<p>Based upon pre-construction assessments, certain locations are contaminated with Ash Fill. Where this contaminant is determined to be present, based on the amount of ash observed at the site, the potential for contamination has been assessed as moderate to high.</p> <p>The Contaminated material will be managed in consultation with the Hygienist</p>

B.7 - Review of Project Plans

B.7.1 - External Consultation

Consultation with the community shall be assessed on project, client and authority requirements at project commencement with details documented in the Project Plan. Consultation may take form of community forums and/or written communications to address items including project duration, peak periods of construction, hours of operations, specific environmental management issues, complaints management procedures and project contact details.

Irrespective of project requirements, the programming and execution of the works shall be carefully considered to minimise interference with the local community and the environment.

B.7.2 - Project Plan Preparation, Review and Approval

B.7.2.1 - Preparation

This Plan shall be reviewed and approved by the Project Manager and a member of Senior Management (Operations Safety Manager, Quality Compliance Manager, Construction Manager, Division Manager or General Manager). The organisation chart, confirming roles in this Plan, shall be initialled by team members that have nominated responsibilities and roles. Each team member is to sign off on this Plan in Table 5

The plan shall be issued to subcontractors and relevant stakeholders as required with hard copies being made available to all persons on site.

B.7.2.2 - Review and Amendment

Once the plan has been prepared a copy will be issued to St Hillier's Property. St Hillier's Property will issue the plan to all relevant stakeholders and seek their feedback. Once this feedback has been received then a consolidated list of amendments is to be issued to St Hillier's for review and incorporation into the plan as required.

Formal reviews of the Project Plan during the project shall be in accordance with the following dates:

- Initial Review 27/6/22
- 3 Monthly review 27/9/22

- Then every 3 Months until Project Completion

Any potential changes to the project plan are discussed at the Projects Weekly Team Meeting or subcontractor meeting with changes as a result of Plan reviews, the meetings, site-specific outcomes and recommendations through inspections, reports or audits shall be reviewed as above and approved prior to re-issue.

Records of plan reviews shall be recorded in the revision sheet and through Team and Subcontractor Meetings.

B.7.2.3 - Finalisation and Approval

Once the comments have been incorporated into the plan, the finalised plan will be signed by all required parties and issued back to St Hillier's Property for their records.

This plan is a live document and will undergo reviews and amendments to reflect changes to working conditions as necessary.

B.8 - Monitoring Compliance of the Plans

B.8.1 - Site Inspections

B.8.1.1 - Description

Site inspections are used to identify workplace hazards and deficiencies and assess safety and environmental compliance against St Hillier's regulatory requirements and best practice processes and initiatives. Site inspections cover all aspects of project works.

B.8.1.2 - Responsibilities

Site Manager, Subcontractors

B.8.1.3 - Process

Types and frequency of inspections for the Project are identified below.

Any Hazards identified through these inspections will be managed in accordance with the instruction 'Identify Hazards and Improvements'.

B.8.1.4 - Daily Inspections

- All employees are to conduct a daily visual site inspection of their work area and report any hazards to the area supervisor.
- Each Foreman will conduct visual site inspections of their work areas every shift/day to ensure that any potential hazards and deficiencies are identified, assessed and controlled as required. The inspections will include health and safety issues, environmental issues, working practices and housekeeping.
- Any hazards identified during the inspection will be managed and recorded as described in the process Identify hazards and improvements.

B.8.1.5 - Weekly Inspections

Inspections will be conducted at least weekly to identify Safety and Environmental issues and monitor effectiveness of controls. Outcomes of these inspections will be documented on the Weekly Safety Inspection Checklist and Weekly Environmental Inspection Checklist.

B.8.1.6 - Closure of Raised Items

Evidence that items raised during inspections have been closed-out will be documented on the Weekly Safety Inspection Checklist and Weekly Environmental Inspection Checklist. Subcontractors will be issued copies of the weekly inspections to address any items they are responsible for closing out.

B.8.1.7 - Trends Analysis

The data will be transferred to the Weekly Inspection Trends Register for analysis by the site team, and for data collection by the Systems Team.

Weekly site inspections will be managed as follows:

- Weekly site inspections will be performed by the Safety and Environmental Manager and the HSE Officer.
- The Weekly Safety Inspection Checklist will be completed as a record of the inspection.
- Any hazards and deficiencies identified during the inspection will be managed and recorded as described in the process Identify hazards and improvements.
- A weekly inspection of environmental related issues will be undertaken by the Safety and Environmental Manager.

The Weekly HSE Cover Sheet identifies relevant information to be submitted to the Operations Safety Manager on a weekly basis. Operations Safety Manager will be responsible for assessing submitted information and proposing necessary actions at the Business Systems Team meeting. Information will be included in the Corporate Services Report (Business Systems Safety section) which then forms part of the monthly State and Board reports.

B.8.1.8 - Subcontractor Inspections

Subcontractors Site Safety Person will inspect the site with St Hillier's HSE Officer in the form of Site Safety Walk Inspections. These will occur on a minimum of twice weekly and the results will be distributed to the Site Safety Committee for review. Where possible, other Subcontractors workers will also be involved in the Site Safety Walk Inspections.

B.8.1.9 - Client Inspections

The Client or representative may inspect the project under conditions outlined in the contract agreement.

B.8.1.10 - Inspections of Subcontract Work

In addition to the system audit / surveillance carried out on the Subcontractor's activities, the Site Manager will carry out frequent inspections of all works in progress. Subcontractors will be required to participate in audits and inspections of their work.

Where applicable, the Subcontractor understands the importance of completing them correctly and in a timely manner.

If Subcontractor work on the site is being performed contrary to the Subcontractor's SWMS and/or applicable legislative requirements, action will be taken immediately. This may include a direction to stop work if necessary.

Performance of scheduled inspections by relevant personnel will be monitored using the 'Monthly Compliance with Health and Safety Inspections & Communications Register'.

B.8.2 - Report Monthly Performance

B.8.2.1 - Description

Reporting of project data to the head office, Client and St Hillier's senior management is to occur at the end of each month and prior to the 14th of the next month

B.8.2.2 - Responsibilities

Operations Safety Manager

B.8.2.3 - Process

The reporting of monthly performance will be managed by the Operations Safety Manager as follows:

The environmental data extracted from the system includes but is not limited to:

- Monitoring and audits

Project Specific Information

- Regularity of issues arising from inspections
- Instances of non-compliance.

B.8.3 - Manage Enquiries and Complaints

B.8.3.1 - Description

Enquiries / complaints will be dealt with in a responsive manner so that stakeholders feel their concerns are being seriously dealt with and not dismissed. This will assist in building a relationship of trust and reliability between the community and project team.

B.8.3.2 - Responsibilities

Project Manager

B.8.3.3 - Process

The Project Manager will handle the enquiries and complaints that arise on a project and be available 24 hours a day, seven days a week.

If any member of the project team is approached in the field by someone distressed or concerned about the project, they will notify the Project Manager immediately.

A central point of contact will be maintained for enquiries and complaints, to enable the content and distribution of information to the community and stakeholder to be managed and monitored.

Details of enquiries / complaints will be recorded and maintained in the project's Community Database. The following protocol will be used as a basic guide used for handling enquiries and complaints:

- The member of the project team who receives the enquiry / complaint will record and forward it to the Project Manager immediately, normally the project manager or delegate
- If approached directly by a member of the community with a complaint, the project team member will listen to the person's concerns and advise them to contact the Project Manager. Alternatively, the team member will ask for the person's contact details and advise that a team member will be in contact as soon as possible.
- The project manager will nominate someone from within the project team and ensure a response and appropriate action has commenced within two working hours of receiving the enquiry/ complaint.
- In conjunction with project management, the enquiry / complaint will be managed until resolved.
- No member of the construction team will speak to the media; they will politely decline comment and put them in contact with the Project Manager.

B.8.3.4 - Audits

Subcontractor, Consultant, Supplier audits will be performed at intervals dependent on the risk of the product or service. Audit reports will be retained, and a copy forwarded to the project management team. Corrective actions will be reviewed and, if necessary, the audit schedule amended to include more frequent audits. St Hillier's standard audit templates can be used as a guideline.

B.8.3.5 - Safe Work Method Statements

Review of SWMS' prior to works starting to ensure the necessary controls are in place

B.8.3.6 - Inspection Test Checklists

Review of ITCs prior to works being undertaken to ensure that correct process is followed along with the necessary testing and inspection regimes is understood and then followed.

Part C. Plan Specific Information

C.1 - Project Environmental Statement

Management will lead by example to ensure that statutory and contractual requirements are met. Environmental performance will be continuously monitored, and work instructions reviewed with the aim of eliminating risk to the extent possible and ensure continual improvement. Employees are responsible for complying with these instructions, rectifying or reporting harmful environmental conditions, and actively participating in meetings and various training sessions on environmental issues.

Environmental Management activities will cover the following areas:

- Noise and Vibration Management
- Water Quality, Sediment and Erosion Control
- Air Quality and Dust Management
- Solid Waste Management
- Contaminated Soil Management
- Flora and Fauna
- Cultural Heritage
- Demolition Environmental Management

C.2 - Environmental Objectives and Targets

C.2.1 - Objectives

The specific objectives for Environmental Management are:

Review legislative, regulatory and contractual requirements and provide a framework for the implementation of instructions and processes to ensure that all environmental requirements are met, including:

- Meeting Client and Stakeholder requirements
- Satisfying any contractual Objectives, Targets and Key Performance Indicators
- Compliance with legislation, ministerial and authority requirements.

C.2.2 - Client Environmental Objectives

The Environmental Objectives are to:

- to encourage best practice environmental management through the planning, development, implementation and continuous improvement of environmental management procedures during the Contractor's Activities and the Works.
- to prevent and minimize adverse impacts on the Environment.
- to recognize and protect any special environmental characteristics of the Site (including cultural heritage significance); and
- Prevent as far as practicable any environmental incident can be attributed to being as a result of the project works

C.2.3 - Targets

The key environmental targets for the Project are:

- Zero number of environmental incidents
- Meet all contractual and statutory environmental requirements within the established constraints
- Maintain adequate environmental controls throughout the project

C.3 - Hazard Identification, Risk Assessment and Control (HIRAC)

St Hillier's has identified the following potential hazards in relation to the project works:

- Waste management
- Erosion control
- Site remediation works
- Stormwater runoff
- Dust suppression
- Noise & Vibration
- Protection of existing vegetation
- Hazardous material removal
- Traffic management & pedestrian management
- Impact with essential services (in-ground services, above ground services)
- Possible contaminated soils (e.g.: Asbestos, Hydrocarbons)
- Construction environmental devices controls requirements for silt and sediment
- Groundwater contamination
- Community & Stakeholder engagement

C.4 - Legislation, & Guides

The following is a summary of statutory and regulatory guides that the works on site, as far as reasonably practicable, will be conducted in accordance with:

C.4.1 - Guides and Standards

- ISO 14001: 2015 Environmental management systems - Requirements with guidance for use
- ISO 14004: 2016 Environmental management systems - General guidelines on principles, systems and support techniques
- NSW Government's Procurement Policy Framework:
 - Quality management guidelines
 - Work Health & Safety management guidelines
 - NSW Government Resource Efficiency Policy (GREP)
- NSW Treasury's Internal Audit and Risk Management Policy for the NSW Public Sector (TPP15-03)
- Environmental Planning and Assessment Act
- Appendix B of the EMS – Environmental management plan review checklist
- Environmental Defenders' Office (EDO); <http://www.edo.org.au/edonsw/site/factsheets.php>
- Protection of the Environment Operations Act
- National Parks and Wildlife Service (NPSW) National Parks and Wildlife Act
- NSW Government Resource Efficiency Policy (GREP)
- Local Government Act
- Contaminated Land Management Act
- Dangerous Goods (Road and Rail Transport) Act
- Environmentally Hazardous Chemicals Act
- Heritage Act
- Local Land Services Act 2013
- Biodiversity Conservation Act 2016
- NSW Vegetation SEPP

Plan Specific Information

- Office of Environment and Heritage
- Protection of the Environment Operations Act
- Dam dewatering is not applicable in this instance, as there will be no act to construct, alter or modify a dam, weir or reservoir on this project

C.4.2 - Environmental Protection

- Protection of the Environment Operations Act 1997 (POEO ACT) and Regulations-
- Protection of the Environment Operations (Waste) Regulation 2014
- Environmental Protection and Biodiversity Conservation Act 1999
- National Environment Protection Council (NSW) Act 1995

C.4.3 - Soils

- Australian and New Zealand Environment and Conservation Council (ANZECC)/National Health and Medical Research Council (NHMRC) - Guidelines for the Assessment and Management of Contaminated Sites.
- NSW Department of Planning, Industry and Environment- Managing Urban Stormwater- Soils and Construction
- National Environmental Protection (Assessment of Site Contamination) Measure, 1999 NEPC.
- National Environmental Protection (Assessment of Site Contamination) Measure as amended 2013
- AS4482.1 2005 Guide to the investigation and sampling of sites with potentially contaminated soil.

C.4.4 - Air

- AS 3580 Methods of Sampling and Analysis of Ambient Air
- AS 2986.1-2003 Workplace air quality - Sampling and analysis of volatile organic compounds by solvent desorption.
- National Environmental Protection (Ambient Air Quality) Measure as amended 2016
- EPA NSW (2016): Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.
- EPA NSW (2007): Approved methods for the Sampling and Analysis of Air Pollutants in NSW.
- AS 2986.2-2003 Workplace air quality – Part 2: Diffusive sampling method.

C.4.5 - Noise and Vibration

- Interim Guidelines and Technical Notes for Road Traffic Noise Amelioration (DMR 1992).
- EPA NSW (2013): Noise Guide for Local Government
- E1 Environmental Guideline "Noise from Construction, Maintenance and Demolition Sites" (EPA 1989).
- AS ISO 2631.2:2014 Mechanical vibration and shock - Evaluation of human exposure to whole-body vibration, Vibration in buildings (1 Hz to 80 Hz)
- AS 2436 Guide to Noise Control on Construction, Maintenance and Demolition Sites.
- AS 2659.1 Guide to the Use of Sound Measuring Equipment.
- AS 2659 Sound Level Meters.
- AS 2702 Acoustics - Methods for Measurement of Road Traffic Noise.

C.4.6 - Dangerous Goods

- Roads and Rail Transport (Dangerous Goods) Act 2008
- AS 1216 Classification, Hazard Identification and Information Systems for Dangerous Goods.
- AS 1678 Emergency Instruction Guides - Transport.
- AS 1940 Storage and Handling of Flammable and Combustible Liquids.

Plan Specific Information

- AS 2508 Safe Storage and Handling Information Cards for Hazardous Materials.
- AS 2809 Road Tank Vehicles for Dangerous Goods.
- AS 2931 Selection and Use of Emergency Instruction Guides for Transport of Dangerous Goods.
- AS3780.8 The Storage and Handling of Corrosive Substances

C.4.7 - Asbestos

- NSW EPA Asbestos and Waste Tyres Guidelines (2015).
- Code of Practice- How to Safely Remove Asbestos (August 2019) NSW Government
- Code of Practice- How to Manage and Control Asbestos in the Workplace (February 2016)
- SafeWork NSW (March 2014): Managing asbestos in or on soil

C.4.8 - General

- Work Health and Safety Act 2011
- Environmental Planning and Assessment Act 1979
- NSW EPA (2014) Waste Classification Guidelines
- The Waste Avoidance and Resource Recovery Act 2001(December 2019 update pending)
- Sydney Water Act (NSW) 1994
- SafeWork, NSW (2009). Code of Practice: Safe Work on Roofs, Part 1, Commercial and Industrial Buildings.
- SafeWork, NSW (2019) Code of Practice: Managing the Work Environment and Facilities.
- SafeWork, NSW (1997). Code of Practice: Cutting and Drilling of Concrete and Other Masonry Products.
- SafeWork, NSW (2019). Code of Practice: Managing Electrical Risks.
- SafeWork NSW (2020): Code of Practice: Excavation Work.

C.5 - Environmental Consultation

C.5.1 - Induct Personnel

C.5.1.1 - Description

The site-specific induction is the process for inducting new personnel onto the site. It will communicate site specific requirements and ensure all workers are advised of current HSE Acts, regulations, standards, Codes of Practice and other documentation relevant to Workplace Health, Safety and Environment.

Where identified, site specific environmental controls will be delivered within the induction process, and as required, contractually with the Subcontractor.

C.5.1.2 - Responsibilities

Project Manager, Site Manager, Subcontractors, Health, Safety & Environment Manager

C.5.1.3 - Process

Where identified, contractual & site-specific environmental controls will be delivered within the induction process, and as required, updated. Where changes have been made, workers will be required to undertake a re-induction to the controls (e.g.: Topic specific Toolbox addendums)

C.5.2 - Conduct Toolbox Talks

C.5.2.1 - Description

Site Manager will implement a program of toolbox talks / meetings for all personnel. The sessions will be of adequate duration to cover all relevant information and structured to encourage full participation by personnel.

C.5.2.2 - Responsibilities

Site Manager, Subcontractors, Project Engineer

C.5.2.3 - Process

Toolbox talks will be conducted on a regular frequency (e.g.: as Alerts are issued on the St Hillier's IMS), and from time to time (e.g.: may be conducted during the daily works to update new process, procedures or controls), as legislative or site conditions change to ensure the most current information is being delivered to all Workers (both St Hillier's, and Subcontractor employees)

C.5.3 - Conduct Daily Pre-Start Meetings

C.5.3.1 - Description

The pre-start meeting is a tool for informing the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues with other trades, hazards and other information that may be relevant to the day's work.

C.5.3.2 - Responsibilities

Site Manager, Subcontractor, Project Engineer

C.5.3.3 - Process

Daily pre-starts will be delivered to ensure that the works being conducted on the day are compliant with the site rules, legislative obligations, CEMP, and Subcontractor Safe Work Method Statements. HIRAC will be incorporated to ensure adequate controls (e.g.: permits) are in place, current and adequate to site conditions- prior to works commencing. All workers (including St Hillier's employees) will be required to sign into the Pre-start as acknowledgement of understanding.

C.5.4 - Perform Project Safety Risk Analysis

C.5.4.1 - Description

A risk analysis (HIRAC) is a formal process for assessing the likelihood of an event preventing an objective being met. Risk management philosophy is based on the principle of reducing risk to a level that is 'As Low as Reasonably Practicable'

C.5.4.2 - Responsibilities

Project Manager, Health, Safety & Environment Manager, Site Manager

C.5.4.3 - Process

A pre-commencement Project Risk register will be completed by the project team. This Project Risk register (PRR) will define task specific controls (Work health & Safety, and Environmental). The PRR will be issued to Subcontractors prior to commencement for consultation, and as a tool to provide assistance in the development of site-specific SWMS (Safe Work Method Statements), JSAs or procedures. The PRR will be considered a "live" document and will be amended throughout the works in consultation with relevant Stakeholders.

C.5.5 - Review Subcontractor Environmental Controls

C.5.5.1 - Description

St Hilliers will; ensure that environmental controls are:

- Included in Subcontractor control documents (e.g., SWMS)
- Compliant with site specific control requirements
- Maintained throughout the works
- Updated as required where conditions change.

C.5.5.2 - Responsibilities

Project Manager, Site Manager, Subcontractor, Operations Safety Manager

C.5.5.3 - Process

As a rule, Subcontractor work on a project will be performed under this Plan (CEMP). However, as the competent person/trade, the Subcontractor may provide copies of their own procedures to ensure environmental compliance, which are assessed by the Operations Safety Manager (or delegate) against the requirements of St Hilliers CEMP.

Alternatively, the Subcontractor may choose to adopt the St Hilliers CEMP as the standard for environmental management while on site. This is a formal agreement to adopt the St Hilliers CEMP as part of their subcontract status to undertake work on site.

C.5.6 - Community Consultation & Complaints

C.5.6.1 - Description

Defines the process for relevant Stakeholders including members of the general public impacted by the construction phase to be able to enquire and complain about environmental impacts.

The objectives will include:

- Build upon existing and new key Gosford North Tower community stakeholder relationships
- Manage and address complaints and/or enquiries in a timely manner, accurately
- Ensure community expectations are acknowledged and addressed so as to have minimal impact on the broader community and the project as a whole including construction activities
- Promote positive communication processes engaging relevant stakeholders

Ensure compliance with St Hilliers

- St Hilliers Property

C.5.6.2 - Responsibilities

Project Manager, Superintendent

C.5.6.3 - Process

Construction:

C.5.6.3.1 - Hours of work

As outlined in Local Council Laws

- 7:00am and 6:00pm, Mondays to Fridays inclusive; and between
- 8:00am and 4:00pm, Saturdays
- No work may be carried out on Sundays or public holidays without prior agreement

This will include ensuring minimal disruption to start and finish times for classes by eliminating Construction activities on the boundary.

C.5.6.3.2 - Noise & Dust

Mitigation measures will be in place to manage noise and dust levels throughout the works to ensure the safety of St Hilliers and local community including:

- hoarding to minimise the effects of noise and dust
- rumble grids/shakers and as required hosing down to minimise the risk of materials transported or laid down on community access areas around the project
- Any activity that could exceed approved construction noise management levels will be managed in strict accordance with the Protection of the Environment Operations Act 1997.

C.5.6.3.3 - General complaint and enquiry framework

The following table identifies the preferred process and timeframes for Community complaints and enquiries

Complaint	Response timeframe	Close out
Phone call or email during business hours	As agreed with caller, and/or at time of interaction via email	Within 2 business days (unless otherwise agreed)
Phone call or email after hours	Response required by phone or email within 2 hours after returning to site office	Within 2 business days (unless otherwise agreed)

Enquiry	Response timeframe	Close out
Phone call or email during business hours	As agreed with caller, and/or at time of interaction via email	5 business days (unless otherwise agreed)
Phone call or email after hours	Response required by phone or email within 2 hours after returning to site office	5 business days (unless otherwise agreed)
Attendance to Site Office	As agreed at time of interaction	5 business days (unless otherwise agreed)
Letter/other correspondence	N/A	5 business days (unless otherwise agreed)

C.5.6.3.4 - St Hilliers Project Staff contact list (for Complaints or enquiries)

Position	Name	Email	Mobile	After hours contact:
Project Manager	Andrew Cummins	acummins@sthilliers.com.au	0413619959	YES
Site Manager	Scott Steward	SSteward@sthilliers.com.au	0438241478	YES
Site Foreman	Scott Garven	sgarven@sthilliers.com.au	0415108464	NO
General Manager	Brant Wood	bwood@sthilliers.com.au	0417 773 122	NO

Position	Name	Email	Mobile	After hours contact:
Operations Safety Manager	Ryan O'Hagan	rohagan@sthilliers.com.au	0417 229 884	YES

C.6 - Project- Potential Hazard management

C.6.1 - Traffic & Pedestrian Management

C.6.1.1 - Description

Describes the management of traffic involving dust and noise into the environment.

C.6.1.2 - Responsibility

Project Manager, Site Manager, Operations Safety Manager

C.6.1.3 - Reference Document

Traffic Management Plan to be in place prior to the start of Construction Works.

C.6.1.4 - Process

St Hillier's will ensure:

- Perimeter fencing/hoarding is installed to restrict unauthorised or inadvertent access to the project site
- Signage will be placed at conspicuous locations indicative of the hazard (e.g.: Truck and pedestrian warning signage at entry points, pedestrian access route signage, and Danger/Warning- No Unauthorised Access signage at regular intervals on aspects of the project open to public access)
- A detailed and compliant Traffic Management Plan (TMP) will be developed by a suitably qualified and experienced person(s) that will include heavy vehicle routes, access and parking and any specified exclusion zones for plant/traffic movements about the project (predominant class/lecture start/finish times of 8:00 am-9:30am & 3:30pm- 5:00 pm Weekdays)
- Where required- procedures to notify the community and relevant stakeholders of the TMP and of "special conditions" for works items such as concrete pours where excess traffic flow is expected

C.6.2 - Air Quality / Dust Control

C.6.2.1 - Description

Air quality can have major impacts on human and environmental wellbeing. Management principles are designed to reduce and control the effects of air pollution generated from site activities on adjacent receptors, travelling public, workers and flora and fauna.

C.6.2.2 - Reference document:

C.6.2.3 - Responsibilities

Site Manager, Operations Safety Manager

C.6.2.4 - Process

C.6.2.4.1 - Project related risk mitigation

St Hillier's will as far as practicably implement measures to:

- Minimise risk of any wind-borne items or dust leaving the confines of the site

Plan Specific Information

- Ensure access routes are kept free of dust, soil, spoil to prevent wind uplift, and if present as a result of plant/vehicles, removed immediately
- Keep odour levels to a minimum

C.6.2.4.2 - Determine Air Quality Impacts for Site or Project

The locations of sensitive receptors and the main causes of air pollution at these locations will be determined, taking note of:

- Prevailing wind directions
- Activities on site that will generate dust or emissions to air including bulk excavations and haul routes.
- Plant operation.

C.6.2.4.3 - Mitigation of Air Quality Impacts

- Burning of any materials onsite will be prohibited.
- Allowances will be made for wind direction and high wind warnings during working hours.
- Any unreasonable release of odours, dust and smoke to the atmosphere will not be allowed
- Plant and equipment will be maintained as per the manufacturers' requirements to reduce (as far as practicable) the risk of unnecessary emissions that could be controlled by adequate and proper maintenance
- Management strategies for controlling dust that will be employed include:
 - The use of non-potable water for dust suppression and soil binders
 - Signage to vehicle drivers and plant/equipment
 - Installation of dust barriers (e.g., vegetation, walls).
 - Watering of work areas will be supplemented with wet brooming and the retrieval of deposited dirt from sealed access points and affected roads with street sweepers etc.
 - All dust-generating activities will be inspected daily.

C.6.2.4.4 - Monitoring Air Quality

- Baseline monitoring (if required by contract) will be undertaken at nominated locations using appropriate monitoring equipment.
- Real time monitoring equipment may also be used to facilitate onsite assessments as required.
- Onsite monitoring will be established as soon as practical after receiving a complaint and continued until normal conditions prevail.
- The details of any monitoring will be included in monthly reports.

C.6.2.4.5 - Corrective Action

Where significant nuisance to sensitive receptors and exceeding of performance criteria occurs, the following actions will be taken:

- Cease work at the location or modify to correct the problem.
- Implement daily monitoring of the performance criteria until the levels are in compliance.
- Stand down any machinery found with excessive (prolonged and visible) emission levels, until appropriately repaired or newer equipment supplied with more effective mufflers/emission systems.
- Consider remedial measures such as dust suppressants, wetting agents, water for dust suppression, or installation of curtains to reduce or eliminate the problem.

The Site manager (or delegate- e.g.: Foreman) will consult the Operations Safety Manager should the need for alternative measures arise.

C.6.3 - Asbestos

C.6.3.1 - Description

Asbestos has been identified in the preliminary site investigations.

Non-friable asbestos (chrysotile) was identified in some external fixtures such as eaves, mastic around window frames, electrical bituminous backing board and packers, and packers beneath the building

Non-friable asbestos (chrysotile) was identified inside the residence in the vinyl flooring, panel infill and fibre cement sheeting on the walls and falls. Suspected SMF was noted in the ceiling void, garage area and insulation associated with the hot water system

Even where not identified, asbestos procedures will be followed in the event they are found. The most likely scenario for this will be during removal of pre-existing materials left in soils, generally post previously conducted demolition works, and removal of redundant services pipes. If discovered, the area will cease operations and the site supervisor will follow the unexpected finds protocol and the approved asbestos management guidelines.

Other known sources of Asbestos that may be present from previous demolition: sprayed insulating coating on steelwork and concrete, lagging on pipes and boilers, insulation board in walls and on doors and ceilings, asbestos cement for roof and wall coverings, pipes and tanks, decorative plasters, asbestiform mineralogy, and vinyl.

C.6.3.2 - Responsibilities

Asbestos Removalist, Team Leader, Asbestos Permit Issuer, Asbestos Permit Holder

C.6.3.3 - Process

C.6.3.3.1 - Asbestos Management Plan

Legislative compliance requires that an Asbestos Management Plan will be developed for a project or workplace where the presence or risk of exposure to asbestos has been identified.

If asbestos products are known to be in the vicinity of operations, the supervisor and workforce will be notified to ensure correct handling techniques are included in the documentation, including Safe Work Method Statement (SWMS) for the task.

If asbestos is known to be present within a building, its type and location will be shown in a Building Asbestos Register or Hazardous Materials audit report, which the architect (or appropriate person) is to arrange as part of his building audit prior to issuing tender documents.

C.6.3.3.2 - Potential Exposure to Hazardous Substances

- Work will cease immediately, the area evacuated and closed, and a review of monitoring activities and nominated control measures will be undertaken when:
- A failure of nominated control measures is suspected
- Accepted exposure limits are exceeded
- When individuals are unexpectedly exposed to hazardous substances that weren't previously known to be present on-site.

An investigation will be conducted in accordance with Incident and Near Miss Management in consultation with Operations Safety Managers and/or qualified consultants to determine corrective/preventive actions.

C.6.3.3.3 - Medical Treatment and Health Surveillance Assessment

Individuals potentially exposed to hazards will be directed to seek medical treatment at a registered medical practitioner to assess exposure and any requirement for ongoing health surveillance.

An Injury Notification Report will be completed for individuals potentially exposed to hazardous substances.

When medical practitioners advise that health surveillance is required, a review of monitoring activities and nominated control measures, including any recommendations by the registered medical practitioner, will be undertaken in consultation with Operations Safety Managers and/or qualified consultants to determine corrective/preventive actions.

C.6.3.3.4 - Access to Areas Affected by Hazardous Substances

Access to areas closed due to potential hazardous substance exposure will not be permitted until certification is received from a suitably qualified person, and the suitability of monitoring requirements and nominated control measures have been assessed, recorded and improved as necessary.

C.6.3.3.5 - Unexpected Finds of Asbestos or Contaminated Soil

When unexpected finds of asbestos or contaminated soil are made, St Hilliers site management will cease all work in the area and set up an exclusion zone of 10 metres, the details of which are to be consulted to all employees. Work in adjacent areas may not proceed unless the asbestos is deemed to be not friable by a hygienist.

Unexpected finds and the potential requirements for monitoring and control measures and health surveillance will be assessed in accordance with Hazardous Substances Monitoring, Control and Health Surveillance.

St Hilliers will ensure that the nominated Hygienist is engaged in consultation with the Superintendent & the St Hilliers Operations Safety Manager. NOTE: EDP have been nominated as the preferred supplier for the Gosford North Tower project.

The hygienist will assist with the development of a management plan and control procedures for the removal of the asbestos/contamination. The hygienist will determine if the asbestos is friable or bonded. This will determine if an AS1 (friable) or AS2 (bonded) Asbestos licensed contractor can conduct the works.

If a find of bonded asbestos is greater than 10m², or if a find of friable asbestos of any amount, an Asbestos licensed contractor will be engaged to conduct the works. An Incident Investigation will record details and actions of the unexpected finds incident.

C.6.3.3.6 - Waste Testing and Tracking

Any potential asbestos material which will be sent for disposal will be tested to determine type and concentration of asbestos. All tests will be done by a NATA accredited laboratory.

Any asbestos material which needs to be disposed of will be sent to a licensed landfill facility. Depending on the amount of waste and State, the material will be tracked using waste tracking records.

Subcontractors who are handling and disposing of waste will be suitably licensed, or will at least be aware of health, safety and environmental requirements for handling and disposal.

All test records and waste disposal records for asbestos will be kept for at least thirty years.

C.6.3.3.7 - Asbestos Permit

Permits for the removal and disposal of asbestos will be issued according to Comcare and/or State-based requirements. The following information describes the basic requirements.

Only certified persons will undertake the removal and disposal of asbestos. Removal and disposal of asbestos will be subcontracted to a licensed Asbestos Removalist, who will prepare the required Health and Safety plans and inductions for the work.

Personnel engaged in the removal of asbestos will not be issued with an access permit unless they are members of a company or firm that holds a current asbestos removal licence as required under legislation.

The Access Permit formally transfers the responsibility for compliance with Health and safety regulations to the signatories of the permit.

The process for issue of a permit will be as follows:

- 1) Complete relevant documentation including a Safe Work Method Statement (SWMS) and review it with the crew performing the work.
- 2) Assess the conditions of the work environment for which the permit is being issued.
- 3) Complete the permit, including any precautions or instructions necessary.
- 4) The authorised person (i.e., the HSE Officer or, in their absence, the Site Manager or Project manager, referred to as the Asbestos Permit Issuer) issues the permit to the person nominated as the 'Asbestos Permit Holder', first ensuring that all safety requirements have been met. When a project involves a team of more than one employee, the permit is issued to the Team Leader. This person will be responsible to ensure that:
- 5) Team members are individually aware of their responsibilities
- 6) Each employee's signature appears on the appropriate section of the permit.

Plan Specific Information

- 7) Display the issued permit in a prominent position at the entrance to the work area.
- 8) Each worker signs on the permit before commencing the work and signs off once they have completed the work.
- 9) When work is completed, or at expiry of the permit (whichever occurs first), sign and return the permit to the nominated officer, who is to cancel it after ensuring that a safe situation exists and maintain a register of all access permits which have been issued and cancelled.

C.6.4 - Contaminated Land

C.6.4.1 - Description

Describes the process for identifying and managing contaminated land on the project site. Sources of contamination may include debris such as hazardous materials. Ash fill has been identified on this site.

C.6.4.2 - Responsibilities

Contaminated Land Consultant, Regional Environmental Officer, Site Manager, Operations Safety Manager

C.6.4.3 - Process

C.6.4.3.1 - Identifying Contaminated Land

Types of land use where contamination may be present include service stations, cattle dips, tanneries, wood treatment sites, landfills and refuse tips.

Land may also be contaminated by hazardous materials (as potentially contaminating processes), e.g., bonding foams used in bridge construction, cement in batching plant applications, fuels such as diesel and associated hydrocarbons, pesticides and herbicides, cleaning agents (hydrochloric acids), curing compounds and motor vehicle oils.

C.6.4.3.2 - Unidentified Contamination

Refer to "Chance Finds" procedure listed below

If any previously undetected contamination is discovered during construction, cease work, isolate the area and report such findings to the project manager and or the Operations Safety Manager or delegate. The EPA and other relevant authorities will be advised.

In the event that contaminated areas are discovered, St Hilliers will appropriately mark such areas to eliminate potential for harm and communicate these areas and any specific steps to be taken at the site inductions, via toolbox talks and notified at Daily Pre-Starts.

C.6.4.3.3 - Determine Land Impacts

Contamination may be indicated by noticeable staining or discolouration, unnatural odours, metal debris in fill and ash/charcoal fill.

C.6.4.3.4 - Mitigation of Contaminated Land Impacts

In addition to managing existing contamination, the project will take measures to prevent further contamination.

Site inspections will be undertaken to determine the extent of contaminated land, and soil tested to determine contaminants.

The volume of material for disposal will be minimised by defining contaminated and clean areas.

Machinery and equipment will be thoroughly cleaned prior to its arrival on site

- Site investigations will be undertaken prior to the movement of soil. Where required, the project will seek advice from the Contaminated Land Consultant.
- The EPA supports the national target of 50% reduction in waste going to landfill and promotes onsite remediation as the preferred option for treating contaminated soils. However, St Hilliers will dispose of contaminated soils to an approved and/ or licensed landfill.
- Excavation of any material in contaminated areas will be done in accordance with directions from the EPA or experienced personnel. This type of material will be removed to a nominated site using a waste tracking system with the EPA.

Plan Specific Information

- Identified contaminated soils will be excavated and stored separately to 'clean' soils and volumes will not be altered by 'diluting' the impacted soils with clean materials.
- Treatment of spills will be managed as per the process 'Report environmental incidents.'

C.6.4.3.5 - Contaminated Land Licenses, Permits and Approvals

- Approvals are required for the removal and disposal of contaminated soils from site
- Disposal permits enable appropriate and legal disposal and tracking of contaminated soil or materials. The EPA issues disposal permits for specified volumes of soil and only approves the removal of contaminated soil to a site listed on the EMR.
- The EPA may issue a notice to investigate if it reasonably believes that a hazardous substance contaminating the land may cause serious or material environmental harm.
- Comply with a notice to prepare or commission a site management plan for a contaminated site unless a waiver received from the EPA. A notice may be issued if a site investigation was conducted, and contamination managed by limiting the spread and impacts.
- Comply with a notice to remediate contaminated land including a remediation and validation report of all remediated sites.

C.6.4.4 - Potential discoveries of contaminated materials within soil or spoil

C.6.4.4.1 - Stockpiles:

Stockpiled contaminated materials within any construction zone will be deemed as temporary. Stockpiles not able to be stored within the site approved storage area, will be protected and contained to prevent potential leeching, and covered to prevent unwanted movement of material (wind).

C.6.4.4.2 - Soil:

As a rule- contaminated soil will be kept on site where facilities exist for storage and management of waste/contaminants (adopting a "Re-use does not remove" procedure for material that is potentially contaminated).

C.6.4.4.3 - Water quality- Groundwater and Surface water

Containment methods (as above) will be employed to prevent potential leeching into groundwater, and to prevent overland movement of potentially contaminated materials. Silt & Sediment controls will be employed about the works zone (in accordance with the Superintendent and agreed management plan)

C.6.4.4.4 - Treatment

Where treatment (including potentially contaminated wastewater) is unable to be treated/stored and managed on site- a waste contractor will also be engaged to assist in the management and disposal of the waste to an approved treatment facility. Potential discovery of Asbestos Containing materials (including soil)

C.6.5 - Cultural Heritage

C.6.5.1 - Description

Management of Cultural Heritage is a statutory requirement. Cultural Heritage is defined as areas, objects and places displaying archaeological or historic significance. This includes objects situated on or under the surface of the land and remains of ships or other objects in the territorial waters of the State. In addition, the EPBC Act 1999 lists Commonwealth interests as issues in Environmental and Cultural Heritage management.

Note – Currently no identified Heritage impacts expected for this project

C.6.5.2 - Responsibilities

Site Manager, Operations Safety Manager, Archaeologist

C.6.5.3 - Process

C.6.5.3.1 - Mitigation of Cultural Heritage Impact

- Liaise with the Stakeholders to ensure adequate knowledge is acquired of any culturally significant areas or objects at the site or project. Generally, these sites form part of an EIS/EIA process, which can be the basis for ongoing consultations.

Plan Specific Information

- If the site or location is deemed to contain any element of non-indigenous heritage, undertake an onsite survey to assess the impacts on such a site.
- Ensure protocols exist for communication of newly discovered sites and the process for the project to proceed to afford these areas adequate protection.
- Determine the management protocols for a cultural heritage site by agreement.
- Museums may be interested or involved in reports or archaeological excavations for indigenous and heritage items.

C.6.5.3.2 - Duty of Care

Duty of care exists under various State legislation for non-indigenous heritage and requires prevention of damage unless instructed otherwise to proceed with construction.

C.6.5.3.3 - Discovery of Heritage Items

- 1) When any heritage item is discovered during operations or construction, take the following steps:
- 2) Work will cease and care taken to minimise further disturbance.
- 3) The Supervisor will be notified immediately, who will then report the find to the Health Safety Environment Manager.
- 4) The area will not be disturbed until an assessment is completed, an inspection undertaken and direction to proceed provided.
- 5) A known Archaeologist will be engaged to assess the site.
- 6) The exact location of the discovery will be photographed.
- 7) The site will be protected and managed to restrict access, prevent disturbance of materials or the site, erect barriers and proceed with protective measures.
- 8) The project may additionally liaise with the local heritage agency to determine what other course of action is required.

C.6.5.3.4 - Monitoring Indigenous Heritage

The project will engage specialists to undertake monitoring of indigenous heritage to record items being disturbed. St Hilliers will also work closely with Traditional Owners if mitigation of an area is discovered. Reports will be provided to the State heritage agency and Register of National Estate prior to destruction or disturbance.

Monitoring equipment will include a digital camera, GPS unit, documents recording photos and locations, maps of the site, tape measures, callipers and reference books.

The above steps as outlined in Discovery of heritage items will be adhered to should an indigenous discovery be made. Progress associated with Cultural Heritage issues will be reported in the project Monthly Environmental Report.

C.6.6 - Erosion and Sediment

C.6.6.1 - Description

The effects of poor management of erosion control led to sediment that can be highly visible and environmentally damaging. A number of statutory obligations require a high standard of soil and sediment management to reduce the effects of storm water run-off and unauthorised discharges from the project or site.

- Stage 1A Gosford North Tower Development is located approximately 250mm west of Broadwater Bay. Dewatering and leachate from excavated spoil will need to be captured, tested and treated prior to being discharged as appropriate due to low pH values observed.

Responsibilities

Operations Safety Manager, Site Manager, Project Team

C.6.6.2 - Reference document

Not Applicable

C.6.6.3 - Process

C.6.6.3.1 - Responsibility for Erosion and Sediment Controls

The EPA has introduced laws to control the impacts of erosion and sediment, Local councils are very diligent in following up public complaints regarding erosion and soil sediments leaving development sites.

In the event of an uncontrollable discharge of sediment from site, a fine may be issued by the relevant regulatory authority. For the Gosford North Tower Project the Operations Safety Manager will liaise with the Site Manager to determine erosion and sediment control requirements.

The Project Team is responsible for the implementation and monitoring of these controls through regularly auditing for site stabilisation and erosion, especially after rain.

C.6.6.3.2 - Erosion and Sediment Controls

The principles for erosion control are to divert clean water around disturbed project areas, minimise the velocity of such water and cover bare soils as quickly as possible. Controls may also include design and installation of the following:

- Sediment traps
- Drainage systems with discharge and holding ponds with required discharge rates
- Maintain a clear hardstand area to prevent and or remove spoil from project vehicles as required.
- Installation of interceptor drains and sedimentation basins on down gradients
- Ongoing management and regular removal of surficial metal fragments.

Additional fundamental controls may include the installation of filter socks and the retention of water in sediment bags.

Stockpiles are to be adequately maintained to avoid release to storm water and surrounding waterways. Vegetation and soil stockpiles should be kept separate where possible to maximise the use of vegetation for sediment erosion control. Mixing of soils and spoil from different areas will not be encouraged unless it is free of contaminants.

The removal of trees and the clearing of site will be done only when adequately maintained sediment erosion controls are in place.

C.6.6.3.3 - Determine Erosion and Sediment Control Impacts for Site or Project

The highest risk to the Project is the tracking of mud/material onto local roads and the runoff of sediment laden water from the site onto the airfield and/or into waterways. As such the following procedures will be followed:

- Erosion and sediment control structures will be installed early in the project, and adequate labour and time allowed to maintain them, in particular following rain.
- As areas are completed, controls will remain installed until the area is stabilised and the project is completed.
- The project will observe general prohibitions that exist against pollution and sediment releases into roads, drains, gutters and waterways.

C.6.6.3.4 - Installing and Maintaining Controls

- Groundwater will be pumped from de-watering wells through settlement tanks.
- Materials, stockpiles, topsoils and rehabilitation will be appropriately managed.
- Water will be diverted around construction. Clean and dirty areas will be separated so that only runoff that falls on disturbed areas needs to be managed.
- Silt socks will be employed, where appropriate, as a method of controlling runoff on hard surfaces where silt fences cannot be used (finished concrete drains, stormwater inlets).
- Water quality parameters / limits will be monitored, and storm water areas identified in the Water Quality processes within the Project Management System.
- Hay or straw bales, preferably, will not be used as they are vectors for weeds and have high maintenance requirements.

Plan Specific Information

- Inspection of erosion and sediment control structures will be undertaken regularly and after rain events, to identify maintenance requirements.
- Material will not be stored where environmental harm could result from pollution of water.

C.6.6.3.5 - Hardstand and Lay Down Areas

The following controls will be considered when managing hardstand and lay down areas:

- Hardstand and Lay-down areas will be designed and planned to provide access into and around the areas for all site personnel. A process of access will be established for all site personnel.
- Roads will not be washed down, as the sediment enters drainage lines and sumps. A street sweeper will be used where necessary, but prevention is the preferred approach and is more cost effective than remedial works. It is illegal to wash down roads unless the sediment is prevented from entering stormwater drains. Aggregate or sand filled filter socks will be used to protect inlets.

Protective measures will be taken to prevent soil, mud, pollutants, weed seeds, fuels and oils leaving the site on trucks and truck wheels. For example, wash-down bay, wheel wash sump or spray unit and Shaker Pits when exiting site.

C.6.6.3.6 - Sediment and Erosion Control Licenses, Permits and Approvals

The project will refer to specific State requirements relating to licences, permits and approvals. The following are general guidelines for this project:

- There is a Common Law requirement not to impact upon neighbour's land.
- Nuisance laws relate to creating a general nuisance from sediment or mud leaving a site.
- Conditions exist for compliance requirements of any licence or permits issued to control water run-off leaving a site.

The "Blue Book" (Managing Urban Stormwater: Soils and Construction – Volume 1, 4th Edition reprinted July 2010) will be used as a reference point for soil and water management.

C.6.7 - Flora and Fauna

C.6.7.1 - Description

All Australian native animals are protected under Law, and the Nature Conservation Acts lists vulnerable species for which a permit is required if disturbing or relocating them. Protected flora species are listed at Federal and State level and include protected ecosystems and bioregion areas where associations of plant species are under threat by development during clearing.

C.6.7.2 - Responsibilities

Site Manager, Project Manager, Project Engineer, Operations Safety Manager

C.6.7.3 - Process

The Operations Safety Manager will liaise with the Site Manager to determine fauna and flora requirements. Necessary controls will then be implemented by the Project Team.

Generally, the management of fauna and flora will be undertaken as follows

C.6.7.3.1 - Identifying Endangered Species and Sensitive Areas

- Bird-boxes or equivalent to be placed about the project site.
- Sightings of rare or endangered flora or fauna species on site will be recorded and photographs taken if possible. Appropriate information will be appended to photographs to assist in identifying fauna and locations of finds; as a minimum requirement, this will include the date, time and place of find.
- If endangered species of fauna or flora are encountered, a management strategy for their relocation will be implemented and the area cordoned off to protect them until removed and/or relocated.
- The project will check the requirements to refer any actions that may impact on rare or threatened species.

Plan Specific Information

- Areas of specific sensitivity will be identified and illustrated on a site map. This information will be conveyed to the workforce during site inductions, toolbox talks and pre-start meetings.

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C.6.7.3.2 - Contact with Harmful Species

In the unlikely event that contact is made with harmful species, i.e., snakes, spiders, wild pigs, during construction activity it is the responsibility of the person who discovers the animal to not approach it and report the findings to the area supervisor, who can get in contact with the necessary agency to relocate the animal so as no harm will come to the animal or site staff.

In the event that through no fault of the construction worker they are bitten and or injured by the animal the necessary steps for medical attention need to be completed.

First aid treatment of snakes and spider bites will be administered by a trained first aider until medical help arrives.

C.6.7.3.3 - Fauna and Flora Licenses, Permits and Approvals

- Disturbing, removing or clearing vegetation or wildlife will require a permit; the project will check and observe State requirements.
- Under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), actions that have, or may have a significant impact on a matter of national environmental significance require approval from the Commonwealth Environment Minister.
- In order to reduce impacts on registered species, the EPBC Act may require submission of an EPBC referral for an activity involving a 'Controlled Action'. The project may additionally need to submit an assessment of the impact, prior to approvals granted.
- If required, a species management plan will be developed for specifically mentioned threatened species of flora and fauna (as per Environment Protection and Biodiversity Conservation (EPBC) Act 1999).
- The project will check and observe State licence requirements for wildlife handlers.
- The Catchment Management Authority's or Land Agency's categorisation of regional ecosystems and their classification listing for the area will be confirmed.
- However unlikely; if required by the local State Act, a permit will be obtained prior to disturbing marine waters, tidal waters and associated habitats containing vegetation, especially mangrove habitat.
- Conservation regulations protect the unauthorised disturbance of nests, trees and burrows. Strict conditions will apply when clearing habitat trees and vegetation to minimise disturbance, under relevant State laws.

Construction areas will be clearly demarcated on site in line with the approved Site Management plan, to limit damage to adjacent vegetation and/ or fauna habits. Clearly marked vegetation is to be retained before clearing and trimming.

C.6.8 - Hazardous Substances and Dangerous Goods

C.6.8.1 - Description

A hazardous material is one that poses a hazard to human health or the environment when improperly handled, stored or disposed of. The hazard may arise from acute or chronic toxicity or carcinogenicity of the substance or its corrosive or flammable nature.

C.6.8.2 - Responsibilities

Site Manager, Operations Safety Manager

C.6.8.3 - Process

C.6.8.3.1 - Identify Hazardous Materials

Hazardous materials that may be encountered during construction work are broadly identified and categorised as solid, liquid or gaseous:

- Solid hazardous materials are normally associated with activities involving hazardous spoil, construction materials and explosives.

Plan Specific Information

- Liquid hazardous materials comprise flammable and combustible liquids and toxic chemicals including pesticides, insecticides and liquefied gases, acids, solvents, lime and degreasing agents.
- Gaseous materials which may be hazardous are flammable gases, toxic gases and gaseous emissions from construction works.

Details related to a substance's physical properties, flammability, toxicity, special precautions, transport and storage are detailed in an Australian Safety Data Sheet (SDS- formerly called an MSDS).

C.6.8.3.2 - Managing Hazardous Materials

- A current Australian SDS will be made available for any hazardous substance or dangerous good stored and handled at the premises:
 - Copies of the SDS will be available at the work site and readily accessible to all persons working on the premises and to the emergency services authority.
 - The SDS sheet will be provided by the supplier of the substance. If it is not, it will be obtained from a reliable source by the relevant person.
 - The project will check the SDS is the most current version, less than 5 years old.
- All licenses, permits and approvals will be retained on site as required by the statutory obligations, for each type of hazardous material.
- Controls detailed in the SDS will be recorded in the Safe Work Method Statement (SWMS) relating to the activity that involves the use of the substance.
- A Hazardous Substance Register will be maintained for all hazardous substances used on the project (usually generated by the Project Safety Team):
 - A hard file copy will be kept at the substance storage area and a copy kept with all first aid equipment and facilities.
 - The Hazardous Substances Register will be reviewed monthly to ensure all SDS are current.
 - Quantities of materials will be tracked when they are decanted and taken to another area for use. The containers will be labelled and an SDS made available at the location.
- Prior to bringing any hazardous material on to site, the licensing requirements to store the material will be determined from the:
 - Australian Standard for storage and handling of Hazardous Substances (AS1940-2004)
 - Australian Dangerous Goods Code
 - Safety Data Sheets (SDS).
- Significant quantities of chemicals may trigger the requirements for permits under relevant State legislation.
- A risk assessment will be performed on the use and disposal of the material, and the appropriate controls implemented.
- Quantities of hazardous substances stored on site will be kept to a minimum.

C.6.8.3.3 - Transporting Dangerous Goods

All materials moving to and from site will be tracked using dockets and receipts. Only licensed transporters will be used to move and dispose of these materials.

When transferring dangerous goods measures will be taken to control spills, overflows and leaks, minimise static electricity and control vapour generation. If significant quantities are being transported, local authorities will be notified in case of an emergency situation or spill during transit.

C.6.8.3.4 - Chemical Hazard Communication

Communication on any substances introduced at the project site is established on the basis of an obligation to inform and consult with employees and others in regard to the hazard and the individual's 'right to know'.

- Suppliers and Subcontractors will be informed that substances will not be introduced to the project site unless an SDS has been made available for review, PRIOR to delivery to site.
- Ad hoc suppliers and local Subcontractors bringing items such as lubricants and fuels to site will also supply SDS information at their point of arrival on site.

Plan Specific Information

- Such materials that arrive at the project site without an approved SDS having been made available for assessment in advance will be held in 'quarantine' in a suitable storage/lay down area until that information is available and the risk from exposure has been assessed.
- Hazardous substances will be handled, stored and transported in accordance with state statutory requirements and the NOSH Guidance Notes and Code of Practice.
- Any inventory/register of all hazardous materials will be established and maintained in each area in order to assist with materials management, environmental management and emergency planning. A copy of the Hazardous Substances Register will be maintained at each storage place for use by emergency services. The register will be updated after a significant change in volume or risk category of substance held on that particular area or location.
- The requirements for the storage, handling and use of substances will be subject to risk assessment prior to their being made available for site use.
- Personnel working with substances will be provided with information and training concerning those materials where appropriate. The SDS must be specific and relevant and is to be used to develop the Safe Work Method Statement.
- Manufacturers or distributors warning labels must be attached to the substance containers and maintained until the containers are safely disposed of in accordance with the directions of the supplier or manufacturer. All other substance containers used will also be labelled with the same or comparable information.

C.6.8.3.5 - Storing Hazardous Substances

- All containers of hazardous chemicals including oil and fuel, will be stored in a bunded area so the capacity of the spillage containment compound is adequate.
- Where possible, the bunded area will be covered to prevent rain and water filling the area, resulting in additional treatment requirements during disposal and management of the storage areas.
- The storage area will be clearly signposted.
- Where the storage area is part of a building, ventilation will be provided at the floor and ceiling levels, of an adequate size to allow circulation of air. AS1940 has strict conditions in relation to firewalls and containment when storage is within the same building as persons and other general goods.
- Storage areas will always be kept locked and secured against unauthorised access and potential theft.
- Where different substances are stored in the same room, the SDS will be consulted prior to storage to verify compatibility of substances. A bunded floor liner may also be required to prevent seepage and spillage. Non-compatible dangerous goods will be stored separately so that loss of containment will not cause a dangerous situation.
- All storage tanks containing hazardous substances will have the contents and volume clearly identified, be numbered if in a cluster, and have the appropriate Hazchem signs displayed to legislative requirements and AS 1319.
- Storage areas will be protected against damage from impact with vehicles, mobile plant etc.
- In each area of the premises where dangerous goods are stored or handled, provision will be made for spill containment that will:
 - Contain the spill of dangerous goods
 - Enable spilled or leaked dangerous goods and any solid or liquid effluent arising from the incident to be cleaned up and disposed of or otherwise treated.
 - Spill kits must be on standby for this action and maintained
- Appropriate work force training will be provided for spill management and the use of spill response kits and supplies.
- Incident reporting procedures will be followed in the event of a spill.
- Where sources of ionising radiation have been identified, they will be handled in accordance with the requirements of the relevant State radiation safety act and radiation safety regulations.

C.6.8.3.6 - Disposing of Hazardous Waste

All unused or excess chemicals and materials will be removed and disposed of in accordance with the SDS and waste disposal guidelines, to approved locations.

Disposal of containers as well as any leftover contents will be tracked via the waste disposal processes outlined in the process for Waste management.

C.6.9 - Noise

C.6.9.1 - Description

Describes the measures to be taken to strictly control the impacts of noise on the project, in accordance with legislative health, safety and environmental requirements.

C.6.9.2 - Responsibilities

Project Manager, Operations Safety Manager, Site Manager

C.6.9.3 - Reference document

Construction Noise Vibration Management Plan

C.6.9.4 - Process

Noise will be managed on projects according to the standard Occupational Noise Management, AS 1209. The environmental and safety aspects of noise will be managed separately.

C.6.9.4.1 - Managing Environmental Impacts of Noise

Industrial noise levels will be kept to levels consistent with uniform National Standards for occupational noise, such levels are not to adversely affect any other personnel or the public.

The project will manage the environmental impacts of noise as follows:

- The main causes of noise on site will be identified. This will take into consideration all types of site machinery and equipment and, where practical, locate them so as to minimise noise and avoid grouping too many machines together, as this increases noise levels.
- Noise limits will be imposed in accordance with relevant local and state authority regulations for both construction staff and residents/public accordingly.
- Ongoing spot check monitoring will be performed where necessary to ensure limits are not being exceeded.
- Monitoring of noise issues will be performed within 48 hours of receiving a complaint, to verify if they are related to the project works.
- The details of noise measurements and the results of any corrective actions or complaints received will be included in monthly reports.
- Monitoring equipment (if required) will be kept correctly calibrated.
- To reduce noise from plant, vehicles and equipment, the project will:
 - Investigate whether the noise can be eliminated by using a different method or equipment / machine, e.g., smaller machine
 - Keep equipment well maintained
 - Monitor equipment sound power levels
 - Limit the revving of engines on mobile or stationary machines and shut down any equipment not in use
 - Limit the use of horns, bells, hooters or other audible signals on mobile equipment to the maximum practical extent
 - Consider 'white noise' reverse alarms
 - Locate fixed plant and equipment (including material stockpiles and vehicle parking areas) as far as practical from residences
 - Use two-ways to communicate and try circular or loop loading methods to avoid reversing.

C.6.9.4.2 - Education

The project will hold toolbox talks on the topic of the effects of noise induced hearing loss and environmental requirements relating to noise.

C.6.10 - Vibration

C.6.10.1 - Description

Exposure to vibration is normally classified as either whole body (e.g., driving a truck) or segmented (e.g., hand-held power tools such as jackhammers). Segmented vibration (hand, fingers) can cause carpal tunnel syndrome, nerve and blood vessel degeneration, loss of grip strength, damage to joints and muscles in wrists and elbows and pain and cold sensations between attacks of white fingers. With continued exposure to vibration, symptoms become progressively severe and will reach a stage where they become irreversible. Vibration is measured in acceleration rate.

C.6.10.2 - Responsibilities

Site Manager

C.6.10.3 - Reference document

Construction Noise Vibration Management Plan

C.6.10.4 - Process

C.6.10.4.1 - Managing Environmental Impacts

Vibration management varies depending on the construction activities undertaken. The HSE Officer in conjunction with other relevant members of the Senior Project Team will review SAFE Work Method statements to ensure activities involving vibration are correctly assessed and managed.

C.6.10.4.2 - Measuring Zones of Influence

Zones of influence will be measured according to the following process:

- 1) Activities and equipment that are sources of vibration will be identified.
- 2) Impact distances will be measured. Zones of Influence distances are determined by multiplying the safe working distances by predetermined factors (normally 3 times the safe working distance). However, this will be confirmed locally. Examples of safe working distance:
 - a) Pile Driving is 60 metres multiplied by three = 180 metres
 - b) Heavy Rolling is 20 metres x 3 = 60 metres
 - c) Light Rolling is 10 Metres x 3 = 30 metres.
- 3) From these fields of impact, it will be determined how many workers, people and properties fall within each zone of influence.
- 4) This information will be overlaid on a site plan to determine where activities are likely to occur, so a Condition Survey for that location can be conducted. Sensitive buildings such as historical monuments may have a smaller zone of influence due to the nature of their sensitivity.
- 5) The information gathered will be used to identify locations of sensitive receptors and develop strategies to reduce vibration. These will include limits on working hours and times of activities, using alternative methods and techniques such as directional compacting.
- 6) If possible, activities will be spread during timeframes when impacts will not continue every day. Wherever possible, a break in work activities will be allowed for.

C.6.11 - Waste Management

C.6.11.1 - Description

A general environmental duty of care exists to manage and control our waste materials. Policies and guidelines become mandatory if referred to in the Environmental Protection Act 1994. Note: Waste

management requirements for asbestos and hazardous substances are included with the processes for those materials.

C.6.11.2 - Responsibilities

Site Manager, Operations Safety Manager and/or delegate, Project Manager, all Site Personnel

C.6.11.3 - Process

The Senior Construction Team will liaise with the Operations Safety Manager to ensure waste management procedures are enforced on site.

C.6.11.3.1 - Mitigation of Waste

The following controls will be implemented by St Hilliers to mitigate project waste:

- Identification of possible waste streams generated by the project and management opportunities (e.g., avoid / reuse / recycle).
- Provision of the appropriate number and types of bins onsite for each of the different types of waste. Bins will be clearly marked and monitored for cross-contamination of wastes.
- Disposal of hazardous wastes according to State requirements.
- Daily inspections on all waste collection areas.
- Tracking of disposal of hazardous wastes or goods through dockets and manifests.
- Salvage and reuse of certain demolition materials (drainage structure, electrical cables, fences) and recycling wherever possible.
- Recycling of waste oils and disposal of waste tyres at approved locations only.
- Details of waste disposed of and recycled will be recorded in the monthly Environmental report. All waste dockets and manifests, quantities, methods, location and inspection times and dates will be included.

C.6.11.3.2 - Waste Management Licenses, Permits and Approvals

The project will observe the following in regard to licences, permits and approvals:

- Bins will have lids to retain waste
- Subcontractor must be licensed and require permits for disposal of demolition material.
- Approvals for changes in land use and the disposal of regulated waste materials require a licence.
- Industrial wastes require Local Government approvals prior to disposal in approved sites (in NSW).
- Asphalt and concrete are not regulated wastes. However, approval will be sought from the Transport- Roads & Maritime Services or Local Government Council before recycling this type of waste.
- Nuisance laws exist to limit littering around sites and are a general duty of care provision.

C.6.11.3.3 - Waste Removal

At completion of the project:

- Waste piles will be removed from site to the correct receiving facilities
- Specialised bins will be emptied, waste tracking dockets received, and all bins and skips returned to owners
- All projects lay-down areas will be cleared of items and waste and returned to a state approved by the Stakeholder and contract administrator.
- The site office area will be cleaned, and all items and waste removed.

The Waste Removal Register will be used to capture information about waste removal; the specific waste streams will depend on project input/output.

C.6.12 - Surface Water Quality

C.6.12.1 - Description

- Managing water quality for the project site ensures that receiving waters surrounding the site do not suffer sustained or significant deterioration and minimises disruption to landholders, property and third-party users. Water quality management is closely linked to environmental issues such as erosion and sediment control, hazardous substances management and quality of the surrounding environment.
Stage 1A Gosford North Tower Development is located approximately 250mm west of Broadwater Bay. Dewatering and leachate from excavated spoil will need to be captured, tested and treated prior to being discharged as appropriate due to low pH values observed.

C.6.12.2 - Responsibilities

Project Team

C.6.12.3 - Reference documents

- The "Blue Book" (Managing Urban Stormwater: Soils and Construction – Volume 1, 4th Edition reprinted July 2010)

C.6.12.4 - Process

C.6.12.4.1 - Sources of Impacts on Water Quality

Potential sources of impacts on water quality include:

- Sediment from roads, gutters, and kerbs (or from vehicles deviating from defined roadways)
- Stockpile and storage locations, e.g., storage of fuels and chemicals in improper areas
- Plant and equipment vehicle access that may impact drainage and sediment controls, weeds and pathogens into a watercourse
- Existing condition of receiving waters
- Lack of, or inappropriate erosion and sediment controls
- Localised flooding or storm water run-off
- Oil, fuel or chemical spills near waterways and servicing and refuelling of plant and equipment.

Prohibited releases include scrap metal, motor vehicle bodies or parts, building waste, sawdust, domestic waste, water treatment waste, concrete (including slurry), paint products, manufacturing waste with a pH outside allowable limits, biocides, oil. The relevant approvals and permits have been obtained to allow discharging of water to stormwater or sewer subject to the permit conditions.

C.6.12.4.2 - Mitigation of Water Impacts

In summary the nature of the project means that the area which may receive rainfall and contribute to low quality runoff will be minimal. Potential impacts relate mostly to material trucked onto adjacent roads as a consequence of excavation and cartage of fill as well as discharge of dirty water from site. This will be controlled through maintaining clean loading areas through washing / brooming. Monitoring by the Project Team will be ongoing to ensure no materials are tracked from site. Water will be tested before discharge as required to ensure compliance with license conditions.

Controls to mitigate the impact of water include:

- Maintaining clean loading areas for wash down and maintenance of equipment/plant. Ongoing monitoring will ensure no materials are tracked from site.
- A separate washout area will be established for the concrete pump hopper and truck chutes only. Concrete truck chutes will be washed out in supplied skips on site; the truck itself will be required to wash out off site.
- Clean water will be diverted around the site to minimise the quantity of water impacted by construction.
- All dewatering activities will be controlled.
- Sand, silt or mud will not be deposited in roadside gutters, stormwater drains or swales.

The "Blue Book" (Managing Urban Stormwater: Soils and Construction – Volume 1, 4th Edition reprinted July 2010) will be used as a reference point for soil and water management.

C.6.13 - Essential Services

C.6.13.1 - Description

The Project will be undertaking large volume excavation works and plant movements below existing essential services. Controls will be implemented to mitigate risk of inadvertent impact in accordance with the St Hilliers Work Instruction for Excavation.

C.6.13.2 - Responsibility

Project Manager, Site Manager, Operations Safety Manager

C.6.13.3 - Reference Document

St Hilliers Work Instruction -WI F12 Excavation Work

C.6.13.4 - Process

Sites are required to ensure ALL potential or known essential services are located PRIOR TO ALLOWING EXCAVATION WORKS TO COMMENCE.

The procedure to be followed is as follows:

- Obtain relevant services drawings and plans from the authority/owner of the services- e.g.: Dial before you dig, existing as-con Drawings &/or supplied services drawings from the Client/property owner.
- Employ a Service locator to attend site to conduct scans of the proposed works zones- this to include opening pits, verifying depths and locations, in most cases requiring hand excavation and/or potholing.
- Ensure all services are surveyed (including depths), and a detailed as-built plan is provided by the competent surveyor, and/or locator
- Ensure above ground indicators are present identifying services locations and where relevant depths and location paths through or around your excavation locations
- These Drawings are to be included in your Excavation permits
- Things to be considered- Conducting scans around the perimeter of your excavation zone & identifying adjacent structures that have services leading into the ground.
- Progressive As-con drawings must be included in each progressive Excavation permit.
- Sites should review local authority guidelines (e.g.: Ausgrid, Telstra) in relation to required exclusions around in-ground services and incorporate same into the Project Risk Register WI F01, Subcontractor SWMS and Excavation permits. Note that some authorities require you obtain written approvals for excavation near, and/or over their services.
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Additional controls for Overhead essential services will include:

- Ensuring a minimum 3m exclusion zone is implemented prevent plant operations within the exclusion zone
- Ensuring Spotters are in place for movement of plant and equipment under existing power lines
- Engaging a suitably qualified and experienced expert (ESO- Electrical Safety Observer) should plant operations be required within the exclusion zone
- Ensuring the ESO has endorsed the work procedures (SWMS) for the activity

C.7 - Environmental Procedure Management

C.7.1 - "Chance finds" procedure- for unexpected finds

C.7.1.1 - Description

St Hilliers "Chance Finds" procedure has been developed to ensure that all workers on site have a procedural plan to follow whenever they encounter an unknown including the following:

Potential Indigenous or Heritage significant item (including bones of any description)

Possible Asbestos Containing Material- (assume non-friable at all times)

Hydrocarbon or potentially hazardous ground contamination

Ash fill has been identified on the site and appears to be thicker in the southern parts of the site.

C.7.1.2 - Responsibilities

Project Team, Subcontractors, Client

C.7.1.3 - Process

Where an unexpected find is identified, the following process will be implemented:

C.7.1.3.1 - Initial discovery- Subcontractor and/or St Hilliers will:

- Stop Work- avoid disturbance as far as practicable
- Implement an exclusion zone of 10m
- Notify St Hilliers Site management

C.7.1.3.2 - Management process, St Hilliers will:

- Make safe- prevent disturbance with barricades, signage, fencing or similar
- notify the Client representative immediately
- As directed- engage a suitably qualified and experienced expert/consultant/engineer as per contract requirement to assess the hazard- including testing as required
- Ensure all workers and relevant Stakeholders are consulted in the management of the unexpected find (e.g.: Toolbox on excluded zones, and permitted works around that zone)
- Ensure the nominated and approved suitably qualified and experienced expert/consultant/engineer provides a management process for the find (may include air monitoring, PPE/RPE requirements, Removal Control Plans, and/or Health monitoring)
- Ensure clearance is issued by the suitably qualified and experienced expert/consultant/engineer
- Ensure waste tracking is provided to ensure the waste was disposed of to an approved location
- Ensure records/registers are updated to reflect the clearance
- Provide all documentation associated with the management of the unexpected find as required by contract or applicable legislation (e.g.: All ACM management documentation)

C.7.2 - Conduct Audits

C.7.2.1 - Description

Project audits are part of the continual improvement process used to identify opportunities and ascertain whether systems, processes, products, procedures and quantities comply with specified, agreed and/or statutory requirements.

C.7.2.2 - Responsibilities

Project Team, Subcontractors, Client

C.7.2.3 - Process

C.7.2.3.1 - Auditing Approach

- Project audits will be performed to ensure compliance with contract requirements, ISO 9001, as well as identify opportunities for improvement.
- An audit schedule will be developed to cover a period of at least 12 months or up until the end of the project.
- The audit schedule will be maintained and updated throughout the life of the project.
- Audit timing and frequency will be planned to suit the status, importance and risk of the activities and areas to be audited. The audit schedule will be based on the significance of risks and results of previous audits and the procurement schedule.
- Occasionally an audit may not be carried out as scheduled for a variety of reasons. Where this is the case, the audit will be rescheduled as soon as possible, and the Project Audit Schedule updated to reflect this.
- At the project start-up stage, the focus will be on the preparation of management plans to ensure Client's requirements as specified in the project agreement are fully addressed. Risks and opportunities will also be fully assessed at an early stage so as to minimise impacts to the project. When proceeding to the construction stage, audits will focus on the review of onsite construction activities. At project close, the focus will be on proper close-out of outstanding and defect items and the proper handover of relevant documentation to the Client for operation and maintenance purposes.
- Scope of audits will include compliance to the Integrated Management System and St Hilliers Subcontractor requirements.
- If any Consultant, Supplier or Subcontractor managed by St Hilliers is applying their own management system, it will be included in the audit schedule.
- Only competent, trained resources will be allocated to implement the audit schedule.
- In accordance with legislative requirements Safety related audits will be reviewed and approved by the Project Manager using the relevant approval form.

C.7.2.3.2 - Internal Environmental Clearance

During construction St Hilliers allows for escorted access as required by contract to the construction site to monitor and formally audit compliance and notifying the Superintendent of any non-compliance and or environmental incidents.

C.7.2.3.3 - Subcontractor/ Consultant/ Supplier Audits

Subcontractor, Consultant, Supplier audits will be performed at intervals dependent on the risk of the product or service. Audit reports will be retained, and a copy forwarded to the project management team. Corrective actions will be reviewed and, if necessary, the audit schedule amended to include more frequent audits.

C.7.2.3.4 - Conducting an Audit

An audit involves the following stages:

- **Audit Checklist:** The Auditor will review the relevant documentation to prepare a draft Audit Checklist. Before the audit, the Auditor will circulate this checklist to all attendees for comment.
- **Opening Meeting:** At the start of the audit, an opening meeting will be conducted to establish the communication protocols that will apply during the audit and to introduce and discuss the Audit Plan.
- **Perform Audit:** The Auditor will record the audit findings in the Audit Checklist (template dependant on type of Audit being undertaken) and use the following formats to record deficiencies or improvements identified during audits: Observations, Recommendations, Corrective Action Requests, Non-Compliances.
- **Closing Meeting:** After collecting, verifying and reporting on findings, the Auditor will conduct a closing meeting to debrief the auditee with the audit findings and action items for agreement and sign off.
- **Audit Report:** The Auditor will prepare and issue an audit report that includes an Audit Action List to the auditee.

- The Opening and Closing Meeting may not occur at all audits e.g., Internal Project Safety Audits are on process rather than a specific contractor or team and therefore issues will be addressed by the auditor and communicated as necessary to the various Project Personnel as required.

C.7.3 - Perform Environmental Baseline and Conditioning Monitoring

C.7.3.1 - Description

Baseline readings of dust, noise or vibration levels and waterway conditions etc. may be undertaken prior to commencing works (as required by the CEMP or Contract conditions). 'Compliance monitoring' then compares those readings to the observed conditions while work is in progress. This continued monitoring establishes compliance levels.

C.7.3.2 - Responsibilities

Project Team, Operations Safety Manager, Consultant

C.7.3.3 - Process

Where required, the project contract may conduct baseline monitoring of environmental factors: e.g., real time or deposition dust, noise and water quality. Additional factors that may also be considered include vibration, vehicle emissions, dust deposition, potential acid sulphate soils, contaminated land, cultural heritage surveys and rain records.

Where required, baseline-monitoring will be undertaken by the Project Team in liaison with a suitably qualified and experienced expert, & the Operations Safety Manager for relevant environmental factors e.g., noise, dust, water quality etc.

C.7.3.3.1 - Baseline Monitoring Requirements (if required)

- Baseline monitoring will be undertaken by a suitably qualified and experienced expert in consultation with the Project Team or a contractually obligated Consultant dependant on the requirement.
- Dust (real time or hi volume) and noise (logger) will be monitored on an ongoing basis depending upon the construction activities being performed at the time.
- When monitoring noise near buildings, the monitor will be a minimum of one metre from vertical structure (e.g., walls, fences) and placed where it can record and add any impacts arising from subsequent St Hilliers Construction' work sites.
- Water quality will be monitored on an ongoing basis (refer topic 'Surface Water Quality').

C.7.4 - Site Inspections

C.7.4.1 - Description

Site inspections are used to identify workplace hazards and deficiencies and assess safety and environmental compliance against St Hilliers regulatory requirements and best practice processes and initiatives. Site inspections cover all aspects of project works.

C.7.4.2 - Responsibilities

Operations Safety Manager, Site Manager, Project Manager, Subcontractor, Project Engineer, Client

C.7.4.3 - Process

Types and frequency of inspections for the Project are identified below.

Any Hazards identified through these inspections will be managed in accordance with the instruction 'Identify Hazards and Improvements'.

C.7.4.3.1 - Daily Inspections

- All employees are to conduct a daily visual site inspection of their work area and report any hazards to the area supervisor.
- Each Foreman will conduct visual site inspections of their work areas every shift/day to ensure that any potential hazards and deficiencies are identified, assessed and controlled as required.

Plan Specific Information

The inspections will include health and safety issues, environmental issues, working practices and housekeeping.

- Any hazards identified during the inspection will be managed and recorded as described in the process Identify hazards and improvements.

C.7.4.3.2 - Weekly Inspections

Inspections will be conducted at least weekly to identify Safety and Environmental issues and monitor effectiveness of controls. Outcomes of these inspections will be documented on the Weekly Safety Inspection Checklist and Weekly Environmental Inspection Checklist.

C.7.4.3.3 - Closure of raised items

Evidence that items raised during inspections have been closed-out will be documented on the Weekly Safety Inspection Checklist and Weekly Environmental Inspection Checklist. Subcontractors will be issued copies of the weekly inspections to address any items they are responsible for closing out.

C.7.4.3.4 - Trends Analysis

The data will be transferred to the Weekly Inspection Trends Register for analysis by the site team, and for data collection by the Systems Team.

Weekly site inspections will be managed as follows:

- Weekly site inspections will be performed the Safety and Environmental Manager and the HSE Officer.
- The Weekly Safety Inspection Checklist will be completed as a record of the inspection.
- Any hazards and deficiencies identified during the inspection will be managed and recorded as described in the process Identify hazards and improvements.
- A weekly inspection of environmental related issues will be undertaken by the Safety and Environmental Manager.

The Weekly HSE Deliverables Cover Sheet identifies relevant information to be submitted to the Operations Safety Manager on a weekly basis. Operations Safety Manager will be responsible for assessing submitted information and proposing necessary actions at the Business Systems Team meeting. Information will be included in the Corporate Services Report (Business Systems Safety section) which then forms part of the monthly State and Board reports.

C.7.4.3.5 - Subcontractor Inspections

Subcontractors Site Safety Person will inspect the site with St Hilliers HSE Officer in the form of Site Safety Walk Inspections. These will occur on a minimum of twice weekly and the results will be distributed to the Site Safety Committee for review. Where possible, other Subcontractor's workers will also be involved in the Site Safety Walk Inspections.

C.7.4.3.6 - Client Inspections

The Client or representative may inspect the project under conditions outlined in the contract agreement.

C.7.4.3.7 - Inspections of Subcontract Work

In addition to the system audit / surveillance carried out on the Subcontractor's activities, the Site Manager will carry out frequent inspections of all works in progress. Subcontractors will be required to participate in audits and inspections of their work.

Where applicable, the Subcontractor understands the importance of completing them correctly and in a timely manner.

If Subcontractor work on the site is being performed contrary to the Subcontractor's SWMS and/or applicable legislative requirements, action will be taken immediately. This may include a direction to stop work if necessary.

C.7.5 - Report Monthly Environmental Performance

C.7.5.1 - Description

Reporting of project data to the head office, Client and St Hilliers senior management is to occur at the end of each month and prior to the 14th of the next month

C.7.5.2 - Responsibilities

Project manager, Operations Safety Manager

C.7.5.3 - Process

The reporting of monthly environmental performance will be managed by the Operations Safety Manager as follows:

The environmental data extracted from the system includes but is not limited to:

- Monitoring and audits
- Regularity of environmental issues arising from inspections
- Instances of non-compliance.

C.7.6 - Report Environmental Incidents

C.7.6.1 - Description

Describes how environmental incidents are classified (as low to high severity) and reported.

C.7.6.2 - Responsibilities

Operations Safety Manager

C.7.6.3 - Process

C.7.6.3.1 - Classifying Incidents

Incident - exposure to a hazardous substance or dangerous good.

The reporting of environmental incidents relating to harmful effects is classified into three levels of incident:

- Level 3: Low severity occurrence defined as pollution or degradation with short-term (less than one month) and reversible detrimental effects on the environment and/or community. For example, minor oil spill completely remediated.
- Level 2: Medium severity defined as pollution or degradation with persistent (greater than three months) but not reversible detrimental effects on the environment and/or community.
- Level 1: High severity event defined as pollution or degradation that has or may have irreversible detrimental effects on the environment and/or community, for example, illegal clearing of endangered plants.

C.7.6.3.2 - Recording Incidents

The Operations Safety Manager will be contacted immediately when incidents occur to assist the reporting process and provide an Incident Report number from the Master Incident Register. The Incident Report will be completed by a competent person within 24hrs of the incident occurring or as directed otherwise by the Operations Safety Manager.

For this task a competent person is a person who:

- Is a senior site representative (e.g. Project Manager/Site Manager as nominated in the Project Plan).
- Is the Operations Safety Manager; or
- Has received training in incident management; or
- Is nominated by the Operations Safety Manager.

The reporting process will involve where possible representatives from the project team and senior management (e.g., Project Managers, Construction Managers, Division Managers, General Manager, Operations Safety Manager etc.) and other parties as required.

The aim of this report is to document the known facts of the incident and immediate actions taken to prevent further risk of harm. Interpretations and opinions will not be included.

Plan Specific Information

Incident reports will not be submitted, complete or in part, to external parties, including statutory authorities, without documented approval from St Hilliers Legal. The Incident Report will be signed off by the person completing the report, the Project Manager and the Operations Safety Manager.

The Project Manager will be responsible for copying the Incident Report to the National HSE Systems Manager and recording the incident on the projects Incident Report Register. The National HSE Systems (QHSE) Manager will be responsible for updating the Master Incident Register and communicating the incident to senior management.

In the event of a serious incident the Incident Response Chart, Form F07a, will be initiated and the above steps in this work instruction followed.

The reporting process will also include any requirements as outlined within the Contract for the works (e.g.: St Hillier's Property reporting requirements).

Additionally, where a Statutory Authority is required to be notified of an environmental incident, St Hilliers will advise St Hillier's Property within 2 hours and provide written notification to St Hillier's Property within 5 working days of Class 1 or 2 incidents.

C.7.6.3.3 - Investigations by Statutory Authorities

Where a Statutory Authority attends site to investigate an incident, the following is a guide for St Hilliers in providing accurate information.

- State the facts only.
- If you don't understand the question or believe it to be two questions in one, ask to "clarify the question further"
- Do not anticipate the questions
- Do not try and reconstruct the events in your own view. Do not speculate or give your opinion - neither is relevant.
- You are not obligated to re-construct the event
- Always state "to my best recollection" when asked a question
- Do not answer with secondhand knowledge
- You can always clarify your statement from previous answers.

C.7.7 - Manage Enquiries and Complaints

C.7.7.1 - Description

Enquiries / complaints will be dealt with in a responsive manner so that stakeholders feel their concerns are being seriously dealt with and not dismissed. This will assist in building a relationship of trust and reliability between the community and project team.

C.7.7.2 - Responsibilities

Project Manager

C.7.7.3 - Process

The Project Manager will handle the enquiries and complaints that arise on a project and be available 24 hours a day, seven days a week.

If any member of the project team is approached in the field by someone distressed or concerned about the project, they will notify the Project Manager immediately.

A central point of contact will be maintained for enquiries and complaints, to enable the content and distribution of information to the community and stakeholder to be managed and monitored.

Details of enquiries / complaints will be recorded and maintained in the project's Community Database. The following protocol will be used as a basic guide used for handling enquiries and complaints:

- The member of the project team who receives the enquiry / complaint will record and forward it to the Project Manager immediately, normally the project manager or delegate
- If approached directly by a member of the community with a complaint, the project team member will listen to the person's concerns and advise them to contact the Project Manager. Alternatively,

Plan Specific Information

the team member will ask for the person's contact details and advise that a team member will be in contact as soon as possible.

- The project manager will nominate someone from within the project team and ensure a response and appropriate action has commenced within two working hours of receiving the enquiry/complaint.
- In conjunction with project management, the enquiry / complaint will be managed until resolved.
- No member of the construction team will speak to the media; they will politely decline comment and put them in contact with the Project Manager.

C.7.8 - Manage Incident Involving Hazardous Substance

C.7.8.1 - Description

Describes the management of incidents involving hazardous substances include fire, explosion, spillage, leakage or other escape into the environment.

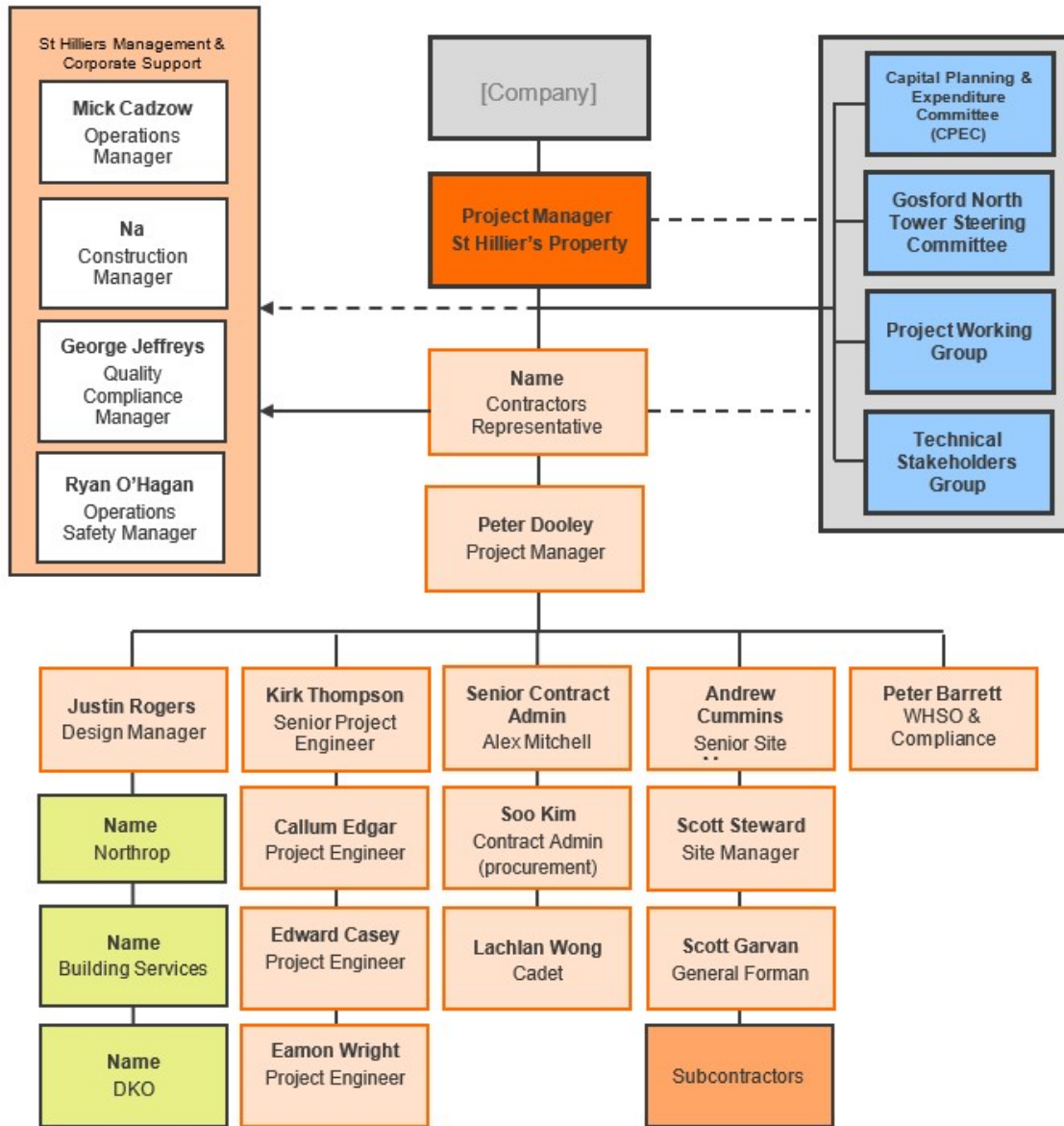
C.7.8.2 - Responsibilities

Project Manager, Environmental Protection Agency, Consultant

C.7.8.3 - Process

- Activities where hazardous substances are in use will maintain an emergency response capability and suitable number of spill kits or suitably stocked area in a proximate container to combat approximately 200 litres of fuel or chemical spill.
- In the event of an incident or near miss involving dangerous goods spill or leak, the project will:
 - take immediate action to reduce any risk associated with the spill or leak
 - investigate the incident to determine the likely cause, record the outcome of the investigation (keep these records for the life of the facility) and take appropriate remedial actions
 - review the risk assessment required in the relevant State regulations and take appropriate actions to reduce risk.
 - excavate or remove contaminated ground (spills up to five litres or less) in a sensitive area, or remedy through an approved process
 - coordinate remediation works through the Environmental Protection Agency (EPA) if the spill is a Level 2 Medium with a persistent impact over three months
 - conduct soil sampling and monitoring of the clean-up area if required
 - obtain inputs from consultants if required.
- Reporting of spills will be conducted as follows:
 - Less than 20 litres will be reported through the internal SH&E Incident Management System and Monthly Environmental Report.
 - Over 20 litres will be reported to the Project Manager immediately and managed by them, including notifying the clients representative.
 - Significant spills / incidents may require upward reporting.
- The appropriate authorities will be notified in accordance with legislative requirements, and/or as detailed within the CEMP or Client contractual requirements for the works

Annexure A. Project Organisation chart



Annexure B. Site Layout Plans

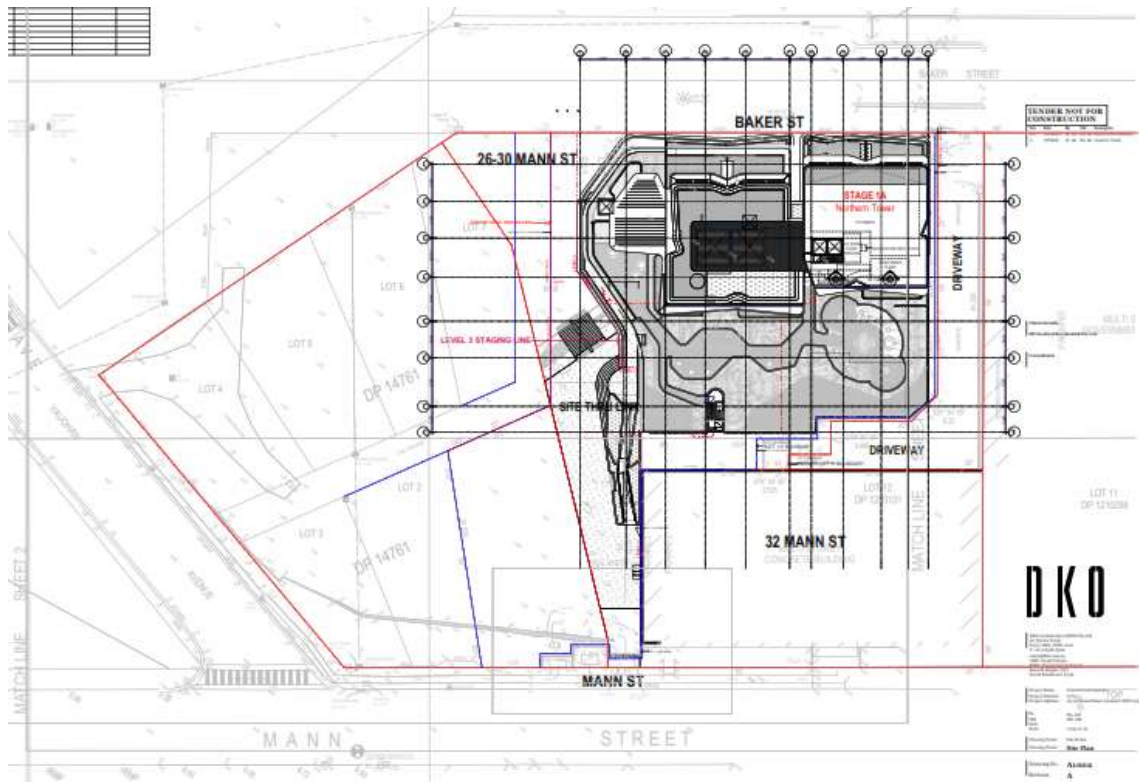


Figure 1: Overall Site layout Plan

Annexure C. Definitions & Abbreviations

Table 8: Definitions & Abbreviations

Acronym / Abbreviation	Definition
SHP	Clients Representative (Superintendent)
ACM	Asbestos Containing Material
AS	Australian Standards
AS/NZ	Australian / New Zealand Standards
BCA	Building Code of Australia
BIM	Building Information Modelling
CAD	Computer Aided Design
CHM	Commissioning and Handover Meeting
CHP	Commissioning and Handover Plan
EMP	Environmental Management Plan
ESD	Ecologically Sustainable Design
HV	High Voltage
ICT	Information Communication Technology
ID	Identification
IMS	Information Management System
ISM	Information Security Management
ISO	International Organization for Standardisation
ITC	Inspection and Test Checklist
ITP	Inspection and Test Plan
JSA	Job Safety Analysis
LTI	Lost Time Injury
LV	Low Voltage
LOTE	Languages Other Than English
MHF	Major Hazard Facility
NATA	National Association of Testing Authorities
NCR	Non-Conformance Report
O&M	Operations and Maintenance Manuals
OR	Other Ranks
PGB	Project Governance Board
PM	Project Manager
PMM	Project Management Meeting
POE	Post Occupancy Evaluation
POL	Petrol Oils or Lubricants
PPE	Personal Protective Equipment
Project	Gosford North Tower
Site (the Site)	26-30 Mann St Gosford
SMP	Site Management Plan
St Hilliers	SHC Civil Pty Limited and all managed subsidiaries and subcontractors
TMP	Traffic Management Plan
WHS	Work Health and Safety
WOL	Whole of Life

Annexure D.ISO Accreditations

D.1 - Quality ISO 9001



St Hilliers Contracting Pty Ltd

Best Practice Certification Pty Ltd has assessed the above company as complying with the following management system standard requirements at the address shown.

Standard:	ISO 9001:2015 Quality Management System Requirements		
Scope of Certification:	Project and design management services comprising of civil, road and bridge construction works, infrastructure, construction, refurbishment and interior fitout of residential, commercial (including multi-storey offices), industrial, Defence, recreational, community, educational, health care and transport buildings.		
Head Office Address:	Ground Floor, 8 Windmill Street, Millers Point, NSW 2000, Australia		
Initial Certification Date:	22/02/2012		
Issue Date:	Expiry Date:	Certificate Number:	
13/04/2021	13/04/2024*	66082729039Q	
Additional Sites & Activities:	See Certificate Schedule # 66082729039Q		
Additional Registered Entities Covered By This Certification:	SHC Civil Pty Limited- ABN: 60082594563		



CERTIFICATION APPROVED:

Kobi Simmat
Managing Director
Best Practice Certification Pty Ltd



- a» Office A3
1-3 Rodborough Rd
Frenchs Forest NSW 2086
Australia
- p» 1300 402 602
- w» <https://bestpracticecertification.com.au>
- * Subject to regular surveillance assessments

D.2 - OH&S ISO 45001



St Hilliers Contracting Pty Ltd

Best Practice Certification Pty Ltd has assessed the above company as complying with the following management system standard requirements at the address shown.

Standard:	ISO 45001:2018 OH&S Management System Requirements		
Scope of Certification:	Project and design management services comprising of civil, road and bridge construction works, infrastructure, construction, refurbishment and interior fitout of residential, commercial (including multi-storey offices), industrial, Defence, recreational, community, educational, health care and transport buildings.		
Head Office Address:	Ground Floor, 8 Windmill Street, Millers Point, NSW 2000, Australia		
Initial Certification Date:	22/02/2012		
Issue Date:	Expiry Date:	Certificate Number:	
13/04/2021	13/04/2024*	66082729039S2	
Additional Sites & Activities:	See Certificate Schedule # 66082729039S2		
Additional Registered Entities Covered By This Certification:	SHC Civil Pty Limited- ABN: 60082594563		



CERTIFICATION APPROVED:

Kobi Simmat
Managing Director
Best Practice Certification Pty Ltd



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**BESTPRACTICE
CERTIFICATION**



**OH&S
MANAGEMENT SYSTEM**

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- w» <https://bestpracticecertification.com.au>
- * Subject to regular surveillance assessments

D.3 - Environmental ISO 14001



St Hilliers Contracting Pty Ltd

Best Practice Certification Pty Ltd has assessed the above company as complying with the following management system standard requirements at the address shown.

Standard:	ISO 14001:2015 Environmental Management System Requirements		
Scope of Certification:	Project and design management services comprising of civil, road and bridge construction works, infrastructure, construction, refurbishment and interior fitout of residential, commercial (including multi-storey offices), industrial, Defence, recreational, community, educational, health care and transport buildings.		
Head Office Address:	Ground Floor, 8 Windmill Street, Millers Point, NSW 2000, Australia		
Initial Certification Date:	02/04/2012		
Issue Date:	Expiry Date:	Certificate Number:	
13/04/2021	13/04/2024*	66082729039E	
Additional Sites & Activities:	See Certificate Schedule # 66082729039E		
Additional Registered Entities Covered By This Certification:	SHC Civil Pty Limited- ABN: 60082594563		



CERTIFICATION APPROVED:

Kobi Simmat
Managing Director
Best Practice Certification Pty Ltd



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**BESTPRACTICE
CERTIFICATION**



**ISO14001
ENVIRONMENT
MANAGEMENT SYSTEM**

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Annexure E.Policies

E.1 - Quality Policy



QUALITY POLICY

St Hilliers policy is to deliver its Clients quality construction projects nationally through the following policy commitments:

St Hilliers is committed to:

- Maintaining its quality management systems that is accredited to AS/NZ ISO 9001,
- Ensuring on-going review and systems improvement through regular third party auditing to ensure continual improvement of the IMS and its Quality aspects
- Providing adequate resources to implement, manage and maintain the Quality System
- Utilise the best quality products and services in the delivery of projects at a competitive cost
- Encourage Employees to integrate the Quality System into the way St Hilliers work
- Encourage Subcontractors to incorporate and adopt compliant procedures into the delivery of their materials, products and services
- Fostering positive relationships with Clients, Subcontractors and Suppliers to improve overall quality of delivery
- Ensuring as far as practicable the delivery is on time, on budget, and compliant with applicable legislation, codes, specifications, and standards
- Set achievable and consistent targets and objectives
- Strive to deliver defect free construction, first time, every time.

Management will ensure it monitors and observes the quality policy.

Management will promote all initiatives to attain and achieve genuine quality, ensuring Stakeholder consultation including Employees, Clients, Subcontractor and Suppliers throughout delivery.

A handwritten signature in blue ink, appearing to read 'Tim Casey', with a stylized flourish at the end.

Tim Casey

Executive Chairman

E.2 - Work, Health and Safety Policy



WORK HEALTH AND SAFETY POLICY

St Hilliers considers the health and safety of all workers employed by the company and those affected by our operations to be of the utmost importance. Accordingly, the company is committed to ensuring that our workplaces and projects are safe and without risk to the health and safety of all our workers, our contractors and our customers.

This commitment recognises that every person has the right to a safe and healthy working environment and it is the mutual objective of the directors, managers and workers to actively promote the maintenance of a work environment free from harm.

In meeting its work health and safety obligations St Hilliers is committed to consulting workers directly affected by our undertakings on all matters that may affect their health and safety.

Our WHS Policy strives to:

- Promote the highest practicable standard of work, health and safety in all our workplaces and on all our projects
- Include health and safety consideration in all business planning activities "as early as possible":
 - In the design and planning phase of the project;
 - In the design of machinery and tools;
 - In the selection of working methods, and
 - In carrying out operations
- Ensure compliance with the Work Health Safety Act 2011 and associated regulations, standards and codes of practice as they apply in each Australian State and Territory in which we carry out a project;
- Establish measurable health and safety objectives and targets to ensure continued improvement aimed at elimination of work-related injury and illness and achieving and maintaining an injury free workplace;
- Consult with relevant Stakeholders, identifying their needs, requirements and expectations, on matters involving their health and safety;
- Engaging with the relevant Stakeholders on the development, implementation and monitoring of those matters relating to health & safety;
- Provide a continuous program of information and training to ensure our workers and contractors work in the safest possible way;
- Ensure all systems of work used are safe and meet or exceed minimum standards;
- Set up and monitor a system for identifying, assessing and eliminating or controlling all actual and potential hazards related to the company's undertakings.

A handwritten signature in blue ink, appearing to read 'Tim Casey', with a long horizontal stroke extending to the right.

Tim Casey

Executive Chairman

22nd November 2016

E.3 - Environmental Management Policy



ENVIRONMENTAL MANAGEMENT POLICY

OUR RESPONSIBILITY

St Hilliers is committed to ensuring that we encourage best practice environmental management through planning, commitment and continuous improvement in line with ISO 14001, legislative, regulatory, and contractual requirements and provide a framework for the implementation of instructions and processes to ensure that all environmental requirements are met.

OUR COMMITMENT

St Hilliers aims to develop and implement best practice environmental targets and objectives to reduce our impacts on the environment through:

- identifying the potential for, and responding to, Environmental Incidents, accidents and emergency situations and take corrective action;
- identifying and controlling possible environmental hazards associated with the Works and our Subcontractor's Activities;
- establishing procedures to ensure that hazardous substances are stored in accordance with legislative requirements;
- recognise and protect any special environmental characteristics of the Site (including cultural heritage significance);
- define roles and responsibilities for our personnel;
- ensure environmental training and awareness programmes are provided to employees and subcontractors;
- define how the management of the Environment during the Contractor's Activities is reported and performance is evaluated;
- ensure monitoring procedures are implemented to identify impacts on the Environment as a result of the Works and the Contractor's Activities;
- implement complaint reporting procedures and maintain records of complaints and response to complaints; and
- establish and maintain programs and procedures for periodic Environmental audits to be carried out;

St Hilliers will ensure consultation and cooperation with all stakeholders to meet this objective.

St Hilliers Senior management Team is committed to, and responsible for the implementation of this policy, and it will be reviewed annually.

A handwritten signature in blue ink, appearing to read 'Tim Casey', with a long horizontal stroke extending to the right.

Tim Casey

Executive Chairman

16th March 2015



Environment Protection Licence

Licence - 13013

Licence Details	
Number:	13013
Anniversary Date:	05-March

Licensee
CENTRAL WASTE PLANT PTY LTD
PO BOX 149
KURRI KURRI NSW 2327

Premises
CENTRAL WASTE PLANT PTY LTD
8 STYLES STREET
KURRI KURRI NSW 2327

Scheduled Activity
Resource recovery
Waste storage

Fee Based Activity	Scale
Recovery of general waste	Any general waste recovered
Waste storage - other types of waste	Any other types of waste stored

Region
Metropolitan North - Newcastle
Ground Floor, NSW Govt Offices, 117 Bull Street
NEWCASTLE WEST NSW 2302
Phone: (02) 4908 6800
Fax: (02) 4908 6810
PO Box 488G
NEWCASTLE NSW 2300



Environment Protection Licence

Licence - 13013

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Environment Protection Licence

Licence - 13013



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Environment Protection Licence

Licence - 13013



Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

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The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

CENTRAL WASTE PLANT PTY LTD
PO BOX 149
KURRI KURRI NSW 2327

subject to the conditions which follow.



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1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Resource recovery	Recovery of general waste	Any general waste recovered
Waste storage	Waste storage - other types of waste	Any other types of waste stored

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
CENTRAL WASTE PLANT PTY LTD
8 STYLES STREET
KURRI KURRI
NSW 2327
LOT 5 DP 1251190

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

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2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

- P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

3 Limit Conditions

L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Waste

- L2.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General solid waste (non-putrescible)	Building and demolition waste including soils and excavated road materials that meet CT1 levels for general solid waste in Table 1 of the EPA's Waste Classification Guidelines 2014.	Resource recovery Waste storage	

- L2.2 The maximum amount of waste received on at the premises must not exceed 90,000 tonnes per reporting period.

Note: "Reporting period" is defined in the dictionary of this licence.

- L2.3 No more than 100 tonnes of garden waste is to be stored at the premises at any time.

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L2.4 Biosolids are not permitted to be accepted at the premises.

Authorised Amount

L2.5 Notwithstanding any limit specified in the above table, the licensee shall not exceed the authorised amount specified in this licence. Where the authorised amount is less than the total of all wastes listed above, the authorised amount takes precedent.

L2.6 The authorised amount of waste permitted on the premise cannot exceed 18,500 tonnes at any one time

L2.7 The licensee must ensure that the height of all wastes stored at the premises does not exceed 6 metres from ground level, metres or the boundary wall, whichever is lower.

L2.8 The licensee must ensure that height markers are installed where waste is stored, and the markers:

- indicate height above 5 metres in 10 centimetres increments;
- clearly identify 6 metres; and
- are visible to all working areas around the stockpile or storage area

L3 Noise limits

L3.1 Noise generated at the premises must not exceed the noise limits at the times and locations in the table below.

Noise Limits (dB(A))

Location	Day LAeq (15 minute)	Evening LAeq (15 minute)	Night LAeq (15 minute)	Night LA1 (1 minute)
4 Horton Road, Loxford (Lot 439, DP 755231)	49	48	43	56
7 McLeod Road, Loxford (Lot 70, DP 755213)	49	48	43	56
72 Hart Road, Loxford (Lot 434, DP 755231)	49	48	43	56
20 James Street, Kurri Kurri (Lot 1, DP 255271)	46	44	40	52
66 Northcote Street, Kurri Kurri (Lot 23, DP 263462)	46	44	40	52

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122 Mitchell Avenue, Kurri Kurri (Lot 527, DP 755231)	46	44	40	52
62 Government Road, Weston (Lot 21, DP 979187)	49	48	43	54
86 Government Road, Weston (Lot 22, DP 1062343)	49	48	43	54
18 Hart Road, Loxford (Lot 101, DP 1010661)	49	48	43	54
65 Government Road, Loxford (Lot 100, DP 1010661)	49	48	43	54
67 Government Road, Loxford (Lot 1, DP560471)	49	48	43	54
94C Government Road, Weston (Lot 3, DP 1192243)	49	48	43	54
94B Government Road, Weston (Lot 2, DP 1192243)	49	48	43	54
92 Government Road, Weston (Lot 2, DP 1016497)	49	48	43	54
16 Hart Road, Loxford (Lot 3, DP 560471)	49	48	43	54
65 Government Road, Weston (Lot 22, DP 979187)	49	48	43	54

L3.2 For the purposes of condition L3.1:

- Day means the period from 7am to 6am Monday to Saturday and the period from 8am to 6pm Sunday and public holidays.
- Evening means the period from 6pm to 10pm.
- Nights means the period from 10pm to 7am Monday to Saturday and period from 10pm to 8am Sunday and public holidays.

L3.3 Noise-enhancing meteorological conditions:

- The noise limits set out in condition L3.1 apply under the meteorological conditions set out below.
- For those meteorological conditions not referred to in the table below, the noise limits that apply are the noise limits in condition L3.1 plus 5dB.

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ASSESSMENT PERIOD	Meteorological Conditions
Day	Stability categories A, B, C, D and E with wind speeds up to and including 3m/s at 10m above ground level.
Evening	Stability categories A, B, C, D and E with wind speeds up to and including 3m/s at 10m above ground level.
Night	Stability categories A, B, C, D and E with wind speeds up to and including 3m/s at 10m above ground level; or Stability category F with wind speeds up to and including 2m/s at 10m above ground level.

L3.4 For the purposes of condition L3.3:

- a) The meteorological conditions are to be determined from the meteorological data obtained from a meteorological weather station on site.
- b) Stability category shall be determined using the following method from Fact Sheet D of the *Noise Policy for Industry* (NSW EPA, 2017):
 - i. Pasquill-Gifford stability classification scheme (section D1.3.1).

L3.5 To assess compliance:

- a) with the LAeq(15 minutes) or the LMax noise limit in condition L3.1 and L3.3, the noise measurement equipment must be located:
 - (i) approximately on the property boundary, where any residence is situated 30 metres or less from the property boundary closest to premises; or where applicable,
 - (ii) in an area within 30 metres of a residence façade, but not closer than 3 metres where any residence on the property is situated more than 30 metres from the property boundary closest to the premises; or , where applicable,
 - (iii) in an area within 50 metres of the boundary of a National Park or Nature Reserve,
 - (iv) at any other location identified in condition L3.1.
- b) with LAeq(15 minutes) or the LMax noise limits in condition L3.1 and L3.3, the noise measurement equipment must be located:
 - (i) at the reasonably most affected point at a location where there is no residence at the location; or,
 - (ii) at the reasonably most affected point within an area at a location prescribed by condition L3.5(a).

L3.6 A non-compliance of conditions L3.1 and L3.3 will still occur where noise generated from the premises is measured in excess of the noise limit at a point other than the reasonably most affected point at the locations referred to in condition L3.5(a) or L3.5(b).

Note: To L3.5 and L3.6: The reasonably most affected point is at a location or within an area at a location experiencing or expected to experience the highest sound pressure level from the premises.

L3.7 For the purpose of determining the noise generated from the premises, the modifying factor corrections in Table C1 in Fact Sheet C or the *Noise Policy for Industry* (NSW EPA, 2017) may be applied, if appropriate, to the noise measurements by the noise monitoring equipment.

L3.8 Noise measurements must not be undertaken where rain or wind speed at microphone level will affect the acquisition of valid measurements.

L4 Hours of operation

L4.1 All construction work at the premises must be conducted between 7am and 6pm Monday to Friday and

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between 7am and 1pm Saturdays and at no time on Sundays and Public Holidays.

L4.2 Operations at the premises are permitted Monday to Saturday (24 hours).
The premises is not permitted to operate on Sundays or Public Holidays.

L4.3 The use of concrete crushing machinery equipment and associated operations shall only occur between 7am and 6pm.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 The premises must be maintained in a condition so that dust is not emitted from the premises.

O3.2 Activities must be carried out in a manner that minimises the generation of dust at the premises.

O3.3 The licensee must ensure that no material, including sediment or oil, is tracked onto the public road from the premises.

O3.4 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading, unloading or during material inspection.

O3.5 Potential dust generation from external crushing and shredding activities must be controlled by water sprays and fogging cannons.

O3.6 All roads and surfaces for on-site handling, processing and storage of waste materials must be sealed.

O3.7 With the exception of loads that are solely concrete, metal or timber, all incoming vehicles containing waste must be unloaded directly into the processing shed.

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- O3.8 The processing shed must be fitted with misting nozzles distributed along the roof trusses. The misting nozzles must be operated at all times when waste material handling and/or processing activities are being undertaken.
- O3.9 Fog curtains must be installed at all the processing shed doors. Fog curtains must operate during waste material handling and processing operations.
- O3.10 The external processing line air emissions must be ducted to the bag house system.
- O3.11 Dust suppression sprays must always be used during the operation of the processing line.
- O3.12 All processing line conveyors must always be covered during the operation of the processing line.
- O3.13 All waste material and product must be stored in bunkers with three side-walls.
- O3.14 A maximum of one set of crushing plant and equipment can be in operation at any one time.

O4 Emergency response

- O4.1 The licensee must maintain and implement as necessary a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosion or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.

O5 Processes and management

Air Quality Management Plan

- O5.1 The licensee must develop and implement an air quality management plan (AQMP) prior to the commencement of project operations. As a minimum, the air quality management plan must include the following parts:
 - 1. Risk assessment;
 - 2. Proactive and reactive mitigation measures of all significant, and potentially significant, emissions sources;
 - 3. Key performance indicator(s);
 - 4. Monitoring method(s);
 - 5. Location, frequency and duration of monitoring;
 - 6. Record keeping;
 - 7. Response mechanisms and contingency measures;

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- 8. Responsibilities; and
- 9. Compliance reporting.

O6 Other operating conditions

Fire Control

- O6.1 There must be no burning or incineration of waste at the premises.

5 Monitoring and Recording Conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
 - a) in a legible form, or in a form that can readily be reduced to a legible form;
 - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 - c) produced in a legible form to any authorised officer of the EPA who asks to see them.
- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
 - a) the date(s) on which the sample was taken;
 - b) the time(s) at which the sample was collected;
 - c) the point at which the sample was taken; and
 - d) the name of the person who collected the sample.

M2 Weather monitoring

- M2.1 The licensee must install and maintain a meteorological station on the premises, which complies with the requirements of the current version of the Approved Methods for Sampling of Air Pollutants in New South Wales.

M3 Recording of pollution complaints

- M3.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M3.2 The record must include details of the following:
 - a) the date and time of the complaint;

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- b) the method by which the complaint was made;
- c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- d) the nature of the complaint;
- e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- f) if no action was taken by the licensee, the reasons why no action was taken.

M3.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M3.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M4 Telephone complaints line

- M4.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M4.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M4.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
 - 1. a Statement of Compliance,
 - 2. a Monitoring and Complaints Summary,
 - 3. a Statement of Compliance - Licence Conditions,
 - 4. a Statement of Compliance - Load based Fee,
 - 5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
 - 6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
 - 7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

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R1.3 Where this licence is transferred from the licensee to a new licensee:

- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
- b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

- a) the licence holder; or
- b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:

- a) where this licence applies to premises, an event has occurred at the premises; or
 - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written

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report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:

- a) the cause, time and duration of the event;
- b) the type, volume and concentration of every pollutant discharged as a result of the event;
- c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
- d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
- e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
- f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Other reporting conditions

Reporting of noise monitoring

R4.1 Licensee must provide to the EPA with its Annual Return an annual noise compliance assessment report prepared by a competent person. The report must include an assessment of any exceedance of noise limits and justification that the noise monitoring points selected for the purposes of fulfilling this condition are representative of the sensitive receivers within Table

Note: The definition of “competent person” is as follows:
Competent person must satisfy one or more of the following:

- have qualifications and/or experience sufficient to fulfil the requirements of ‘member’ grade of the Australian Acoustical Society;
- undertake the duties of an acoustics consultant on behalf of a consultancy firm that is a member of the Association of Australasian Acoustical Consultants;
- have a recognised tertiary qualification in a discipline pertinent to acoustics; or
- demonstrate competence through professional experience and/or technical expertise to the satisfaction of the EPA.

Fires

R4.2 The licensee must maintain a log and record the following data of fires at the site:

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1. Time and date when the fire was deliberately started or reported;
2. Whether the fire was authorised by the licensee, and, if not, the circumstances which ignited the fire;
3. The time and date that the fire ceased and whether it burnt out or was extinguished;
4. The location of the fire (e.g. which waste stockpile, plant/equipment etc);
5. Prevailing weather conditions;
6. Observations made in regard to smoke direction and dispersion;
7. The amount of waste that was combusted;
8. Action taken to extinguish the fire; and,
9. How leachate generated from extinguishing the fire was managed.

R4.3 The licensee or its employees must notify the EPA in accordance with conditions R2.1 and R2.2 of all fires at the premises as soon as practical after becoming aware of the incident.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

8 Special Conditions

E1 Financial Assurance

E1.1 A financial assurance in the form of an unconditional and irrevocable guarantee from an Australian bank, building society or credit union in favour of the EPA in the amount of fifty thousand dollars (\$50,000) must be provided to the EPA by 18 January 2010. The financial assurance is required to secure or guarantee funding for works or programs required by or under this licence. The financial must contain a term that provides that any monies claimed can be paid to the EPA, or at the written direction of the EPA, to any other person.

A financial assurance in the form of an unconditional and irrevocable guarantee from an Australian bank, building society or credit union in favour of the EPA in the amount of one hundred thousand dollars (\$100,000) must be provided to the EPA by 18 January 2011. The financial assurance is required to secure or guarantee funding for works or programs required by or under this licence. The financial must contain a term that provides that any monies claimed can be paid to the EPA, or at the written direction of the EPA, to any other person.

A financial assurance in the form of an unconditional and irrevocable guarantee from an Australian bank,

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building society or credit union in favour of the EPA in the amount of one hundred and fifty thousand dollars (\$150,000) must be provided to the EPA by 18 January 2012. The financial assurance is required to secure or guarantee funding for works or programs required by or under this licence. The financial must contain a term that provides that any monies claimed can be paid to the EPA, or at the written direction of the EPA, to any other person.

- E1.2 A financial assurance in the form of an unconditional and irrevocable guarantee from an Australian bank, building society or credit union in favour of the EPA in the amount of three hundred thousand dollars (\$300,000) must be provided to the EPA by 1 March 2021. The financial assurance is required to secure or guarantee funding for works or programs required by or under this licence. The financial must contain a term that provides that any monies claimed can be paid to the EPA, or at the written direction of the EPA, to any other person.
- E1.3 The financial assurance must be maintained during the operation of the facility and thereafter until such time as the EPA is satisfied the premises is environmentally secure.
- E1.4 The financial assurance must be replenished by the full amount claimed or realised if the EPA has claimed on or realised the financial assurance or any part of it to undertake a work or program required to be carried out by the licence which has not been undertaken by the licence holder.
- E1.5 The EPA may require an increase the amount of the financial assurance at any time as a result of reassessment of the total likely costs and expenses of rehabilitation of the premises.
- E1.6 The licensee must provide to the EPA the original counterpart guarantee within five working days of the issue of:
 - a) the financial assurance required by condition E1.1; and
 - b) the adjusted financial assurance as required by condition E1.3 and E1.4.

E2 Environmental Obligations of Licensee

- E2.1 While the licensee's premises are being used for the purpose to which the licence relates, the licensee must:
 - a) Clean up any spill, leak or other discharge of any waste(s) or other material(s) as soon as practicable after it becomes known to the licensee or to one of the licensee's employees or agents.
 - b) In the event(s) that any liquid and non-liquid waste(s) is unlawfully deposited on the premises, such waste(s) must be removed and lawfully disposed of as soon as practicable or in accordance with any direction given by the EPA.
 - c) Provide all monitoring data as required by the conditions of this licence or as directed by the EPA.
- E2.2 In the event of an earthquake, storm, fire, flood or any other event where it is reasonable to suspect that a pollution incident has occurred, is occurring or is likely to occur, the licensee (whether or not the premises continue to be used for the purposes to which the licence relates) must:
 - a) Make all efforts to contain all firewater on the licensee's premises;
 - b) Make all efforts to control air pollution from the licensee's premises;
 - c) Make all efforts to contain any discharge, spill or run-off from the licensee's premises;
 - d) Make all efforts to prevent flood water entering the licensee's premises;

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- e) Remediate and rehabilitate any exposed areas of soil and/or waste;
- f) Lawfully dispose of all liquid and solid waste(s) stored on the premises that is not already securely disposed of;
- g) At the request of the EPA monitor groundwater beneath the licensee's premises and its potential to migrate from the licensee's premises;
- h) At the request of the EPA monitor surface water leaving the licensee's premises; and
- i) Ensure the licensee's premises is secure.

E3 EPA may claim on Financial Assurance

- E3.1 The EPA may claim on a financial assurance under s303 of the POEO Act if a licensee fails to carry out any work or program required to comply with the conditions of this licence or clean up notice issued under section 91 of the POEO Act.

E4 Construction of facility

- E4.1 A physical barrier is to be placed and maintained along the extent of the premises and on the area marked "Existing top of bank" on drawing "Figure 2 Site Plan 8/2005/1088/1 05/03/08", adequate to prevent persons, vehicles and machinery from entering the identified area containing threatened species community during construction and grounds maintenance of the premises.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 13013

flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

Environment Protection Licence

Licence - 13013

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Ms Danielle Playford

Environment Protection Authority

(By Delegation)

Date of this edition: 04-March-2010

End Notes

- 1 Licence varied by Correction to EPA Region data record., issued on 28-Jun-2010, which came into effect on 28-Jun-2010.
- 2 Licence varied by notice 1510873 issued on 17-Dec-2012
- 3 Licence transferred through application 1510945 approved on 17-Dec-2012 , which came into effect on 14-Dec-2012
- 4 Licence varied by notice 1534203 issued on 27-Oct-2015
- 5 Licence transferred through application 1536512 approved on 14-Dec-2015 , which came into effect on 14-Dec-2015
- 6 Licence varied by notice 1539965 issued on 28-Jun-2016
- 7 Licence varied by notice 1593917 issued on 22-Apr-2020
- 8 Licence varied by notice 1596258 issued on 19-Jun-2020
- 9 Licence varied by notice 1599887 issued on 14-Sep-2020



Risk and Safety Solutions

CERTIFICATE OF ACCREDITATION

No. 8/2021

Is issued to

**Central Waste Station Pty Ltd
8 Styles Street
Kurri Kurri NSW 2327**

Scope of accreditation:

In accordance with the reporting and audit specifications outlined in the *Green Star Waste Construction and Demolition Reporting Criteria*, a qualified auditor has assessed the business and has issued this certificate as verification that the applicant complies with the requirements as defined for:

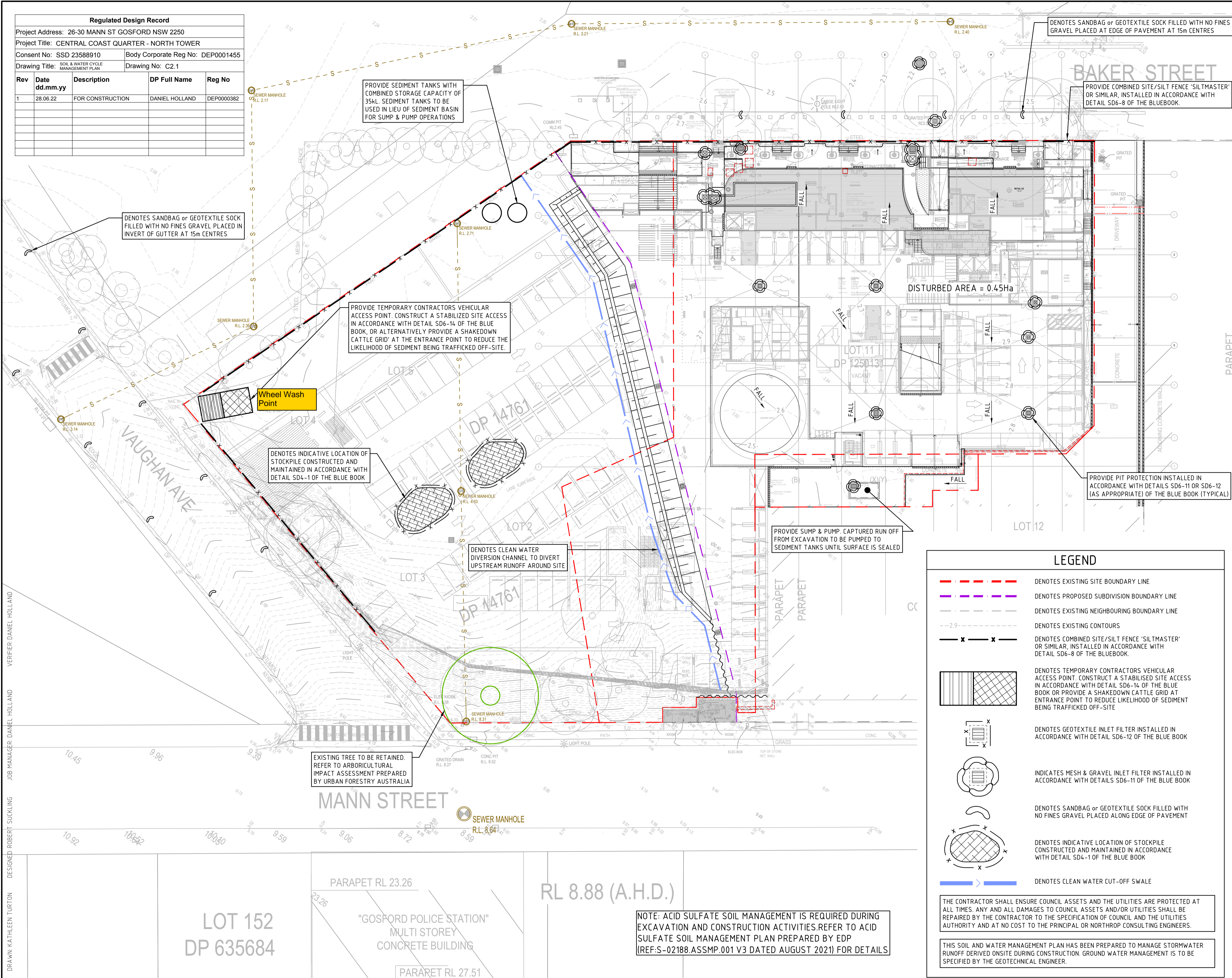
G2 Green Star Waste Processing Facilities Reporting Criteria

This certification is valid until 23 August 2022 and applies to waste services and reports provided by the applicant to Green Star Projects.



23.08.21

Chris Haddrill
Managing Director
BE (Mech) MIE Aust
M OHS, CPMSIA, RSP (Aust)
Exemplar Global Lead Auditor OHS, Environment, Quality
Certificate Number 119893
M RMA and M Risk Eng Society



SEDIMENT BASIN/TANKS SIZING CALCULATION

THE SITE IS LOCATED WITHIN THE KILLINGWORTH SOIL LANDSCAPE AND PRIMARILY CONSISTS OF SANDY CLAY & SILTY SANDS, WHICH HAS THE FOLLOWING PROPERTIES IN ACCORDANCE WITH TABLE C17 OF THE "BLUE BOOK":

SITE PARAMETERS	
CONSTRAINT	VALUE
SEDIMENT TYPE	D
SOIL HYDROLOGY GROUP	B
K = SOIL ERODIBILITY (K-FACTOR)	0.059
R = RAINFALL EROSIVITY (R-FACTOR)	3900
S = 2 YEAR, 6 HOUR STORM INTENSITY	13.4 mm/hr (GOSFORD)
LS = SLOPE LENGTH/GRADIENT	0.17 (50m SLOPE @ 1% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	50.8
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW
	NO BASIN/TANKS REQUIRED

NOTE: SEDIMENT BASIN IS NOT REQUIRED, HOWEVER SEDIMENT TANK OF MINIMUM SIZE WILL BE PROVIDED FOR EXCAVATION AND EARTHWORKS.

SEDIMENT BASIN/TANKS SIZING	
CONSTRAINT	VALUE
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.25
R = 5 DAY, 75 TH PERCENTILE RAINFALL	27.9mm
A = CATCHMENT AREA	0.45ha
SETTLING ZONE VOLUME (10x CV x R x A)	31.4m ³
SOIL LOSS (CALC ABOVE)	39m ³ /ha/yr
DISTURBED CATCHMENT AREA	0.45ha
SEDIMENT STORAGE VOLUME (0.17x SOIL LOSS x A x 2)	3m ³
TOTAL BASIN/TANKS VOLUME REQUIRED	35m ³

SEDIMENT BASIN/TANKS MANAGEMENT NOTES

- PRIOR TO ANY FORECAST WEATHER EVENT, LIKELY TO RESULT IN SEDIMENT LADEN RUNOFF ON THE SITE, ANY EXISTING DETENTION BASINS/TANKS/TRAPS SHALL BE DEWATERED TO PROVIDE SUFFICIENT CAPACITY TO CAPTURE SEDIMENT LADEN WATER FROM THE SITE.
- ANY SEDIMENT LADEN WATER CAPTURED ON-SITE MUST BE TREATED TO ENSURE IT WILL ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES PRIOR TO ITS RELEASE FROM SITE. A SAMPLE OF THE RELEASED TREATED WATER MUST BE KEPT ON-SITE IN A CLEAR CONTAINER WITH THE SAMPLE DATE RECORDED.
- NO ALUMINIUM BASED PRODUCTS MAY BE USED TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) ON-SITE WITHOUT THE PRIOR WRITTEN PERMISSION FROM AN APPROPRIATE COUNCIL OFFICER. THE APPLICANT MUST HAVE DEMONSTRATED ABILITY TO USE SUCH PRODUCTS CORRECTLY AND WITHOUT ENVIRONMENTAL HARM PRIOR TO ANY APPROVAL.
- THE CHEMICAL/AGENT (FLOCCULATING/COAGULANTS) USED IN TYPE D AND TYPE F BASINS/TANKS TO TREAT TURBID WATER CAPTURED IN THE BASIN/TANKS MUST BE APPLIED IN CONCENTRATIONS SUFFICIENT TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES (TSS < 50mg/L, TURBIDITY < 60 NTU, 6.5 < pH < 8.5) WITHIN THE 5-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN/TANKS, AFTER A RAINFALL EVENT.
- ALL MANUFACTURERS INSTRUCTIONS MUST BE FOLLOWED FOR THE USE OF ANY CHEMICALS/AGENTS USED ON-SITE, EXCEPT WHERE APPROVED BY THE RESPONSIBLE PERSON OR AN APPROPRIATE COUNCIL OFFICER.
- SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) MUST BE PLACED SUCH THAT WATER ENTERING THE BASINS/TANKS/SEDIMENT TRAP MIXES WITH THE CHEMICALS/AGENTS AND IS CARRIED INTO THE BASIN/TANKS/TRAP.
- ANY BASIN/TANKS MUST BE DEWATERED AS SOON AS PRACTICAL, ONCE WATER CAPTURED IN THE BASIN/TANKS ACHIEVES COUNCIL'S WATER QUALITY OBJECTIVES.
- INSPECT THE SEDIMENT BASINS/TANKS AFTER EACH RAINFALL EVENT AND/OR WEEKLY. ENSURE THAT ALL SEDIMENT IS REMOVED ONCE THE SEDIMENT STORAGE ZONE IS FULL. ENSURE THAT OUTLET AND EMERGENCY SPILLWAY WORKS ARE MAINTAINED IN A FULLY OPERATIONAL CONDITION AT ALL TIMES.

CONCEPT SOIL & WATER MANAGEMENT NOTES

- ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION (THE 'BLUE BOOK'). THIS SOIL AND WATER MANAGEMENT PLAN DETAILS THE ACTIONS TO BE TAKEN FOR THE MANAGEMENT AND DEWATERING OF STORMWATER DURING CONSTRUCTION OF THE PROPOSED BUILDING.
- INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
- ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
- INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
- ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAY'S WORK.
- THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
- ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ON-SITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
- STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
- CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
- ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
- PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
- ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
- GROUNDWATER SEEPAGE RATES AND QUALITY TO BE MONITORED AND TREATED IF REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH REQUIREMENTS OF SUPERVISING GEOTECHNICAL ENGINEER.

NOTE THAT ORIGINAL DRAWING IS IN COLOUR

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
B	DEVELOPMENT APPLICATION	KT		DH	26.03.21	
C	60% COORDINATION ISSUE	KT		DH	20.12.21	
D	60% COORDINATION ISSUE	KT		DH	01.02.22	
E	FOR TENDER	KT		DH	04.03.22	
F	PRE-IFC	KT		DH	14.04.22	
1	FOR CONSTRUCTION	KT		DH	28.06.22	

StHilliers

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DKO ARCHITECTURE

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PLANS 1:300 @ A1

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NORTHROP

Central Coast

Suite 4, 257-259 Central Coast Hwy, Erina NSW 2250
Ph (02) 4365 1688 Fax (02) 4367 6556
Email centralcoast@northrop.com.au ABN 81 094 433 100

PROJECT

**CENTRAL COAST QUARTER
NORTH TOWER
26-30 MANN ST GOSFORD**

DRAWING TITLE

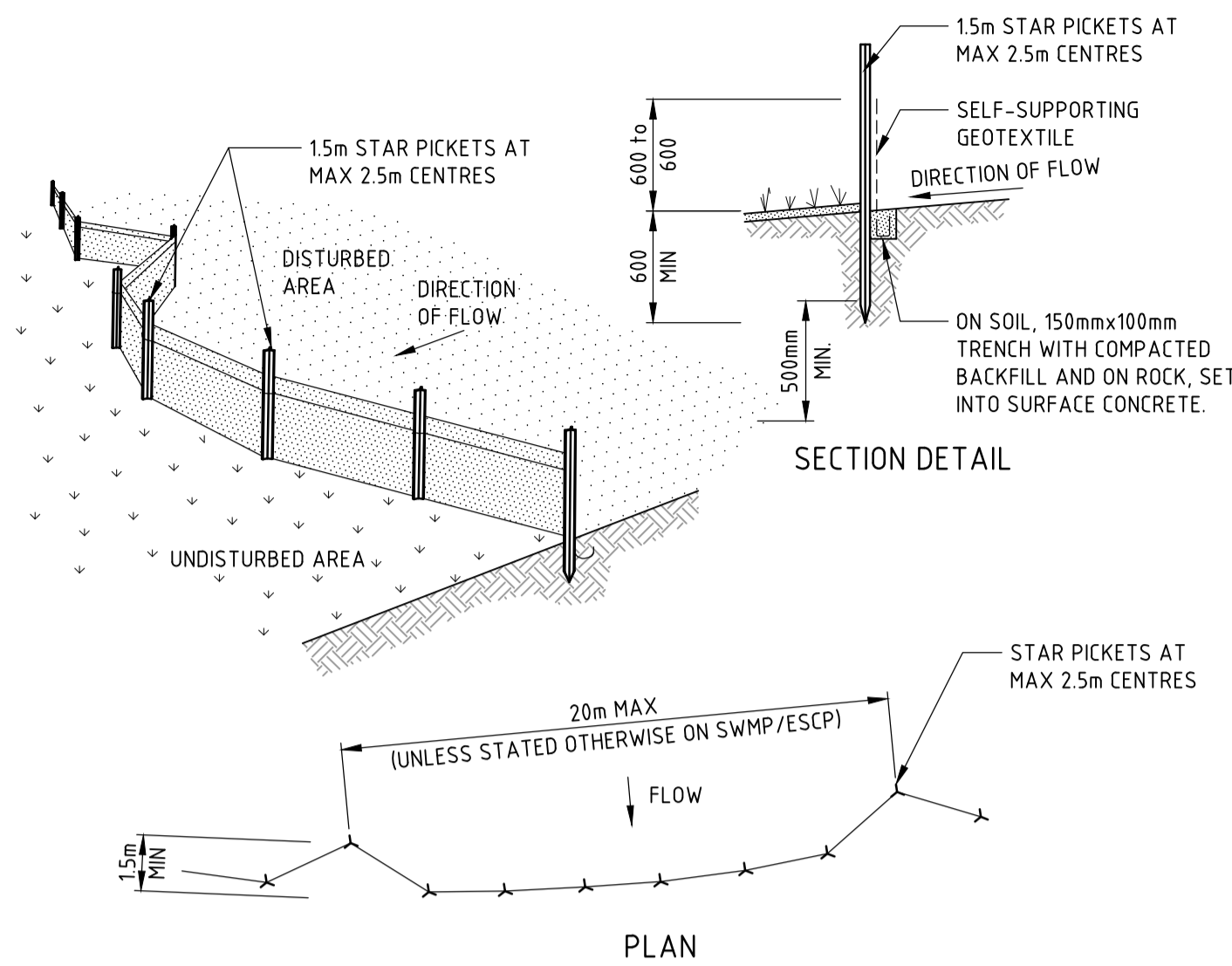
**INTERNAL CIVIL WORKS
SOIL & WATER CYCLE
MANAGEMENT PLAN**

JOB NUMBER

SY202243

DRAWING NUMBER	REVISION
C2.1	1

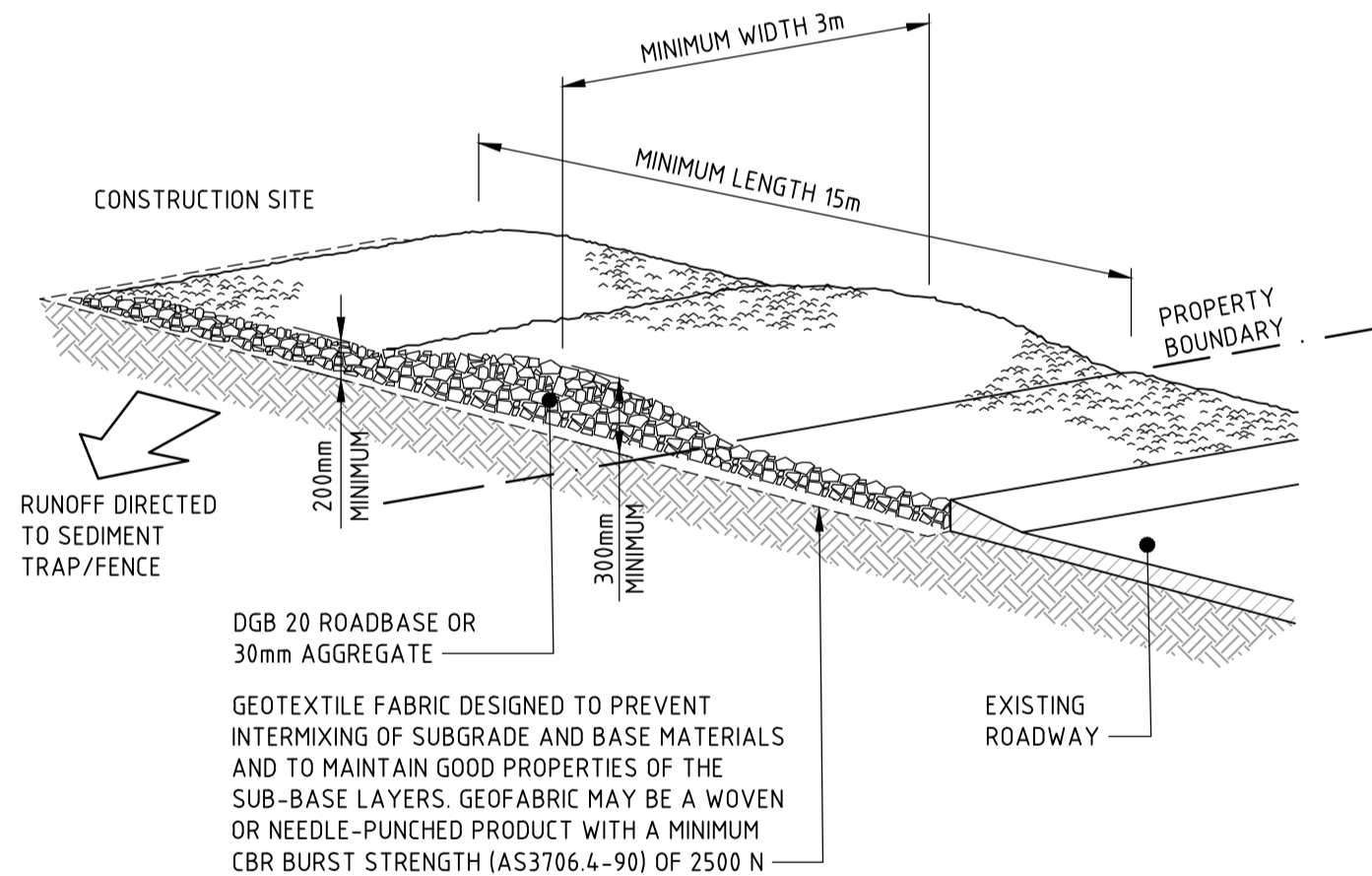
DRAWING SHEET SIZE = A1

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CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

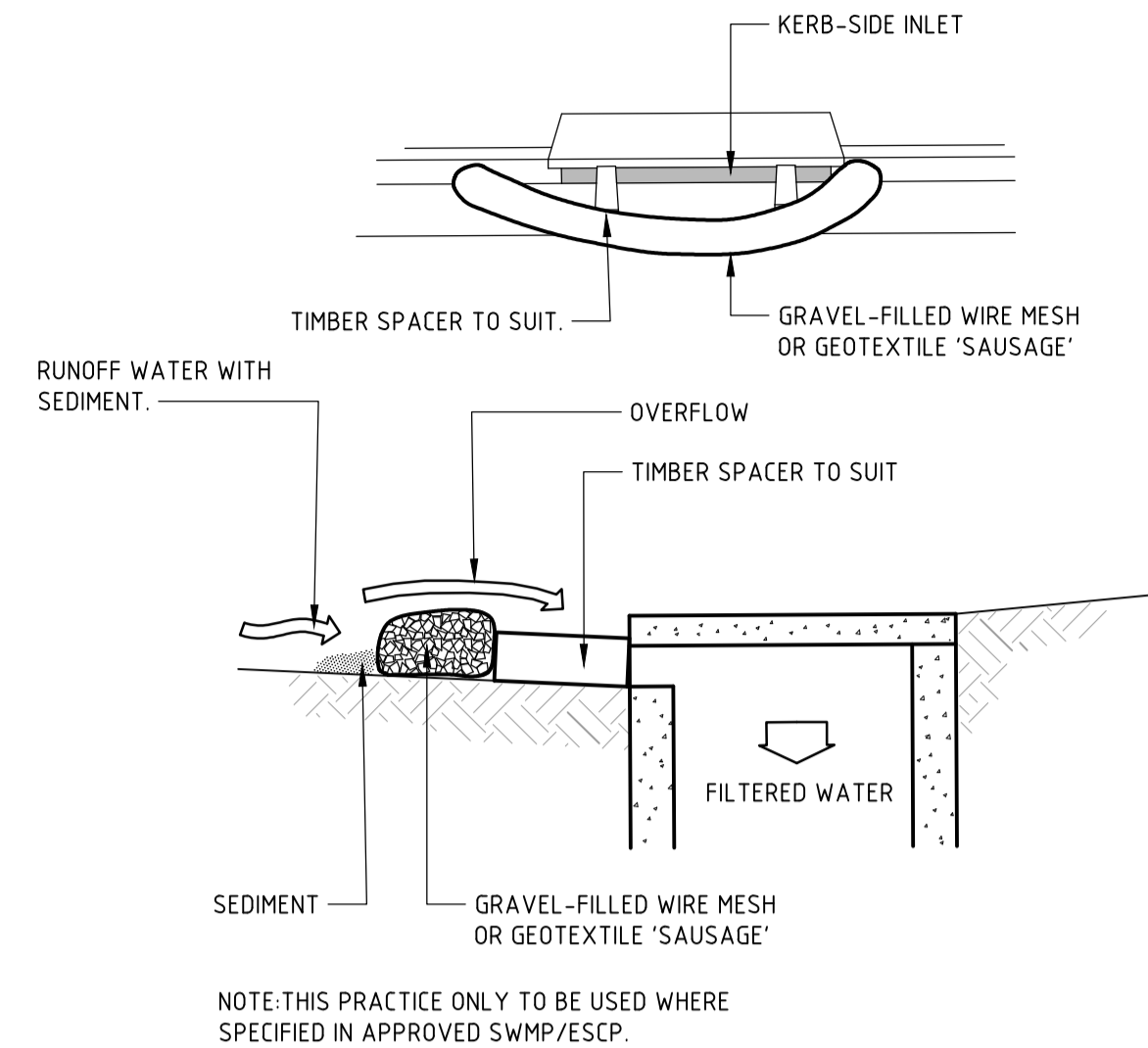
SEDIMENT FENCE (SD 6-8)



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

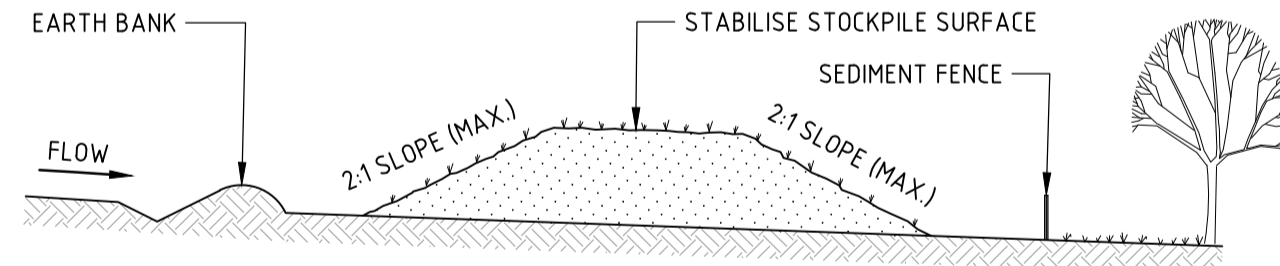
STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

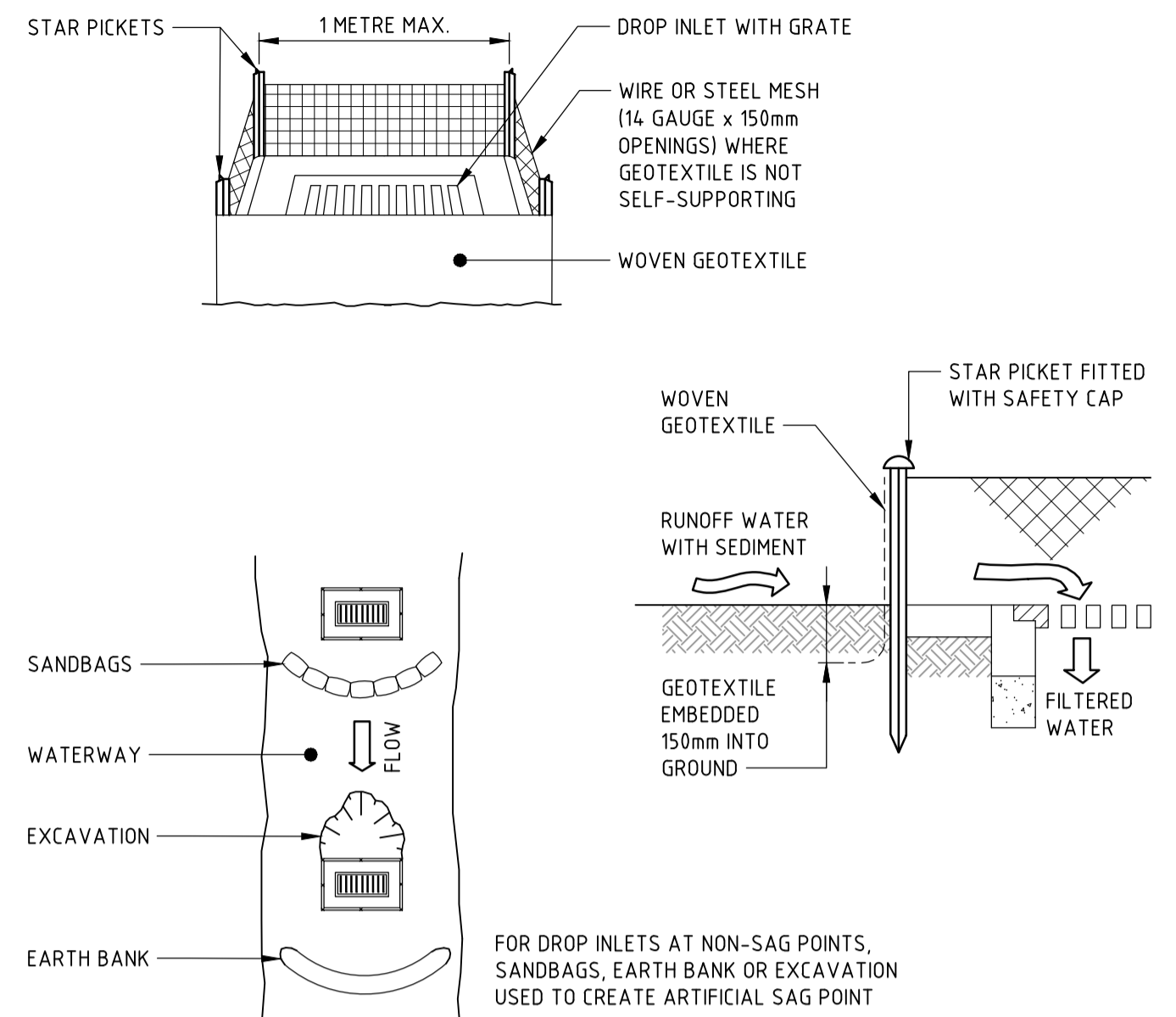
MESH AND GRAVEL INLET FILTER (SD 6-11)



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

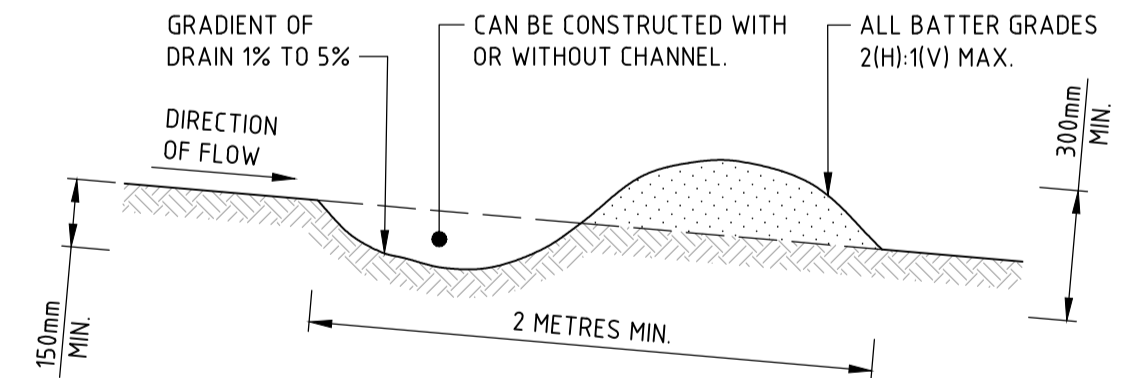
STOCKPILES (SD 4-1)



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-1 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER (SD 6-12)

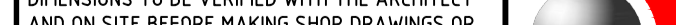



CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE – WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

NOTE: ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

EARTH BANK - LOW FLOW (SD 5-5)

REVISION		DESCRIPTION		ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		ALL SETOUT TO ARCHITECT'S DRAWINGS, DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR CORRECTING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.	PROJECT	DRAWING TITLE	JOB NUMBER	
A	DEVELOPMENT APPLICATION			KT		DH	22.03.21		DKO ARCHITECTURE		Central Coast Suite 4, 257-259 Central Coast Hwy, Erina NSW 2250 Ph (02) 4365 1688 Fax (02) 4367 6555 Email centralcoast@northrop.com.au ABN 81 094 433 100	CENTRAL COAST QUARTER NORTH TOWER 26-30 MANN ST GOSFORD	INTERNAL CIVIL WORKS SOIL & WATER CYCLE MANAGEMENT DETAILS	SY202243	
B	60% COORDINATION ISSUE			KT		DH	20.12.21							DRAWING NUMBER	REVISION
C	FOR TENDER			KT		DH	04.03.22							C2.2	1
D	PRE-IFC			KT		DH	14.04.22							DRAWING SHEET SIZE = A1	
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Construction Traffic and Pedestrian Management Sub-Plan – (CTPMSP)



St Hilliers Constructions Vaughan St Gosford NSW 225

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1. Revision of CTPMSP

Document Number: (0011)Edition 1 / Revision 0
Title: Construction Traffic and Pedestrian Management Sub-Plan
(St Hilliers - Gosford)
Author: Kevin McLeish/Paul Dodds
Issued To: St Hilliers Constructions

Issue	Date	Revision Description	Authorised by
Ed 1 / Rev 0	11 July 2022	Update to current Conditions	Kevin McLeish
		Modified to suit works	

2. Endorsement of CTPMSP

Name	Company	Date	Signature
	Traffic Commander (TMC)		
	Traffic Engineer (Local Council)		
Kevin McLeish	McLeish Group Traffic Control		
	Project Manager (*****)		

3. Abbreviations

Acronym	Definition
AADT	Annual average daily traffic
AS	Australian Standard 1742.3
CEMP	Construction Environmental Management Plan
Ch	Chainage
ESCP	Erosion and Sediment Control Plan
ESD	Entering sight distance
FAS	Flashing Arrow Signs
G1	Road and Maritime "JOB Specific Requirements"
G10	Roads and Maritime QA Specification G10 Traffic Management
PMP	Pedestrian Management Plan
R141	Pavement Marking
R142	"Retro reflective raised pavement markers"
R143	Signposting
RMS	Road and Maritime Services
ROL	Road Occupancy Licence
SISD	Provide Safe Intersection Sight Distance
SZA	Speed Zone Authorisation
TCP	Traffic Control Plan
TCWS	Traffic Control at Work Sites Manual
CTPMSP	Construction Traffic Pedestrian Management Sub Plan
TRSB	Temporary Road Safety Barrier
VMP	Vehicle Management Plan
VMS	Variable Message Signs
TMP	Traffic Management Plan

4. Project Details

Principal Details

Name: St Hilliers Contracting
Street: 32 Mann St Gosford NSW
Phone: 02 4326 6450
Email: #####@sthilliers.com.au

PRINCIPAL CONTRACTOR'S CONTACT

Name: Andrew Cummins
Mobile Phone: 0421 859 974

TRAFFIC CONTROL CONTACT Details

1/
Company Name: McLeish Group Traffic Control
Name: Kevin McLeish
Mobile Phone: 0417 852 709
2/
Name: Renee Beer
Mobile Phone: 0417 435 694

Scope of Works.

Traffic control will be in place for day-to-day running of Site access/egress of deliveries and unloading of materials that take place within the Construction Zone/Site for the construction of a 24 story residential tower made up of 136 apartments and 4 retail outlets.

Only Authorised/Qualified Traffic Controllers will be used.

No Plant or equipment will be placed on public roads without prior approval

Phase 1: Demolition - Approximately	TBA Week
Phase 2: Bulk Earthworks & Piling - Approximately	TBA Weeks
Phase 3: Structure and Cladding - Approximately	TBA Weeks
Phase 4: Internal Fit out and Landscaping - Approximately	TBA Weeks

Overview

Project Name: Building Construction Vaughan St GOSFORD 2250
CTPMSP Produced for: St Hilliers Constructions
Job Number: 002
Scope of Works: Construction of a 24 story residential tower made up of 136 apartments and 4 retail outlets.
Traffic Control Job No.:
Date Prepared: 10/07/2022
Scheduled start date: 25/07/2022 - (Minimum 20 working days)
Revision: 01

Access to the Construction site will be Via - **Central Coast H'way onto Vaughan Ave.**
Egress from the Construction site will be Via - **Vaughan Ave. Left Turn ONLY**
(No Right Turn Onto Vaughan St from site)

Hours of Works/Construction

- Monday to Friday between 7:00am - 6:00pm
- Saturday between 8:00am - 4:00pm
- Sunday/Public Holidays - No Works
- Deliveries Monday to Friday Between 7:00am - 6:00pm
- Deliveries Saturday between 8:00am - 4:00pm

Any waiting trucks & deliveries will be co-ordinated to avoid stacking of vehicles.
Site sheds and amenities are located at within Premises of Construction area ...**see layout map for details.**

5. Implementation

Traffic Management for this site will be in accordance with the

- TCAWS Traffic Control at Worksites Manual
- Australian Standard AS1742.3,
- Workplace Health and Safety Traffic Management for Construction or Maintenance Work Code of Practice 2008
- AS/NZS ISO 31000:2000 Risk Management – Principles and Guidelines

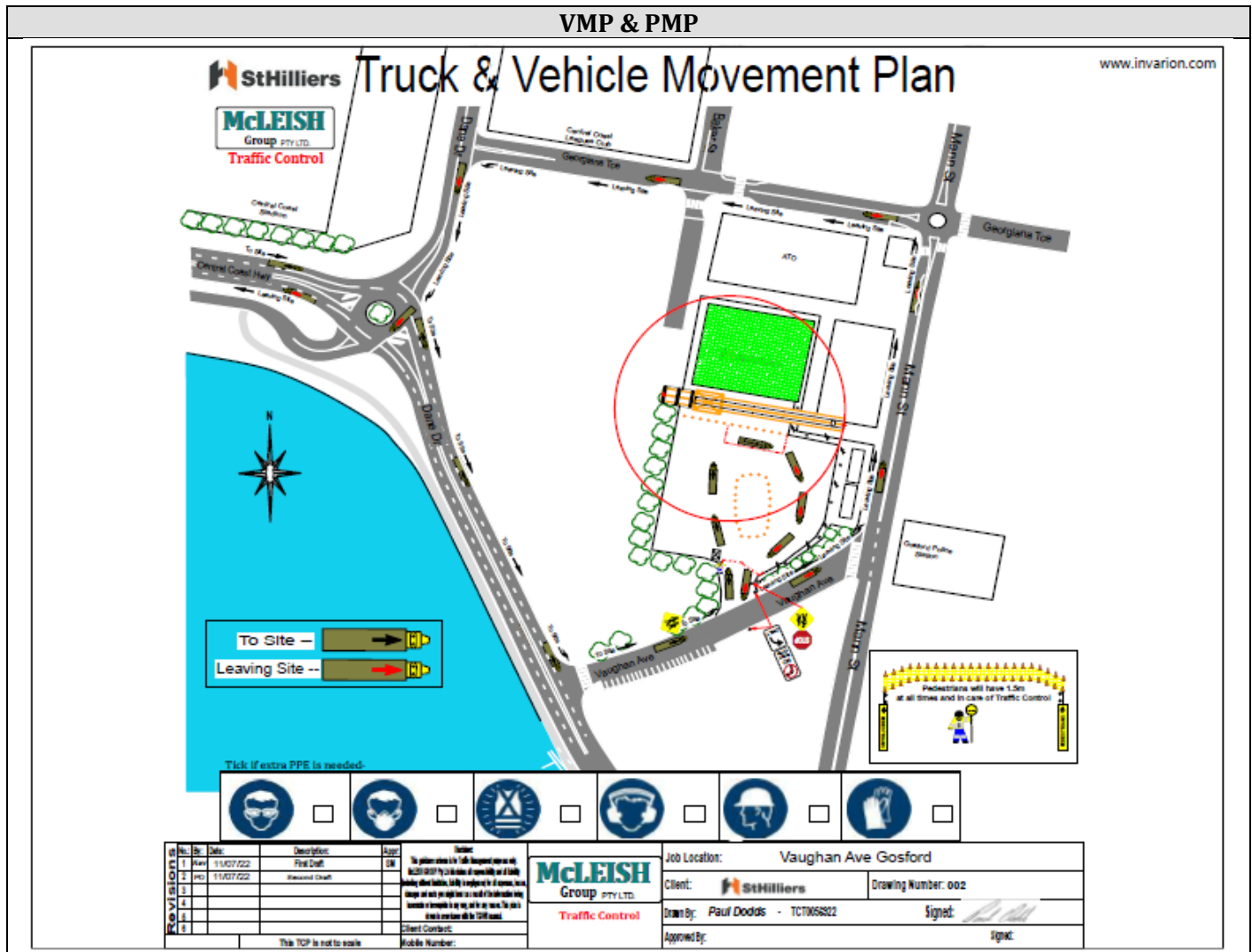
Before the Routine Services or any Ordered Work begins McLEISH GROUP PTY LTD will carry out Risk Assessment (see Risk Management Plan) and develop treatments and Plans to eliminate or mitigate hazards.

6. Management of the CTPMSP

McLEISH GROUP Pty Ltd. has warranted that it will provide/supply people, materials, resources and systems to properly perform the Services relating to all traffic and pedestrian management.

7. Traffic Control Plans

MCLEISH GROUP Pty Ltd. will implement approved Traffic Control measures for any Services which disrupt free traffic movement. These measures will include Vehicle Movement Plans ("VMP"), Pedestrian Management Plan ("PMP") and Traffic Control Plans ("TCP") as required and will encompass vehicle movement and pedestrian movement for both construction resources and the general public. Any property accesses affected by the construction activities will also be identified on the VMP, PMP & TCPs.



To Site Access.

Process along "Central Coast H'way" across "Brian McGowan Bridge", follow the "Central Coast H'way" past "Dane Drive". Keeping to your left lane travel approx 180m, turning left onto "Vaughan St" St Hilliers Construction site is approx 70 metres on the left. All vehicles entering site are to proceed into the site,

Note:

that there is NO on street parking or standing aloud....No Queuing on Vaughan Street.





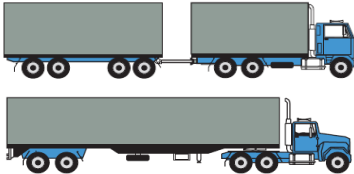
Exiting from Site.

Exit constructions site watching for pedestrians and turning left onto "Vaughan St." Proceed east along "Vaughan St" for approx 50m to "Mann St" turning left.

Travelling along Mann St for approx 155m thru shopping area, being aware of pedestrians and local traffic conditions. Turn left into "Georgiana Terrace" thru the roundabout with caution.

Carry on driving along Georgiana Terrace for approx 200m thru local shopping district to “Dane Drive” where you turn left onto Dane Drive and proceed to Central Coast H’way where you turn right at the major roundabout to cross the Brian McGowan Bridge and continue along to your end destination.

Types of Vehicles to Site

"C" Car/Ute/Van & "R" Motor Bike		"C" – Vehicles up to 4.5 Tonne GMV vehicles that seat up to 12 adults, including the driver. "R" – Rider Licence motorcycles & scooters
LR Light Rigid		GVM GVM not greater than 8T. Any towed trailer must not weigh greater than 9T GVM
MR Medium Rigid		Number of Axles – 2 GVM - not greater than 8T. Any towed trailer must not weigh greater than 9T GVM
HR Heavy Rigid		Number of Axles – 3 or more GVM - greater than 8T. Any towed trailer must not weigh greater than 9T GVM. A three axle rigid vehicle with a GVM of more than 15 tonnes – excluding bobtail prime mover.
HC Heavy Combination		Number of Axles – 3 or more GVM - Any towed trailer with GVM of more than 9T. A three axle prime mover with a minimum two axle semi-trailer or a heavy rigid vehicle plus trailer over nine tonnes GVM

Driver Management.

Driving a heavy or commercial vehicle can be demanding. It is important to abide by the driver fatigue laws and regulations and generally take care of your health well as in the interest of public safety and your own wellbeing

Things to be aware of and look for:

Driver Fatigue Signs

Yawning	Poor concentration	Tired or sore eyes
Restlessness	Drowsiness	Making steering corrections
Slow reactions	Boredom	Feeling Irritable
Taking wrong turns	Missing road signs	Microsleeps
Difficulty staying in the lane	Nodding off for a short time	

PEDESTRIANS Impacts

When planning construction activities, St Hilliers will consider the following:

- Number of pedestrians.
- Type of pedestrian activity: whether commercial, retail, residential or recreational.
- Origin and destination points of the pedestrians, as well as their desired travel path.
- Needs of vulnerable pedestrians such as young children, the elderly, vision impaired, disabled people, people with prams and trolleys.
- Proximity of pedestrian generation developments such as schools, shopping centres, railway stations, bus terminals etc.

Understanding that unlike motor vehicles, pedestrian movements within and outside of the road reserve are generally unrestricted, with free access available to most areas. Because of this and to ensure provision of a safe environment to all pedestrians, St Hilliers will ensure provisions will be made for the safe ongoing access by pedestrians.

Where feasible, St Hilliers aim will be to maintain all existing pedestrian crossing facilities. Where this cannot be achieved, alternative facilities which are a similar standard to the present facility will be provided. Types

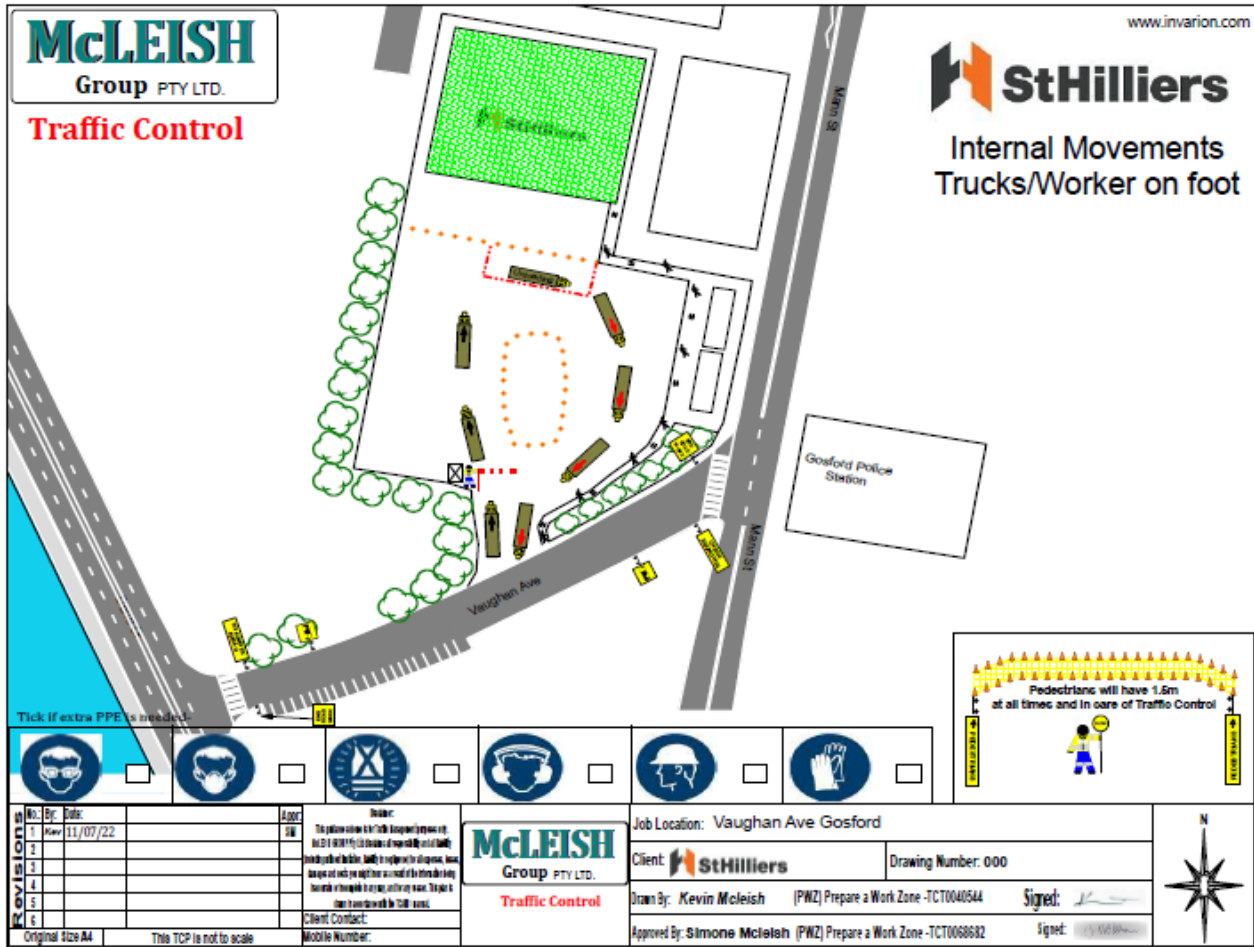
McLEISH
Group PTY LTD.

Traffic Control

www.invarion.com

St Hilliers

Internal Movements
Trucks/Worker on foot



8. Safe Work Method Statements – SWMS

Safe-Work-Method-Statement

(TRAFFIC-CONTROL-&-COVID-19-Pandemic)

ABN: 476-1337-6980
PO Box 8088
Tumbi Umbi
2261

Project:		Date:	
General Description of Works	Set-Up, Monitor & Removal of Traffic Control --- Day/Night	SWMS Created & Approved By:	Kevin-McLeish 07/07/2022
Location:	Vaughan Ave-Gosford	Manager Name:	Kevin-McLeish
Client:	St-Hilliers	Phone No:	0417-852-709

Competency/Relevant Training & Experiences		Codes of Practice, Legislation, Standards & Management Plans/Specifications	
1	Workcover Construction Induction --- White Card	NSW WH&S Act 2011 No.10	WHS Regulations 2011
2	1A Drivers Licence	Aust Standards: AS1742.3	TCAWS Traffic Control at Work Sites Manual
3	Site Specific Induction	Road Management Act 2004	Road Transport Act 2013 No.18
4	Apply Traffic Control Plans Course (Yellow Card)	First Aid in the Workplace 2016	AS/NZS ISO 31000:2000 Risk Management
5	Traffic Controller Course (Blue Card)	WHS Consultation, Cooperation and Coordination 2019	
6	Prepare a work zone Traffic Management plan --- COVID-19 Pandemic Response Plan	SWMS Version 1.7 Updated 07/07/2022	Reviewed every six months Next Review: 07/01/2023

Hazard & Risk Control Checklist

TASK or Condition	V/N/Yes	Comments	TASK or Condition	V/N/Yes	Comments
Does Work Force have necessary Skills			Is the SWMS the latest version 1.8		
Have All staff undergone OH&S Induction (White Card)			Have all tickets/permits etc been attached recorded		
Is sufficient Warning Signs/Cones & Equipment available			Have all relevant authorities been notified		
Are Incident Report forms available --- (Provide Location)			Are Personnel aware of Manual Handling Hazards		
Hi Vis/Reflective Vests/clothing & PPE being use by all personnel			Is Safety footwear in use by ALL personnel		

The use of the following PPE should be considered when undertaking these tasks		Protective Footwear		Gloves		Face Mask		Face Shield		Sun Protection		Wash/Sanitise Hands			
Item No	Name (Print)	Signature	Date	Item No	Name (Print)	Signature	Date	Item No	Name (Print)	Signature	Date	Item No	Name (Print)	Signature	Date
1				5											
2				6											
3				7											
4				8											

Daily pre-start meetings will be held to ensure all workers are informed of control measures and additional safety hazards & controls to be noted on toolbox form

SWMS-Review-and-Discussion-of-Hazards/Risks-by-all-employees

- 1.→ Identify all risks associated with the project, their possible consequences and the likelihood that such consequence may/could occur.
- 2.→ Consider the areas and effects on Human Health and Safety, Environment and Production (in that priority).
- 3.→ Rate each risk by using the Matrix below.
- 4.→ Consider and implement controls to reduce the identified risk to an acceptable level.

RISK-RATING-MATRIX

Consequences-of-the-occurrences	Almost-certain-to-happen Could happen anytime	Likely-to-happen At some point in time	Moderate Possible it might happen	Unlikely Not likely to happen	Rare Could happen, but probably never will
Could kill, cause permanent disability or ill health or very serious damage	1	2	4	7	11
Could cause serious long term illness or injury or major damage	3	5	8	12	16
Could require medical attention and several days off work	6	9	13	17	20
Could cause first aid injury or minor damage	10	14	18	21	23
Couldn't cause injury or damage	15	19	22	24	25
Critical/High Risk Moderate Risk/Low Risk					

HIERARCHY-OF-RISK-CONTROL The hierarchy of controls must be applied in the order below for all identified hazards.
Level-1 Eliminate the Hazard
Level-2 Substitute the Hazard with something safer
Level-3 Isolate the hazard from people. Reduce the Risk through engineering controls
Level-4 Reduce exposure to the Hazard using administrative actions.
Level-5 Use personal protective equipment
The control measures that you put in place should be reviewed regularly to make sure they work as planned

COVID-19-Pandemic-Awareness-&-Risks

How-does-COVID-19-spread?	COVID-19 can remain for several hours to days on certain surfaces, for example: (times can vary depending on environmental factors)
→ Through the air by coughs and sneezes	→ Up to four hours on copper
→ Touching an object or surface with the virus on it, then touching your eyes, nose or mouth	→ Up to 24 hours on cardboard
→ Close contact with those who are sick	→ Up to two to three days on plastic and stainless steel

Job-Steps	Potential Hazard	Risk-Rating	Risk-Control-Measures	Residual-Risk-Rating	Responsibility/Action-Person
COVID-19-Pandemic-Awareness-&-Risks					
Pre-starts, toolboxes (Field Works)	Contracting and/or spreading the COVID-19 virus	4	<ul style="list-style-type: none"> → Maintain the social distancing requirements (min 1.5m between people) at all times → Avoid exchanging items, such as Back, Shoes, Paperwork, Pens and Pencils → For face-to-face pre-starts Supervisors are to brief their work crew as per normal and after the pre-start write clearly the attendees' names on the pre-start form, as proof of attendance and understanding → Avoid shaking hands and other physical greetings → When performing work there is to be, as reasonably practical to do so, no mixing of field crews → For the sake of clarity field crews can work within 1.5m of each other but are to avoid direct physical contact/transfer as much as reasonably practical → When Field Crews work within 1.5m consider additional controls i.e. PPE, wiping down of tools etc → Field crews are to maintain their 1.5m social distancing from the public and any site visitors they may have. Note – Site visits can be conducted in pairs i.e. Clients, Project leaders, HSE staff as this constitutes their work group → Field crews to remind visitors of the social distancing requirement i.e. 1.5m apart at all times → Either at the start of day, or when planning your work, ensure you have the equipment needed to apply effective personal hygiene measures <ul style="list-style-type: none"> → a. As a minimum, all field staff are to have readily available: <ul style="list-style-type: none"> → a.1. Hand soap or alcohol-based hand rub → a.2. It is recommended they also carry: <ul style="list-style-type: none"> → b. Alcohol-based wipes for wiping down surfaces or equipment → c. Disposable gloves → d. P2 or N95 masks → Avoid touching your face while completing your work and clean your hands regularly → At the end of the job clean your hands with alcohol-based hand rub or soap → Note about masks: <ul style="list-style-type: none"> → If you are healthy you do not need to wear a mask → Masks are effective only when used in combination with frequent hand-cleaning with alcohol-based hand rub or soap and water → If you wear a mask, then you must know how to use it and dispose of it properly → Before putting on a mask, clean hands with alcohol-based hand rub or soap and water → Replace the mask with a new one as soon as it is damp and do not re-use single-use masks → Where possible, maintain at least 1.5 metre distance from the people you interact with → Where possible, maintain at least 1.5 metre distance from members of the public → Avoid direct contact, such as shaking hands → Avoid touching your face while completing your work and clean your 	8	Team Leader or Supervisor
General – (Field Works)	Contracting and/or spreading the COVID-19 virus	4		8	All personnel
Working in a public space	Contracting and/or spreading the COVID-19 virus	4		8	All personnel

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Safe-Work-Method Statement

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Operating a vehicle	Contracting and/or spreading the COVID-19 virus	4	<p>hands regularly.</p> <p>→ Wipe down surfaces in public areas with alcohol wipes before touching them and wipe down tools and equipment if they have been handled by others.</p> <p>→ At the end of the job clean your hands with alcohol based hand rub or soap.</p> <p>→ Where practical to do so set up an exclusion zone around your worksite to prevent unauthorised access.</p> <p>→ Where possible minimise the amount of people in a vehicle.</p> <p>→ If more than one person has to travel in a work vehicle consider the use of PPE i.e. disposable gloves, masks.</p> <p>→ Vehicle occupants are to clean hands with sanitiser/alcohol based hand rub or soap before and after they have been in a vehicle.</p> <p>→ At the start and end of shifts disinfect your vehicles common touch points.</p> <p>→ Steering wheel & Key fob</p> <p>→ Door handles (both interior and external)</p> <p>→ Gear sticks, Armrests and Switches</p> <p>→ Grab bars</p> <p>→ Any other points regularly contacted with</p> <p>→ Avoid swapping of work vehicles as much as practical.</p> <p>When refuelling your vehicle disinfect / wash your hands before and after refuelling, use disposable gloves if available.</p> <p>Contact Client Manager/Supervisor etc and ask the following questions;</p> <p>→ a. is there anyone on site who is unwell and if so do you have any reason to suspect that they have been exposed to someone with or suspected to have COVID-19.</p> <p>→ b. is there anyone on site who is in self-isolation due to having had contact with someone with suspected or diagnosed COVID-19.</p> <p>→ c. is there anyone in the house who is in the "At Risk Group" (refer to list above).</p> <p>If the Client Manager/Supervisor etc reply YES to the above questions you are to advise that you will have to reschedule the works until approval has been given to proceed by the Manager/Project Manager.</p> <p>Additionally, before making entry into any premises ask the above questions need to be asked again.</p> <p>Note - When asking the questions face to face endeavour to stand approx. 1.5 metres away.</p> <p>If the End User, Building Manager or Body Corporate says yes, the contact details are to be logged and entered within a centralised project COVID-19 register.</p> <p>In the event a field worker attends an End Users premises and the End User self-discloses that they or a household member have recently returned from overseas travel, or they or a household member are in self-isolation due to having contact with someone with a confirmed or suspected case of COVID-19 (COVID-19) the Field Worker will take the following steps;</p> <p>→ 1. Advise the customer that you are unable to complete the work and that the appointment will be rescheduled.</p> <p>→ 2. Leave the premises and undertake personal hygiene measures such as washing hands with soap and water.</p> <p>→ 3. Enter an At Risk Observation into the system detailing: (for those that have access)</p>	8	All personnel
Client Interaction	Contracting and/or spreading the COVID-19 virus	4	<p>→ a. is there anyone on site who is unwell and if so do you have any reason to suspect that they have been exposed to someone with or suspected to have COVID-19.</p> <p>→ b. is there anyone on site who is in self-isolation due to having had contact with someone with suspected or diagnosed COVID-19.</p> <p>→ c. is there anyone in the house who is in the "At Risk Group" (refer to list above).</p> <p>If the Client Manager/Supervisor etc reply YES to the above questions you are to advise that you will have to reschedule the works until approval has been given to proceed by the Manager/Project Manager.</p> <p>Additionally, before making entry into any premises ask the above questions need to be asked again.</p> <p>Note - When asking the questions face to face endeavour to stand approx. 1.5 metres away.</p> <p>If the End User, Building Manager or Body Corporate says yes, the contact details are to be logged and entered within a centralised project COVID-19 register.</p> <p>In the event a field worker attends an End Users premises and the End User self-discloses that they or a household member have recently returned from overseas travel, or they or a household member are in self-isolation due to having contact with someone with a confirmed or suspected case of COVID-19 (COVID-19) the Field Worker will take the following steps;</p> <p>→ 1. Advise the customer that you are unable to complete the work and that the appointment will be rescheduled.</p> <p>→ 2. Leave the premises and undertake personal hygiene measures such as washing hands with soap and water.</p> <p>→ 3. Enter an At Risk Observation into the system detailing: (for those that have access)</p>	8	Team Leader or Supervisor

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			<ul style="list-style-type: none">→ • SMR 4.11 Public Health Exposure ¶→ • Description— COVID-19 ¶→ • Location of incident ¶→ • Corrected at time of observation i.e. rescheduled works, undertake recommended hygiene protocols ¶→ • 4. Record location within the Telco COVID-19 register. ¶ <p>When the work has been approved to proceed ensure the following is carried out: ¶</p> <ul style="list-style-type: none">→ • While it is currently not a mandatory requirement, if a customer requests that you wear a face mask please do so. If you do not have one, contact your supervisor. If you have exhausted all options of obtaining one, you should not proceed with the job. For instructions on how to correctly fit a face mask refer here: Fitting a face mask ¶→ • Explain to the end user (customer) the other precautions which work requires you to apply for your safety and for theirs. ¶ <p>This includes the precautions outlined below: ¶</p> <ul style="list-style-type: none">→ • Maintain at least one and a half (1.5) metre distance from the people you interact with. Be mindful of your proximity to end users (customers) and actions that may require you to interact with them, including avoiding handshakes. ¶→ • Wear disposable gloves. If not available, before and after touching surfaces wipe them down with alcohol wipes, household disinfectant, or a damp cloth consisting of soap and water. Surfaces include benches, tables, countertops, light switches, door knobs or handles. ¶→ • Avoid touching your face while completing your work and clean your hands regularly. ¶	
			<p>COVID-19 can remain for several hours to days on certain surfaces, for example: ¶</p> <ul style="list-style-type: none">→ • Up to four hours on copper ¶→ • Up to 24 hours on cardboard ¶→ • Up to two to three days on plastic and stainless steel ¶	
			<p>How does COVID-19 spread? ¶</p> <ul style="list-style-type: none">→ • Through the air by coughs and sneezes ¶→ • Touching an object or surface with the virus on it, then touching your eyes, nose or mouth ¶→ • Close contact with those who are sick ¶	

High-Vision	Hard Hat	Hearing Protection	Eye Protection	Protective Footwear	Gloves	Face Mask	Face Shield	Sun Protection	Wash/Sanitize Hands

..... Page Break

Job-Step ^a	Potential Hazard ^a	Risk Rating ^a	Risk Control Measures ^a	Residual Risk Rating ^a	Responsibility/Action Person ^a
MOBILISATION TO SITE^a					
Prior to leaving depot - Load / prepare vehicle. ^a	Lack of experience [¶]	4 ^a	<ul style="list-style-type: none"> → All workers must be company inducted prior to commencement and hold a construction induction licence. [¶] → New workers will be assigned a buddy through the training phase. [¶] → Approved traffic controllers ONLY ^a → Conduct a pre-start on plant before commencing shift. [¶] → Ensure equipment is clean, serviceable and loaded onto vehicle and that there is sufficient equipment to comply with Traffic Control Plan. ^a → Ensure emergency equipment is not out of date and in vehicle ^a 	7 ^a	Management [¶]
^a	Insufficient in-adequate or unserviceable equipment for task [¶]	6 ^a	<ul style="list-style-type: none"> → Traffic controllers ONLY ^a → Conduct a pre-start on plant before commencing shift. [¶] → Ensure equipment is clean, serviceable and loaded onto vehicle and that there is sufficient equipment to comply with Traffic Control Plan. ^a → Ensure emergency equipment is not out of date and in vehicle ^a 	9 ^a	All personnel ^a
^a	No first aid kit, fire extinguisher or emergency items out of date. ^a	6 ^a	<ul style="list-style-type: none"> → Traffic controllers ONLY ^a → Conduct a pre-start on plant before commencing shift. [¶] → Ensure equipment is clean, serviceable and loaded onto vehicle and that there is sufficient equipment to comply with Traffic Control Plan. ^a → Ensure emergency equipment is not out of date and in vehicle ^a 	9 ^a	Management [¶] Team Leader [¶] or Supervisor ^a
Preparation of Traffic Control Plan (TCP) ^a	Traffic incidents due to inappropriate Traffic Control Plan (TCP). ^a	5 ^a	<ul style="list-style-type: none"> → Plans to be prepared by personnel trained & qualified to design and preparing Traffic Control Plan (TCP) etc. ^a → Only accredited traffic controllers (certified by RTA) shall control traffic and set out traffic control signs as per RTA Traffic Control at Work sites v4 (June 2010). [¶] → Prior to the start of works the Team Leader will assess and record the hazards on site and will discuss the control measures to be implemented with the traffic controllers. [¶] → Traffic Controllers must wear the Nominated approved PPE & Clothing etc [¶] → Traffic controllers to ensure all paperwork is completed before set up commences ^a → Adequate Lighting [¶] → Ensure personnel have correct PPE & use it at all times for the tasks they are undertaking [¶] → Use appropriate Warning Lights ^a → Consult SWMS [¶] → Re-emphasise that safety is of the highest priority. [¶] → Address each step in this SWMS. [¶] → Consult methods and hierarchy of controls suggested by attendees that would make the tasks safer and implement agreed changes. [¶] → Have all personnel complete the Daily Toolbox Register and Worksite Daily Risk and Hazard Assessment Form F-51 and check to ensure that persons carrying out tasks requiring certification are certified to do so ^a → Wear high Vis clothing, Vest & appropriate PPE [¶] → Use appropriate Warning Lights [¶] → Night Works - White reflective Overalls/clothing & LED Night Wand [¶] → Ensure Vehicle is between workers & Live Traffic ^a 	8 ^a	Team Leader [¶] or Supervisor ^a P/Manager [¶] Supervisors ^a
^a	Poor Lighting (Night Work) [¶]	22 ^a	<ul style="list-style-type: none"> → Adequate Lighting [¶] → Ensure personnel have correct PPE & use it at all times for the tasks they are undertaking [¶] → Use appropriate Warning Lights ^a → Consult SWMS [¶] → Re-emphasise that safety is of the highest priority. [¶] → Address each step in this SWMS. [¶] → Consult methods and hierarchy of controls suggested by attendees that would make the tasks safer and implement agreed changes. [¶] → Have all personnel complete the Daily Toolbox Register and Worksite Daily Risk and Hazard Assessment Form F-51 and check to ensure that persons carrying out tasks requiring certification are certified to do so ^a → Wear high Vis clothing, Vest & appropriate PPE [¶] → Use appropriate Warning Lights [¶] → Night Works - White reflective Overalls/clothing & LED Night Wand [¶] → Ensure Vehicle is between workers & Live Traffic ^a 	25 ^a	Team Leader [¶] or Supervisor ^a
^a	Misinterpret instructions ^a	22 ^a	<ul style="list-style-type: none"> → Adequate Lighting [¶] → Ensure personnel have correct PPE & use it at all times for the tasks they are undertaking [¶] → Use appropriate Warning Lights ^a → Consult SWMS [¶] → Re-emphasise that safety is of the highest priority. [¶] → Address each step in this SWMS. [¶] → Consult methods and hierarchy of controls suggested by attendees that would make the tasks safer and implement agreed changes. [¶] → Have all personnel complete the Daily Toolbox Register and Worksite Daily Risk and Hazard Assessment Form F-51 and check to ensure that persons carrying out tasks requiring certification are certified to do so ^a → Wear high Vis clothing, Vest & appropriate PPE [¶] → Use appropriate Warning Lights [¶] → Night Works - White reflective Overalls/clothing & LED Night Wand [¶] → Ensure Vehicle is between workers & Live Traffic ^a 	25 ^a	Team Leader [¶] or Supervisor ^a
Checking Equipment ^a	Live Traffic ^a	13 ^a	<ul style="list-style-type: none"> → Adequate Lighting [¶] → Ensure personnel have correct PPE & use it at all times for the tasks they are undertaking [¶] → Use appropriate Warning Lights ^a → Consult SWMS [¶] → Re-emphasise that safety is of the highest priority. [¶] → Address each step in this SWMS. [¶] → Consult methods and hierarchy of controls suggested by attendees that would make the tasks safer and implement agreed changes. [¶] → Have all personnel complete the Daily Toolbox Register and Worksite Daily Risk and Hazard Assessment Form F-51 and check to ensure that persons carrying out tasks requiring certification are certified to do so ^a → Wear high Vis clothing, Vest & appropriate PPE [¶] → Use appropriate Warning Lights [¶] → Night Works - White reflective Overalls/clothing & LED Night Wand [¶] → Ensure Vehicle is between workers & Live Traffic ^a 	20 ^a	Team Leader [¶] or Supervisor ^a

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Safe Work Method Statement

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Safe Work Method Statement

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□	Manual Handling ^a	9 ^a	<ul style="list-style-type: none"> → Follow Manual Handling training procedures.^a 	17 ^a	Team Leader ^a or Supervisor ^a
□	Wet Weather ^a	13 ^a	<ul style="list-style-type: none"> → Wear high-Vis clothing, Vest & appropriate PPE[¶] → Use appropriate Warning Lights[¶] → Ensure Vehicle is between worker & Live Traffic^a 	20 ^a	Team Leader ^a or Supervisor ^a
□	Stopping Vehicle in safe Location ^a	6 ^a	<ul style="list-style-type: none"> → Wear high-Vis clothing, Vest & appropriate PPE[¶] → Use appropriate Warning Lights[¶] → Night Works ~ White reflective Overalls clothing & LED Night-Wand[¶] → Ensure Vehicle is between workers & Live Traffic^a → Use appropriate Warning Lights[¶] → Change Lanes Safely[¶] → Night Works ~ White reflective Overalls clothing & LED Night-Wand^a 	13 ^a	Team Leader ^a or Supervisor ^a
□	Darkness ^a	9 ^a	<ul style="list-style-type: none"> → Use appropriate Warning Lights[¶] → Change Lanes Safely[¶] → Night Works ~ White reflective Overalls clothing & LED Night-Wand^a 	17 ^a	Team Leader ^a or Supervisor ^a
SITE SETUP AND PREPARATION^a					
□	Exiting & Entering Vehicles ^a				
□	Live Traffic ^a Visibility ^a	9 ^a	<ul style="list-style-type: none"> → Wear high-Vis clothing, Vest & appropriate PPE[¶] → Use appropriate Warning Lights[¶] → Night Works ~ White reflective Overalls clothing & LED Night-Wand[¶] → Ensure Vehicle is between workers & Live Traffic[¶] → Work with Observer (buddy System) if required^a → When required, refer to the traffic/pedestrian management plans.[¶] → Signs, barricades to be utilised^a 	17 ^a	All personnel ^a
□	Pedestrians entering [¶] the work site ^a	6 ^a	<ul style="list-style-type: none"> → Work with Observer (buddy System) if required^a → Signs, barricades to be utilised^a 	17 ^a	All personnel ^a
□	Live Traffic ^a Visibility ^a	6 ^a	<ul style="list-style-type: none"> → Wear high-Vis clothing, Vest & appropriate PPE[¶] → Use appropriate Warning Lights[¶] → Night Works ~ White reflective Overalls clothing & LED Night-Wand[¶] → Ensure Vehicle is between workers & Live Traffic^a 	13 ^a	All personnel ^a
□	Manual Handling ^a	9 ^a	<ul style="list-style-type: none"> → Follow Manual Handling training procedures.^a 	17 ^a	All personnel ^a
□	Weather Conditions [¶] Visibility/Darkness ^a	9 ^a	<ul style="list-style-type: none"> → Signs and devices must be installed in accordance with TCP and appropriate to with current weather conditions.[¶] → Signs shall be suitably placed with regard to sight distance, motorists approaching at high speeds, queue lengths and visibility.[¶] → Work with Observer (buddy System) if required[¶] → Wear high-Vis clothing, Vest & appropriate PPE[¶] → Secure signs using sand bags etc ~ Windy conditions[¶] → Be aware of Terrain ~ Slips, Trips & Falls[¶] → White reflective Overalls LED Night-Wand[¶] → Ensure Warning Lights/ Beacons are ON[¶] → Ensure Vehicle is between worker & Live Traffic[¶] → Adequate drinking facilities, shelter (where practical) & potential job rotation.[¶] → Sunscreen, wide brim hat & long sleeve shirt.^a 	17 ^a	All personnel ^a

□	Sign/Cones etc falling off vehicle Slips, trips and falls	18	<ul style="list-style-type: none"> → Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times → Keep site tidy and store away unused tools/items → Keep work boots free of mud etc. → Good housekeeping to be maintained at all times → Work with Observer (buddy system) as required → Wear high vis clothing, vest & appropriate PPE → Use appropriate Warning Lights → Night Works - White reflective Overalls/clothing & LED Night Wand → Ensure Vehicle is between workers & Live Traffic → Follow Manual Handling training procedures 	23	All personnel
□	Layout/Placement of Tapers	6	<ul style="list-style-type: none"> → Keep site tidy and store away unused tools/items → Keep work boots free of mud etc. → Good housekeeping to be maintained at all times → Work with Observer (buddy system) as required → Wear high vis clothing, vest & appropriate PPE → Use appropriate Warning Lights → Night Works - White reflective Overalls/clothing & LED Night Wand → Ensure Vehicle is between workers & Live Traffic → Follow Manual Handling training procedures 	13	All personnel
□	Manual Handling	9	<ul style="list-style-type: none"> → Keep site tidy and store away unused tools/items → House keeping → Keep work boots free of mud etc. → Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times → Keep site tidy and store away unused tools/items → Wear High Vis Clothing, Vest etc. & appropriate PPE → Secure signs using sand bags etc → Be aware of Terrain - Slippery/muddy, Tips/Falls → White reflective Overalls/Clothing & LED Night Wand → Ensure Warning Lights are ON & working correctly → Ensure Vehicle is between worker & Live Traffic → Flashing Arrow to be Used on Freeways/Motorway or as per TCP → Flashing Arrows should be in place before workers attempt to place 700mm Cones/Bollards for Taper generally on foot → Min. Taper lengths and positioning of advanced warning signs and cones as per TCP/TCAWS Manual ver 4 Guidelines or AS1742.3 → Adequate drinking facilities, shelter (where practical) & potential job rotation → Sunscreen, wide brim hat & long sleeve shirt 	17	All personnel
□	Slips, trips and falls	14	<ul style="list-style-type: none"> → Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times → Keep site tidy and store away unused tools/items → Wear High Vis Clothing, Vest etc. & appropriate PPE → Secure signs using sand bags etc → Be aware of Terrain - Slippery/muddy, Tips/Falls → White reflective Overalls/Clothing & LED Night Wand → Ensure Warning Lights are ON & working correctly → Ensure Vehicle is between worker & Live Traffic → Flashing Arrow to be Used on Freeways/Motorway or as per TCP → Flashing Arrows should be in place before workers attempt to place 700mm Cones/Bollards for Taper generally on foot → Min. Taper lengths and positioning of advanced warning signs and cones as per TCP/TCAWS Manual ver 4 Guidelines or AS1742.3 → Adequate drinking facilities, shelter (where practical) & potential job rotation → Sunscreen, wide brim hat & long sleeve shirt 	21	All personnel
□	Weather Conditions (Wind/Rain etc) Day/Night works	9	<ul style="list-style-type: none"> → Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times → Keep site tidy and store away unused tools/items → Wear High Vis Clothing, Vest etc. & appropriate PPE → Secure signs using sand bags etc → Be aware of Terrain - Slippery/muddy, Tips/Falls → White reflective Overalls/Clothing & LED Night Wand → Ensure Warning Lights are ON & working correctly → Ensure Vehicle is between worker & Live Traffic → Flashing Arrow to be Used on Freeways/Motorway or as per TCP → Flashing Arrows should be in place before workers attempt to place 700mm Cones/Bollards for Taper generally on foot → Min. Taper lengths and positioning of advanced warning signs and cones as per TCP/TCAWS Manual ver 4 Guidelines or AS1742.3 → Adequate drinking facilities, shelter (where practical) & potential job rotation → Sunscreen, wide brim hat & long sleeve shirt 	17	All personnel
□	Sign/Cones falling off vehicle	14	<ul style="list-style-type: none"> → Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times → Keep site tidy and store away unused tools/items → Keep work boots free of mud etc → Wear High Vis Clothing, Vest etc. & appropriate PPE → Follow Manual Handling training procedures → Secure signs using sand bags etc → Be aware of Terrain - Slippery/muddy, Tips/Falls → White reflective Overalls/Clothing & LED Night Wand → Ensure Warning Lights are ON & working correctly → Ensure Vehicle is between worker & Live Traffic → Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times 	21	All personnel

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Placement of Lane Delimiters	Live Traffic (speed)	6	<ul style="list-style-type: none"> Work with Observer (buddy System) as required Wear High-Vis clothing, Vest & appropriate PPE Use appropriate Warning Lights Night Works - White reflective Overalls/clothing & LED Night-Wand Ensure Vehicle is between workers & Live Traffic Follow Manual Handling training procedures 	13	All personnel
	Manual Handling	9	<ul style="list-style-type: none"> Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times Keep site tidy and store away unused tools/items Wear High-Vis Clothing, Vest etc. & appropriate PPE Secure signs using sand bags etc Be aware of Terrain - Slippery/muddy, Tips/Falls White reflective Overalls/Clothing & LED Night-Wand Ensure Warning Lights are ON & working correctly Ensure Vehicle is between worker & Live Traffic Flashing Arrow to be Used on Freeways/Motorway or as per TCP Flashing Arrows should be in place before workers attempt to place 700mm Cones/Bollards for Taper generally on foot Min. Taper lengths and positioning of advanced warning signs and cones as per TCP/CAWS Manual ver4 Guidelines or AS1742.3 Adequate drinking facilities, shelter (where practical) & potential job rotation Sunscreen, wide brim hat & long sleeve shirt 	17	All personnel
	Weather Conditions (Wind/Rain etc) Day/Night works	9		17	All personnel
	Sign/Cones etc falling off Vehicle Slips, Trips & Falls		<ul style="list-style-type: none"> Work with Observer (buddy System) as required Wear High-Vis Clothing/Vest & appropriate PPE Follow Manual Handling training procedures Be aware of Terrain - Slippery/muddy, Tips/Falls White reflective Overalls/Clothing & LED Night-Wand Ensure Warning Lights are ON Ensure Vehicle is between worker & Traffic Loading/Unloading signs/cones ensure side/rear tailgates up & equipment secure at all times Take into account oversize vehicles and buses Flashing Arrow used on Freeways/Motorway or as per TCP 700mm Cones/Bollards are placed by hand whilst walking behind the back of T/Control vehicle with beacon lights flashing Spacing of cones/bollards depends on traffic volumes & or the approach speeds. Use RTA guidelines as to correct spacing. Windy conditions cones/bollards placed at slight angle in direction of traffic not 90deg Secure Shift markers to barrier boards via clamp/wire, use sand bags to secure 'A' frame to leg to pavement 	21	All personnel
	Live Traffic	14		21	All personnel
PROCESS					

Slowing/Speeding/Traffic	Live Traffic/Speeding	6 ^a	<ul style="list-style-type: none"> → Work with Observer (buddy System) as required → Wear High-Vis clothing, Vest & appropriate PPE → Use appropriate Warning Lights → Night Works ~ White reflective Overalls/clothing & LED Night Wand → Ensure Vehicle is between workers & Live Traffic → Correct amount of traffic controllers used on job → Use Traffic Controller personnel w/ Stop/Slow Batons along work site if speeds are NOT being enforced with signage alone 	13 ^a	All personnel
Monitoring/ Surveillance of Traffic Controls	Live Traffic	13 ^a	<ul style="list-style-type: none"> → Work with Observer (buddy System) as required → Wear High-Vis clothing, Vest & appropriate PPE → Use appropriate Warning Lights → Night Works ~ White reflective Overalls/clothing & LED Night Wand → Ensure Vehicle is between workers & Live Traffic → Traffic controllers to stop all traffic (when safe) to let emergency vehicles through the job site → Traffic controllers must monitor the changes in traffic flow conditions and patterns and change/adapt when appropriate → Follow Manual Handling training/procedures 	20 ^a	All personnel
	Manual Handling	13 ^a	<ul style="list-style-type: none"> → Keep site tidy and store away unused tools/items → Wear High-Vis Clothing, Vest etc. & appropriate PPE → Secure signs using additional sand bags etc → Be aware of Terrain ~ Slippery/muddy, Tips/Falls → White reflective Overalls/Clothing & LED Night Wand → Ensure Warning Lights are ON & working correctly → Ensure Vehicle is between worker & Live Traffic → Flashing Arrow to be Used on Freeways/Motorway or as per TOP → Adequate drinking facilities, shelter (where practical) & potential job rotation → Sunscreen, wide brim hat & long sleeve shirt 	20 ^a	All personnel
	Weather Conditions (Wind/Rain etc) Day/Night works	14 ^a	<ul style="list-style-type: none"> → Traffic controllers MUST be rotated or take a break every two hours for 15 mins → Pedestrian signs in place and pedestrians have Min 1.5m of walkway at all times to ensure their safety → Consider disabled persons and their access, taking into account school children, bus routes, including stops and terminals → Work with Observer (buddy System) if required → Always be polite and courteous when dealing with members of the public → Never get involved in a physical confrontation → Contact the police if you feel threatened & notify supervisor/Team Leader 	21 ^a	All personnel
Dealing with irate public	Physical and/or verbal abuse	5 ^a	<ul style="list-style-type: none"> → Flashing Arrow to be Used on Freeways/Motorway or as per TOP → Adequate drinking facilities, shelter (where practical) & potential job rotation → Sunscreen, wide brim hat & long sleeve shirt → Traffic controllers MUST be rotated or take a break every two hours for 15 mins → Pedestrian signs in place and pedestrians have Min 1.5m of walkway at all times to ensure their safety → Consider disabled persons and their access, taking into account school children, bus routes, including stops and terminals → Work with Observer (buddy System) if required → Always be polite and courteous when dealing with members of the public → Never get involved in a physical confrontation → Contact the police if you feel threatened & notify supervisor/Team Leader 	12 ^a	All personnel
Other hazards	Heat Stress Worker fatigue	5 ^a	<ul style="list-style-type: none"> → Management to assess the environment during the day and put in place heat stress management techniques such as: 	8 ^a	All personnel

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	<ul style="list-style-type: none"> ensuring workers drink sufficient cool water, take regular breaks & shade covers provided where practicable. ¶ Monitor fatigue levels through assessments, co-workers. ¶ Worker is responsible for notifying Supervisor immediately feeling fatigued. ¶ Take breaks as per RTA Traffic Control at Work sites v4 (June 2010). ¶ 				
	Distraction from use of mobile phones. ¶	5 ^α	<ul style="list-style-type: none"> DO NOT USE MOBILE PHONE when actively controlling traffic as per approved procedures except in the case of an extreme emergency. ¶ Site supervisor must be notified immediately. ¶ If case of an emergency, emergency services must be called and head office must be notified immediately. A list of contact numbers can be found in the WHS Management Plan and SWMS. ¶ Hazard reporting guidelines must be followed, including completing a hazard report, to be handed in to head office. If applicable, the injury and incident investigation guidelines are to be followed, together with the register of injuries form. ¶ Wear high Vis clothing, Vest & appropriate PPE. ¶ Use appropriate Warning Lights. ¶ Night Works - White reflective Overalls/clothing & LED Night Wand. ¶ Ensure Vehicle is between workers & Live Traffic. ¶ All staff are required to help with incident investigation reports at head office once the immediate emergency has passed. ¶ Work with Observer (buddy System) if required. ¶ 	8 ^α	All personnel ^α
Traffic control incidents ^α	<ul style="list-style-type: none"> Traffic accident/incident. ¶ Injury to workers and/or pedestrians. ¶ Slips, trips, falls. ¶ Manual handling injuries. ¶ 	6 ^α		13 ^α	All personnel ^α
Site Pack Up/Clean Up					
Packing Up/Dismantling of Traffic Controls	<ul style="list-style-type: none"> Traffic (speed). ¶ Sign/Cones falling off Vehicle Traffic. ¶ 		<ul style="list-style-type: none"> Dismantling Traffic Control set up use following sequence. ¶ Start from Furthest end from Flashing arrow of the taper. ¶ Reverse towards the Taper picking up cones/bollards & signage along way. -Or- Drive towards traffic with headlights OFF. Both methods can be performed safely. ¶ Method chosen is up to the discretion of the TL/Leader on site on the day. ¶ When Reversing. ¶ 1/ The observer has control of the reversing process. ¶ 2/ The Driver MUST have the Observer in sight. ¶ 3/ The Observer & Driver must ensure pedestrians are at a safe distance from reversing vehicle. ¶ 4/ Clear & concise hand signals must be given by the observer. ¶ Move the vehicle from road onto shoulder while arrow still flashing. ¶ Remove Taper on foot by hand. ¶ Turn OFF flashing arrow & move off road shoulder. ¶ Remove all remaining signage from work site place into TL/Control vehicle & secure all items. ¶ Leave Work site Safely, Change Lanes Safely. ¶ 	8 ^α	All personnel ^α
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				<ul style="list-style-type: none"> → Traffic controllers to be rotated or take a break every two hours for 15 mins.¶ → The observer & driver must ensure pedestrians are at a safe distance from reversing vehicle¶ → Clear & concise hand signals must be given by the observer¶ → Move the vehicle from road onto shoulder while arrow still flashing. - Remove taper on foot by hand. Turn OFF flashing arrow & move off road shoulder.¶ → Follow Manual Handling training procedures.¶ 	17	All personnel
Manual Handling			9	<ul style="list-style-type: none"> → Keep site tidy and store away unused tools/items.¶ → Wear High-Vis Clothing, Vest etc. & appropriate PPE¶ → Secure signs using additional sand bags etc¶ → Be aware of Terrain – Slippery/muddy, Tips/Falls¶ → White reflective Overalls/Clothing & LED Night Wands¶ → Ensure Warning Lights are ON & working correctly¶ → Ensure Vehicle is between worker & Live Traffic¶ → Flashing Arrow to be Used on Freeways/Motorway or as per TCP¶ → Adequate drinking facilities, shelter (where practical) & potential job rotation.¶ → Sunscreen, wide brim hat & long sleeve shirt.¶ → Record all any improvements of Traffic Control Non-Conformance on Traffic Control Check list during/throughout the day/night.¶ 	17	All personnel
Traffic Control Improvements/NCKs	N/A		18	<ul style="list-style-type: none"> → Site supervisor to be notified asap and call emergency services if required¶ → First aid kits and fire extinguishers are in all work vehicles¶ → Communicate effectively with emergency services and relevant authorities¶ → Supervisor must consider the possibility of all possible emergency scenarios¶ → If case of an emergency, emergency services must be called and head office must be notified immediately. A list of contact numbers can be found in the WHS Management Plan and SWMS.¶ → Hazard reporting guidelines must be followed, including completing a hazard report, to be handed in to head office. If applicable, the injury and incident investigation guidelines are to be followed, together with the register of injuries form¶ 	23	All personnel
Emergencies	Various		3	<ul style="list-style-type: none"> → Divert traffic/pedestrians around protected area - Signs, barricades to be utilised¶ → Adhere to all signage and Traffic Management Plan.¶ → Do not travel outside access areas and remain within boundaries posted¶ 	8	All personnel
ENVIRONMENTAL						
Driving/Walking through site or sensitive areas	Damage/disturbance to native flora/fauna or environmentally sensitive areas		3		8	All personnel

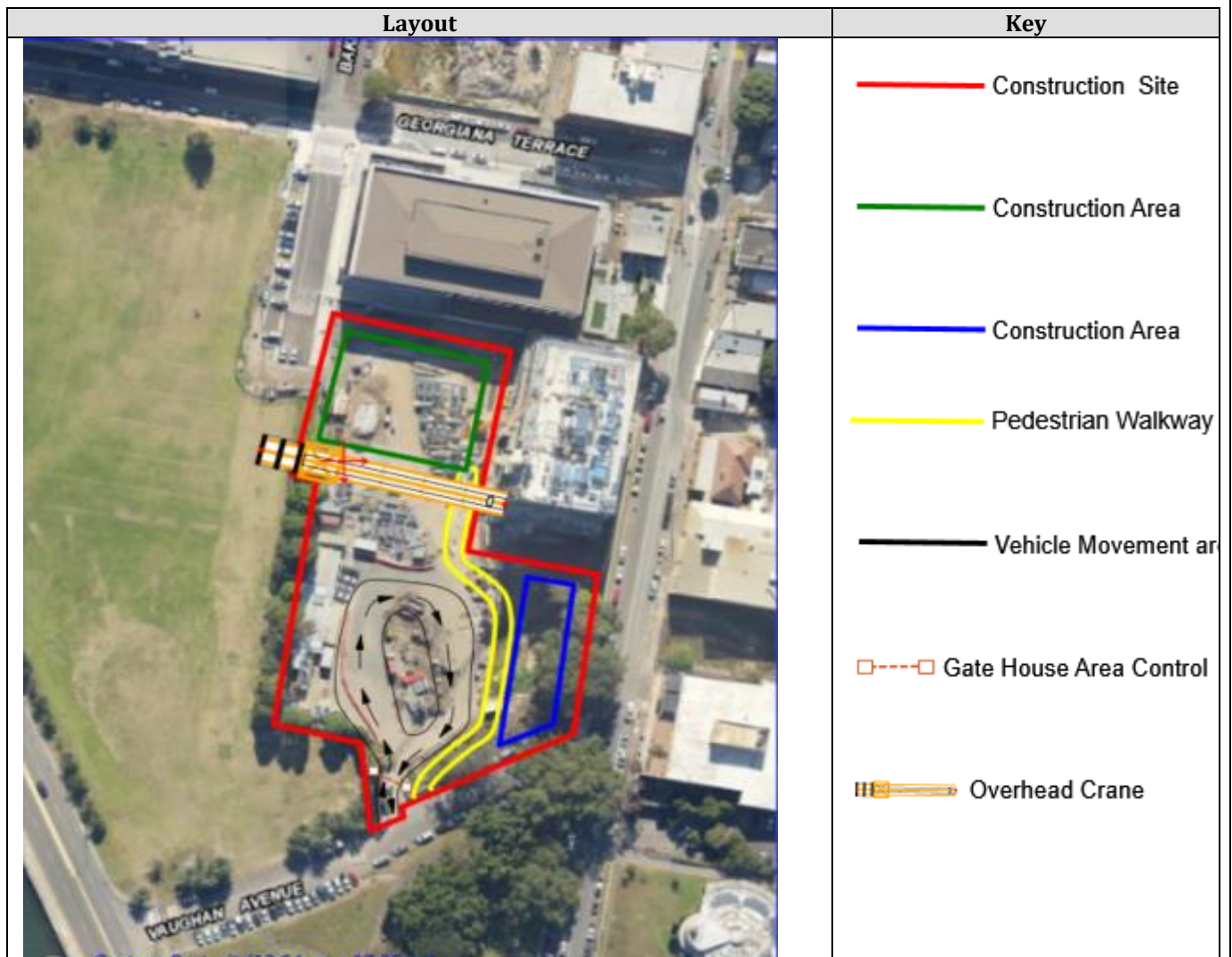
<input type="checkbox"/>	Dust inhalation and spreading through forested areas	3	→ Employ the use of water carts to suppress dust	8	All personnel
<input type="checkbox"/>	Erosion and sedimentation	3	→ Maintain safe distance from all water courses	8	All personnel
<input type="checkbox"/>	Mud & dirt on public roads	3	→ Vehicle/Truck/Plant inspections carried out prior to entering public roads → Clean/Wash/Brush down Vehicle/Truck/Plant	8	All personnel
<input type="checkbox"/>	=	<input type="checkbox"/>	=	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	=	<input type="checkbox"/>	=	<input type="checkbox"/>	<input type="checkbox"/>

REMEMBER: SAFETY IS EVERYBODY'S RESPONSIBILITY

<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
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Item No	Name (Print)	Signature	Date	Item No	Name (Print)	Signature	Date
9				13			
10				14			
11				15			
12				16			

9. Construction Site Area Layout.



10. Construction Site Parking and Transportation.

No Plant or equipment will be placed on public roads without prior approval.

St Hilliers & McLeish Group

Encourage ALL staff/employee's Contractors/Sub-Contractors etc to use to use

- Public Transport
- Car Pooling
- Bicycles
- Work
- Public Commuter Carpark

Discourage ALL staff/employee's Contractors/Sub-Contractors etc from using:

- Street Parking
- Central Coast Leagues Club Parking
- On - Site Parking
- Shopping Centre Parking

11. Traffic Controllers

All traffic controllers used/employed by McLEISH GROUP Pty Ltd. will have completed RMS/SWA accredited Traffic Controller training.

A list of their names, ticket numbers and ticket expiry dates is at Appendix A.

Traffic Controllers will carry their tickets with them at all times.

Traffic Controllers will wear high-visibility outer garments complying with OH&S Policy and standards and bearing the words "Authorised Traffic Controller"

Traffic Controllers' Tickets(Appendix A)

[illegible]

12. Plant and Equipment

All vehicles used in **Traffic Control** operations will be equipped with the appropriate vehicle mounted warning devices in accordance with the TCAWS Traffic Control at Worksites Manual.

13. Reviewing this Traffic Management Plan

McLEISH GROUP Pty Ltd will review the Traffic Management Plan to ensure it is appropriate and is being implemented effectively. Changes may arise from a change of scope, St Hilliers Audits, TMC audits, St Hilliers/TMC comments or from opportunities for improvement. The Plan will then be updated to reflect any changes which have occurred. The revised document and the input which led to the revisions will be reviewed by **McLEISH GROUP's** Manager, approved by him and then forwarded to the RMS Representative for his/her record.

The planned target dates (or frequencies) at which the CTPMSP will be subject to formal review and the personnel who will participate in the review are identified in the table on page ## at the beginning of this CTPMSP. **McLEISH GROUP** Manager will maintain records of any review.

14. Managing Unplanned Incidents

The occurrence of unexpected incidents listed below, within the project boundary or any adjacent site will potentially have a negative impact on the operation of the road network and might temporarily restrict construction activities. St Hilliers will create and plan an emergency response procedure which will incorporate standard operating procedures for managing any unexpected construction site emergencies/incident that may occur during the project delivery. St Hilliers will provide traffic control by qualified controller for emergencies and develop strategies to manage: -

- Unplanned incidents on the road network
- Construction site emergencies/unplanned incidents.

TYPES OF INCIDENTS

Different types of emergencies/unplanned incidents that may occur include, but are not limited to:

- Motor vehicle accidents;
- Bush fires;
- Environmental spills;
- Construction-type incidents;
- Catastrophic structural failures;
- Inclement weather conditions;
- Flooding;
- Anti-social behaviour;
- Terrorist attacks; and Bomb threats.

EMERGENCY CONTACTS

McLeish Group

EXTERNAL EMERGENCY NUMBERS

Fire	000 112 Mobiles ONLY
Police	
Ambulance	

UTILITIES

Electricity - Emergency ONLY

AUSGRID

ENDEAVOUR ENERGY

ESSENTIAL ENERGY

GAS Jemena - Emergency ONLY - AGL/Agility

13 1909

WATER - Sydney Water - Emergency ONLY

13 2090

COMMUNICATIONS - Cable Damage

TELSTRA

13 2203

OPTUS

1800 505 777

POWERTEL

1300 786 786

AAPT/TPG

1800 802 813

UECOMM

1800 707 447

RMS - (Reporting Incidents)

131 700

State Emergency Service

132 500

WORK COVER - Emergency ONLY

02 9214 9220

WIRES (Animal Rescue Line)

1300 094 737

Nearest/Local Hospital

Emergency

MUSTER AREA

As Detailed at Site Meetings

15 **WHS Policy**

McLEISH GROUP Pty Ltd is commitment towards the Health, Safety and Welfare of its employees is of extreme importance within its operations. The company recognises and accepts its responsibility towards ensuring the Health, Safety and Welfare of employees, subcontractors, suppliers, consultants, client, any other visitors to its workplaces, and the General Public.

16. **Enviroment Policy**

McLEISH GROUP Pty Ltd is committed to the implementation and execution of environmental work methods and practices, which fully comply with the relevant statutory authority requirements, the legislative requirements of Australia and the community's needs and expectations

Construction Site Parking and Transportation

McLeish Group & St Hilliers:

Discourage –

ALL staff/employee's Contractors/Sub-Contractors etc from using:

- ✗ Street Parking
- ✗ Central Coast Leagues Club Parking
- ✗ On – Site Parking
- ✗ Shopping Centre Parking

Encourage –

ALL staff/employee's Contractors/Sub-Contractors etc to use:




- ✓ Public Transport
- ✓ Car Pooling
- ✓ Bicycles
- ✓ Work
- ✓ Public Commuter Car parks

PLEASE NOTE:

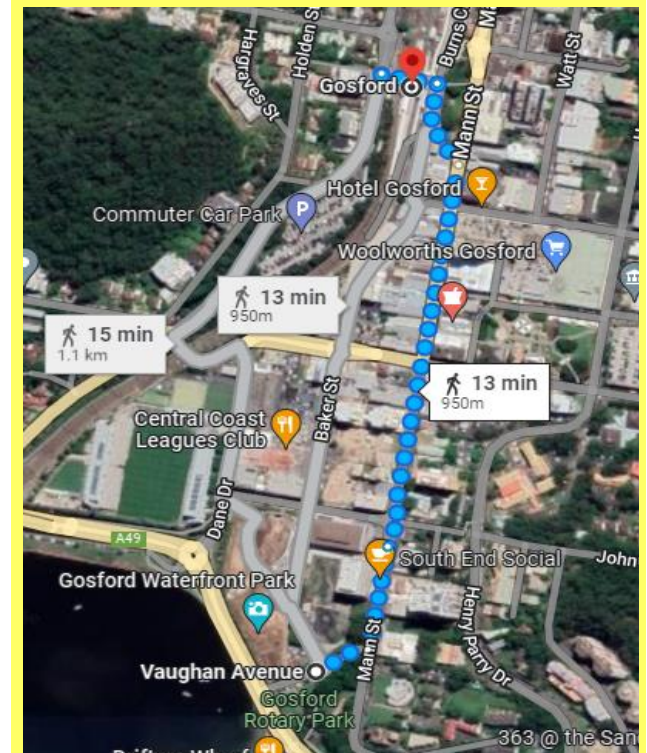
NO PARKING OR QUEING IN VAUGHAN AVE AT ANY TIME



Walking times from Gosford Station to Vaughan Ave

	via Mann St	13 min 1.0 km
	Details	
	via Baker St	13 min 1.0 km
	via Showground Rd	15 min 1.1 km

Car Pooling



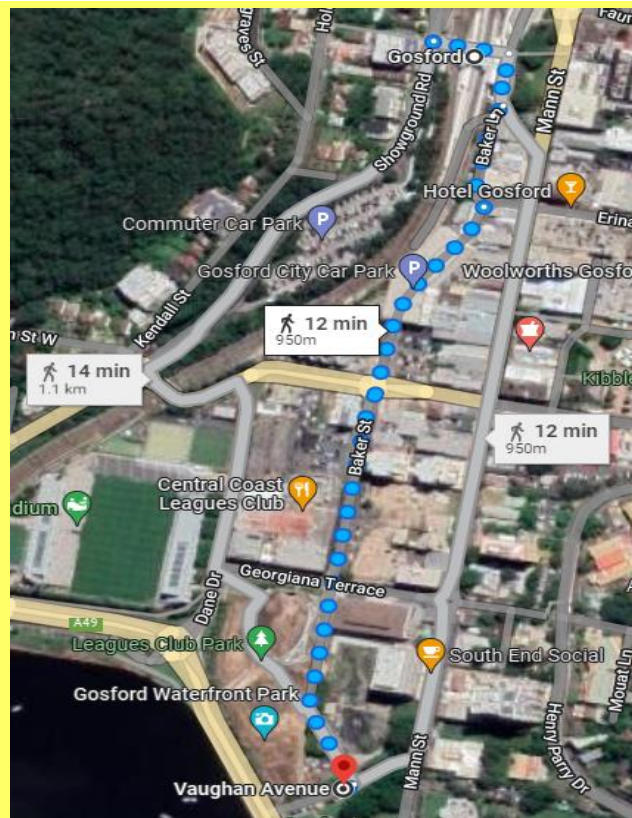
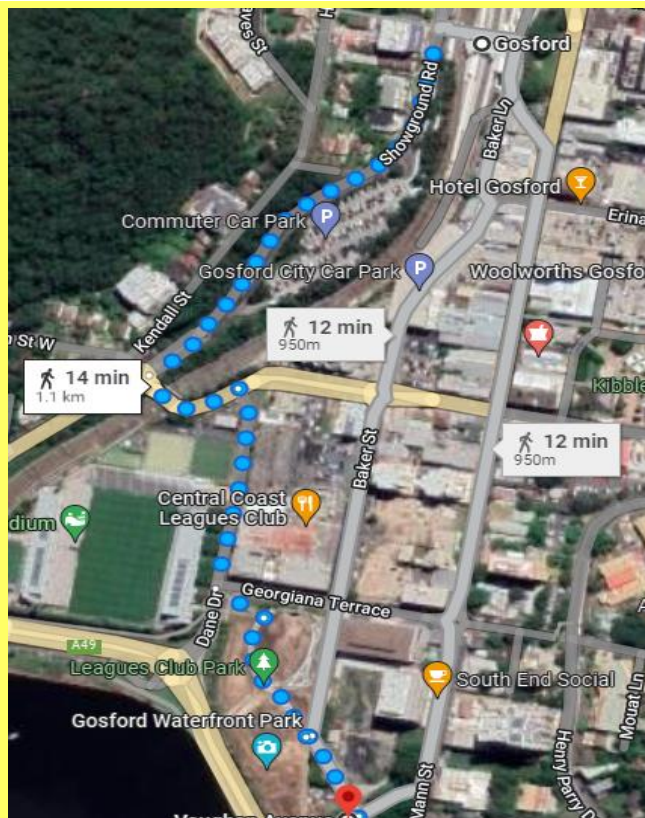
Direction to Site/Vaughan Ave

Gosford

Mann St, Gosford NSW 2250

- ↑ Head north on Showground Rd
2 m
- ↪ Turn right towards Burns Cres
Take the stairs
75 m
- ↪ Turn right onto Burns Cres
120 m
- ↪ Slight right onto Mann St/Pacific Hwy
Go through 1 roundabout
700 m
- ↪ Turn right onto Vaughan Ave
76 m

Vaughan Ave



Gosford Mann St, Gosford NSW 2250

- ↑ Head south on Showground Rd
450 m
- ↻ At the roundabout, take the 1st exit onto Donnison St/Pacific Hwy
110 m
- ↘ Turn right onto Dane Dr
210 m
- ↙ Turn left
53 m
- ↘ Turn right
140 m
- ↙ Turn left towards Vaughan Ave
5 m
- ↘ Turn right towards Vaughan Ave
95 m
- ↘ Turn right onto Vaughan Ave
11 m

Vaughan Ave

Gosford Mann St, Gosford NSW 2250

- ↑ Head north on Showground Rd
2 m
- ↘ Turn right towards Burns Cres
i Take the stairs
75 m
- ↘ Turn right onto Burns Cres
59 m
- ↘ Turn right onto Baker Ln
15 m
- ↙ Slight left to stay on Baker Ln
110 m
- ↘ Turn right onto Baker St
i Go through 1 roundabout
700 m
- ↘ Turn right onto Vaughan Ave
11 m

Vaughan Ave

McLEISH Group PTY LTD. Traffic Control



Site Directions & Code of Conduct



Vaughan St, Gosford NSW



North Tower DA 26 Mann Street, Gosford

Construction Noise and Vibration Management Plan

SYDNEY

9 Sarah St
MASCOT NSW 2020
(02) 8339 8000

ABN 98 145 324 714
www.acousticlogic.com.au

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Project ID	20201083.8
Document Title	Construction Noise and Vibration Management
Attention To	St Hilliers Contracting Pty Limited

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	28/06/2022	20201083.8/2806A/R0/AR	AR		VF

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1 INTRODUCTION

This report presents our assessment of the processes which will be followed in order to manage noise and vibration from the construction works associated with the mixed-use development to be located at 26 Mann Street, Gosford. This report has been prepared to address condition C9 of the development consent for SSD 23588910.

The principal objective of this study is to undertake an evaluation of the work to be performed during the project and forecast the potential impacts of noise and vibration. The evaluation will be used to formulate and streamline effective regulation and mitigation measures where reasonable and feasible.

The principal issues which will be addressed in this report are:

- Identification of the noise and vibration standards which will be applicable to this project.
- Identification of potentially impacted nearby development.
- Identify likely sources of noise and vibration generation and predicted noise levels at nearby development.
- Formulation of a strategy to comply with the standards identified and mitigation treatments in the event that compliance is not achievable.

2 SITE DESCRIPTION

The site is located at 26 Mann Street, Gosford. The proposed future development consists of three towers. This report will address construction noise and vibration impacts associated with the Central Coast Quarter – North Tower, which will consist of the following:

- Construction of a 25-storey (26 level) mixed-use building, comprising:
- 621sqm of retail GFA.
- 136 apartments, equating to 13,263sqm of residential GFA.
- Four parking levels for 181 cars, with vehicular access from Baker Street.
- Storage areas and services.
- Communal open space.
- Publicly accessible through site link, including stairs, walkways, public lift, public art and landscaping.
- Excavation for the site will be primarily in clay, and partially in sandstone.

Development in the vicinity of the site is generally commercial. The nearest noise sensitive residential development to the subject site are current/future residences approximately 60m to the east across Mann Street at 21-37 Mann Street. Further east there are existing residential apartments along Henry Parry Drive at 25 Mann Street & 127 Georgiana Terrace, approximately 100m to the east of the site.

The nearest commercial development is located at 99 Georgina Terrace adjoining the site to the north and 32 Mann Street to the east of the site. In addition, there is also commercial development further east of the site (on the opposite side of Mann Street). To the west of the site there is an active recreation area known as the Leagues Club Field, and Gosford Waterfront Park.

Nearby noise sensitive receivers have been summarised in the table below.

Table 1 – Summary of Nearby Sensitive Receivers

Receiver Number	Receiver Type	Description
R1	Commercial	Existing multi-commercial building adjoining the project site to the north at 99 Georgina Terrace.
R2	Commercial	Existing multi-commercial building adjoining the project site to the east at 32 Mann Street.
R3	Residential	Existing multi-story residential apartment building approximately 100m east of the project site at 25 Mann Street.
R4	Active Recreation	Existing Leagues Club Field and Gosford Waterfront Park active recreation areas adjoining the site to the west.

An aerial photo of the site is presented in Figure 1 below, which also shows nearby receivers and the location of noise monitoring conducted during the SSDA acoustic assessment.

Acoustic Logic has also been provided with a site establishment plan in Figure 2 which shows a general site layout during the expected works.



Figure 1: Aerial Photo of Site, Receiver Locations and Monitoring Positions

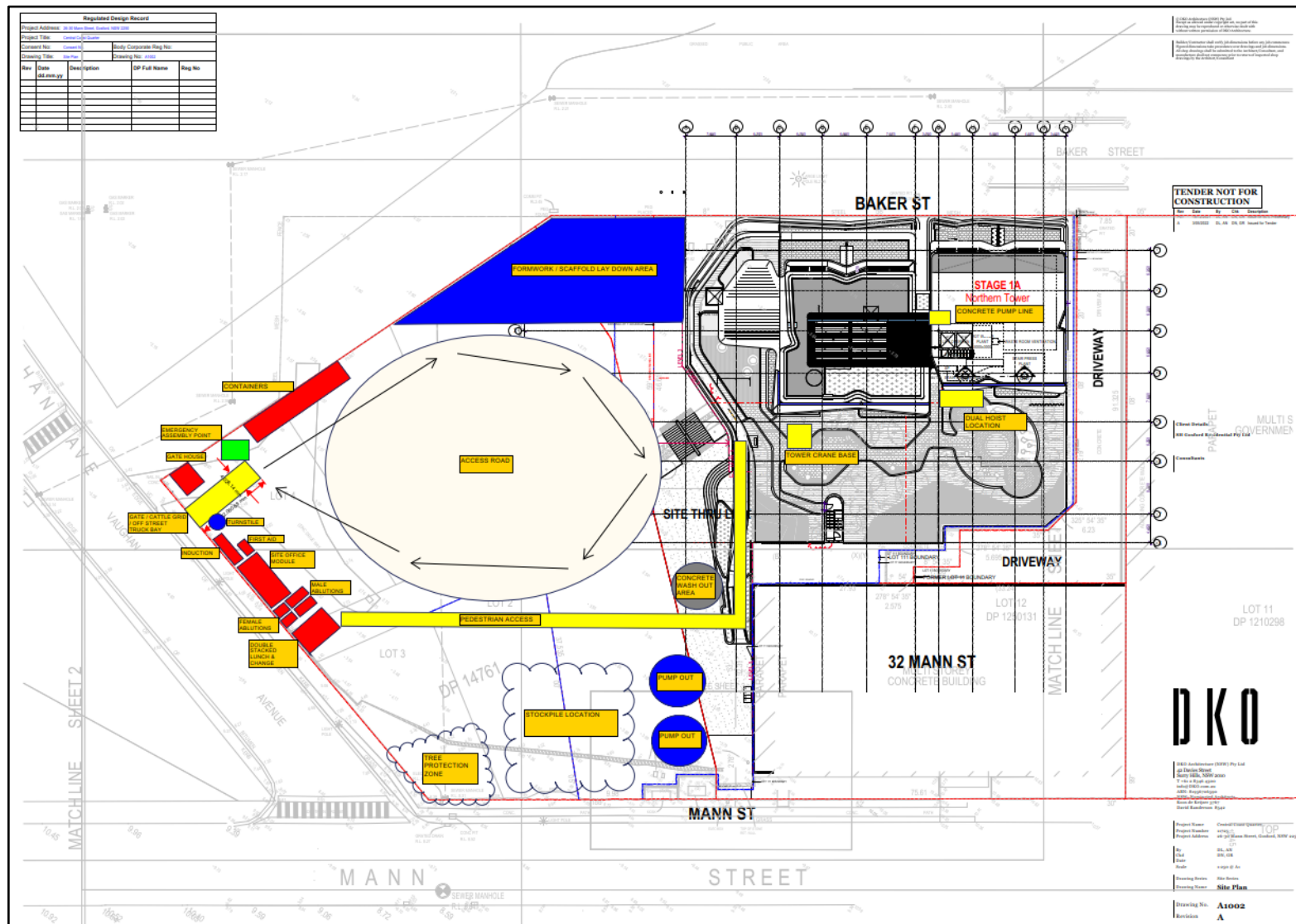


Figure 2 – Site Establishment Plan

3 CONDITIONS OF CONSENT

3.1 HOURS OF WORK

The SSDA approved construction hours as per Condition D6 to D9 of the development consent are as follows:

- Construction (including material delivery/removal)
 - Between 7am and 6pm, Mondays to Fridays inclusive; and
 - Between 8am and 4pm, Saturdays
 - No work on Sundays or public holidays.
- Rock breaking, rock hammering, sheet piling, pile driving and similar activities generating high noise impact (i.e. work exceeding a NML of LA_{eq} 75dB(A)) as measured at the sensitive receiver, may only be carried out between the following hours:
 - 9am to 12pm, Monday to Friday;
 - 2pm to 5pm, Monday to Friday; and
 - 9am to 12pm, Saturday.

The duration of each major stage of construction are as follows:

- | | |
|---|------------------------------|
| • Demolition | No demolition works required |
| • Early Civil Works (Excavation & Piling) | 3-4 Months |
| • Construction and Fitout | Approximately 26 months. |

3.2 CONSTRUCTION NOISE GUIDELINES

Condition C9 of the development consent states the noise management plan must be prepared in accordance with the Interim Construction Noise Guideline (DECC, 2009). The condition is replicated below:

Noise and Vibration Management Sub-Plan

- C9. Prior to the commencement of any demolition, earthworks or construction, the Applicant must submit a Construction Noise and Vibration Management Sub-Plan (CNVMSP) to the Certifier.

The CNVMSP shall be prepared in consultation with Council and 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); Where resultant site noise levels are likely to be in exceedance of this noise criteria then a suitable proposal must be given as to the duration and frequency of respite periods that will be afforded to the occupiers of neighbouring property;
- (c) incorporate the recommendations of the noise report prepared by Acoustic Logic and titled '*Central Coast Quarter – Northern Tower, 26-30 Mann Street, Gosford NSW Noise and Vibration Impact Assessment Revision 2*' dated 30 August 2021 as updated by letter from Acoustic Logic titled '*North Tower DA 26 Mann Street, Gosford – Response to Submissions (RTS)*' dated 18 November 2021;
- (d) details of non-tonal alarms, materials handling and work site training;
- (e) include strategies that have been developed with the community for managing high noise generating works and describe the community consultation/liaison to develop the strategies;

- (f) details of any noise mitigation measures that have been outlined by an acoustic consultant or otherwise that will be deployed on site to reduce noise impacts on the occupiers of neighbouring noise sensitive property to a minimum;
- (g) what plant and equipment is to be used on site, the level of sound mitigation measures to be undertaken in each case and the criteria adopted in their selection taking into account the likely noise impacts;
- (h) include a complaints management system that would be implemented for the duration of the construction; and
- (i) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the management measures.

4 EXISTING BACKGROUND NOISE LEVELS

Unattended long-term noise monitoring has been conducted by this office to establish background noise levels at the project site as part of the approval stage *Noise and Vibration Impact Assessment* (ref: 20201083.2/0709A/R3/AS dated 7th September 2021).

Monitoring was conducted using four Acoustic Research Laboratories Pty Ltd noise loggers. The loggers were set to A-weighted, fast response and was programmed to store 15-minute statistical noise levels through the monitoring period. The monitors were calibrated at the start and end of the monitoring period using a Rion NC-73 calibrator. No significant drift was noted.

Refer to Figure 1 for detailed location for the placements of monitors on site. The table below summarises the results obtained from the unattended monitoring.

**Table 2 – Long Term Noise Logging Data
(Rating Background Noise Level and Ambient Noise Level)**

Location	Time of Day*		
	Day	Evening	Night
Noise Monitor Location 1 – Southwest corner of subject site	55dB(A) _{Leq(Period)} 51dB(A) _{L90}	55dB(A) _{Leq(Period)} 49dB(A) _{L90}	53dB(A) _{Leq(Period)} 41dB(A) _{L90}
Noise Monitor Location 2 – Rear of 79-87 Henry Parry Drive	57dB(A) _{Leq(Period)} 54dB(A) _{L90}	55dB(A) _{Leq(Period)} 51dB(A) _{L90}	53dB(A) _{Leq(Period)} 41dB(A) _{L90}
Noise Monitor Location 3 – Balcony of Apartment 804 at 25 Mann Street	64dB(A) _{Leq(Period)} 55dB(A) _{L90}	61dB(A) _{Leq(Period)} 45dB(A) _{L90}	57dB(A) _{Leq(Period)} 41dB(A) _{L90}
Noise Monitor Location 4 – Corner of Vaughan Avenue and Mann Street	62dB(A) _{Leq(Period)} 51dB(A) _{L90}	59dB(A) _{Leq(Period)} 46dB(A) _{L90}	56dB(A) _{Leq(Period)} 43dB(A) _{L90}

*Note – Time of day is as described within the NSW EPA Noise Policy for Industry (NPI) 2017.

5 NOISE AND VIBRATION MANAGEMENT LEVELS

5.1 NOISE OBJECTIVES

5.1.1 NSW EPA Interim Construction Noise Guideline

The EPA Interim Construction Noise Guideline (ICNG) assessment requires:

- Determination of noise management levels (based on ambient noise monitoring).
- Review of operational noise levels at nearby development.
- If necessary, recommendation of noise controls strategies in the event that compliance with noise emission management levels is not possible.

EPA guidelines adopt differing strategies for noise control depending on the predicted noise level at the nearest residences:

- *"Noise affected" level.* Where construction noise is predicted to exceed the "noise effected" level at a nearby residence, the proponent should take reasonable/feasible work practices to ensure compliance with the "noise effected level". For residential properties, the "noise effected" level occurs when construction noise exceeds ambient levels by more than 10dB(A) $L_{eq(15min)}$.
- *"Highly noise affected level".* Where noise emissions are such that nearby properties are "highly noise effected", noise controls such as respite periods should be considered. For residential properties, the "highly noise effected" level occurs when construction noise exceeds 75dB(A) $L_{eq(15min)}$ at nearby residences.

Section 4.12 and 4.1.3 of the guideline also specifies management levels for land used for other than residential. A summary of the recommended noise levels from the ICNG is presented in the tables below.

Table 3 – Noise Management Levels - Residential

Location	"Noise Affected" Level - dB(A) $L_{eq(15min)}$	"Highly Noise Affected" Level - dB(A) $L_{eq(15min)}$
Nearest Residences to East along Mann Street	65	75

Table 4 – Noise Management Levels – Commercial

Receiver	Noise Management Level dB(A) $L_{eq(15min)}$
Nearby Commercial Development	70 (External)
Active Recreation Areas	65 (External)

If noise levels exceed the management levels identified in the tables above, reasonable, and feasible noise management techniques will be reviewed.

5.1.2 Australian Standard AS2436:2010 “Guide to Noise Control on Construction, Maintenance and Demolition Sites

Australian Standard AS2436 does not provide specific noise management targets. The guideline focuses on strategies for developing feasible and reasonable mitigation methodologies, management controls and community liaison to reach realistic compromises between the needs of construction activities and potentially affected receivers.

For the control and regulation of noise from construction sites AS2436:2010 *Guide to noise control on construction, maintenance and demolition sites* nominates the following:

- That reasonable suitable noise management objectives are established.
- That all practicable measures be taken on the building site to regulate noise emissions, including the siting of noisy static processes to locations of the site where they can be shielded, selecting less noisy processes, and if required regulating demolition hours, and
- The undertaking of noise monitoring where non-compliance occurs to assist in the management and control of noise emission from the demolition site.

5.2 VIBRATION OBJECTIVES

The criteria for vibration caused by any demolition, excavation or construction works to nearby residences or structure outside the project site is governed by the following guidelines/standards:

- For structural damage, German Standard DIN 4150-3 *Structural Vibration: Effects of Vibration on Structures*
- For human exposure to vibration, the Department of Environment and Conservation NSW “Assessing Vibration: A Technical Guideline” (Feb 2006) is based on the guidelines contained in BS 6472:1992 *Guide to Evaluate Human Exposure to Vibration in Buildings (1Hz to 80Hz)* for low probability of adverse comment.

The criteria and the application of these guidelines/standards are discussed in separate sections below.

5.2.1 Structure Borne Vibration (Building Damage Criteria)

German Standard DIN 4150-3 (1999-02) provides vibration velocity guideline levels for use in evaluating the effects of vibration on structures. The criteria presented in DIN 4150-3 (1999-02) are summarised in Table 5.

It is noted that the peak velocity is the absolute value of the maximum of any of the three orthogonal component particle velocities as measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

Table 5 – DIN 4150-3 (1999-02) Safe Limits for Building Vibration

TYPE OF STRUCTURE		PEAK PARTICLE VELOCITY (mms ⁻¹)			
		At Foundation at a Frequency of			Plane of Floor of Uppermost Storey
		< 10Hz	10Hz to 50Hz	50Hz to 100Hz	All Frequencies
1	Buildings used in commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

5.2.2 Assessing Amenity

The NSW EPA document *"Assessing Vibration: A Technical Guideline"* is based on the guidelines contained in BS 6472:1992. This guideline provides procedures for assessing tactile vibration and regenerated noise within potentially affected buildings.

The recommendations of this guideline should be adopted to assess and regulate vibration within the excavation/construction site.

Table 6 – EPA Recommended Vibration Criteria

Place	Time	RMS acceleration (m/s ²)		RMS velocity (mm/s)		Peak velocity (mm/s)	
		<u>Preferred</u>	<u>Maximum</u>	<u>Preferred</u>	<u>Maximum</u>	<u>Preferred</u>	<u>Maximum</u>
Continuous Vibration							
Critical Working Areas	Daytime	0.005	0.01	0.1	0.2	0.14	0.28
Residences		0.01	0.02	0.2	0.4	0.28	0.56
Offices		0.02	0.04	0.4	0.8	0.56	1.1
Workshops		0.04	0.08	0.8	1.6	1.1	2.2
Impulsive Vibration							
Critical Working Areas	Daytime	0.005	0.01	0.1	0.2	0.14	0.28
Residences		0.3	0.6	6.0	12.0	8.6	17.0
Offices		0.64	1.28	13.0	26.0	18.0	36.0
Workshops		0.64	1.28	13.0	26.0	18.0	36.0

6 NOISE AND VIBRATION ASSESSMENT AND RECOMMENDATIONS

6.1 ACTIVITIES TO BE CONDUCTED AND THE ASSOCIATED NOISE LEVELS

Noise and vibration impacts on nearby development will be dependent on the activity in question and where on the site the activity is undertaken. Typically, the most significant sources of noise generated during a construction project will be demolition, excavation, civil works and piling. A summary of sound power levels of the expected major construction processes/equipment is detailed in Table 7.

Table 7 - Sound Power Levels of the Proposed Equipment

Equipment / Process	Sound Power Level – dB(A)*
Excavation	
Excavator Mounted Hydraulic Hammering	120
Excavator (Bucket)	115
Large Trucks	110
Piling	
CFA Piling	110
Sheet Piling (Hydraulic Jack)	100
Construction	
Large Trucks	110
Electric Crane	95
Concrete Pump	105
Concrete Vibrator/Helicopters	100
Powered Hand Tools	100

***Noise levels take into account correction factors (for duration, tonality, intermittency where necessary).**

The noise levels presented in the above table are derived from the following sources, namely:

- Table A1 of Australian Standard 2436-2010.
- Data held by this office from other similar studies.

6.2 PREDICTED NOISE LEVELS

Noise generated by plant and equipment will be managed to generally comply with the nominated noise management levels outlined in **Table 3** and **Table 4**, and where this noise goal may be exceeded, noise will be managed based on principles consistent with Australian Standard 2436. Noise levels will vary depending on where in the construction site the work is undertaken. To address this, a range of predicted noise levels is provided as per the tables below. Predictions take into account the noise reduction as a result of distance, and noise screening from existing building forms where applicable.

6.2.1 Predicted Noise Levels to Receiver R1

Table 8 – Predicted Noise Levels at Receiver R1 (Commercial – 99 Georgina Terrace)

Activity	Predicted Level – dB(A) $L_{eq(15min)}$ (External Areas)	Comment
Excavation		
Excavator Mounted Hydraulic Hammering	75 - 92	Exceedance of noise management level.
Excavator (Bucket)	70 - 87	Generally exceeds noise management level. Satisfies noise management level when working along southern edge of future building.
Large Trucks	60 - 82	Intermittent exceedance of noise management level. Satisfies noise management level when working close to southern corner of the site.
Piling		
CFA Piling	65 - 76	Intermittent exceedance of noise management level. Satisfies noise management level when working close to southern edge of future building.
Sheet Piling (Hydraulic Jack)	45 - 45	Satisfies noise management level of 70dB(A).
Construction		
Large Trucks	60 - 82	Intermittent exceedance of noise management level. Satisfies noise management level when working close to southern corner of the site.
Concrete Pump	60	Satisfies noise management level of 70dB(A).
Concrete Vibrator/Helicopters	55 - 72	Generally satisfies noise management level. Intermittent, minor exceedance when working along northern edge of future building.
Electric Crane	49 - 67	Satisfies noise management level of 70dB(A).
Powered Hand Tools	55 - 72	Generally satisfies noise management level. Intermittent, minor exceedance when working along northern edge of future building.

6.2.2 Predicted Noise Levels to Receiver R2

Table 9 – Predicted Noise Levels at Receiver R2 (Commercial – 32 Mann Street)

Activity	Predicted Level – dB(A) $L_{eq}(15min)$ (External Areas)	Comment
Excavation		
Excavator Mounted Hydraulic Hammering	77 - 92	Exceedance of noise management level.
Excavator (Bucket)	72 - 87	Exceedance of noise management level.
Large Trucks	64 - 82	Intermittent exceedance of noise management level. Satisfies noise management level when working close to southern corner of site.
Piling		
CFA Piling	69 - 78	Intermittent exceedance of noise management level. Satisfies noise management level when working close to western edge of future building.
Sheet Piling (Hydraulic Jack)	72 - 78	Exceedance of noise management level.
Construction		
Large Trucks	64 - 82	Intermittent exceedance of noise management level. Satisfies noise management level when working close to southern corner of site.
Concrete Pump	82	Exceedance of noise management level.
Concrete Vibrator/Helicopters	57 - 72	Generally satisfies noise management level. Intermittent, minor exceedance when working along eastern edge of future building.
Electric Crane	52 - 67	Satisfies noise management level of 70dB(A).
Powered Hand Tools	57 - 72	Generally satisfies noise management level. Intermittent, minor exceedance when working along eastern edge of future building.

6.2.3 Predicted Noise Levels to Receiver R3

Construction noise impacts to Receiver R3 have been predicted for residences at higher levels which will receive a lower amount of noise screening from the commercial building at 32 Mann Street relative to ground floor apartments. Notwithstanding, certain activities (i.e. those conducted to the south of the building footprint such as concrete pump locations, or elevated equipment such as the tower crane) will not receive any shielding.

Table 10 – Predicted Noise Levels at Receiver R3 (Residential– 25 Mann Street)

Activity	Predicted Level – dB(A) $L_{eq}(15min)$ (External Areas)	Comment
Excavation		
Excavator Mounted Hydraulic Hammering	63 - 66	Generally satisfies noise management level. Intermittent, minor 1dB(A) exceedance.
Excavator (Bucket)	58 - 62	Satisfies noise management level of 65dB(A).
Large Trucks	53 - 62	Satisfies noise management level of 65dB(A).
Piling		
CFA Piling	53 - 57	Satisfies noise management level of 65dB(A).
Sheet Piling (Hydraulic Jack)	55 - 55	Satisfies noise management level of 65dB(A).
Construction		
Large Trucks	53 - 62	Satisfies noise management level of 65dB(A).
Concrete Pump	65	Satisfies noise management level of 65dB(A).
Concrete Vibrator/Helicopters	43 - 46	Satisfies noise management level of 65dB(A).
Electric Crane	43 - 47	Satisfies noise management level of 65dB(A).
Powered Hand Tools	43 - 52	Satisfies noise management level of 65dB(A).

6.2.4 Predicted Noise Levels to Receiver R4

Table 11 – Predicted Noise Levels at Receiver R4 (Active Recreation)

Activity	Predicted Level – dB(A) $L_{eq}(15min)$ (External Areas)	Comment
Excavation		
Excavator Mounted Hydraulic Hammering	77 - 92	Exceedance of noise management level.
Excavator (Bucket)	72 - 87	Exceedance of noise management level.
Large Trucks	67 - 82	Exceedance of noise management level.
Piling		
CFA Piling	67 - 78	Exceedance of noise management level.
Sheet Piling (Hydraulic Jack)	52 - 52	Satisfies noise management level of 65dB(A).
Construction		
Large Trucks	67 - 82	Exceedance of noise management level.
Concrete Pump	62	Satisfies noise management level of 65dB(A).
Concrete Vibrator/Helicopters	57 - 72	Intermittent exceedance of noise management level. Satisfies noise management level when working close to eastern edge of the future building.
Electric Crane	52 - 67	Intermittent, minor exceedance of noise management level. Satisfies noise management level when working close to eastern edge of the future building.
Powered Hand Tools	57 - 72	Intermittent exceedance of noise management level. Satisfies noise management level when working close to eastern edge of the future building.

6.3 DISCUSSION – NOISE

6.3.1 Residential Receivers

To residential receiver R3, a minimum line of sight noise screening effect will be provided by the commercial tower at Receiver R2 (32 Mann Street) which will minimise noise impacts from ground level works during early civil works. Construction activities which are elevated (use of electric crane, and use of hand tools on higher levels elevated off ground) will not receive any noise screening, however these works generate a low level of noise relative to early civil works and are still expected to satisfy noise management levels. Exceedance of the noise management level of 65dB(A) will be minimal (up to 1dB(A) during early civil works), and exceedance of the highly noise affected level of 75dB(A) is not expected.

6.3.2 Commercial and Other Receivers

The worst affected receivers are multi-storey commercial towers which overlook the site (Receiver R1 and R2). Exceedances of the NSW EPA noise management levels are unavoidable given their proximity and elevation where working close to the common property boundary. As expected, excavation activities will have the greatest noise impact to nearby receivers, especially where needed for rock breaking and material removal.

The consent already contains a requirement to provide respite periods for certain activities and these should be observed unless alternative respite is agreed through negotiation with the occupants.

It is recommended that the managers of the adjacent commercial buildings be advised when these activities are likely to occur and that respite periods are being provided.

A similar level of impact is expected to users of the active recreation space (Receiver R4), in this instance plywood hoarding will provide noise screening benefits to ground level receivers and trafficable pathways bounding the site. More significant measures are not considered reasonable for this receiver type.

6.4 DISCUSSION - VIBRATION

Excavator mounted hammering of rock during excavation and sheet piling will have the greatest potential for vibration generation.

Given the proximity of occupied commercial buildings along the northern and eastern site boundaries, vibration monitoring is recommended during these stages of work. Specific recommendations regarding vibration monitoring are detailed in Section 6.5 below.

6.5 RECOMMENDATIONS

In light of the above assessment, and to mitigate any potential noise impacts from the development at 26 Mann Street, we recommend the following management controls be implemented:

- As per condition D6 to D9 of the development consent construction activities should be limited to the following:
 - Construction (including material delivery/removal)
 - Between 7am and 6pm, Mondays to Fridays inclusive; and
 - Between 8am and 4pm, Saturdays
 - No work on Sundays or public holidays.
 - Rock breaking, rock hammering, sheet piling, pile driving and similar activities generating high noise impact (i.e. work exceeding a NML of L_{Aeq} 75dB(A) as measured at the sensitive residential receiver, or 60 dB(A) internally in a commercial office space) may only be carried out between the following hours:
 - 9am to 12pm, Monday to Friday;
 - 2pm to 5pm, Monday to Friday; and
 - 9am to 12pm, Saturday.
- In light of the hours of work conditions above, we recommend that attended noise measurements be undertaken at the start of major stages (demolition, piling, construction) to determine the actual noise impact from the construction activities to determine suitable hours of work for high noise generating activities such as hydraulic hammering, use of excavators and piling.
- Site Perimeter Hoarding
 - Plywood or similar hoarding is recommended to the site perimeter to provide noise screening to ground level receivers to the nearby active recreation area (Receiver R4), and to trafficable areas bounding the site which serve adjoining commercial development.
- Quiet work methods/technologies:
 - The primary noise generating activity at the site will be the bulk excavation period. As much as practicable, use of quieter excavation methods is adopted.
 - Where rock strength permits, use of rock rippers (as opposed to hydraulic hammers and rock saws) should be considered.
- Materials handling/vehicles:
 - Trucks and forklifts in general use on site are to use a non-tonal reversing beacon where possible (subject to OH&S requirements) to minimise potential disturbance of surrounding receivers.
 - Avoid careless dropping of construction materials into empty trucks.
 - Trucks should turn off their engines whenever possible on site (unless needed for concrete pumping or similar).
- Community consultation is recommended to be undertaken throughout the construction process. In this regard regular letterbox drops detailing site progress and scheduled works is proposed. In particular, these should detail the extent and times of hammering and piling which is planned to be undertaken during the early civil works.
- Complaints handling:
 - An afterhours contact number is to be displayed outside of the building site, so that in the event that surrounding development believes that a noise breach is occurring, they may contact the site.
 - In the event of complaint, the procedures outlined in Section 9 are adopted.

- Where persistent noise complaints are received from surrounding properties, attended noise measurements can be undertaken at affected to quantify the level of construction noise typically emitted from the site. This may be used to inform any mitigation strategies which could be implemented.
- Vibration Monitoring
 - Vibration monitoring service is to be carried out by the Acoustic Consultant. We recommend up to three Texcel type monitors with externally mounted geophones installed at the nearest building façade of the affected receiver.
 - Refer to the figure below for indicative locations. In the event on-going complaints are received from other receivers, additional monitoring or attended noise/vibration measurements are to be carried out.

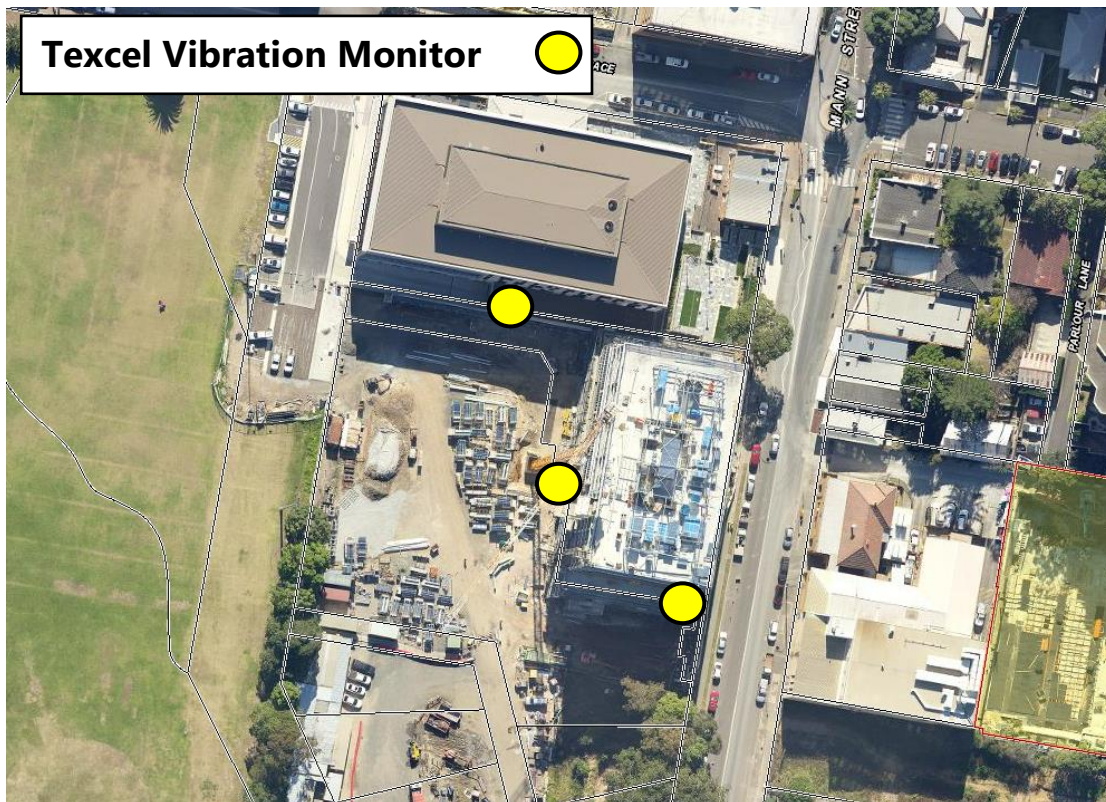


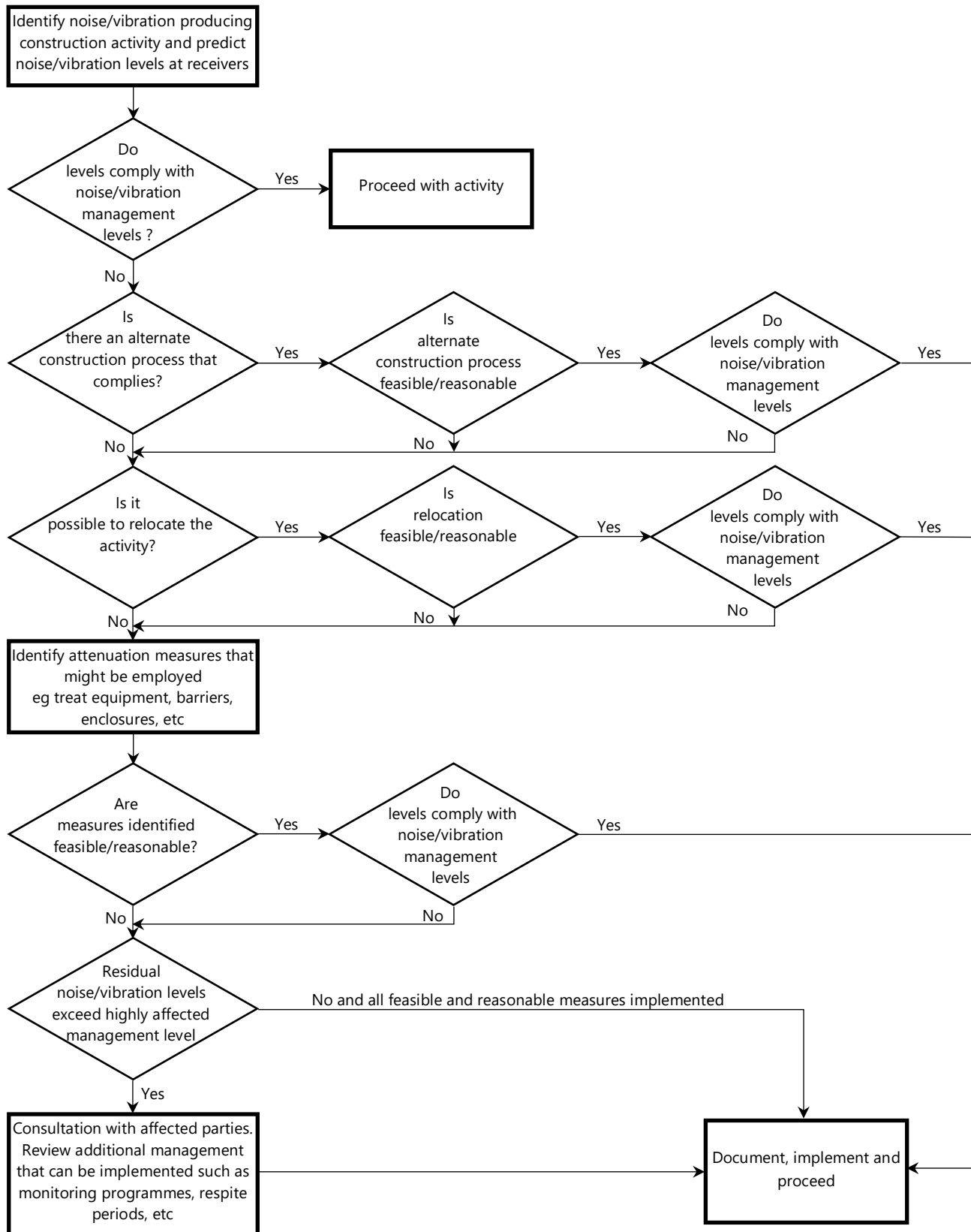
Figure 3 – Proposed Vibration Monitoring Locations

- Vibration monitor locations have been nominated based on the facades being in close proximity to vibration intensive works (excavation in rock, piling in rock, sheet piling).
- The monitors are proposed to be fitted with GSM modems for vibration exceedance. The vibration loggers will be downloaded remotely using the GSM modem. The vibration monitors should be programmed to issue alerts (whether visual or via SMS alert) as detailed below to notify the relevant parties of potential exceedances of the DIN 4150-3 criteria (refer to section 6.2).
- Commercial Receivers
 - Monitors to be installed as close as possible to the footing of residential building.
 - Alarm Level – 15mm/s PPV at receiver location, SMS alarm message will be sent to operator, project manager and acoustic engineer if magnitude of vibration events exceed this level. Project manager shall respond immediately by taking courteous work methodology.
 - Stop work level – 20mm/s PPV at receiver location, SMS alarm message will be sent to operator, project manager and acoustic engineer if magnitude of vibration events exceed this level. Project manager shall stop the work at geophone immediately.

In addition to the unattended monitoring, it is recommended that attended vibration monitoring be carried out at the commencement of any new processes to establish "safe" working distances to the receivers that comply with the management levels, as well as worst case levels that may indicate an alternative process is needed (if structural limits are exceeded) or respite periods if comfort levels are exceeded.

7 CONTROL OF CONSTRUCTION NOISE AND VIBRATION – PROCEDURAL STEPS

The flow chart presented below illustrates the process that should be followed in assessing construction activities.



8 ADDITIONAL NOISE AND VIBRATION CONTROL METHODS

In the event of complaints, there are a number of noise mitigation strategies available which can be considered. The determination of appropriate noise control measures will be dependent on the particular activities and construction appliances. This section provides an outline of available methods.

8.1 SELECTION OF ALTERNATE APPLIANCE OR PROCESS

Where a particular activity or construction appliance is found to generate excessive noise levels, it may be possible to select an alternative approach or appliance. For example; the use of a hydraulic hammer on certain areas of the site may potentially generate high levels of noise. Undertaking this activity using bulldozers, ripping and/or milling machines will result in lower noise levels.

8.2 MATERIAL HANDLING

The installation of rubber matting over material handling areas can reduce the sound of impacts due to material being dropped by up to 20dB(A).

8.3 COMBINATION OF METHODS

In some cases it may be necessary that two or more control measures be implemented to minimise noise.

8.4 NOISE MONITORING TECHNIQUES

Where noise monitoring is undertaken (either by attended short-term measurements or long-term unattended noise monitoring), it should be conducted at a practical location representative of the impact to nearby noise sensitive receivers. Where this is not possible, noise measurements of construction processes should be taken such that noise levels can be accurately predicted to receivers. Any reporting of noise measurement results may include the following information:

- The date and time that the measurements were undertaken;
- The location of measurements, noise receivers and construction processes. A site map should be included for clarity.
- A description of the construction processes being undertaken during the measurement period.
- The measured noise construction noise levels, and the noise level at the façade of nearby receivers (if noise levels are predicted).
- A comparison to the NSW EPA Interim Construction Noise Guideline noise management levels.

9 DEALING WITH COMPLAINTS

Should ongoing complaints of excessive noise or vibration recommendations occur immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices.

If a noise complaint is received the complaint should be recorded. Any complaint form should list:

- The name and address of the complainant (if provided);
- The time and date the complaint was received.
- The nature of the complaint and the time and date the noise was heard;
- The name of the employee who received the complaint.
- Actions taken to investigate the complaint, and a summary of the results of the investigation;
- Required remedial action, if required;
- Validation of the remedial action; and
- Summary of feedback to the complainant.

A permanent register of complaints should be held.

10 CONCLUSION

This document presents a noise and vibration management plan for the excavation, piling and construction works to be conducted at 26 Mann Street, Gosford in line with the procedures recommended by the NSW EPA *Interim Construction Noise Guideline* (ICNG) as required by Condition C9 of the development consent for SSD 23588910.

The assessment of noise and vibration indicates that:

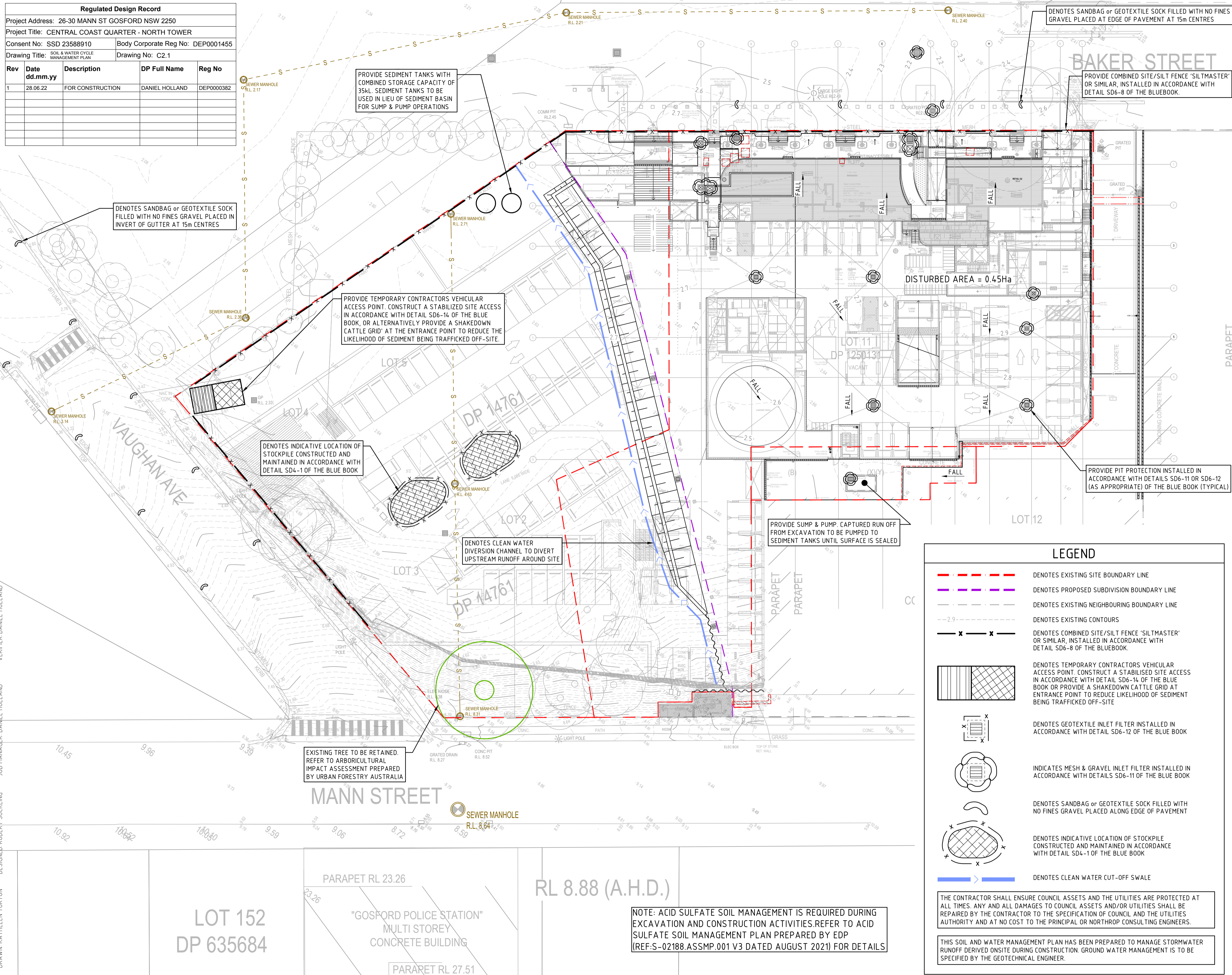
- Excavation activities associated with the subject site are likely to generate noise levels that will require additional management. Adoption of the elements of these controls will ensure that noise impacts will be minimised, however some exceedance is unavoidable given the proximity and elevation of nearby commercial development.
- With regard to permitted construction hours in Condition D6 to D9, it is recommended that attended noise measurements be conducted at nearby noise sensitive receivers at the beginning of major stages in the construction to determine real-world noise impacts from noisy activities such as hammering in rock and piling.
- Ground vibration goals have been set in this report to safeguard existing structures close to the project site. In this regard.
 - Attended and Unattended vibration monitoring is proposed during high vibration intensive works at the nearest commercial structures adjoining the site. Refer to Figure 3 for further detail.
 - Vibration monitors will alert the excavation contractor as well as site foreman in the event of any vibration exceedance. Where this occurs a detailed review of the activities generating exceedance and potential mitigation techniques may be explored.
 - In the event of complaints from neighbouring properties, attended noise or vibration measurements may be considered where access is permitted.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,



Acoustic Logic Pty Ltd
Artie Rattananikom

[illegible]

SEDIMENT BASIN/TANKS SIZING CALCULATION

THE SITE IS LOCATED WITHIN THE KILLINGWORTH SOIL LANDSCAPE AND PRIMARILY CONSIST OF SANDY CLAY & SILTY SANDS, WHICH HAS THE FOLLOWING PROPERTIES (IN ACCORDANCE WITH TABLE C17 OF THE "BLUE BOOK"):

SITE PARAMETERS	
CONSTRAINT	VALUE
SEDIMENT TYPE	D
SOIL HYDROLOGY GROUP	B
K = SOIL ERODIBILITY (K-FACTOR)	0.059
R = RAINFALL EROSIVITY (R-FACTOR)	3900
S = 2 YEAR, 6 HOUR STORM INTENSITY	13.4 mm/hr (GOSFORD)
LS = SLOPE LENGTH/GRADIENT	0.17 (50m SLOPE @ 1% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	50.8
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW NO BASIN/TANKS REQUIRED

NOTE: SEDIMENT BASIN IS NOT REQUIRED, HOWEVER SEDIMENT TANK OF MINIMUM SIZE WILL BE PROVIDED FOR EXCAVATION AND EARTHWORKS.

SEDIMENT BASIN/TANKS SIZING	
CONSTRAINT	VALUE
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.25
R = 5 DAY, 75 TH PERCENTILE RAINFALL	27.9mm
A = CATCHMENT AREA	0.45ha
SETTLING ZONE VOLUME (10xCVxRxA)	31.4m ³
SOIL LOSS (CALC ABOVE)	39m ³ /ha/yr
DISTURBED CATCHMENT AREA	0.45ha
SEDIMENT STORAGE VOLUME (0.17xSOIL LOSSxA2)	3m ³
TOTAL BASIN/TANKS VOLUME REQUIRED	35m ³

SEDIMENT BASIN/TANKS MANAGEMENT NOTES

- PRIOR TO ANY FORECAST WEATHER EVENT, LIKELY TO RESULT IN SEDIMENT LAZEN RUNOFF ON THE SITE, ANY EXISTING DETENTION BASINS/TANKS/TRAPS SHALL BE DEWATERED TO PROVIDE SUFFICIENT CAPACITY TO CAPTURE SEDIMENT LAZEN WATER FROM THE SITE.
- ANY SEDIMENT LAZEN WATER CAPTURED ON-SITE MUST BE TREATED TO ENSURE IT WILL MEET COUNCIL'S WATER QUALITY OBJECTIVES PRIOR TO ITS RELEASE FROM SITE. A SAMPLE OF THE RELEASED TREATED WATER MUST BE KEPT ON-SITE IN A CLEAR CONTAINER WITH THE SAMPLE DATE RECORDED.
- NO ALUMINIUM BASED PRODUCTS MAY BE USED TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) ON-SITE WITHOUT THE PRIOR WRITTEN PERMISSION FROM AN APPROPRIATE COUNCIL OFFICER. THE APPLICANT MUST HAVE DEMONSTRATED ABILITY TO USE SUCH PRODUCTS CORRECTLY AND WITHOUT ENVIRONMENTAL HARM PRIOR TO A APPROVAL.
- THE CHEMICAL/AGG (FLOCCULATING/COAGULANTS) USED IN TYPE D AND TYPE F BASINS/TANKS TO TREAT TURBID WATER CAPTURED IN THE BASIN/TANKS MUST BE APPLIED IN CONCENTRATIONS SUFFICIENT TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES (TSS < 50mg/L, TURBIDITY < 60 NTU, 6.5 < pH < 8.5) WITHIN THE 5-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN/TANKS, AFTER A RAINFALL EVENT.
- ALL MANUFACTURERS INSTRUCTIONS MUST BE FOLLOWED FOR THE USE OF ANY CHEMICALS/AGENTS USED ON-SITE. EVENT WHERE APPROVED BY THE RESPONSIBLE PERSON OR AN APPROPRIATE COUNCIL OFFICER.
- SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) MUST BE PLACED SUCH THAT WATER ENTERING THE BASINS/TANKS/SEDIMENT TRAP MIXES WITH THE CHEMICALS/AGENTS AND IS CARRIED INTO THE BASIN/TANKS/TRAP.
- ANY BASIN/TANKS MUST BE DEWATERED AS SOON AS PRACTICAL, ONCE WATER CAPTURED IN THE BASIN/TANKS ACHIEVES COUNCIL'S WATER QUALITY OBJECTIVES.
- SEDIMENT IN THE SEDIMENT TRAP MUST BE REMOVED AFTER EACH RAINFALL EVENT AND/OR WEEKLY, ENSURE THAT ALL SEDIMENT IS REMOVED ONCE THE SEDIMENT STORAGE ZONE IS FULL. ENSURE THAT OUTLET AND EMERGENCY SPILLWAY WORKS ARE MAINTAINED IN A FULL OPERATIONAL CONDITION AT ALL TIMES.

CONCEPT SOIL & WATER MANAGEMENT NOTES

- ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDSCAPES MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE 'BLUE BOOK'). THIS SOIL AND WATER MANAGEMENT PLAN DETAILS THE ACTIONS TO BE TAKEN FOR THE MANAGEMENT AND DETENTION OF STORMWATER DURING CONSTRUCTION OF THE PROPOSED BUILDING.
- INSTALL SEDIMENT PROTECTION FILTERS ON ALL IN- AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-111 OF THE GEOTECHNICAL INLET FILTER DETAIL SD6-126 OF THE 'BLUE BOOK'.
- ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
- INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
- ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDECAST TO THE HIGH SIDE AND BE CLOSED AT THE END OF EACH WORK DAY.
- THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS' PLANS FOR TREES TO BE KEPT.
- ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
- STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS TOPSOIL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINE.
- CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
- ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
- PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
- ALL EROSION & SEDIMENT OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING CONSTRUCTION.
- GROUNDWATER SEEPAGE RATES AND QUALITY TO BE MONITORED AND TREATED IF REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH REQUIREMENTS OF SUPERVISING GEOTECHNICAL ENGINEER.

NOTE THAT ORIGINAL DRAWING IS IN COLOR

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
B	DEVELOPMENT APPLICATION	KT		DH	26.03.21
C	60% COORDINATION ISSUE	KT		DH	20.12.21
D	60% COORDINATION ISSUE	KT		DH	01.02.22
E	FOR TENDER	KT		DH	04.03.22
F	PRE-IFC	KT		DH	14.04.22
1	FOR CONSTRUCTION	KT		DH	28.06.22

CLIENT

 **St Hilliers**

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ARCHITECT

DKO ARCHITECTURE

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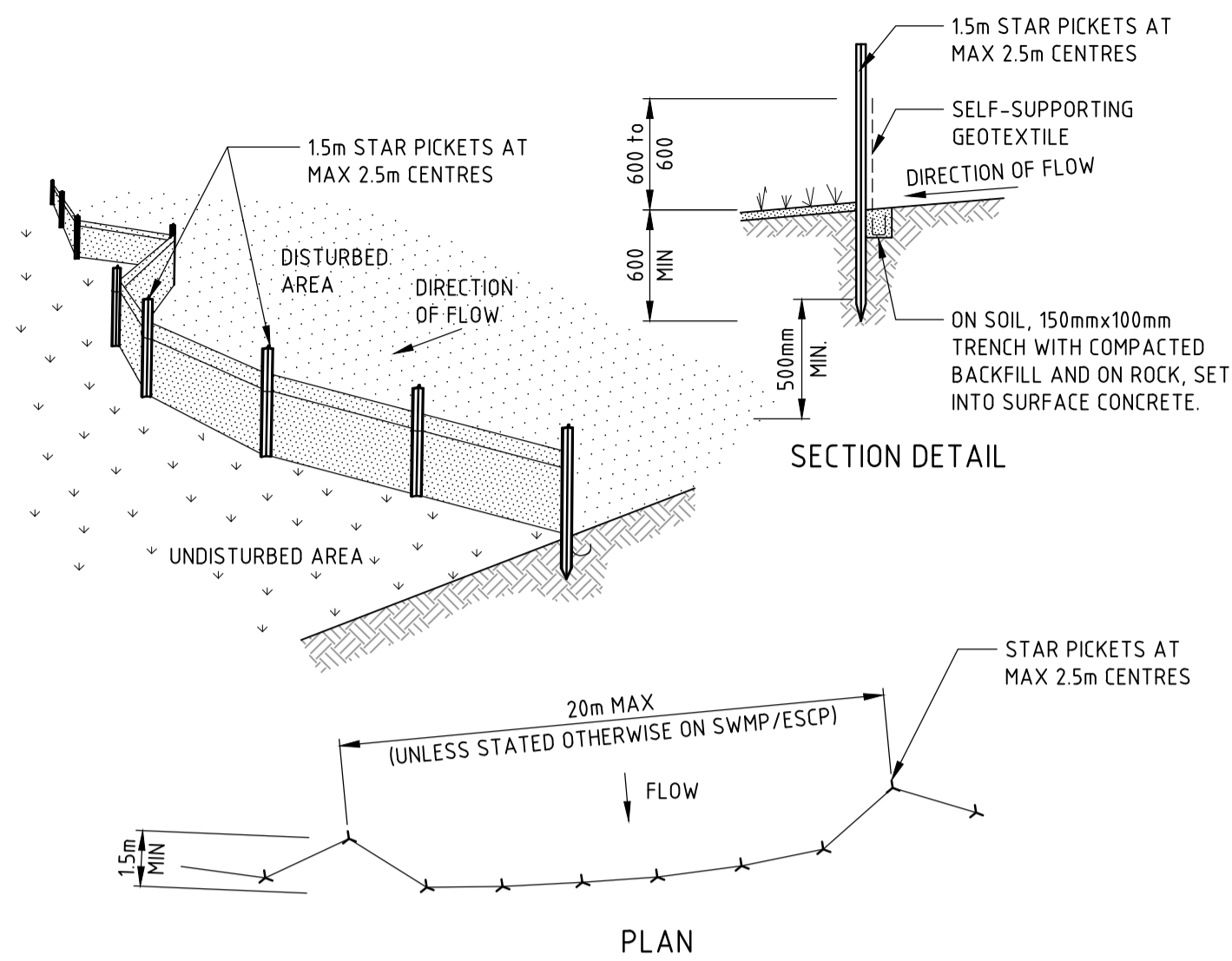
Central Coast

Suite 4, 257-259 Central Coast Hwy, Erina NSW 2250
Ph (02) 4365 1668 Fax (02) 4367 6555
Email centralcoast@northrop.com.au ABN 81 094 433 100

PROJECT

**CENTRAL COAST QUARTER
NORTH TOWER
26-30 MANN ST GOSFORD**

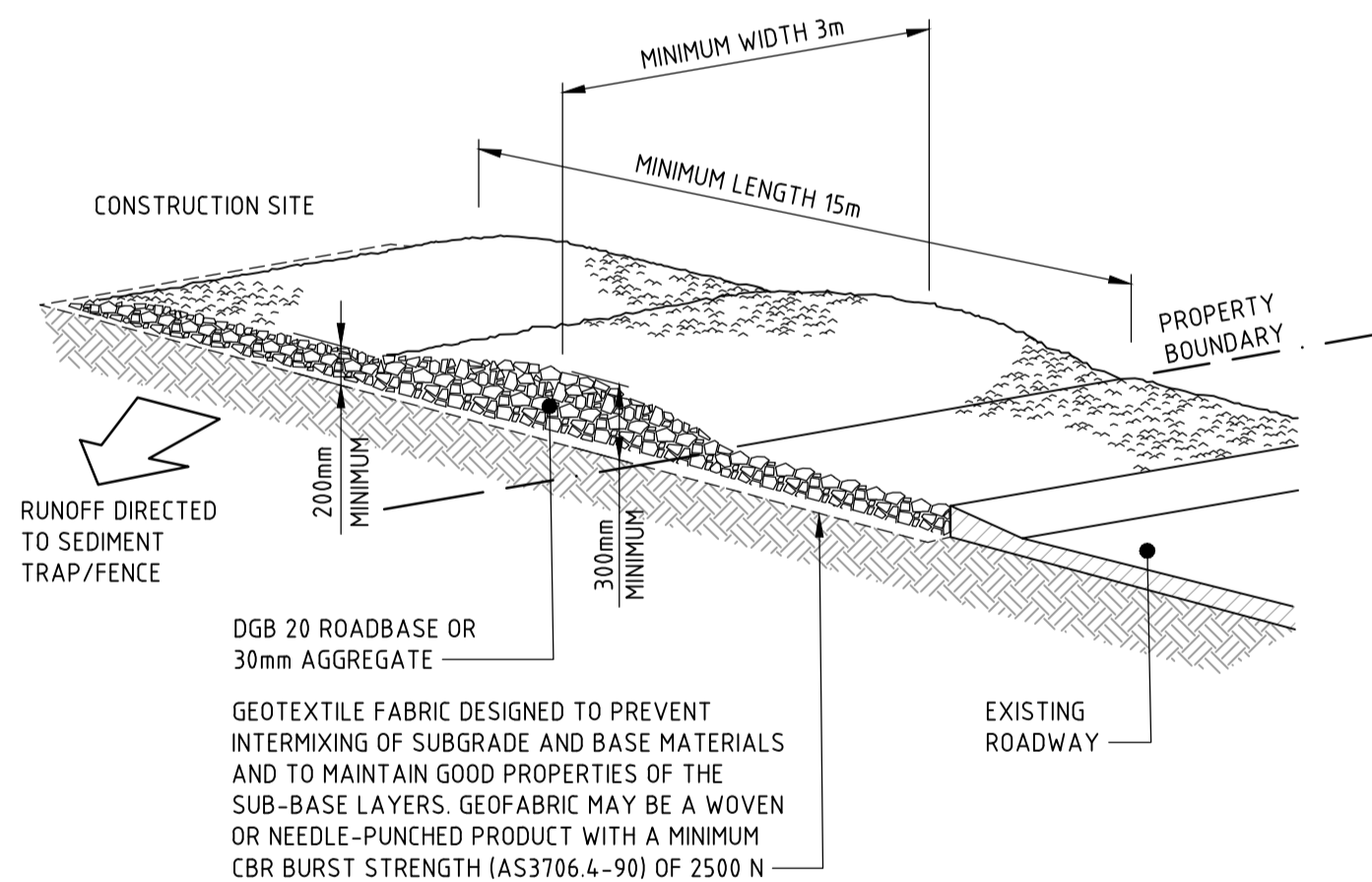
DRAWING TITLE INTERNAL CIVIL WORKS SOIL & WATER CYCLE MANAGEMENT PLAN	JOB NUMBER SY202243	
	DRAWING NUMBER C2.1	REVISION 1
	DRAWING SHEET SIZE = A1	
	DRAWING SHEET SIZE = A1	

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CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

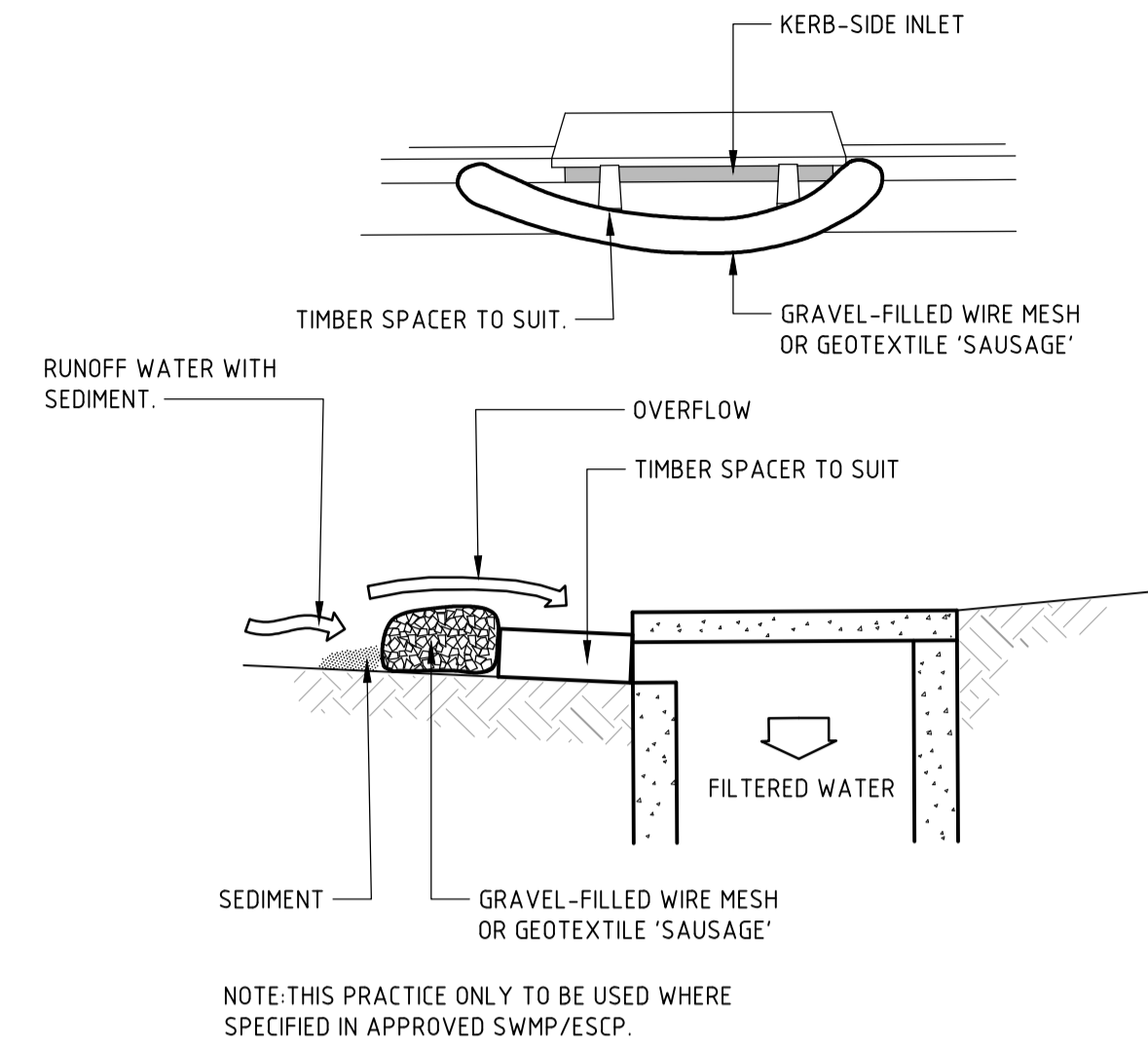
SEDIMENT FENCE (SD 6-8)



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

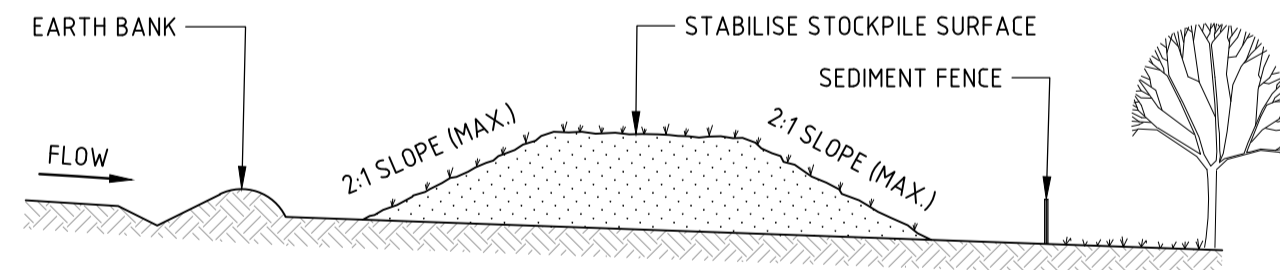
STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

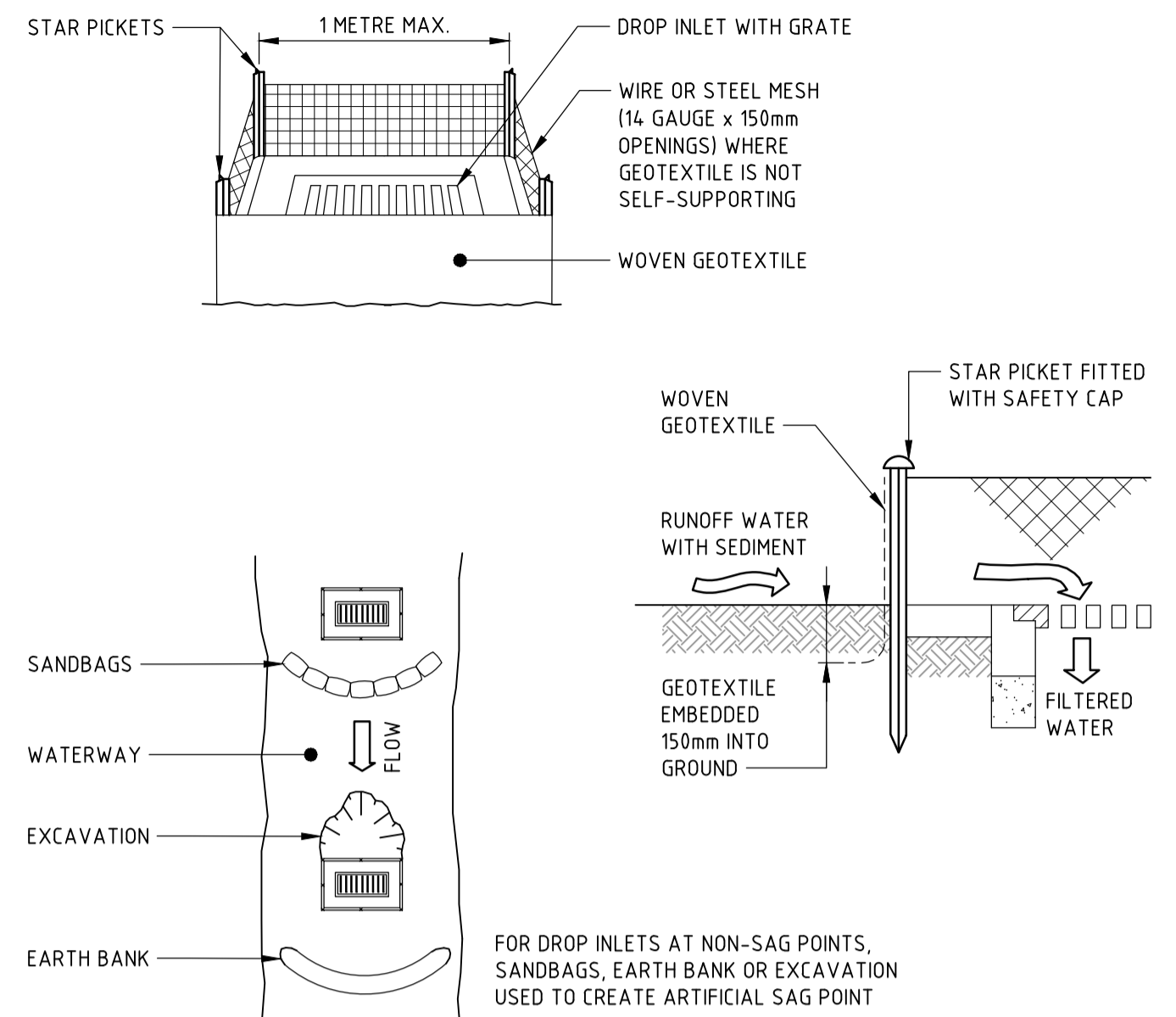
MESH AND GRAVEL INLET FILTER (SD 6-11)



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

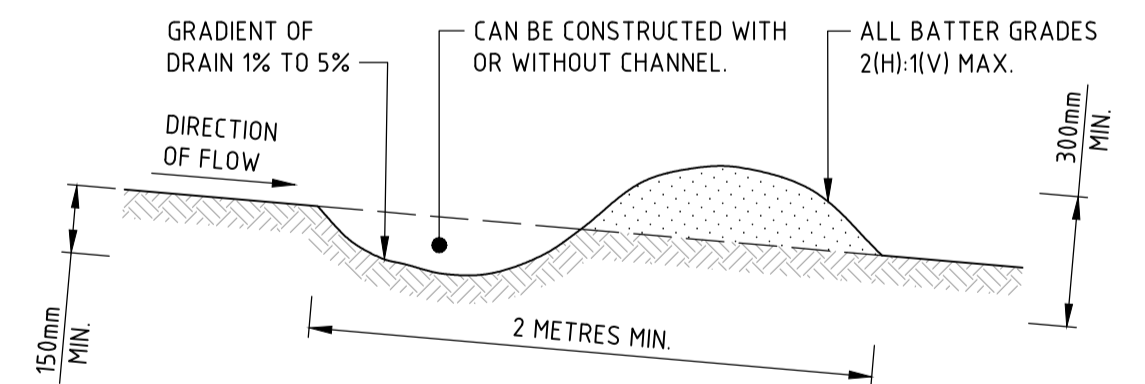
STOCKPILES (SD 4-1)



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER (SD 6-12)



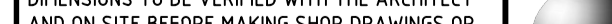

CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE – WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

NOTE: ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

EARTH BANK - LOW FLOW (SD 5-5)

DRAWN: KATHLEEN TURTON DESIGNED: ROBERT SUCKLING JOB MANAGER: DANIEL HOLLAND VERIFIER: DANIEL HOLLAND

REVISION		DESCRIPTION		ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		ALL SETOUT TO ARCHITECT'S DRAWINGS, DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR CORRECTING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.	PROJECT	DRAWING TITLE	JOB NUMBER	
A	DEVELOPMENT APPLICATION			KT		DH	22.03.21		DKO ARCHITECTURE		Central Coast Suite 4, 257-259 Central Coast Hwy, Erina NSW 2250 Ph (02) 4365 1688 Fax (02) 4367 6555 Email centralcoast@northrop.com.au ABN 81 094 433 100	CENTRAL COAST QUARTER NORTH TOWER 26-30 MANN ST GOSFORD	INTERNAL CIVIL WORKS SOIL & WATER CYCLE MANAGEMENT DETAILS	SY202243	
B	60% COORDINATION ISSUE			KT		DH	20.12.21							DRAWING NUMBER	REVISION
C	FOR TENDER			KT		DH	04.03.22							C2.2	1
D	PRE-IFC			KT		DH	14.04.22							DRAWING SHEET SIZE = A1	
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SH Gosford Residential Pty Ltd

Acid Sulfate Soils Management Plan

26-30 Mann Street, Gosford NSW

Purpose:

To provide an acid sulfate soils management plan for the treatment and disposal of potential acid sulfate soils at the site.

Prepared for:

Frank Katsanevas

Document Date:

August 2021

Reference:




S-02188.ASSMP.001 V3

Author Name	Kim Femia
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DOCUMENT CONTROL

Project Details:	
Report Name:	Acid Sulfate Soil Management Plan – 26-30 Mann Street, Gosford NSW
Client Name:	SH Gosford Residential Pty Ltd
Reference:	S-02188.ASSMP.001 V3

Revision No.:	Revision Date:	Author:	Reviewer:	Approver:	Reason for issue:
V1	16/12/2020	Kim Femia	Ryan Jacka	Ryan Jacka	First Issue to Client
V2	09/04/2021	Kim Femia	Ryan Jacka	Ryan Jacka	Amendments to site address and client name.
V3	31/08/2021	Kim Femia	Ryan Jacka	Ryan Jacka	Amendments to report logo, date and introduction and addition of table for SEARS.

Sign Off:		
Author:	Reviewer:	Approver:
		
Kim Femia	Ryan Jacka	Ryan Jacka
Senior Consultant	Principal Consultant	Principal Consultant

STATEMENT OF LIMITATIONS

This document has been prepared in response to specific instructions from the client to whom the report has been addressed. The work has been undertaken with the usual care and thoroughness of the consulting profession. The work is based on generally accepted standards, practices of the time the work was undertaken. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The report has been prepared for the use by the client and the use of this report by other parties may lead to misinterpretation of the issues contained in this report. To avoid misuse of this report, EDP advise that the report should only be relied upon by the client and those parties expressly referred to in the introduction of the report. The report should not be separated or reproduced in part and EDP should be retained to assist other professionals who may be affected by the issues addressed in this report to ensure the report is not misused in any way.

EDP is not a professional quantity surveyor (QS) organisation. Any areas, volumes, tonnages or any other quantities noted in this report are indicative estimates only. The services of a professional QS organisation should be engaged if quantities are to be relied upon.

Sampling Risks

EDP acknowledges that any scientifically designed sampling program cannot guarantee all subsurface contamination will be detected. Sampling programs are designed based on known or suspected site conditions and the extent and nature of the sampling and analytical programs will be designed to achieve a level of confidence in the detection of known or suspected subsurface contamination. The sampling and analytical programs adopted will be those that maximises the probability of identifying contaminants. The client must therefore accept a level of risk associated with the possible failure to detect certain subsurface contamination where the sampling and analytical program misses such contamination. EDP will detail the nature and extent of the sampling and analytical program used in the investigation in the investigation report provided.

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Soil contamination can be expected to be non-homogeneous across the stratified soils where present on site, and the concentrations of contaminants may vary significantly within areas where contamination has occurred. In addition, the migration of contaminants through groundwater and soils may follow preferential pathways, such as areas of higher permeability, which may not be intersected by sampling events. Subsurface conditions including contaminant concentrations can also change over time. For this reason, the results should be regarded as representative only.

The client recognises that sampling of subsurface conditions may result in some cross contamination. All care will be taken and the industry standards used to minimise the risk of such cross contamination occurring, however, the client recognises this risk and waives any claims against EDP and agrees to defend, indemnify and hold EDP harmless from any claims or liability for injury or loss which may arise as a result of alleged cross contamination caused by sampling.

Reliance on Information Provided by Others

EDP notes that where information has been provided by other parties in order for the works to be undertaken, EDP cannot guarantee the accuracy or completeness of this information the client therefore waives any claim against the company and agrees to indemnify EDP for any loss, claim or liability arising from inaccuracies or omissions in information provided to EDP by third parties. No indications were found during our investigations that information contained in this report, as provided to EDP, is false.

Recommendations for Further Study

The industry recognised methods used in undertaking the works may dictate a staged approach to specific investigations. The findings therefore of this report may represent preliminary findings in accordance with these industry recognised methodologies. In accordance with these methodologies, recommendations contained in this report may include a need for further investigation or analytical analysis. The decision to accept these recommendations and incur additional costs in doing so will be at the sole discretion of the client and EDP recognises that the client will consider their specific needs and the business risks involved. EDP does not accept any liability for losses incurred as a result of the client not accepting the recommendations made within this report.

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Appendix B: Acid Sulfate Soil Definitions and Potential Impacts

Appendix C: Contingency and Emergency Response Procedures

Appendix D: Unexpected Finds Protocol

Appendix E: Induction Records

Appendix F: Materials Tracking Record

GLOSSARY OF TERMS

Abbreviation:	Definition:
ASS	Acid Sulfate Soils (including Actual Acid Sulfate Soils and Potential Acid Sulfate Soils)
AASS	Actual Acid Sulfate Soil
ASSMAC	Acid Sulfate Soil Management Advisory Committee
ASSMP	Acid Sulfate Soil Management Plan
EPA	Environment Protection Authority
NATA	National Association of Testing Authorities
PASS	Potential Acid Sulfate Soils
pH _f	Field pH with the addition of deionised water onsite
pH _{fox}	Oxidised pH with the addition of peroxide onsite
SPOCAS	Suspension Peroxide Oxidation Combined Acidity and Sulfate

1. INTRODUCTION

SH Gosford Residential Pty Ltd (St Hilliers) engaged EDP Consultants Pty Ltd (EDP) to prepare an Acid Sulfate Soils Management Plan (ASSMP) for the vacant lot located at 26-30 Mann Street, Gosford NSW (the site). The objective of this ASSMP was to detail management strategies to mitigate the risks posed by the identified acid sulfate soils (ASS) at the site associated with the Stage 3 development works.

The site has an approximate land area of 8,884 m² and is legally defined as Lot 111 in Deposited Plan (DP) 1265226, Lot 469 in DP 821073, and Lots 2-7 in DP 14761.

Refer to **Figure 1** for the site location provided in **Appendix A**.

2. BACKGROUND

2.1 Project Appreciation

A mixed commercial land use has been proposed for development at the site. The proposed development includes the construction of a basement carpark covering the entire area, and three multi-storey residential/commercial structures situated above the basement.

The development is proposed to be carried out in three stages.

- Stage 1 – The newly constructed Australian Taxation Office building in the north of the site;
- Stage 2 – The newly constructed residential building in the mid-east of the site; and
- Stage 3 – The remaining area of an irregular shape of 8,884 m² (to which this ASSMP applies).

The ASSMP is to be submitted to the Department of Planning, Industry and Environment (DPIE) on behalf of the SH Gosford Residential and in support of an application for SSD application number 23588910 at 26-30 Mann Street, Gosford. The SSDA seeks consent for:

- Demolition of the existing retaining wall on site.
- Removal of three trees located at the site interface with Baker Street.
- Excavation to a depth of approximately 1.3 m to accommodate the proposed ground floor structure.
- Earthworks to level the site in readiness for the proposed building.
- Construction of a 25-storey (26 level) mixed-use building, comprising:
 - 621sqm of retail GFA.
 - 136 apartments, equating to 13,263sqm of residential GFA.
 - Four parking levels for 183 cars, with vehicular access from Baker Street.
 - Storage areas and services.
 - Communal open space.
- Publicly accessible through site link, including stairs, walkways, public lift, public art and landscaping.

An ASS investigation which identified potential ASS (PASS) was conducted at the site as a component of the updated Detailed Site Investigation (DSI) of the site, conducted by EDP (EDP Ref: S-02188.DSI.001 V4, dated August 2021) (EDP 2021a). Details of the ASS investigation are provided in **Section 6**.

2.2 Proposed Excavation, Construction Methods and Estimated Volumes

It is anticipated excavation would be carried out using conventional excavation equipment. Review of the plans indicating the finished surface levels, taking into account the additional excavation required to construct the proposed development, is expected that excavation would be required from 1 m to 2 m depth for the proposed carpark and building. Given this information and the plan dimensions of the proposed carpark, it is anticipated that approximately 600 m³ to 800 m³ would be disturbed during its construction. With regard to the building footprint, it is expected that approximately 5,000 m³ of soil would be disturbed during construction.

3. OBJECTIVES

This ASSMP was developed to assist in the effective management of the environmental risks associated with ASS during the proposed civil works to be undertaken at the site. The objectives of the ASSMP are to:

- Ensure field staff are aware and can identify ASS during the proposed works;
- Ensure appropriate control measures are adopted to protect the environment;
- Provide a framework to manage waste soils which are potentially acid sulfate generating during the proposed works; and
- Provide options for long-term management of ASS materials remaining in-situ.

4. TECHNICAL FRAMEWORK

This ASSMP has been developed in general accordance with the following documents:

- NSW Work Health and Safety Act 2011;
- NSW Work Health and Safety Regulation 2017;
- NSW EPA Waste Classification Guidelines 2014: Part 1 – Classifying Waste; and Part 4 – Acid Sulfate Soils 2014 (NSW EPA 2014);
- NSW EPA Protection of the Environment Operations (POEO) Act 1997;
- NSW EPA POEO (Waste) Regulation 2014;
- NSW EPA Contaminated Sites Sampling Design Guidelines 1995; and
- ASSMAC Acid Sulfate Soils Assessment Manual 1998 (ASSMAC Manual 1998);
- Queensland Government, Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines 2014;
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2000 (ANZECC 2000);
- NSW EPA Environmental Guidelines: Assessing and Managing Acid Sulfate Soils 1995;
- NSW EPA Contaminated Land Guidelines, Guidelines for Consultants Reporting on Contaminated Land 2020;
- NSW EPA Guidelines for the Site Auditor Scheme, 3rd Edition 2017;
- National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 and Amendment 2013 (NEPM 2013);
- Australian Standard (AS) 4482.1, Guide to Investigation and Sampling of Sites with Potentially Contaminated Soil, Part 1: Non-volatile and Semi-volatile Compounds 2005 (AS4482.1-2005);
- AS4482.2, Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 2: Volatile Substances 1999.

The ASS assessment criteria as based on the ASSMAC Manual 1998 which incorporates the following guidelines:

- ASSMAC Acid Sulfate Soil Assessment Guidelines 1998;
- ASSMAC Acid Sulfate Soil Planning Guidelines 1998;
- ASSMAC Acid Sulfate Soil Management Guidelines 1998; and
- ASSMAC Acid Sulfate Soil Laboratory Method Guidelines 1998.

The ASS Manual 1998 provides advice on best practice in planning, assessment and management of activities in areas containing ASS. These guidelines update and expand on the NSW EPA Environmental Guidelines: Assessing and Managing Acid Sulfate Soils 1995.

5. SITE INFORMATION

5.1 Site Identification

Site identification details are summarised in **Table 1** and the location of the site is shown on **Figure 1** and site layout on **Figure 2**, provided in **Appendix A**.

Table 1: Site Identification

Site Identification	
Site Address:	26-30 Mann Street, Gosford NSW
Legal Identification:	Lot 111 in DP 1265226, Lot 469 in DP 821073, Lots 2-7 in DP 14761.
Local Government Area:	Central Coast Council
Investigation Area:	8,884 m ²
Current Zoning:	B4 – Mixed Use under the State Environmental Planning Policy (Gosford City Centre) 2018
Former Land Use:	The site was the former Gosford Public School until its demolition in 2014. More recently, the site has been used as a construction yard, temporary offices, car parking and storage for the adjoining Stage 1 and 2 developments.
Current Land Use:	Vacant land
Acid Sulfate Soils:	A review of ASS information contained within the online Australian Soil Resource Information System database indicated there was a high probability/high confidence of acid sulfate soils occurring beneath the site. Further review of Council's Acid Sulfate Soils Risk Map indicated that the site was situated within Class 2 Terrain. Class 2 terrain indicates that development consent is required where works are expected to occur below the natural ground surface, or by which the water table is likely to be lowered. Based on the intrusive investigation conducted, PASS is known to exist within the natural subsoil materials underlying the fill at the site.
Proximity to Local Sensitive Environments:	No surface water bodies were noted to be present at the site. The nearest offsite sensitive receptor appears to be Brisbane Water, approximately 150 m to the south-west of the site.

6. PREVIOUS ACID SULFATE SOIL ASSESSMENTS

6.1 Summary of Previous Acid Sulfate Soils Investigation

The most recent intrusive assessment incorporating ASS investigation at the site was undertaken by EDP in October 2020 (*EDP Updated DSI for 26-30 Mann Street, Gosford NSW: EDP Ref: S-02188.DSI.001*), dated October 2020 (EDP 2020).

In summary, a total of 25 sampling locations were investigated to target the fill and natural soil horizons to a maximum depth 5.0 m below ground level (mbgl). EDP 2020 sampling locations are shown on **Figure 2**, provided in **Appendix A** of this report.

Interpretation of the presence and extent of ASS based on EDP 2020 is summarised as follows:

- Actual ASS was not identified at the site during the assessment;
- PASS was identified within the natural soils starting at varying depth horizons, as shallow as 0.5 m to as deep as 1.5 m, underlying the fill material across the site; and
- The PASS impacted soil encountered during the EDP 2020 assessment predominantly consisted of dark brown/black fine-grained clayey sand and stiff grey clay with an organic odour.

6.2 Assessment Criteria

Assessment of ASS conditions and the impacts of the proposed development were based on information provided in the ASSMAC Guidelines 1998 presented in the ASSMAC Manual 1998. The ASSMAC Guidelines 1998 include information on assessment of the likelihood that the site lies within an ASS area, the need for an ASS management plan, and the development of mitigation methods for the proposed development.

The guidelines provide action criteria which determine the need to prepare an ASSMP, based on the percentage of oxidizable sulfur or Total Potential Acidity (TPA), for broad categories of soil. The action criteria adopted for the EDP 2020 investigation are provided in the **Table 2**.

Table 2: Action Criteria

Type of Material		Action Criteria 1–1000 tonnes ASS disturbed		Action Criteria if more than 1000 tonnes disturbed	
Texture range. McDonald et al. (1990)	Approx. clay content (%<0.02mm)	Sulfur trail % S oxidisable (oven-dry basis) e.g. STOS or SPOS	Acid trail mol H ⁺ /T (oven-dry basis) e.g. TPA or TSA	Sulfur trail % S oxidisable (oven-dry basis) e.g. STOS or SPOS	Acid trail mol H ⁺ /T (oven-dry basis) e.g. TPA or TSA
Coarse Texture	<5	0.03	18	0.03	18
Sands to loamy sands	5 - 40	0.06	36	0.03	18
Medium Texture	>40	0.1	62	0.03	18

The action criteria for coarse textured soils (sands to loamy sands) and >1000 tonnes disturbed was adopted for the EDP 2020 assessment.

6.3 Summary of Analytical Results

6.3.1 Acid Sulfate Screen Analysis

A total of 36 selected soil samples were analysed for presence of ASS by way of an initial ASS field screen (in accordance with ASSMAC Guidelines 1998 Section 2.2). A review of analytical results indicated the following:

- pH_f (pH prior to oxidation) ranged between 4.8 and 6.7;
- pH_{fox} (pH post oxidation) ranged between 2.6 and 6.7 (six samples recorded pH_{fox} less than 3); and
- The observed reaction of soil samples varied from low to extreme, indicating a varied risk of acid generation in oxidised at the site.

Based on the review of the acid sulfate screen analytical results, additional analysis was required to determine the risk of site soils being ASS, and determine an appropriate liming rate, should liming be required.

6.3.2 Chromium Reducible Sulfur

A total of 22 samples were selected for additional analysis (chromium suite), to ascertain physiochemical properties of the subject soils that could be compared to the adopted action criteria. This allowed for the determining of the risk posed by the subject soils pertaining to sulfate derived acidity and total potential acidity, allowing informed decisions regarding the management soils at the site to be made.

Review of analytical results showed varying degree of total actual acidity and sulfidic acidity within samples assessed. Analysis identified soils with moderate potential acidity with generally mild oxidisable sulfur, indicating other acidity sourced (i.e. organic matter) were present within the subject soils.

6.4 Conclusive Statement

Based on the findings of the EDP 2020 site assessment and review of the analytical results, EDP found that potential acidity existed within underlying natural soils at the site that exceeded the adopted ASS criteria. Therefore a risk of acidic and acid generating soils was identified within some soils underlying the site, that must be treated as ASS. Based on EDP's understanding of the proposed development at the site, these soils were expected to be impacted by the proposed development. Therefore, a site specific ASSMP was deemed to be a requirement for the proposed Stage 3 development works, in order to detail the appropriate management strategies required to mitigate the infrastructural and environmental risks posed by the ASS at the site.

6.5 Historical Acid Sulfate Soil Investigation

A DSI undertaken by Coffey Environmental (Coffey) in 2019 (Coffey Ref: SYDGE214942-AC_Rev4, dated August 2019) (Coffey 2019) included analysis of selected soil samples for the presence of ASS. A review of Coffey 2019 ASS analytical results indicated the following:

- pH_f ranged between pH 5.5 and pH 10.
- pH_{fox} ranged between pH 2.9 and pH 8.4 (only one sample recorded pH_{fox} <3).

Eight selected soil samples were further analysed using the sPOCAS method. The laboratory results did not contain potential and actual acid sulfate soils given that Sulfur (KCl extractable) and Peroxide Oxidisable Sulfur were both detected below laboratory's limits of reporting.

Coffey 2019 concluded that based on the results, there is a relatively low likelihood of widespread presence of ASS in the alluvial material from the site.

7. ACID SULFATE SOIL DELINEATION AND MANAGEMENT STRATEGY OVERVIEW

7.1 Acid Sulfate Soil Occurrence

Based on the results of the EDP 2020 assessment it was considered that the following soils have an elevated risk of containing PASS and should be assumed to be PASS unless further investigation confirms otherwise:

- Dark brown/black fine-grained clayey sand; and
- Stiff grey clay.

PASS was identified within the natural soils from varying depths as shallow as 0.5 m to as deep as 1.5 m underlying the fill material across the site.

7.2 Management Strategy Overview

ASS management will be required to prevent adverse impacts occurring to the environment and infrastructure from ASS during the proposed excavation works at the site. As acidity is transported by water, excavation should be conducted during dry periods as far as possible as this will minimise the risk associated with water acidification during the works.

Based on the nature of the works, and the identification of PASS within the natural soils planned for disturbance, the recommended ASS management strategy for the proposed works should be undertaken over three stages:

- Stage 1: Onsite treatment prior to off-site disposal;
- Stage 2: Disposal of treated ASS offsite; and
- Stage 3: Onsite remediation for materials remaining in-situ.

8. RESPONSIBILITIES

A copy of this ASSMP should be kept onsite at all times and anyone who will conduct work within the site or will be undertaking future works must be inducted into this ASSMP.

Table 3 provides a summary of responsibilities of interested parties onsite which relates to the project.

Table 3: Summary of Responsibilities

Position/Organisation	Report to	Summary of Responsibilities
St Hilliers	Regulatory Authorities (as required)	Engage Civil Contractor. Engage a suitably qualified environmental consultant (eg. EDP) Provide funding for approvals. Communicate requirements to all contractors. Review documentation provided by contractors.

Position/Organisation	Report to	Summary of Responsibilities
		Review the ASSMP and any other reports developed by consultants. Ensure the ASSMP is implemented correctly. Ensure the ASSMP is available to anyone conducting excavation works onsite.
Civil Contractor	St Hilliers	Must have experience in managing, treating and disposing ASS. Complete SafeWork NSW permits and notification as required. Notify landfill for acceptance of the waste and adhere to landfill requirements. Undertake ASS treatment, soil and wastewater removal in accordance with their contract and ASSMP requirements for the site. Follow instructions by environmental consultant during the works. Regularly inspect and monitor all activities for adherence to appropriate environmental standards. Undertake works in a safe and environmentally responsible manner and in accordance with legislative requirements. Management of unexpected constraints and conditions that may arise during the works.
Environmental Consultant (eg. EDP)	St Hilliers	Must be experienced in contamination assessments including the identification and management of ASS. Provide work, health and safety and environmental consultancy to St Hilliers. Ensure works are undertaken in accordance with this ASSMP and current legislative requirements. Provide validation testing for ASS and waste classification assessments prior to off-site disposal as required. Track all materials moving on and off-site. Undertake surface water monitoring as required.

9. STAGE I: ONSITE TREATMENT PRIOR TO OFF-SITE DISPOSAL

The strategy outlines the onsite neutralisation, management, monitoring and validation of ASS within soils planned for off-site disposal. This strategy should be undertaken as required using the methodology outlined below.

9.1 Site Setup

Responsible Party: Civil Contractor

An appropriate assessment/treatment area must be constructed for the treatment of excavated soils. The soils are to remain within this area until the treated soils are considered appropriate to be removed off-site. The assessment/treatment area should be constructed in accordance with the *ASSMAC Management Guidelines 1998* and the *Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines 2014*.

Allowances should be made during construction planning to reserve sufficient land to allow for these items.

Figure 1 below shows a cross section of a typical treatment pad.

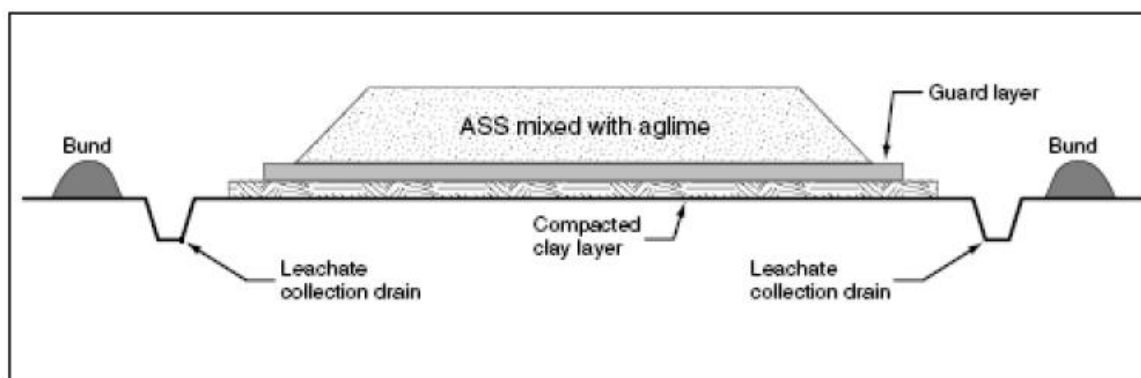


Figure 1: Schematic cross-section of a treatment pad, including clay layer, guard layer, leachate collection system and containment with bunding

The assessment/treatment area should be prepared as follows:

- Prepare a treatment pad of appropriate area for the volume of soil to be treated/stored. The pad should be prepared on relatively level or gently sloping ground to minimise the risk of any potential instability issues.
- It is recommended that the ASS assessment/treatment area must be constructed on hardstand or a similar impervious layer such as high-density polyethylene (HDPE) sheeting, and shall be within a portion of the site that does not lie in a natural drainage line.
- Apply a guard layer of fine agricultural lime (ag-lime) over the impervious layer, to neutralise downward seepage. This guard layer should be applied at a rate of 5 kg of ag-lime/m² per vertical meter of fill. The guard layer should be re-applied following removal of treated soils prior to addition of untreated ASS.
- Liming pads should be bunded with onsite soils not classified as PASS and a perimeter drain excavated to collect and contain leachate. The bunds should be preferably constructed of low permeability soil (i.e. clay) or, where suitable soil is not available, hay bales covered with impermeable plastic, with bunds at least 0.3 m high around the entire stockpile/treatment area. The drain and inner bund slopes should have a layer of ag-lime applied to neutralise any possible leachate migrating from the stockpiled material.

It should be noted that alternate methods for establishing an appropriate assessment/treatment area may be considered due to practicality constraints onsite. This would be subject to achieving the required treatment standard to the satisfaction of a suitably qualified environmental consultant.

9.2 Treatment Process

Responsible Party: Civil Contractor and Environmental Consultant

The treatment process should involve the following:

- Removal of non-ASS overburden from the soils containing ASS (i.e. remove the fill layer) to the satisfaction of a suitably qualified environmental consultant;
- Transport ASS material requiring treatment to the assessment/treatment area;
- Manage ASS during stockpiling and treatment to minimise dust and leachate generation (eg. by covering, or lightly conditioning with water). If wet weather prevails, stop works and cover the stockpiled material with a HDPE sheeting to reduce the formation of leachate;
- Limit the surface area of the ASS exposed to oxygen by forming relatively high-coned stockpiles;
- Material must be treated as soon as practical. Several treatment areas may be required for stockpiling and treatment, depending on the quantity of ASS material excavated;
- Spread the ASS onto the guard layer in a layer of 0.2 to 0.3 m thickness. When spreading the first soil layer, care should be taken not to churn the lime guard layer;
- Let the ASS dry to facilitate lime mixing (if too wet, then adequate mixing of lime cannot be undertaken);
- Apply ag-lime (refer to **Section 9.3**) to the stockpiled soil, at the indicative liming rate in **Section 9.4** and harrow/ mix thoroughly prior to spreading the next layer;

- Continue the spreading/liming/mixing cycle. This can be done one layer at a time, or with multiple ASS layers placed on top of each other;
- Assess the success of the treatment using validation testing in accordance with **Section 9.5**;
- Samples will need to be collected from all layers, which is likely to require use of plant for sampling;
- If validation sampling indicates that additional neutralisation is required, add additional lime and mix;
- When validation testing indicates that lime neutralisation is complete in accordance with **Section 9.5.1**, then the stockpiled soil may be assessed for waste classification purposes;
- Undertake waste classification assessment and dispose off-site in accordance with **Section 10**;
- Management of leachate and wastewater in accordance with **Section 12**.

Given that excavation of acidic and ASS will be required for the proposed development, the excavated soils should be stockpiled such that the acidic soils are segregated from the ASS and that these soils are also segregated from the non-ASS.

Additionally, stockpiles of ASS should be kept moist to minimise oxidation, prior to lime treatment. They should be covered to prevent rainfall leaching through the stockpile and possibly creating acidic runoff and be located as far away as possible from any sensitive receptors (e.g. waterways, drainage channels etc.)

9.3 Neutralising Materials for Soils

Responsible Party: Civil Contractor and St Hilliers

An appropriate neutralising agent must be selected for the works. Ag-lime is the preferred neutralisation material for the management of ASS. Ag-lime comprises calcium carbonate (CaCO_3), typically made from limestone that has been finely ground and sieved to a fine powder. Ag-lime with a purity of 95% or better should be used (i.e. $\text{ENV} \geq 95$, where ENV is the effective neutralising value, a term used to rate the neutralising power of different forms of materials relative to pure, fine CaCO_3 which is designated $\text{ENV} = 100$). The ag-lime should be fine and dry, as texture and moisture can also decrease the ENV.

9.4 Lime Application Rate

Responsible Party: Civil Contractor and Environmental Consultant

The amount of lime required for treatment of ASS material must be estimated based on the laboratory analytical results detailed in EDP 2020 ASS assessment.

Based on the results of the Chromium Reducible Sulfur suite, a liming rate was calculated (kg of CaCO_3 /tonne of soil), detailing the volume of lime required to neutralise the acidity present within the soils, based on total and potential acidity as well as the acid neutralising capacity of the soils. For the 22 samples subject to this suite of analysis, the liming rate varied from <0.75 kg/tonne to 6.5 kg/tonne.

EDP 2020 identified varied amounts of actual and potential acidity within soils at the site, leading to varied calculated liming rates, depending on sampling location. Given the range of results, it is considered that there a high risk that excavated natural soils will be potential or actual ASS. As such, all excavated natural soils must be subject to liming.

Using the most conservative analytical results of EDP 2020 and assuming the use of 95% ENV ag-lime value of 0.05% oxidisable sulfur for soils between horizon depths starting from 0.5 down to 1.5 mbgl. The estimations were made with reference to Tables 4.5 and 4.6 in the ASSMAC Management Guidelines 1998.

Based on the above, the liming rate recommendation is:

- **10 kg of ag-lime per tonne of soil excavated.**

It should be noted that the acid production will vary both horizontally and vertically through the ASS profile due to the variability of natural systems. The liming rate to be calculated from the analytical results should therefore be considered as a 'starting point', and pH monitoring should be conducted during treatment to assess the progress of the neutralisation, and need for additional mixing and/or addition of ag-lime.

Material will only be considered to have been successfully treated when all soil has been validated in accordance with **Section 9.5.1**. If an alternate neutralising product is used, a specific dosing rate will need to be calculated.

A useful online liming rate calculator provided by the Western Australian Government, Department of Environment Regulation can be used for updating liming rates if more analytical data becomes available during the works.

Liming Rate Calculator: <https://www.der.wa.gov.au/your-environment/acid-sulfate-soils/67-lime-rate-calculations-for-neutralising-acid-sulfate-soils>

For material remaining in-situ, an application of lime should be applied by dusting the top surface of the soil following excavation. The intent is to form a narrow crust of neutralised soil to prevent significant acid generation. However excessive amounts of lime should not be applied to prevent altering the chemistry of the receiving waterbody. It should be noted that in-situ material does not require validation, however ongoing monitoring may be required for soil and water parameters at the site.

9.5 Validation Testing

Responsible Party: Civil Contractor and Environmental Consultant

A suitably qualified environmental consultant must conduct all validation inspections and validation sampling required during the treatment works. The validation assessment should be conducted progressively throughout the bulk excavation works, following the neutralisation and blending of each stockpile of material. The validation assessment shall be undertaken as follows:

- During and following neutralisation, the stockpiled soils will require pH screening to confirm that the appropriate quantities of lime have been added and the soils have been suitably mixed/blended:
- The pH testing should be undertaken on the treated material at the following frequency:
 - 1:25 m³ of treated soil or a minimum of four samples per treatment batch.
 - pH to be measured using 1:5 soil:water (pH_f) and field oxidised 1:4:1 soil:water:peroxide (pH_{fox}).
- NATA accredited laboratory testing using appropriate laboratory methods including sPOCAS or Chromium Reducible Sulfur suite should also be undertaken at a frequency of at least 1:250 m³ from within the treated material, as outlined below, to validate the lime neutralisation:
 - Validation sampling locations to be selected on:
 - Systematic sampling (gridded) pattern;
 - Visual inspection for indications of ASS during site inspection; and
 - Accessibility of the proposed sampling location.
 - Validation samples shall be collected using the following methodology:
 - Soil samples will be recovered from a minimum of 0.3 m beneath the soil surface of the stockpile utilising hand equipment;
 - Nitrile gloves will be used during sampling, with a change of gloves between each sampling location;
 - Soil samples will be collected in sampling containers provided by the analysing laboratory, ensuring sufficient sample is collected for the required analysis;
 - All containers will be clearly labelled with unique sample identification; and
 - All samples will be stored on ice prior to dispatch and during transportation to the nominated laboratory under chain of custody procedures.
- Compare the validation results with the acceptance criteria given in **Section 9.5.1**. If all results meet the acceptance criteria, the ASS will be considered to have been successfully treated and may be disposed off-site to an appropriately licensed waste facility following the procedures outlined in **Section 10**.
- Analytical results are to be compiled into a ASS stockpile validation report and incorporated into this ASSMP.

9.5.1 Acceptance Criteria for Treated Acid Sulfate Soils

The acceptance criteria are based on the results of field pH screening and sPOCAS or Chromium Reducible Sulfur testing. Appropriate neutralisation will have been considered where:

- Field pH (pH_f) = 6.0-8.5;

- Oxidised pH (pH_{fox}) = >5; and
- sPOCAS or Chromium Reducible Sulfur suite = Analytical results of the treated material must demonstrate compliance with adopted validation criteria through proving that the acid neutralising capacity (ANC_E) is greater than peroxide oxidisable sulfur (S_{POS}) and that no additional liming is required.

Further treatment of the soil will be required if any of the above conditions are not met. Once successfully treated, further assessment will be required to facilitate off-site disposal as detailed in **Section 10**.

10. STAGE 2: OFFSITE DISPOSAL OF TREATED ACID SULFATE SOILS

Responsible Party: Civil Contractor and Environmental Consultant

Following successful treatment of ASS, the environmental consultant must undertake chemical assessment of the soils, or alternatively review the available chemical data for the soils for comparison against NSW EPA 2014 criteria in order to facilitate off-site disposal, if required.

Stockpiled materials will need appropriate storage onsite to await for the waste classification to be undertaken. As a minimum, each stockpile will need to be maintained and secured within the assessment/treatment area and covered with weighted HDPE sheeting to prevent leachate generation whilst awaiting waste classification assessment results.

Prior arrangements should be made with the waste facility to ensure that it is licensed to accept the waste. The waste facility should be informed that the PASS has been treated in accordance with the neutralising techniques outlined in this ASSMP produced in accordance with ASSMAC Manual 1998 and that the waste has also been classified in accordance with NSW EPA 2014.

11. STAGE 3: ONSITE REMEDIATION OF SOILS

Responsible Party: Civil Contractor and St Hilliers

Following excavation across the site, remaining soils exposed within the site will require long-term ASS management. This will include, but not be limited to, onsite remediation of the soils through the possible incorporation of neutralising agents to the surface layers application of organic matter and planting acid tolerant species.

The techniques provided in the *ASSMAC Management Guidelines 1998* have been adapted for the site as follows:

- Apply ag-lime into the surface layers of the soils (nominal depth of 0.1 m) at an application rate of 1 kg /m² following excavation to form a narrow crust of neutralised soil to prevent significant acid generation. Note that excessive amounts of lime should not be applied to prevent altering the chemistry of the receiving environment. This should be undertaken during dry periods as far as possible to maximise the neutralisation process.
- Organic matter content should be increased by incorporating composted green waste or other composted materials into the surface of the soils.
- Encourage the growth of water and acid tolerant species that will assist in building up an organic peat layer across the site.
- Develop an ongoing monitoring program to track changes in soil and water within the receiving environment.

Important Note: Neutralising agents are an essential component of most ASS management proposals and the impacts of using these products in naturally soft acidic freshwater habitats are not adequately understood. What is known is that neutralising agents can alter naturally low pH environments that have organic-sourced acidity and can increase water hardness, causing changes to habitat that ultimately result in species, population and ecological system shifts.

12. WATER MANAGEMENT

12.1 Leachate and Wastewater Management

Responsible Party: Civil Contractor

Given the presence a shallow groundwater table and the likelihood of the acidic and ASS being saturated during excavation, it is expected that dewatering will be required and that leachate will be generated form the stockpiled soils. Given the presence of acidic and ASS, it is possible that the leachate / groundwater may have an adverse impact on the environment, if untreated. Any leachate / groundwater generated should be collected for subsequent monitoring and treatment as required. The following is recommended:

- Eliminate need for dewatering, where possible.
- Minimise the time and volume of dewatering (i.e. staged dewatering and excavation over relatively short durations), if undertaken.

The pH of leachate water or water extracted during dewatering operations should be monitored and adjusted prior to discharge. Adjustment of pH should be undertaken if discharge water falls outside the discharge quality limits specified for discharge to the sewerage or stormwater system (subject to regulatory approval) or the land via evaporation/infiltration. The pH levels should also be compared to background levels of nearby waters.

The amount of neutraliser required to be added to the discharged leachate/groundwater can be calculated from the equation below:

$$\text{Alkali Material Required (kg)} = [(M_{\text{Alkali}} \times 10^{-\text{pH initial}}) / 2 \times 10^3] \times V$$

Where: pH initial = initial pH of leachate

V = volume of leachate (litres)

M_{Alkali} = molecular weight of alkali material (g/mole)

The alkali should be added to the discharged leachate/groundwater water as slurry. Mixing of the slurry is best achieved using an agitator. Leachate water collected from bunded areas and stockpiles (in catch ponds), and extracted groundwater should be neutralised as necessary before release. Calcined magnesia (magnesium hydroxide, burnt magnesite, or magnesia) is the recommended neutralising agent as it produces a two-step reaction, which proceeds rapidly at acidic pH and slows down as higher pH is approached, and hence reduces the potential for over neutralisation to occur. Furthermore, whilst ag-lime is well suited to the treatment of soils, it does not dissolve well in water, hence it is not very effective at adjusting the pH of water. Hydrated lime ($\text{Ca}(\text{OH})_2$) is more soluble than ag-lime making it more suited to treating water, but it has a high pH value (pH ~12). Therefore, if hydrated lime is to be used to treat water, then it should be added incrementally with care and thoroughly mixed to prevent overshooting the desired pH. As a guide, the approximate quantities of hydrated lime provided in **Table 4**, would be required to neutralise acidic water.

Table 4: Recommended Approximate Liming Rates for Water

Water pH	Water Extraction Rate		
	2 m ³ /hr	5 m ³ /hr	10 m ³ /hr
2	0.74	1.85	3.7
3	0.074	0.185	0.37
4	0.0074	0.0185	0.037
5	0.00074	0.00185	0.0037
6	0.000074	0.000185	0.00037

Notes: Liming rates are for hydrated lime (kg of $\text{Ca}(\text{OH})_2$)

12.1.1 Water Discharge Criteria

Notwithstanding any additional regulatory requirements placed on water disposal by Central Coast Council, it is recommended that Council's Policy for the Discharge of Liquid Trade Waste and Septic Waste to the Council's Sewerage System and the ANZECC 2000 criteria are met before discharging any water, leachate or groundwater to the environment, as detailed in **Table 5**.

Table 5: Water Discharge Criteria

Indicator	Sewer	Stormwater	Land Application
pH	7.0 – 9.0	6.0 – 8.0	6.0 – 8.0 (or within background levels)
Total suspended solids (TSS)	300 mg/kg (600 mg/L) ²	25 mg/L	NA
Visible oil & grease	NA	None visible	None visible
Total dissolved solids (mg/L)	1,000	10,000	1,000

Notes:

1. Field measurement of turbidity may be substituted for TSS subject to regulatory approval. Correlation of Turbidity to TSS is dependent on site specific factors and it is recommended that if turbidity is to be monitored then the relationship should be established at the commencement of the monitoring programme. Notwithstanding, an initial approximate correlation of turbidity to TSS would be 0.5 NTU approximates 1 mg/L TSS.

2. It is understood that concentration up to 600 mg/L may be accepted by GCC for some sites.

13. REPORTING

ASSMAC Manual 1998 does not require formal reporting of ASS management however, it is important to keep records of the management and validation process to show compliance with the guidelines.

A record of management, treatment, monitoring, validation and disposal of ASS should be maintained by the Civil Contractor and provided to St Hilliers and should include the following details:

- Date(s) of works involving ASS;
- Location/area and depth of excavated ASS;
- Waste facility location and copy of licence;
- Where relevant for neutralisation of ASS, an ASS stockpile validation report should be prepared which includes:
 - Neutralisation process undertaken;
 - Liming rate utilised;
 - Results of field and analytical testing and comparison to acceptance criteria;
 - Neutralised ASS disposal (landfill) location; and
- Tonnages of material treated/disposed and waste dockets.

14. CONSULTATION AND COMMUNICATION

All project personnel, subcontractors and consultants will receive training in both St Hilliers and their personal environmental obligations during the inductions and toolbox talks.

All project personnel will undergo a general project induction prior to commencing work with St Hilliers. This will include an ASS component to reinforce the importance of management and the measures that will be implemented to address ASS issues at the site.

Site inductions and toolbox talks will highlight the specific environmental requirements and activities being undertaken at the site. These will be based on the measures outlined in the specific Safe Work Method Statements. Examples of topics that should be covered during project induction and toolbox talks include:

- Location and planned disturbance of ASS at the site;

- Management procedures in place for handling and treating ASS impacted soils;
- Site set up and location of ASS treatment areas; and
- Unexpected discovery of ASS.

15. ENVIRONMENTAL INCIDENT & COMPLAINTS MANAGEMENT

Details of all complaints received or incidents must be recorded on the Complaint/Incident Record Form provided in the site Environmental Management Plan, with the information to be recorded to include, as a minimum:

- Date and time that the complaint was received, or the incident occurred;
- The name, address and contact details of the person making the complaint, or reporting the incident;
- The name of the person who received the complaint, or received notification of the incident;
- A brief description of the issue; and
- A summary of the actions implemented to address the complaint/incident, including the dates that these actions were implemented and the signature of the persons responsible for resolving or rectifying the issue.

16. SITE SUPERVISION

Site supervision during excavation/earthworks by appropriately qualified environmental consultant is required to ensure that the excavated materials are appropriately handled and that materials different to those encountered during the investigation onsite are assessed, if encountered. It is envisaged that written instruction would be issued to the site personnel at the completion of each inspection that would identify the materials encountered during excavation and the appropriate treatment or handling procedures required.

As part of the site supervision the environmental consultant shall be responsible for monitoring excavations, field and laboratory assessments, truck loading and recording the truck movements and load characteristics. Load information shall be verified by comparison with tip dockets. The environmental consultant shall also maintain a daily record containing the following information:

- Details of unusual materials or odours encountered during excavations;
- pH meter calibration details;
- Location and results of pH monitoring;
- Details of accidents or incidents on the site;
- Details of any environmental issues and any related corrective and preventive action taken;
- Details of any visitors relation to environmental or health issues;
- Details of contractors engaged for the removal of waste;
- Record of soil volumes excavated, truck movements including destination/source, volumes of material exported/imported to the site;
- Daily site diagrams showing the location of stockpiles, excavations and sediment controls; and
- Records of soil sampling locations.

17. DOCUMENTATION AND RECORD KEEPING

All relevant documentation will be maintained by St Hilliers. The documentation to be maintained may include (but not be limited to):

- Staff and contractor inductions provided as **Appendix E** of this ASSMP;
- NSW EPA Waste Transport Certificates;
- Transportation dockets for excavated soil removed from the site, with a summary of these to be included on the materials tracking forms provided as **Appendix F** of this ASSMP;

- Soil classification documentation that relates to any soil that requires further investigation and sampling during the course of the excavation works;
- Ongoing management requirements for material to remain in-situ;
- Stockpile validation and classification records; and
- Complaints/incidents register.

18. COMPLIANCE WITH RELEVANT SEARS FOR THE PROJECT

The relevant SEARs applicable for the project are itemised in **Table 6** below and how they have been addressed.

Table 6 – Applicable SEARs for the Project and How They Have Been Addressed

Deliverable	Refer to source within SEARs	Consultant	Consultation Responsibilities	Key Issues Correspondence for consideration in preparation of material
Contamination Assessment	16. Contamination	EDP	Provide a Stage 2 Detailed Site Contamination report as per the Future Environmental Assessment Requirements SSD Concept Approval SSD-10114.	Previous investigation reports and data. Current desktop and Intrusive investigation to provide the updated DSI report (EDP, 2021a). Client and other stakeholder requirements.
Acid Sulfate Soils Assessment and Management Plan	18. Soil and Water	EDP	The EIS shall include a: Geotechnical assessment. Acid Sulfate Soils Assessment and Management Plan The EIS must map the following features relevant to soil and water including: Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map). Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method). Wetlands as described in s4.2 of the Biodiversity Assessment Method.	Geotechnical assessment provided by Coffey 2019. Previous investigation reports and data. Current desktop and Intrusive investigation for deliverable of ASS Assessment and ASS Management Plan (EDP, 2021b). Client and other stakeholder requirements.
Groundwater Assessment	18. Soil and Water	EDP	The EIS shall include a: Groundwater Assessment. The EIS must map the following features relevant to soil and water including: Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method). Wetlands as described in s4.2 of the Biodiversity Assessment Method.	Previous investigation reports and data. Current desktop and Intrusive investigation for deliverable of Groundwater Assessment Report and including the requirements as specified in the SEARs, in column 4 of this table and any recommendations for further assessment or monitoring.

Deliverable	Refer to source within SEARs	Consultant	Consultation Responsibilities	Key Issues Correspondence for consideration in preparation of material
			<p>Groundwater.</p> <p>Groundwater dependent ecosystems.</p> <p>Proposed intake and discharge locations.</p> <p>The EIS must describe background conditions for any water resource likely to be affected by the development including:</p> <p>The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction; and</p> <p>Identification of proposed monitoring of water quality.</p>	Client and other stakeholder requirements.

Appendix A: Figures

Appendix B: Acid Sulfate Soil Definitions and Potential Impacts

ACID SULFATE SOILS DEFINITIONS

ASS are naturally occurring sediments containing iron sulfides, primarily pyrite, commonly deposited in alluvial and estuarine environments. The occurrence of ASS is associated with areas or regions that have previously been or are currently estuarine environments. Due to changes in sea level or geomorphologic changes to the coastal systems, these sediments are often overlain by terrestrial sediments.

When ASS are exposed to air (e.g. due to excavation or dewatering), the oxygen reacts with iron sulfides in the sediment, producing sulfuric acid. This acid can be produced in large quantities and is highly mobile in water. The process can also release iron and other metals present in the soils.

The sulfuric acid (and metals) can drain into waterways causing severe short and long-term socioeconomic and environmental impacts, including damage to man-made structures and natural ecosystems.

ASS can either be classified as AASS that have already reacted with oxygen to produce acid, or PASS. AASS and PASS are often found in the same profile, with AASS generally overlying PASS horizons.

PASS are soils containing iron sulfide that have not been exposed to oxygen (e.g. soils below the water table). The field pH of these soils in the undisturbed state is 4 or more and is commonly neutral or slightly alkaline. However, they pose a considerable environmental risk when disturbed, as they will become more acidic when exposed to air and oxidised.

POTENTIAL IMPACTS OF ACID SULFATE SOILS DISTURBANCE

The generation of AASS can result in the release of sulfuric acid and iron into the soil and surrounding waters. This in turn can release aluminium, nutrients and heavy metals (particularly arsenic) stored within the soil matrix. Once mobilised in this way, the acid, metals and nutrients can seep into waterways, killing fish, other aquatic organisms and vegetation.

Additionally, low levels of impact include reduced hatching, decline in growth rates, skin and health impacts for aquatic life. The potential impact on water leaching activities also include change in pH of soil and water, changes to water quality and changes to the hydraulic regime. Soil texture or sediment particle size distribution also affects the potential impacts of exposing ASS. Coarse-textured sulfidic sands are particularly vulnerable to rapid oxidation due to their relatively higher permeability and negligible buffering capacity. Water also moves through coarse material quickly, which may create large volumes of contaminated leachate.

AASS exposure can result in medium to long-term changes in soil chemistry. Changes in soil chemistry may affect the water quality of the tidally influenced area, resulting in reduced biodiversity and potentially death of flora and vegetation.

As the works will involve the disturbance of PASS adjacent to Brisbane Waters, the implementation of the controls detailed in this plan are required to minimise the potential acid generating impacts of the soils associated with the planned works at the site. Particular care should be taken with allowing air to penetrate sandy sediments as they have little buffering capacity. These materials can oxidise and leach very rapidly.

ACID SULFATE SOILS MAPPING

The Department of Land and Water Conservation has prepared Acid Sulfate Soil Risk Maps for the coastal areas in NSW that predicts the distribution of acid sulfate soils based on an understanding of the factors that led to their formation reinforced by extensive soil surveying. The Acid Sulfate Soil Risk Maps have also been converted into Acid Sulfate Soil Planning Maps for use with Local Environmental Plans.

The Acid Sulfate Soil Planning Maps establish five classes of land based on the probability of acid sulfate soils occurrence and the type of works that might disturb them. The five classes in the Acid Sulfate Soils Planning Maps are shown in the table below.

Acid Sulfate Soil Risk Classes

Class of land pertaining to ASS	Nature of works requiring ASS Assessment
1	<ul style="list-style-type: none"> Any works
2	<ul style="list-style-type: none"> Works below natural ground surface Works by which the water table is likely to be lowered
3	<ul style="list-style-type: none"> Works beyond 1 m below natural ground surface Works by which the water table is likely to be lowered beyond 1 meter below natural ground surface
4	<ul style="list-style-type: none"> Works beyond 2 meters below natural ground surface Works by which the water table is likely to be lowered beyond 2 meters below natural ground surface
5	<ul style="list-style-type: none"> Works within 500 meters of adjacent Class 1, 2, 3 or 4 land which are likely to lower the water table below 1 m AHD on adjacent Class 1, 2, 3 or 4 land

Review of Central Coast Council's Acid Sulfate Soils Risk Map indicated that the site exists within Class 2 land. The presence of the site on Class 2 land indicates ASS are likely to be found below the natural ground surface and that development consent is required where works are expected to occur below the natural ground surface, or by which the water table is likely to be lowered.

Appendix C: Contingency and Emergency Response Procedures

CONTINGENCY AND EMERGENCY RESPONSE PROCEDURES

In the event of a non-conformance, the source and nature of the event should be investigated, the effectiveness of the existing controls reviewed and modified where practical, and necessary strategies implemented to minimise further impacts. Contingency strategies for stockpiles and water quality exceeding performance criteria are outlined in the table below.

Contingency strategies for stockpile treatment and water quality exceeding performance criteria

Item	Event	Contingency Measures
Stockpile Treatment	ENV is not provided with the neutralising material.	1:250 m ³ of lime applied should be sampled and analysed for calcium carbonate equivalence by a NATA accredited laboratory to determine the ENV of the material.
	Stockpile validation acceptance criteria are exceeded.	If pH _f and pH _{fox} results of treated soil validation samples are outside the acceptable thresholds, further lime treatment of soils should be undertaken.
	Soils encountered during excavation works are not representative of the soils previously identified.	The soils should be treated as containing sulfidic components and assumed to be ASS unless sampling and analysis confirms otherwise.
Water Quality	Performance criteria for pH are exceeded.	Cease works and assess control measures.
	EC, floatable matter and colours in the receiving water exceed performance criteria.	Cease works and assess control measures. A suitable treatment method such as aeration and/or filtration should be employed.

Appendix D: Unexpected Finds Protocol

IDENTIFICATION AND MANAGEMENT OF UNEXPECTED CHEMICAL CONTAMINATION AND/OR ACID SULFATE SOILS

ACID SULFATE SOILS

Should unexpected ASS be uncovered during the excavation works (i.e. the identification of soil displaying characteristics of the identified ASS geological units), the following steps should be followed:

- Cease works in the vicinity of the uncovered ASS;
- The workers identifying the unexpected ASS shall inform St Hilliers of the suspected ASS;
- Appropriately stockpile the soil within an area designated for ASS;
- If necessary, use physical barriers to shelter and prevent runoff to environmentally sensitive features (i.e. Parramatta River, vegetated areas etc.);
- Assume the soil is ASS until an assessment is conducted;
- Engage a suitably qualified environmental consultant to undertake an environmental assessment of the affected area and provide further advice; and
- Further remedial works may be required or additional control measures in order to maintain a safe work zone.

CHEMICAL CONTAMINATION

Unexpected chemical contamination or ASS may potentially be uncovered during excavation works.

Should unexpected chemical contamination be suspected during the excavation works (i.e. the identification of odorous or stained soil) the following steps should be followed:

- Cease works in the vicinity of the uncovered contamination;
- Inform the site foreman of the suspected contamination;
- Use a physical barrier to isolate the area;
- Assume the soil is contaminated until an assessment is conducted;
- Commission a suitably qualified environmental consultant to undertake an assessment to determine the next stage of works; and
- Further remedial works may be required or additional control measures in order to maintain a safe work zone.

Appendix E: Induction Records

ACID SULFATE SOIL MANAGEMENT PLAN INDUCTION RECORD

[illegible]

Appendix F: Materials Tracking Record

ACID SULFATE SOIL MATERIALS TRACKING RECORD

[illegible]



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General Correspondance #GC-174 - Construction Soil and Water Management Plan

Status	Open	Assignees	Morgan Hook, Belinda Hyde, Justin Rodgers
Created Date	7 Jul 2022	Issued Date	7 Jul 2022
Due Date		Location	
Received From			
Distribution			
Description	<p>Hi Belinda,</p> <p>Please be advised that I can confirm that the Construction Soil and Water Management Plan has been developed and prepared by a suitably qualified person in consultation with council and their requirements.</p> <p>Kind Regards Andrew Cummins 0413 619 959</p> <p>Sent from Procure</p>		
Attachments			

Activity (0)