

Head Office

fgf Developments Pty Ltd
Unit 5/2 James Street
Cairns QLD 4870
Phone: 07 4041 4350
ABN: 67 102 951 039



Safety, Quality & Environmental

Integrated Project / Site Management Plan

Bluewater Estate Stages 18, 22 & 23

Client Name Brookfield Bluewater Stages 5-8 Pty Ltd

Contract No. 12528012-C1

Document Status Controlled ☒ Uncontrolled ☐

Revision 1

Developed & Authorised for Release By:

Name Dan Moule Position Project Engineer

Signature  Issue Date 6 April 2021

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Integrated Project / Site Management Plan

Bluewater Estate Stages 18, 22 & 23

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QUALITY, SAFETY, HEALTH & ENVIRONMENTAL POLICY

PO-001

fgf is a Civil Engineering / Construction Contractor engaged primarily in the construction of civil development / infrastructure projects and the provision of asphalt services and quarry related products in North Queensland.

fgf provides civil construction, design and construction project management services. Activities include earthworks, landscaping, road works, pavements, industrial pavements, drainage and water / sewerage, bridgeworks, electrical reticulation, asphalt services (asphalt pavements / spray sealing) and quarry products. The company's clients are in both the private and public sector.

The management of **fgf** place particular emphasis on the commitment and competency of its employees to continually deliver a professional and reliable service to ensure complete client satisfaction and confidence in our techniques. **fgf's** objective is to demonstrate to clients the ability to provide a quality product and a professional service that satisfies or exceeds their expectations.

To ensure this commitment we have implemented an integrated management system, which meets the requirements of:

- ◆ **ISO 9001 - Quality Systems**
- ◆ **ISO 14001 - Environmental Management Systems**
- ◆ **ISO 45001 - Occupational Health and Safety Management Systems**

This system will ensure that all of our activities will be conducted to prevent injuries, occupational illness and environmental harm whilst providing our customers with services that satisfy their needs.

To achieve this **fgf** will:

- *Provide a professional service to our customers.*
- *Provide a healthy and safe workplace.*
- *Regularly review and improve our processes to minimise errors and rework, health and safety hazards, negative significant impacts to the environment and prevent pollution.*
- *Establish measurable objectives and targets for improving our quality, safety and environmental performance.*
- *Work with our customers, suppliers and employees to seek continual improvement of our activities.*
- *Meet contractual requirements and exceed our customers expectations*
- *Comply with legislation, industry codes of practice and international standards.*

This policy is basic to all **fgf's** operations and adherence to this policy and its associated procedures is the prime responsibility of management, every employee and all contractors/sub-contractors.

Date: 23/10/2020



Murray Moule
Director
fgf Developments Pty Ltd
fgf Bitumen Pty Ltd



Chris Barker
Director
fgf Developments Pty Ltd
fgf Bitumen Pty Ltd



Warren Massingham
Director
fgf Bitumen Pty Ltd



Bruce Williams
Director
fgf Developments Pty Ltd
fgf Bitumen Pty Ltd



1. Plan Control

The latest version of this Plan will be available in hardcopy in the site office for all Project personnel. Distribution of the Project Management Plan will be to those detailed on the distribution listing below.

Controlled Copy Distribution List

Name	Position	Company	No. of Copies
Greg Applin	Team Leader – Urban Development	GHD	1
Joshua Handley	Engineer – Civil	GHD	1

Document Modification History

Revision	Sections Revised	Revision Description	Prepared by	Date	Authorised by	Date
0	All	Initial Draft	Dan Moule	01/04/2021	Brendan Rogina	01/04/2021
1	All	Final Document	Dan Moule	06/04/2021	Brendan Rogina	06/04/2021

2. Purpose

The following Integrated Project Management Plan (IPMP) sets the guidelines in relation to how **fgf** will plan, control and deliver this project to the highest possible standard. This IPMP will be used in conjunction with **fgf's** integrated management system policies and procedures to deliver this project in accordance with our contractual, safety, quality and environmental responsibilities.

3. Integrated Management System (IMS)

fgf maintains a Quality, Safety and Environmental Integrated Management System (IMS) that is compliant with the following standards:

- ISO 9001: Quality Management Systems
- ISO 14001: Environmental Management Systems
- ISO 45001: Occupational Health and Safety Management Systems

fgf's IMS Procedures support this IPMP and are listed below. These procedures will assist the Project Team in successfully achieving project completion in a manner that is not only compliant but also practical, efficient and cost-effective.

Procedure Number	Procedure Name
SP 01	Management Review - Inc. roles, responsibilities objectives & targets
SP 02	Tender and Contract Review
SP 03	Process Control – Service Delivery
SP 04	Consultation, Communication and Dispute Resolution
SP 05	Document and Data Control
SP 06	Performance Management
SP 07	Control of Non-Conforming Product
SP 08	Procurement and Subcontractor Management
SP 09	Induction, Training and Competence
SP 10	Handling, Storage, Packaging, Preservation and Delivery
SP 11	Calibration, Servicing and Use of Measuring and Test Equipment
SP 12	Plant, Machinery & Equipment Usage & Maintenance
SP 13	Emergency Preparedness and Response
SP 14	Product ID & Traceability
SP 15	Inspection Testing and Test Status
SP 16	Systems Audits, Inspections and Health Monitoring
SP 17	Risk Management
SP 18	Legal and Other Requirements
SP 19	Incident - NCR - Corrective & Preventative Action
SP 20	IMS Records Management
SP 21	Workplace Rehabilitation
SP 22	Permit to Work
SP 23	Design Control
SP 24	Hazardous Chemicals
SP 25	Lockout / Tagout for Plant and Equipment

4. Policies and Commitment

fgf's policies are an integral part of our project operations and adherence to them is the prime responsibility of upper management as well as all personnel involved with the delivery of this project. The following policies form part of the IMS:

- Quality, Safety and Environmental Policy
- Drug and Alcohol Policy
- Fitness for Work and
- Rehabilitation and Return to Work Policy

These commitments will be communicated to all employees and contractors during the site-specific induction as well as via site notice boards.

5. Project Details

General

Site Address:	Bluewater Estate Stages 18, 22 & 23, Trinity Park, QLD 4878
Estimated Duration:	23 Weeks
Defects Liability:	12 Months
Client Details:	Brookfield Bluewater Stages 5-8 Pty Ltd c/- GHD, 15 Lake Street, Cairns, QLD 4870
Scope of Work	
Earthworks, roadworks, stormwater drainage, water reticulation, sewerage reticulation, underground conduit, acoustic attenuation barrier, concrete shaft and base works, as well as subsequent landscaping works for construction of a residential subdivision comprising 27 allotments at Bluewater Stages 18, 22 and 23 (Lot 90 on SP321477, Cairns Regional Council LGA).	

Key Contacts

Position	Name	Contact Number	Email
Operations / Project Manager	Brendan Rogina	0427 576 980	Brendan@fgf.com.au
Principal/Client	Brookfield Bluewater Stages 5-8 Pty Ltd		
Client Representative (Civil Construction)	Greg Applin – GHD Joshua Handley – GHD	0414 768 109 0499 903 009	Greg.Applin@ghd.com Joshua.Handley@ghd.com
Client Representative (Landscaping)	Tim Connor – RPS	(07) 4724 4244	Timothy.Connor@rpsgroup.com.au
Project Engineer	Dan Moule	0419 658 523	Dan@fgf.com.au
Contract Administrator	Lauren McKew	0403 693 940	Lauren@fgf.com.au
Construction Supervisor	Warren McKenzie	0427 576 987	Warren.Mckenzie@fgf.com.au
Construction Foreman	Bert Pajor	0427 414 451	Bert@fgf.com.au

Hours of Work

Work involving the operation of construction plant and equipment of any description shall only be carried out on site during the following times:

- 7:00am to 6:00pm Monday to Friday;
- 7:00am to 1:00pm Saturdays

No work is permitted on Sundays or Public Holidays.

Site Rules and Code of Conduct

Site Rules must be communicated to the workforce through induction training as well as via site noticeboards. All personnel must comply with these rules at all times. Any workers who break these rules will be performance managed in accordance with *SP 06 Performance Management*.

6. Legal and Other Requirements

In accordance with *SP 18 Legal and Other Requirements*, all personnel and contractors working on this project must comply with the requirements of all federal, state and local legislation as well as any other specifications or guidelines applicable to this contract and relevant to the works undertaken.

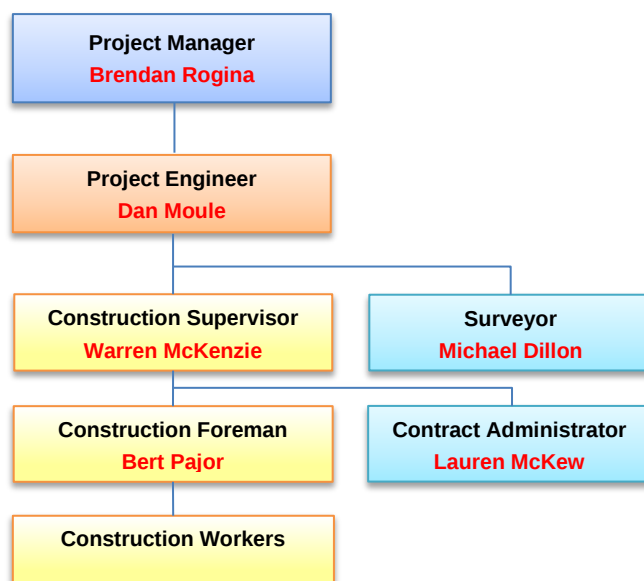
7. Objectives and Targets

fgf is committed to setting measurable objectives and targets in relation to its safety, quality and the environment performance. The organisations objectives and targets have been determined by both contract requirements as well as **fgf's** own strategic goals.

WORK HEALTH & SAFETY / ENVIRONMENTAL OBJECTIVES & TARGETS		
Objective	Target	Frequency
Reduce all injuries and events with potential	Zero	Review monthly
To reduce the number and severity of workplace injuries / Incidents.	Workplace Safety / Environmental inspections carried out weekly	Review weekly
To reduce the number and severity of workplace injuries	Carry out task observations of high risk activity - SWMS/JSA's Weekly	Review weekly
Conform to all relevant legislation regulations and guidelines	No events resulting in statutory complaints or notices being issued	Review monthly

8. Roles, Responsibility and Authority

Project Team Organisation Chart



Project Team Responsibility and Authority

Responsibility and authority is communicated to all workers on induction, position descriptions as well as throughout **fgf's** Management System Procedures. The responsibility and authority specific to this project is outlined throughout the project specific management plans. A brief summary of responsibilities and authority is provided below.

Position	Responsibility	Authority
Project Manager	Manage the project within budget as well as within the constraints of all applicable laws, company procedures, specifications and contractual obligations.	The Project Manager shall be fgf's Representative. The Project Manager is authorised to discuss and resolve contractual and technical issues with the Client, Suppliers and Subcontractor. The Project Manager is authorised to select, engage and control subcontractors and suppliers. The Project Manager is authorised to reject any suppliers or subcontractors who do not meet fgf's or our client's standards.
Project Engineer / Contract Administrator	Ensure all work operations are conducted within the constraints of all applicable drawings and specifications and as directed by the Project Manager.	Engage and monitor suppliers and subcontractors as directed by the Project Manager.
Construction Supervisor	Assist the Project Manager / Engineer with any constructability or work related issues. Provide assistance to the Construction Foreman where required.	Authority to stop work if any activities are considered unsafe to undertake. Engage suppliers and subcontractors as directed by the Project Manager.
Construction Foreman	Supervise all work operations conducted. Supervise leading hand and construction workers to ensure all work is constructed as safely and as per the contract.	Authority to stop work if any activities are considered unsafe to undertake. Engage suppliers and subcontractors as directed by the Project Manager.
Leading Hand	Direct labour force and ensure works proceed as directed by Construction Foreman.	Work as directed by the Construction Foreman
Construction Worker	Each tradesman, trades assistant, operator and labourer is responsible for the satisfactory performance of their assigned tasks.	As directed of the Project Manager, Project Engineer, Construction Foreman or Leading Hand.

Work Health and Safety Roles and Responsibilities

Additionally, detailed workplace health and safety roles and responsibilities have been determined for this project and are outlined in the Workplace Health and Safety Roles and Responsibilities Matrix *SPF 01.3 WHS Roles and Responsibilities*. These responsibilities along with those listed above must be communicated to all workers on induction.

9. Quality Management

The construction process for this project is outlined in the construction programme. To ensure this process meets all quality related obligations under this contract, detailed inspection and test plans as well as identification and traceability procedures have been developed as outlined below. No specific construction procedures have been nominated under the contract. Specific procedures may be generated in addition to the inspection and test plans where the Project Manager, in conjunction with the Client Representative, deem it necessary based on the risk posed by that specific activity.

Inspection and Testing

Scheduled inspection and testing will be undertaken to examine quality compliance for the duration of this project, as well as check whether current project controls and processes are functioning effectively or require improvement. Quality inspection and testing will be conducted in accordance with *SP 15 Inspection, Testing and Test Status*. Inspection and test plans are to include:

- Activity Process
- Responsibilities
- Specifications / Test Methods / Sampling Method
- Acceptance Criteria or Tolerance
- Test Frequency
- Verifying Record
- Hold, witness and check points
- Verification of Conformance
- Client / Project Manager Approval

The associated inspection and test plans for this project are outlined in *Appendix B*. All inspection and test plans are to be prepared and approved by the Project Manager prior to the commencement of works on site. All non-conformances identified during **fgf's** inspection and testing process will be reported and rectified in accordance with *SP 19 Corrective and Preventive Action*.

External Testing

All testing laboratories must be NATA accredited. The project Manager is responsible for ensuring all testing is supplied through an appropriate provider. The nominated provider is:

Laboratory	Contact Name	Contact No.	NATA Accreditation No.
Construction Sciences	Craig Wilson	(07) 4033 7815	1986

Identification and Traceability

The identification and traceability of **fgf's** quality control processes must be established and maintained in accordance with *SP 14 Product ID and Traceability*.

10. Resources and Infrastructure Management

The Project Manager must consider all resourcing and infrastructure requirements on commencement of the project, this includes:

- Human resources
- Buildings, workspaces and associated utilities such: as office space, crib sheds and amenities
- Process equipment (both hardware and software)
- Essential services such as water and electricity
- Supporting services such as transport, communication or information systems

11. Time Management

The Project Manager is responsible for developing a construction programme. This program reflects construction targets that are subject to day-to-day variations in conditions, productivity and other influencing factors. Any proposed changes to this programme or potential delays must be immediately communicated to the Client in writing. Additionally, the Project Manager shall meet monthly with the Client's Representative to review current targets and amend the construction programme accordingly.

12. Design Management

fgf are not the designers for this project. All the design has been provided by **GHD**. Any changes to design must be approved by **GHD**.

13. Safety Management

Safety is the number one priority when it comes to **fgf's** day-to-day operations. Hence, the Project Manager has ensured this PMP defines the process for meeting **fgf's** workplace health and safety obligations as well as the safety objective and targets related to the delivery of this project.

14. Environmental Management

One of **fgf's** goals is to respect and protect the environment we work in. To achieve this goal, **fgf** has developed Environmental Instructions (ENVI's) for the works we undertake (refer to *Appendix D*). This procedure outlines how **fgf** will manage all the environmental aspects applicable to this site / project. Please note, in accordance with environmental legislation, employees and contractors must take all reasonable and practical measures to prevent or minimise environmental harm and environmental nuisance while working for **fgf**. Additionally, every employee and subcontractor also has a 'duty to notify' under environmental legislation. Therefore, if any person becomes aware of an activity or incident that is causing or could cause environmental harm, they have a responsibility to notify their supervisor.

Environmental Impacts

fgf has adopted a process line model to facilitate continuous improvement of its business activities. The products, activities and services undertaken by personnel working for or on behalf of **fgf** identified as having the potential for environmental impact have been summarised below in table 14.1:

Table 14.1: Environmental Process Line Model

EW	Earthworks	SW	Storm Water
P	Pavements	S	Sewerage Reticulation
CW	Concrete Works	W	Water Reticulation
SS	Spray Sealing	AP	Asphalt Pavements

In addition, **fgf's** environmental aspects have been identified and cross referenced to the company's activities below in table 14.2.

Table 14.2: Environmental Aspects Associated with **fgf's Construction Operations**

Aspects	EW	P	SW	CW	S	W	SS	AP
Excavation Soil Management	x		x		x	x		
Air Quality	x	x	x	x			x	x
Water Quality	x	x	x	x	x	x	x	x
Soil Erosion & Stability	x	x	x	x	x	x		
Flora and Fauna	x	x	x	x				
Noise and Vibration	x	x	x	x	x	x	x	x
Cultural Heritage	x	x	x	x				
Waste Generation	x	x	x	x			x	x
Hazardous Substances				x			x	x

Environmental Risk Assessment

fgf has developed a Hazard and Risk Register (Refer to *SPF 17.1*) for **fgf's** environmental risk assessment. This has been conducted for aspects identified as applicable to the company's operations and activities.

Please Note: Risks determined to be extreme or high are considered to be significant environmental impacts. All implemented control measures must reduce the residual risk to a moderate or low level.

15. Traffic Management

Traffic management for the project shall be as per the Traffic Management Plan.

16. Records Management

Records will be managed for this project in accordance with *SP 20 IMS Records Management*. Additionally, hardcopy records will be stored in a clean, dry environment that is free from excessive dust and pests, as well as in an area that is at the lowest risk of flooding, fire or theft.

17. Document Control

Documents for this project will be secured and controlled in accordance with *SP 05 Document and Data Control*. The Project Manager / Engineer will be responsible for controlling the distribution of *SPF 5.1 Document Distribution Register* and notifying necessary personnel through the submission of *SPF 05.2 Document Transmittal*. All proof of document transmittal must be kept on file including emails. The primary documents that will be controlled on this project and the people in charge of reviewing and approving them prior to use are as follows:

Document Type	Custodian
Management Plans	Project Manager / Engineer
Project Drawings	Project Manager / Engineer / Contract Administrator
Project Specifications	Project Manager / Engineer / Contract Administrator
All Project Safety Documentation & Records	Project Manager / Engineer
Company Policies, Procedures and Forms.	HSEQ Officer

18. Training Management

Project Induction and Training Requirements

All induction and training for this project will be handled in accordance with *SP 09 Induction, Training and Competence*. The Project Manager and Construction Foreman are to ensure that all project personnel, including subcontractors, are suitably competent to carry out their allocated tasks in a safe and responsible manner. No workers are to commence work unless they have been project inducted, deemed competent and are fit for purpose. The Construction Foreman is responsible for keeping this register up to date and maintaining a copy of all applicable training records.

19. Risk Management

Hazard Identification, Risk Assessment and Control

fgf identify hazards and manage risk in accordance with *SP 17 Risk Management*. The hazards and risks related to this project have been assessed and are identified in *SPF 17.1 Hazard and Risk Register (Appendix C)* along with the recommended measures to control those risks. The Project Manager is responsible for ensuring these hazards and risks are communicated to the Project Team and that appropriate resources are allocated and trained to implement the control measures required. This includes ensuring adequate procedures, workers, programming, plant and equipment. Where variations may alter or otherwise impact on the work methods, hazards and risks must be reconsidered and the hazard and risk register and applicable controls updated accordingly.

High Risk Activities

When activities or tasks have an initial risk rating of high or extreme, the Project Manager is responsible for developing a documented procedure that describes the task, identifies the hazards and documents how the task is to be performed to adequately minimise the risks. Typically this will be in the form of:

- *SPF 17.2 Safe Work Method Statement (SWMS/JSA) or Safe Work Instruction (SWI)* for safety risks
- *Safe Operations procedure (SOP) / Guideline Document; or an*
- *Environmental Instruction*

No worker is authorised to undertake the activity under any circumstances until the associated risks can be reduced to an acceptable level.

The high risk activities that have been identified for this project are identified in the hazard and risk register in *Appendix C* and SWMS / SWI have been developed to control the identified risks. No staff are authorised to undertake these activities without prior training in these procedures. For reference purposes, the current documented procedures and any additional procedures identified throughout the duration of the project are available in hard copy in the site office.

SWMS must be formally reviewed and updated when:

- A significant change to a task or activity is identified
- Change to Legislation or a Code of Practice
- An incident occurs relating to the task or activity
- A significant hazard is identified relating to the task or activity or
- Periodically – every 12 months.

Identifying / Reporting Hazards & Assessing Risks During Day to Day Activities

It is **fgf's** policy that all workers remain alert and actively report any potential hazards and environmental impacts immediately to the worker's direct supervisor. Should any personnel feel uncomfortable about reporting a risk to their supervisor, they are encouraged to report the issue to the Project Manager or the Operations Manager. Supervisors and managers have an obligation to investigate all potential risks reported to them, ensuring they are addressed through consultation and by the appropriate personnel in accordance with *SP 17 Risk Management*. Any workers, supervisors or managers who fail to acknowledge and manage potential risks as far as reasonably practicable, will be investigated and disciplined where required.

20. Fitness for Work

In accordance with *PO-002 Fitness for Work Policy*, all personnel will be required to present themselves fit for duty for each shift in order to not put themselves or others at risk. **fgf** believes it is important that all personnel are aware of the risks involved with drugs and alcohol, stress and fatigue, and the ways these risks may be managed.

Nobody wants themselves or their work mates to be injured at work, therefore it is important that all personnel actively participate in this process, and encourage fitness for work by:

- Ensuring employees check that those onsite each day are fit for work prior to and during each shift.
- Notifying the Project Supervisor immediately of anyone who may not be fit for work.

21. Procurement Management

Project Procurement Process

All project purchasing requirements must be determined and carried out in accordance with *SP 08 Procurement and Subcontractor Management*. As a result, the Project Manager is responsible for identifying the primary suppliers and subcontractors that will be utilised on this project. This plan will help minimise the safety, quality and environmental risks associated with the project teams purchasing activities. In summary, when considering the purchasing requirements for this project the Project Manager will:

- Give careful consideration to the safety, quality and environmental constraints identified and outlined in section 6 (legal and other requirements) of this document.
- Conduct risk assessments in accordance with *SP 17 Risk Management* and take all reasonable steps to eliminate or reduce the risk associated with the goods or services provided to **fgf** where required.
- Ensure the goods or services anyone intends to provide can meet all specified requirements on delivery and throughout the construction process.
- Ensure all safety, quality and environmental expectations are clearly documented and referenced in all quotation requests, purchase orders and subcontract agreements.
- Ensure satisfactory records are provided to verify that materials and services meet all specified requirements.
- The Project Manager shall ensure all subcontractors will be subject to supervision by an appropriately qualified and experienced **fgf** representative and are monitored and reviewed throughout the project life cycle.

Client Supplied Product

All client-supplied products are to be handled in accordance with *SP 10 Handling, Storage, Packing, Preservation and Delivery*. It is the Project Manager's responsibility to ensure all client services and materials are supplied in accordance with the contract as well as **fgf's** policies, procedures and expectations. The client-supplied products and services for this project are outlined as follows:

Client Supplied Products	Client Supplied Services
N/A	Pest / Weed Management
	Agile Wallaby Management

22. Plant and Equipment Management

The Project Manager is responsible for overseeing that all workers who are operating plant and equipment including common plant are provided with adequate instruction to ensure they are able to operate the plant and equipment safely. Also, the Project Manager must oversee that all operators of load shifting equipment have been deemed competent in accordance with *SP 09 Induction, Training and Competence* and that the plant and equipment being utilised on site is fit for purpose.

Additionally, all mobile powered plant must undergo a daily prestart inspection prior to use. All plant and equipment will be inspected, serviced and maintained in accordance with manufactures guidelines, inspection results, standards and regulations. If any plant or equipment becomes damaged or is deemed unsafe then the item must not be operated and should be clearly identified as inoperable through the use of adequate signage. The Project Manager must then be notified to determine a suitable solution.

23. Emergency Preparedness and Response Management

An Emergency Response Plan covering safety and environmental incidents has been developed in accordance with *SP 13 Emergency Preparedness and Response*. As per legislative requirements, all Emergency Response Plans must be tested through drills or other means as deemed appropriate by the Project Manager. Additionally, the Project Manager must ensure that all Project Team members, subcontractors and site visitors are trained in site-specific emergency response protocol upon site induction. The Emergency Response Plan for this project forms part of this document as *Appendix A* and must be made readily available throughout the work site in easily identifiable and accessible locations.

24. Consultation and Communication

Project Consultation

All personnel associated with this project are entitled to provide feedback on all project-related procedures, hazards, risks and day to day issues at scheduled meetings, or immediately via their Direct Supervisor at any time. All feedback must be reviewed and actioned accordingly. Remember, these meetings are meant to include input from everyone on the job about the job, if anyone has any ideas or queries the scheduled meetings below are the time to raise them. **Safety is everyone's responsibility** and the work methods talked over in these meetings will constitute how work will be conducted on site.

Project Communication

fgf will communicate safety, quality and environmental issues to all personnel involved in this project in accordance with *SP 04 Consultation, Communication and Dispute Resolution*. The Project Manager and Supervisor will ensure all issues raised during these meetings are appropriately dealt with and communicated to upper management either directly or through the monthly HSEQ meetings as applicable.

Noticeboards will also be used to communicate safety bulletins, incident alerts, memorandums and other project-related information, and are located in the site office and common use areas that the workforce frequents (i.e. crib areas). Additionally, appropriate signage will be used around the workplace to draw the attention of persons working or entering an area and communicate the hazards and / or controls required for that area. Signs must be relevant and clearly visible.

Client Communication

The Project Manager is responsible for all formal communications with the client and their representatives and ensuring they remain informed throughout the project.

Community Engagement and Complaints Management

Maintaining effective communication with the local community is also very important to **fgf**. **fgf** will provide sufficient information to ensure timely notification to the community of construction activities and likely impacts and / or changed traffic conditions. The information to be provided includes, but is not limited to:

- Location of works;
- Date of works and work hours;
- Duration of work;
- Type of activity;
- Likely impacts (noise, vibrations, dust etc.)
- Mitigation strategies to reduce impact (traffic management etc.)

Any contact with a member of the public must always be treated with the utmost importance and respect. A record of all issues raised by the public will be recorded in accordance with *SP 19 Incident Reporting and Investigations / Corrective and Preventative Action*. The Project Site Office and the work site area will have emergency contact information displayed for the public to be able to contact **fgf** in relation to any problems, queries or needs.

25. Non-Conformance, Complaints, Preventative and Corrective Action

All individuals working on **fgf's** project sites are responsible for notifying their supervisor of incidents, hazards, non-conformances and near misses as soon as practicably possible, in accordance with *SP 19 Incident Reporting and Investigations / Corrective and Preventive Action*. In the case of emergencies, the procedures specified in the Emergency Response Plan will take priority and must be followed.

The type and extent of any investigation will be determined by the Project Manager. All incidents and accidents need to be discussed during both Project Team toolbox meetings and monthly HSEQ meetings. All injuries will be reported to the Operations Manager / HSEQ Officer as soon as possible to ensure that the workplace rehabilitation process can begin immediately. All safety injuries will be managed in accordance with Rehabilitation and Return to Work Policy. **fgf's** Rehabilitation Co-ordinator will consult with the injured worker, medical staff and the Project Manager to ensure that suitable duties can be arranged, with the intention of enabling employees to return to work as soon as practical after any injury.

26. Handling, Storage, Packing, Preservation and Delivery

Materials

All goods must be handled in accordance with *SP 10 Handling, Storage, Packing, Preservation and Delivery*. This means the Project Manager must oversee that the risks associated with the storage, use and movement of goods and materials related to the project are assessed and suitable controls are implemented. Risk assessments are to be completed for goods which have the potential to impact on:

- the safety of personnel
- the quality of the product, or
- adversely affect the environment

Hazardous Substances & Dangerous Goods

When handling hazardous materials and dangerous goods, all workers must adhere to *SP 10 Handling, Storage, Packing, Preservation and Delivery*. All personnel on site are responsible for notifying the Project Manager of any hazardous substances or dangerous goods to be used on the project, prior to it arriving on site. A register of all hazardous substances will be kept on site along with the Safety Data Sheets (SDS). These documents will be readily accessible to all personnel in areas where hazardous substances are in use or stored.

Waste Management

Additionally, to avoid the unnecessary creation of waste; all workers must reuse and recycle waste where ever possible. Where waste has been created, all personnel must ensure it has been appropriately assessed for risks and disposed of by an appropriately licenced service provider.

27. Essential Services, Site Amenities, Housekeeping and Public Safety

Essential Services will be provided by **fgf** for use by any person at the workplace and shall not be altered without the express permission of **fgf**. **fgf** shall provide instruction on the safe use of essential services supplied where required under WHS legislation. The following is a list of essential services that shall be provided by **fgf** as Principal Contractor.

- Amenities
- Lighting (night works where required)
- Site generators (where required)
- Traffic control devices
- Erosion and sedimentation control
- Signage
- Temporary Fencing (where required)

This will include an adequate number of toilets located within the site compound boundary. The toilets are to be kept clean and provided with toilet paper and soap. **fgf** will also provide a crib hut to ensure that there is a sheltered area for workers to eat meals and take breaks in. The crib hut will be provided with fresh drinking water as well as hand and face washing facilities. The toilet and crib is to be inspected weekly with the toilet supplier providing monthly cleaning. All workers must ensure the crib area is kept in a clean and tidy state at all times.

Access to the work site will be restricted to only those personnel required to work on the site. This will be established through traffic control and suitable barricading or fencing. The Project Supervisor will be responsible for ensuring that all access restrictions required for the project are implemented.

28. Inspections and Monitoring

This project will be monitored in accordance with *SP 16 Systems Audits, Inspections and Health Monitoring*. Hence, the following inspections and monitoring will apply to this project.

Daily Checks

Prior to commencing work, Construction Foreman and workers are required to conduct safety and environmental checks of their work area to identify any workplace hazards and impacts. Where issues are identified, action must be taken to control the areas of concern. No workers are to undertake unsafe work practices or use faulty equipment under any circumstances.

Weekly Inspections

The Project Engineer and / or Construction Foreman must conduct a planned weekly inspection using the criteria outlined on *SPF 16.3 HSEQ Inspection and Behaviour Observation*.

Task Observations

The Project Engineer and / or Construction Foreman must ensure procedures are regularly monitored to ensure work practices are safe, control measures are effective and they are compliant with legislation as well as contractual obligations. This includes subcontractors work procedures. Results of task observations must be recorded on *SPF 16.3 HSEQ Inspection and Behaviour Observation*. Procedures selected for observation as well as intervals must be appropriate to the risk of activities being undertaken on site at the time as well as legislative requirements. One observation must be done at least weekly.

Health Surveillance and Monitoring

The Project Manager must notify the HSEQ Officer of all health surveillance requirements for workers. The HSEQ Officer will coordinate health surveillance through suitably qualified health care providers. Records that identify individuals and the status of their health will be received directly by the HSEQ Officer and stored confidentially with personnel files. Where health monitoring is carried out, the HSEQ Officer will ensure that results are communicated back to the Project Manager and individuals in a private and confidential manner.

Internal Audits

Additional inspections and task observations will be conducted as determined by the Project Manager. Additional systems internal audits will also be conducted to meet contractual requirements.



Integrated Project / Site Management Plan

Bluewater Estate Stages 18, 22 & 23

External Audits

Should the Client wish to audit **fgf's** Safety, Quality or Environmental Systems throughout the duration of the project, the Project Manager must ensure the auditor is provided with all documents, access and assistance necessary for the audits completion.

APPENDIX A

FORMS

Place Cross in Box for Yes ☒

Toolbox Meeting Record – (Book Form)	☒
Daily Prestart Meeting	☒
Incident / NCR – (Book Form)	☒
Emergency Response Plan	☒
Emergency Contacts List	☒
Plant Operator Competency Record	☒
Mobile Powered Plant Competency Verification Checklist	☒
Hazard and Risk Identification Worksheet	☒
Chemical Register	☒
Site Rules	☒
Code of Conduct	☒
Site Specific Induction Checklist	☒
Site Specific induction Record	☒
Permit to Work	☐
HSEQ Inspection and Behavioural Observation Checklist	☒
Temperature, pH Data & Turbidity	☐
Weed Hygiene Declaration	☐



Toolbox Talk Attendance Record

Date:	Time:	Location:
-------	-------	-----------

TOPIC OF TALK:
Talk Conducted By:
Was a handout issued to all participants? YES ☐ NO ☐

Participant Name (Print Clearly)	SIGNATURE:	Participant Name (Print Clearly)	SIGNATURE:

TOPICS DISCUSSED/ISSUES RAISED

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I have verified this record has all attendees recorded and any issues raised documented.

Supervisor Signature: _____ Date: _____

Daily Pre-Start Meeting

Project Name: 210306 – Bluewater Estate Stages 18, 22 & 23

Date:

Site Foreman (print): Bert Pajor

Time:

Site Foreman (sign):

Duration:

Description of Works and Potential Hazards in the Activities Planned for the Day (e.g. trips, trenches, lifting, power lines, environmental).

List Project SWMS being referenced for the days activities :

Do Project SWMS need to be amended? Yes / No (list SWMS and amendment):

HSEQ INCIDENTS/NCR's

☐ Health & Safety

☐ Environmental

☐ Quality

DAILY CHECKS:

☐ All Crew Signed Off SWMS for Activity

☐ Muster Point & First Aid Kit Location

☐ QA Paperwork in Place for Days Activities

WEATHER CONDITIONS:

☐ Fine

☐ Windy

☐ Overcast

☐ Light Rain

☐ Moderate Rain

☐ Heavy Rain

☐ Overnight Rain

RAINFALL (if any): mm

If an incident occurs, report it immediately and under no circumstances move anything without approval by fgf management.

SEAT BELTS TO BE WORN IN POWERED MOBILE PLANT

(See reverse side of sheet for attendees sign off)



Daily Pre-Start Meeting

By signing below, you acknowledge that you have been consulted in its development, have had the opportunity to provide feedback, understood the information, and it has been effectively communicated to you and all members of the work group.

Date	Print Name	Company/ Employer	Signature	Date	Print Name	Company/ Employer	Signature
1				23			
2				24			
3				25			
4				26			
5				27			
6				28			
7				29			
8				30			
9				31			
10				32			
11				33			
12				34			
13				35			
14				36			
15				37			
16				38			
17				39			
18				40			
19				41			
20				42			
21				43			
22				44			



Incident / NCR Report

Project No:						Incident/NCR No.:			
Incident Location						Incident Date		Incident Time	
Incident Type	Work Related Illness/Injury ☐	Plant/Equipment Damage ☐	Environment ☐	Near miss /Hazard ☐	NCR Go To Details ☐	Complaint ☐	Improvements/ Request for change ☐		
Medical treatment Required? (circle)		None	First Aid	Doctor	Hospital	Cease work for remainder of shift?	Yes	No	
Which Authorities Attended/Notified? (circle)		Police	Ambulance		Fire	WHSQ	EPA	Client	
Incident / NCR Description		Describe what happened to cause the incident / NCR, how it occurred, why you think it happened (Root Cause) and what immediate actions have been taken to prevent reoccurrence. If more space is required attach additional sheets.						PHOTOGRAPHS Yes / No	

DETAILS (What, How, Why):	Risk Score
---------------------------	------------

Immediate Action Taken:

CORRECTIVE ACTION:

PREVENTATIVE ACTION:	Risk Score

ROOT CAUSE:

NCR:	Classification:	Critical ☐	Major ☐	Minor ☐	Is client approval required?	Yes / No
Approval:	Client:	Print Name:			Date:	

INCIDENT:			
Name of Person Involved	Employer	Contact Number	Further Investigation Required
			Yes ☐ No ☐
Name of Witness	Employer	Contact Number	
Reported By	Date & Time Reported	Employer	Contact Number

Action Approved: Yes / No	Signed Manager:	Date:
Improvement Made: (signed)	HSEQ Officer	Date:



EMERGENCY PROCEDURE

fgf Developments Pty Ltd

Bluewater Estate Stages 18, 22 & 23

Issue No.:	Date:	Details of Changes	Approved By (Signature)
1	31/03/2021	Original Document	

Planning for Emergencies for Bluewater Estate Stages 18, 22 & 23

Section 43 of the Work Health and Safety Regulations 2011 requires employers to plan for emergencies. The purpose of an emergency plan is to provide a system for emergencies that may occur on construction sites we operate on. If an emergency occurs, it will be managed by the Site Foreman who is the emergency coordinator for construction sites.

Listed below is a list of potential Emergencies that could arise:

- | | | |
|--|-------------------------|------------------------|
| • Serious Accident or Injury | • Fire on Site | • Trench Collapse |
| • Medical Emergency | • Electric Shock | • Plant Rollover |
| • Plant Contact with Electric Services | • Plant or Vehicle Fire | • Severe Storm/Cyclone |
| • Vehicle/Road Accident (Roadworks) | • Chemical Exposure | • Flooding |
| • Snake Bite | • Burns | • Major Chemical Spill |

The Emergency Coordinator is Site Foreman

GENERAL PROCEDURE FOR EMERGENCIES:

As with any emergency, the first rule is PERSONAL SAFETY FIRST.

In the event of any situation arising that an individual feels is an emergency, that person is to immediately seek assistance by contacting the Site Foreman via site radio or mobile or in person.

The following radio protocol is to be used:

- Go to radio channel (Ch. 26).
- Sound the alarm by shouting “**Emergency, Emergency, Emergency**”
- WAIT for response.

(Following steps for Radio and Mobile Phone Contact)

- Answer the questions asked.
- Remain at the scene and on channel until relieved or help arrives.
- If assistance is close by have someone contact the Site Foreman
- Site Foreman or his delegate will take control.
- All staff and visitors will vacate the danger area immediately.
- Provide first aid to injured personnel. **Call the nearest First Aider.**
- For emergency services, **telephone 000 or 112** (pause between numbers).
- Isolate, disconnect or contain danger. If emergency is a fire only extinguish fire if possible and safe to do so.

Emergency contact list is located on the Site Container.

Advise either **Brendan Rogina - 0427 576 980** (Operations Manager), **Bruce Williams - 0419 681 232** (Director), or **Mark Jeynes – 0488 086 463** (HSEQ Officer) of all details as soon as possible.

The assembly area in the event of an emergency is **the set down area**.

SERIOUS ACCIDENT OR INJURY:

The first rule in any accident situation is not to panic!

- Keep calm - so that you can help.
- Advise the Site Foreman or ask someone else to do so.
- Assess the situation to determine who is involved and the nature of injuries.
- Telephone for the required Emergencies Services (Fire Brigade, Ambulance) on 000 or 112.
- Clearly describe your name, phone number, location of depot/construction site, number of persons injured and the nature of the injury.
- Stay on the phone until the operator advises its okay to hang up.
- **DO NOT** move the casualty unless the person is in danger of further injury - further movement may aggravate the injury.
- Stop any serious bleeding.
- Monitor and maintain: **Airways. Breathing. Circulation.**

An accident scene is not to be interfered with unless absolutely necessary to save life or property.

MEDICAL EMERGENCY ON SITE:

- Keep calm - so that you can help.
- Advise the Site Foreman or ask someone else to do so.
- Telephone for the required Emergency Services (Ambulance) on 000 or 112.
- **DO NOT** move the casualty unless the person is in danger of further injury - further movement may aggravate the injury.
- Stop any serious bleeding.
- Monitor and maintain: **A**irways. **B**reathing. **C**irculation.

PLANT CONTACT WITH ELECTRIC SERVICES:

- Try to break the mobile plant's contact with the energised electric line.
- If it is not possible to break the contact with the energised electric line, the operator should remain inside the cabin of the plant item.
- Contact ERGON immediately to isolate electricity to the energised electric line. **DO NOT PROVIDE ASSISTANCE, ONLY PROVIDE ASSISTANCE AFTER POWER HAS BEEN TURNED OFF.**
- If you have to leave the cabin because of fire or other life threatening reason, then jump clear of the equipment. **DO NOT TOUCH THE EQUIPMENT AND THE GROUND AT THE SAME TIME.**
- Try to land on both feet simultaneously.
- Avoid touching the ground with hands.
- When moving away from the equipment, the operator should hop or shuffle away with both feet together until at least 8 metres from the nearest part of the plant. **DO NOT RUN OR WALK.**
- Warn all other personnel to keep 8 metres clear from the mobile plant.
- Notify the Operations Manager / Director / HSEQ Officer immediately.

VEHICLE/ROAD ACCIDENT (Roadworks):

- If the incident is minor, an exchange of names, addresses and vehicle details must be made and reported to the HSEQ Officer or the Operations Manager.
- For a major incident involving injury or death, it must be reported to Police and WHS immediately.
- Call emergency services.
- Do not move victims unless fire is a possibility.
- Keep victims calm, warm and comfortable.
- If fuel is spilt or toxic, inflammable or explosive substances are present:
 - Report to emergency services immediately.
 - Close the road or isolate the area.
 - Extinguish cigarettes and open flames.
 - Do not take unnecessary risks.

SNAKE BITE:

- Keep the patient calm (rest and reassure) and bring transport to them.
- Maintain vital functions.
- DO NOT wash the snake bite area.
- Apply a broad pressure bandage over the bite as soon as possible.
- Apply a pressure immobilisation bandage firmly from the tip of the fingers/toes up the limb as far as can be reached, try to include the snake bite area. **(DO NOT REMOVE ONCE APPLIED)**
- Apply tightly with-out stopping blood supply to limb.
- Splint the bandaged limb and ensure the patient does not move.
- Stay with patient until emergency services arrive, regularly checking fingers/toes for circulation.

FIRE ON SITE:

- Sound the alarm by shouting **"Emergency, Emergency, Emergency"**.
- Dial 000 or 112 and request the Fire Service.
- Clearly describe your location – give street address (1077 Kamerunga Road, Caravonica). Explain who will meet the Fire Service on arrival and where they will be located.
- Evacuate all staff to the Emergency Assemble area and remain there. Complete a thorough search of the depot (only if safe to do so) on your way to the assembly area. Complete a head count to ensure all personnel have been accounted for.

- DO NOT attempt to extinguish the fire unless it is safe to do so.
- Keep the Director / Operations Manager abreast of developments if possible.
- If you are successful in extinguishing the fire, monitor until the Fire Service gives the all clear and hand over/back the site.
- Debrief once the site is made safe.

ELECTRIC SHOCK:

- Turn the power source off.
- If power cannot be turned off **DO NOT PROVIDE ASSISTANCE, ONLY PROVIDE ASSISTANCE AFTER POWER HAS BEEN TURNED OFF.**
- Start resuscitation immediately if breathing is not evident.
- Leave equipment as is.
- Attach an "Equipment Unsafe" tag to the power source isolating switch.
- Notify the Site Foreman / Operations Manager immediately.

EXPLOSION:

- If the explosion is small and damage is minimal, ensure no fire can start and report to the Site Foreman.
- For a large explosion - phone emergency service, minimise risk of fire.
- Locate and attend to any victims.
- Assemble remaining staff at the Emergency Assembly area.

PLANT OR VEHICLE FIRE:

In the case of a machine fire the following should be adopted;

- Lower all attachments to the ground and shut the machine down.
- Turn off the ignition key and master switch if safe to do so.
- Call for the fire brigade.
- Do not open engine covers as air will fuel the fire.
- If another machine is available try to smother the fire with soil or sand (**DO NOT USE WATER JET**).
- **EVACUATE IF UNSAFE.**

CHEMICAL EXPOSURE: (REFER TO MSDS)

- For splashes with acids or alkaline, wash off immediately with copious amount of cold water.
- For swallowed fluids - do not induce vomiting but seek medical attention immediately.
- NATIONAL POISONS INFORMATION CENTRE: ph. 131126

BURNS:

- If persons cloths are burning, don't let the person run as this will fan the flame, get person to roll on ground to try smothering flames or rolling the person in a thick rug or dampening with a fine low-pressure water spray.
- Continue with a fine low pressure water spray for about 10 minutes to relieve heat.
- Do not apply creams or oil to burns.

TRENCH COLLAPSE:

- Call emergency services.
- Try to locate the victim looking for signs such as tools, shovel or safety helmet.
- Clear the area of all unwanted workers or bystanders.
- Take precautions to prevent further collapse by battering the sides of the trench in the collapsed area to protect the victim and the rescuers.
- Keep all dewatering plant in operation (where in use).
- Start hand excavation to locate the victim. If shovels are used use with caution to prevent further injury to victim.
- Under no circumstances shall machines be operated anywhere near where a person may be buried.
- NEVER have anyone on top of the collapsed soil as this will increase pressure on the victim.
- When digging is close to the trapped person, continue excavation using hands.
- When the victim is located, clear soil from the head and chest region and check for breathing and pulse.

- Do not shift the victim when uncovered, keep them warm and comfortable until emergency services arrive and provide guidance for the victim to be removed.

PLANT ROLLOVER:

- Assess the area and that the item of plant is stable, **ONLY PROVIDE ASSISTANCE IF IT IS SAFE TO DO SO.**
- Turn off the ignition key and master switch if safe to do so.
- Call for the relevant emergency services e.g. fire brigade, ambulance.
- Provide First Aid only if it has been determined the area safe to remain in.
- Where it has been determined that the injured person needs to be removed from the item of plant immediately, due to other possible hazards, and;
 - the injured person cannot remove himself unaided.
 - the removal can be completed safely with onsite personnel.
 then the injured person will be removed from the item of plant in the safest manner.
- Where no other possible hazards exist and the injured person is safe and stable, the injured person will not be moved until under the direction of the emergency services.
- WHERE IT HAS BEEN IDENTIFIED THAT IT IS NOT SAFE TO REMAIN IN THE AREA, ALL PERSONNEL MUST EVACUATE THE AREA VIA THE QUICKEST AND SAFEST ROUTE.**

SEVERE STORM/CYCLONE:

- Tidy up the Depot/Construction Site and tie down any loose items that could potentially turn into missiles.
- Ensure all site containers and offices stored at the depot are suitably tied down.
- Ensure all plant and equipment is locked (close all doors where fitted) and park close together or in a sheltered area as directed by management.
- Beware of fallen electrical lines, flying glass or other hazardous objects.
- Follow instructions from management.

IN THE EVENT OF FLOODING:

- Where possible prepare in advance of flooding.
- Where possible move all plant and vehicles to high ground.
- Ensure that chemicals and dangerous substances are above flood level.
- Where necessary arrange for emergency generator and switch off mains.
- Ensure that sufficient drinking water is available in advance.
- If necessary retire to high ground or roof of building.

MAJOR CHEMICAL SPILL:

- Alert nearby personnel and request help to assist with controlling the spill.
- Establish an exclusion zone and keep all personnel not required to assist in the clean-up away and out of danger.
- If the spill is large and can't be contained with the equipment on site, call the Fire Services immediately.**
- Ensure all possible ignition sources are extinguished e.g. cigarettes, naked flames and nearby plant and equipment shut down. **(NOTE: Do not leave the spill zone unattended)**
- Identify what the spilled chemical is, if you already know obtain the Material Safety Data Sheet (MSDS).
- Check to see if it is flammable, combustible? The MSDS will give this information as well as information on safe clean-up and the required PPE.
- Obtain proper spill control materials, absorbent pads, containment socks, particulate absorbents all suitable for hydrocarbons and spark proof tools (for flammable liquids).
- Put on appropriate Personal Protective Equipment (PPE) as per MSDS this can include respirators, gloves, goggles, etc., as needed.
- Stop the source of the spill and stop the spill from spreading by using the absorbent pads and containment socks to plug drains to prevent contamination of the stormwater system.
- Once main spill is cleaned, cover with particulate absorbent and leave to absorb remaining liquid.
- Clean up all contaminated spill control materials and any disposable personal protective clothing and place in hazardous waste plastic bag and dispose of as per regulated waste requirements.
- Complete an inventory check of the spill response kit and replenish all materials used for spill.

NOTE: Where there is uncontrolled off site release e.g. stormwater, notify DEHP immediately.

All injuries, property damage or near miss incidents must be reported immediately to the Site Foreman. Treatment must be sought for all injuries, no matter how minor. Where damage or serious harm/potential for serious harm has been caused, nothing relating to the accident scene is to be disturbed, except for the purpose of assisting an injured person, or to remove a deceased person, or that is essential to make the Construction Site safe, or to minimise the risk of a further notifiable incident, or that is associated with a police investigation; or for which an inspector or the relevant authority has given permission.

Ambulance, Fire, Police

000 or 112

No.	Contract	Phone Number
1.	AMBULANCE	131233
2.	DOCTOR (Cairns Travel Clinic)	4041 1699
3.	HOSPITAL	4226 0000
4.	CHEMIST (Chemist Warehouse)	4041 0222
5.	POLICE	4030 7000
6.	FIRE SERVICE	4042 5400
7.	POISONS INFORMATION	131126
8.	FNQ WILDLIFE RESCUE (Cairns)	4053 4467
9.	OPERATIONS MANAGER – Brendan	0427 576 980
10.	PROJECT ENGINEER – Dan Moule	0419 658 523
11.	SUPERVISOR – Warren McKenzie	0427 576 987
12.	HSEQ OFFICER – Mark Jeynes	0488 086 463
13.	SITE FOREMAN – Bert Pajor	0427 414 451
14.	FIRST-AID OFFICER – Bert Pajor	0427 414 451
15.	WORKPLACE HEALTH & SAFETY	1300 369 915
16.	ENVIRONMENTAL & HERITAGE PROTECTION	1300 130 372



Plant Operator Competency Record

RECORD OF CERTIFICATES AND LICENCES

The Site Supervisor is to ensure that every person working at the workplace has a relevant certificate and licence to the work performed. Please record relevant details and ask the person to sign.

Project Name: Bluewater Estate Stages 18, 22 & 23

Project No.: 210306

Date	Name (Print)	Company	Certificate / Licence Description	Number	Signature

Please retain this record on site in Project folder.



Mobile Powered Plant Competency Verification Checklist (Subcontractors Only)

SPF 09.1

Operators Name		Date	
Operators Company			
LICENCES & QUALIFICATIONS			
Please provide details for all plant you will be operating whilst performing work for fgf and a copy of each licence as applicable			
Plant Description	Licence / Certificate No.	Licence / Qualification Expiry Date (If Applicable)	Experience (in Years)
Heavy Rigid Vehicle			
Heavy Combination Vehicle			
Loader			
Excavator			
Backhoe			
Loader			
Scraper			
Grader			
Roller			
Other (please specify)			
SUMMARY OF PREVIOUS EXPERIENCE			
Name of Employer	Type of Machine / Vehicle Operated	Scope of Work undertaken	Any Accidents?
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
Have you been involved in any accident's which resulted in or was likely to result in harm?			☐ Yes ☐ No
Have you had your Driver's / Operators Licence suspended or cancelled?			☐ Yes ☐ No
Do you suffer from any medical condition which would affect or limit your driving/operating performance?			☐ Yes ☐ No
Are there any other factors that may hinder your ability to fulfil the inherent requirements of your duties as a competent plant operator?			☐ Yes ☐ No



Mobile Powered Plant Competency Verification Checklist (Subcontractors Only)

SPF 09.1

If you have answered yes to any of the above questions please specific the details below:

Referees			
Name		Company	
Position		Contact Number	
Name		Company	
Position		Contact Number	
PLANT OPERATORS DECLARATION			
I confirm that all information I have stated on this form is true and correct. I believe that my past experience and training in the above mentioned item of plant qualifies me to operate it in a safe and competent manner. I understand that providing false information on this form could amount to dismissal. I have not withheld or suppressed any information that could affect fgf's decision in relation to whether or not I am able to fulfil the inherent requirements of my duties as a competent plant operator.			
Plant Operators Name		Position	
Plant Operators Signature		Date	
Witnesses Name		Position	
Witnesses Signature		Date	
Outcome and Authorisation (to be completed by fgf Project Manager or fgf Project Supervisor)			
NOTE: All Persons operating plant on site are required to present their tickets or certificates of competence for "Verification of Competency" (VOC) prior to commencement of work.			
Has the operator provided verification of competency?	☐ Yes ☐ No		
Comments			
Manager or Supervisors Name		Position	
Signature		Date	

Hazard and Risk Identification Worksheet

Use this form to assess hazards and risks at a specific work site, or for a specific activity. Workers involved directly and other affected workers should be consulted. The Assessor should be competent and experienced, and familiar with the work.

		Fixit No.:	
Work Location:		Date:	/...../.....
Reported By:	Name:	Position:	
Reported To:	Name:	Position:	

Activity / task:

Describe the activity being assessed:

Hazards: ✓ Tick the hazards that might be present at any time during the activity:

Workplace		✓		✓		✓		✓	
Slips and trips		Fire		Ventilation		Heating			
Working space		Access & Egress		Lighting		Storage			
Edge Protection		Traffic Routes							
Equipment									
Lifting equipment		Electrical equipment		Hand Tools		Machinery			
Physical									
Noise		Lifting & Carrying		Sun or UV Exposure		Vibration			
Electricity		Extremes in temperature		Cuts or Burns		Repetitive work			
Substances									
Chemicals		Explosives / dangerous goods		Flammables		Dusts			
Fumes		Gas							
Processes									
Work at height		Confined Space		Falling objects		Hot work			
Environment									
Flora / Fauna		Surface / Ground Water		Archaeology (Heritage)		Social / Community			
Air Quality (Dust etc)		Noise & Vibration		Waste		Land / Contamination			
Other:									

Conduct a risk assessment using the Hazard and Risk Matrix provided on the over page		Risk Score:
Note: If High or Extreme risk rating, stop work immediately and discuss with supervisor		
Your Recommended Actions to Fix the Hazard / Risk		
Has the hazard / risk been controlled or eliminated?	Signature.....	
YES / NO	Name..... Date...../...../.....	

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within the site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.

2. Take Step 2 rating and select the correct row.

3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk , Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely.
7 – 10 H	High risk , Control measure need to be implemented to reduce risk to moderate.	SUBSTITUTE - replace the process, material, equipment or substance with a safer one. ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk , Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk , Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training. PPE - use protective equipment

Chemical Register

SDS Issue Date (Must not exceed 5 years)	Status	Section (e.g. Depot=Dep, Quarry=Q, Bitumen=B, Developments=D)				Chemical Name of Substance	Manufacturer / Contact Details	Physical Description	Intended Use	U.N. No.	Hazardous Substance	Dangerous Good (DG) Class	Risk Assessment Completed and Provided	SDS Information
		Dep	Q	B	D									
Mar-17		Dep		B	D	AdBlue	Blue Gold Industries Pty Ltd Ph: 1300 311 844	Clear colourless liquid, slight ammoniacal odour	Additive to be used for injection into diesel exhaust systems	N/A	No	N/A	No	Yes
Jan-17			Q			AGG-COAT Precoat	Corporate Energy Australia Pty Ltd Ph: 07 3203 2833	Black liquid	Sealing aggregate precoating agent	N/A	No	N/A	No	Yes
Jan-17				B		AGGR-Grip 700LT	Corporate Energy Australia Pty Ltd Ph: 07 3203 2833	Light brown / yellow liquid, Ammonia like smell	Road Surfacing Adhesion Agent	3267	Yes	8	Yes	Yes
Feb-18				B		AMC00H	Bituminous Products Pty Ltd Ph: 02 9772 4433	Black paint appearance liquid, kerosene characteristic odour	Prime and primer seal binder	N/A	Yes	N/A	Yes	Yes
Nov-18				B		Asphalt	Boral Asphalt Ph: 02 9220 6300	Black hot loose coated solid particles (In use) Black solid thermoplastic material (When cured)	Road making	N/A	No	N/A	No	Yes
Jan-20		Dep				Battery Terminal Protector (CRC)	CRC Industries (Aust) Pty Ltd Ph: 02 9849 6700	Viscous Yellow liquid (Aerosol), slight odour	Battery Terminal Protector	1950	Yes	2.1	Yes	Yes
Mar-17		Dep				Big D Super Lubzz	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Amber aerosol with a sweet odour	Dewatering & Penetrating spray	1950	Yes	2.1	Yes	Yes
Jul-17				B		Bitulastic CRS Emulsion 170/60	Bituminous Products Pty Ltd Ph: 02 9772 4433	Liquid Brown/Black paint like	Bitumen spray sealing and repairs	N/A	No	N/A	No	Yes
Oct-16				B		Bitulastic S0.3B	Bituminous Products Pty Ltd Ph: 02 9772 4433	Black - Solid at ambient Temperature	Polymer modified bitumen binder	3257	No	9	Yes	Yes
Dec-16				B		Bituslip	Corporate Energy Australia Pty Ltd Ph: 07 3203 2833	Blue viscous liquid with a typical odour	Asphalt release agent	N/A	No	N/A	No	Yes
Mar-19					D	BK Standard Bactericidal Pipe Jointing Lubricant	Thomas Grozier & Sons Pty Ltd Ph: 02 9620 9843	Clear gel, Nil odour	Lubrication for joining pipes	N/A	No	N/A	No	Yes
Apr-17		Dep				Black Zinc	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Black Aerosol, with solvent odour	Zinc rich primer to protect steel	1950	Yes	2.1	Yes	Yes
Feb-17		Dep				Brake and Clutch Fluid	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Green liquid, characteristic odour	Motor vehicle brake fluid	N/A	No	N/A	No	Yes
Mar-17		Dep				Brake Cleaner	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Clear liquid with solvent odour	Heavy Duty Brake and Parts Cleaner	1993	Yes	3	Yes	Yes
Dec-16		Dep				Chain and Bar Oil	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Brown liquid, petroleum odour	Chains and bar lubricant	N/A	No	N/A	No	Yes
May-16	24	Dep			D	Chemtech CT18 Superwash	ITW AAMTech Australia Ph 1800 177 989	Opaque green, viscous liquid	Vehicle and general purpose cleansing gel.	N/A	No	N/A	No	Yes
Dec-16		Dep			D	Citrus 10,000	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Liquid orange sweet citrus odour	Industrial Degreaser	N/A	Yes	N/A	Yes	Yes
Jun-17		Dep				Cobra Aerosol	Minehan Agencies Pty Ltd Ph: 07 4774 4626	White foam aerosol with Hydrocarbon odour	Evaporator/Condenser Coil & Fin Cleaner	1950	Yes	2.1	Yes	Yes
Nov-16		Dep				Crystal Kleer	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Pink liquid, with a faint odour	Industrial Strength Window Cleaner	N/A	Yes	N/A	Yes	Yes
Oct-16		Dep	Q			Cummins Tec PGXL Coolant	Fleetguard Ph: 03 9721 9100	Royal blue coloured alkaline liquid with a mild odour.	Engine Coolant	N/A	No	N/A	No	Yes
Jul-17		Dep				Delo 400 MGX SAE 15W-40	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Amber liquid with Petroleum Odour	Diesel Engine Oil	N/A	No	N/A	No	Yes
Dec-19		Dep	Q			Delo 400 Multigrade SAE 15W-40	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Amber Liquid, Petroleum Odour	Diesel Engine Oil	N/A	No	N/A	No	Yes
Jun-16		Dep	Q			Delo Gear EP-5 SAE 80W-90	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Colourless to yellow liquid with petroleum odour	Automotive Gear Oil	N/A	Yes	N/A	Yes	Yes
Jun-16		Dep				Delo Gear EP-5 SAE 85W-140	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Colourless to yellow liquid with petroleum odour	Automotive Gear Oil	N/A	Yes	N/A	Yes	Yes
May-20		Dep	Q			Delo TorqForce	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Pale to amber brown or blue liquid with petroleum odour	Drive train fluid	N/A	No	N/A	No	Yes
Jan-17				B		Diamin To-I	Corporate Energy Australia Pty Ltd Ph: 07 3203 2833	Oily yellow liquid	Adhesion agent for bitumen	2735	Yes	8	Yes	Yes
Nov-19		Dep		B	D	Dy-Mark Spray and Mark	Dy-Mark Pty Ltd Ph: 07 3327 3004	Coloured flammable liquid with a characteristic solvent odour, not miscible with water.	Spotting / marking locations on ground.	1950	Yes	2.1	Yes	Yes
Feb-17		Dep				Easy Shift SAE 75w-90	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Amber liquid with petroleum odour	Transmission fluid	N/A	No	N/A	No	Yes

Chemical Register

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		Dep	Q	B	D									
Jul-17		Dep				Envirowash HD	Envirosmart Industrial Pty Ltd Ph: 07 3889 6677	Straw coloured non-viscous liquid with characteristic odour	Heavy duty cleaner / degreaser	N/A	Yes	N/A	Yes	Yes
Oct-17				B		FGF-Bitumen & Tar Remover	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Liquid	Dissolving tar and bitumen	1268	Yes	3	Yes	Yes
Sep-16		Dep				Gearbox LSD SAE 90	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Brown liquid with Petroleum Odour	Automotive Gear Lubricant	N/A	Yes	N/A	Yes	Yes
Feb-17					D	General Purpose Cement	Cement Australia Pty Ltd Ph: 1300 236 368	Fine powder ranging in colour from grey to off-white, no distinctive odour	Binder in concrete, concrete masonry, mortar and grouts, soil stabilisation.	N/A	Yes	N/A	Yes	Yes
Mar-17		Dep				Green Mag 4	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Clear liquid with faint odour	Aluminium/stainless steel cleaner	2922	Yes	8	Yes	Yes
Jan-17		Dep				Havoline Premium Plus SAE 10W-30	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Amber liquid with petroleum odour	Passenger car engine oil	N/A	No	N/A	No	Yes
Mar-18		Dep	Q		D	HD Extended Life Pre-Mix Coolant	Valvoline (Australia) Pty Ltd Ph: 02 9609 7999	Red liquid	Diesel Engine Coolant	N/A	Yes	N/A	Yes	Yes
Feb-17					D	Hydrated Lime	Cement Australia Pty Ltd Ph: 1300 236 368	White to off-white powder	For water & sewerage treatment, soil stabilisation, environmental applications	N/A	Yes	N/A	Yes	Yes
Feb-17		Dep				Interplus 1180 (Part A)	Akzo Nobel Pty Ltd Ph: 03 9313 4555	Light coloured liquid with smell of solvent	Protective Coatings	1263	Yes	3	Yes	Yes
Sep-20		Dep				Interplus 1180 (Part B)	Akzo Nobel Pty Ltd Ph: 03 9313 4555	Light coloured liquid with smell of amine	Protective Coatings	3469	Yes	3	Yes	Yes
Aug-16					D	Iplex Priming Fluid Red	Bostik Australia Pty Ltd Ph: 03 9279 9333	Red liquid with ketonic odour.	Primer for use with uPVC solvent welding cements.	1993	Yes	3	Yes	Yes
Aug-16					D	Iplex PVC Cement N Blue	Bostik Australia Pty Ltd Ph: 03 9279 9333	Blue liquid with ketonic odour.	Adhesive Glue	1133	Yes	3	Yes	Yes
Nov-16					D	Iplex PVC Cement P Green	Bostik Australia Pty Ltd Ph: 03 9279 9333	Transparent green liquid with solvent odour.	Adhesive Glue	1133	Yes	3	Yes	Yes
Nov-19					D	ITW Devcon Stop Seize Copper	ITW Polymers & Fluids Ph: 02 9757 8800	Copper coloured paste with little odour	Lubricant & anti-seize compound	N/A	Yes	N/A	Yes	Yes
Jan-18		Dep	Q	B	D	Liplex Heavy Duty 2	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Amber grease with mild petroleum oil odour	Grease with heavy base fluid for industrial use.	N/A	No	N/A	No	Yes
Jan-19				B		Liquified Petroleum Gas	Elgas Ph: 02 8094 3200	Colourless gas, characteristic odour	Heating bitumen in sprayer	1075	No	2.1	Yes	Yes
Jan-17					D	Megapoxy PM (Part A)	Vivacity Engineering Pty Ltd Ph: 02 9875 3044	White paste	Adhesive for civil engineering use	3082	Yes	9	Yes	Yes
Jan-17					D	Megapoxy PM (Part B)	Vivacity Engineering Pty Ltd Ph: 02 9875 3044	Natural / Grey paste	Adhesive for civil engineering use	N/A	Yes	N/A	Yes	Yes
Aug-19		Dep	Q			Meropa 220	Ampol Australia Petroleum Pty Ltd Ph: 02 9250 5000	Liquid brown petroleum odour	Industrial gear oil	N/A	No	N/A	No	Yes
Feb-17					D	Methylated Spirits	Recochem Inc. Ph: 07 3308 5200	Colourless Clear Liquid alcoholic odour	Solvent, fuel, cleaning solvent	1170	Yes	3	Yes	Yes
Jul-17		Dep				Mobil Super 3000 Formula P OW-30	East Coast Lubes Pty Ltd 1800 069 019	Amber liquid, characteristic odour	Engine oil	N/A	No	N/A	No	Yes
May-17					D	Molytec Nickeltec Anti-Seize Lead Free Paste	Molytec Australia Pty Ltd Ph: 07 3245 2355	Smooth silver coloured grease	Lead free anti-seize lubricant	N/A	Yes	N/A	Yes	Yes
Oct-16					D	Mortar Mix	Cement Australia Pty Ltd Ph: 1300 236 368	Grey sandy mixture of fine and coarse solid particles, no distinctive odour	Used to produce a brick laying mortar and also for bedding of roof tiles	N/A	Yes	N/A	Yes	Yes
Feb-18				B		Parts Cleaning Fluid (PCF) (Formally HFK)	Bituminous Products Pty Ltd Ph: 02 9772 4433	Liquid, colourless, characteristic kero odour	Viscosity reduction of Bitumen	N/A	Yes	N/A	Yes	Yes
Dec-16				B		Premium Bituslip with Lanolin	Corporate Energy Australia Pty Ltd Ph: 07 3203 2833	Viscous pink/orange liquid, sweet odour	Asphalt and Bitumen release agent	N/A	No	N/A	No	Yes
Jan-19		Dep	Q	B	D	Puma Energy Diesel	Puma Energy Australia Ph: 1300 723 706	Colourless to amber liquid with a mild hydrocarbon odour; floats on water.	Fuel for Construction Vehicles/Plant	N/A	Yes	N/A	Yes	Yes
Jan-19		Dep	Q	B	D	Puma Energy Unleaded Petrol	Puma Energy Australia Ph: 1300 723 706	Purple highly flammable liquid with strong gasoline odour; floats on water.	Fuel for Vehicles and small plant	1203	Yes	3	Yes	Yes
Feb-21		Dep	Q	B	D	Rando HDZ 68	Ampol Australia Petroleum Pty Ltd Ph: 02 9250 5000	Clear to pale yellowish brown liquid with mild petroleum odour	High viscosity index antiwear hydraulic lubricant.	N/A	No	N/A	No	Yes

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		Dep	Q	B	D									
Jan-17					D	Sanichlor	Northern Chemicals Pty Ltd Ph: 07 4035 4622	Yellow clear liquid, chlorine odour	Industrial bleach, sanitiser, water treatment	1791	Yes	8	Yes	Yes
Jul-16		Dep				Scrubber Handcleaner	Lightning Products Pty Ltd Ph: 03 8368 2522	Pink viscous liquid, no odour	Heavy duty waterless handcleaner	N/A	Yes	N/A	Yes	Yes
Jun-17		Dep				Seal N Shine	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Clear liquid	Silicon Protectant	1993	Yes	3	Yes	Yes
Apr-17		Dep				Silver Zinc - Aerosol	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Grey Aerosol, With solvent odour	Zinc rich primer to protect steel	1950	Yes	2.1	Yes	Yes
Aug-17				B		Super Auto Wash	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Liquid with various colour and odour	Streak-free cleaning of automotive surfaces	N/A	No	N/A	No	Yes
May-18		Dep				Super Tractor SAE 15w-40	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Amber Liquid, petroleum odour	Engine Oil	N/A	No	N/A	No	Yes
May-18		Dep				Texamatic 1888	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Red liquid with petroleum odour	Automatic Transmission Fluid	N/A	No	N/A	No	Yes
Jun-18		Dep				Textran TDH Premium	Caltex Australia Petroleum Pty Ltd Ph: 02 9250 5000	Light Brown Liquid, Petroleum Odour	Tractor Hydraulic Fluid	N/A	No	N/A	No	Yes
Feb-17		Dep				Vinyl Restorer	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Opaque White liquid, spice odour	Multi Purpose vinyl and rubber restorer	N/A	No	N/A	No	Yes
Feb-20		Dep				Vital Bon-Matt P47-VR1	Vital Chemical Pty Ltd Ph: 07 3288 3500	Green liquid, slight odour	Dust / Erosion Control Agent	N/A	No	N/A	No	Yes
Nov-20				B		Viva Bitumen C170 & C320	Viva Energy Australia Pty Ltd Ph: 03 8823 4444	Black, solid at low temperatures, liquid at high temperatures, characteristic bitumen odour	Bitumen binder	3257	No	9	Yes	Yes
Jan-17		Dep				Wattyl Master Prep Metal Primer Colour Range	Wattyl (Valspar Paint (Australia)) Ph: 02 8867 3333	Coloured flammable liquid with a mild solvent odour	Prime coat for plant maintenance	1263	Yes	3	Yes	Yes
Jul-18		Dep				WD-40 Aerosol	WD-40 Company Australia Pty Ltd Ph: 02 9868 2200	Aerosol spray with a strong citrus odour	Lubricant, penetrant, drives out moisture, protects surfaces from	1950	Yes	2.1	Yes	Yes
May-19		Dep	Q			Weedmaster	Nufarm Australia Limited Ph: 03 9282 1000	Clear green liquid, faint amine odour	Control of annual, perennial and aquatic weeds	N/A	No	N/A	No	Yes
Jun-17		Dep				White Gal	Minehan Agencies Pty Ltd Ph: 07 4774 4626	White aerosol solvent	Zinc rich primer to protect steel	1950	Yes	2.1	Yes	Yes
Jun-17		Dep				Windscreen Washer Additive	Minehan Agencies Pty Ltd Ph: 07 4774 4626	Pink liquid with floral odour	Glass cleaner	N/A	No	N/A	No	Yes
Nov-15	EXP	Dep				Wirtgen High Performance Gear Oil (VG220)	Wirtgen GmbH Ph: (+49) 30 3068 6790	Clear colourless liquid, slight hydrocarbon odour	Gear lubricant	N/A	No	N/A	No	Yes

Inductions

- All workers must undergo a site induction prior to commencing any work on this site.
- Visitors must undergo a visitors induction and be escorted on site by a **fgf** representative at all times.
- No unauthorised persons or children are to enter this site.

Permits

- No entry to confined space is permitted unless a risk assessment is carried out and documented procedures are in place.

Reporting

- Report any unsafe acts or conditions to your supervisor immediately.
- Report all incidents, injuries, emergency situations and near misses to your Supervisor immediately.
- All persons requiring first aid treatment are to contact a first aid officer.

Barriers

- As a minimum, handrails are required around excavations of 2 metres or more in depth.
- As a minimum, hazard warning fencing must be erected around excavations less than 1 metres such as plastic webbing on similar to warn persons of the danger.
- All trenches and excavations must be adequately shored and benched or battered (supported) or put on a safe angle of repose = 45°, safe access is to be provided.

Guarding & Safety Devices

- All unsafe / defective plant or equipment is to be tagged and isolated to prevent inadvertent use and immediately reported to the Site Supervisor or Project Manager / Engineer.
- Where required, no machinery, hand tools, or any other type of equipment is to be used without appropriate guards in place.
- All plant for load shifting; cranes, loaders, etc are to display their Safe Working Load (SWL)
- Industrial type ladders used on site must be in a safe condition and are to extend at least 1 meter above the landing. They are to be placed so that the angle between the ladder and the horizontal is at least 70° but not more than 80° when in use;
- Safety harnesses, if required to be used on site, are to be conforming to the Australian Standard and persons instructed in inspection and safe use procedures.
- All oxy-acetylene or oxy LPG cylinders of the like shall be securely fixed in trolleys or cradles have flash back arresters fitted and adequate fire protection provided in close proximity.
- Work areas must be kept clean and tidy and safety hazards cleaned up promptly. All protruding nails or bolts shall be removed or bent over and all other protruding objects shall be removed or protected daily e.g. reo bars.

Electrical Safety

- All electrical equipment shall have current safety tags attached.
- All power leads are to be heavy duty, elevated, not joined and all rewireable plugs are to be clear plastic.
- Earth leakage protection is to be provided on all outlets and fitted to welders and generators when used on site, portable earth leakage units may be used when obtaining supply from permanent wiring.
- All leads are to use the nearest point of supply. Piggy back plugs are not permitted.
- All electrical work on site is to be carried out by a licensed electrician.

Plant Safety

- Do not operate plant unless authorised and you hold the appropriate licence, competency or training plan to do so.
- No person is to ride on material hoists, load shifting equipment, forklifts, etc.
- When not in use, buckets are to be lowered.
- Site speed shall be observed by drivers within site limits.
- The use of mobile phones, media players while operating plant or machinery on site is banned.
- Personnel responsible for the delivery and removal of plant from site shall be competent and licensed.

House Keeping

- Do not smoke in prohibited areas, company plant or vehicles or where 'No Smoking' signs are posted.
- Keep your work area tidy and free from hazards at all times.
- Toilets provided are to be used and good hygiene is to be adhered to at all times.
- All **fgf** sites are to be litter free, always place rubbish in the bins and skips provided.
- Lunch rooms to be kept clean, lunch litter (wraps, cans) to be placed in bins.

General Rules

- Use of drugs (except as prescribed by a doctor and known of by **fgf**) and consumption of alcoholic beverages on site is prohibited. Persons affected by alcohol or drugs are not permitted to work on site.
- Always wear appropriate clothing and P.P.E. for the particular working environment or activity.
- Always obey site safety signage as they are there for your protection.
- Running must be avoided, even in an emergency.
- Practical jokes, skylarking and throwing of material or any object that could lead to injury is prohibited.
- Jumping on or off scaffolding, elevated platforms, moving vehicles or other is prohibited.
- Keep out of restricted or barricaded areas unless instructed / authorized to enter.
- Theft of any kind will not be tolerated and will be reported directly to the police.
- No walking through the construction zone while talking on mobile phones – when answering a mobile phone, place yourself in a safe position and stay there.
- Aggressive, bullying or violent behaviour is not tolerated on any **fgf** site. If this situation arises, advise your supervisor immediately. Inappropriate behaviour will be investigated. All persons involved will be stood down until the matter is resolved and the person who causes the aggravation will be dismissed if proven to have shown unwarranted behaviour.
- Unsafe and environmentally hazardous actions may result in dismissal from site.
- Project staff are not to work within 1.2m of traffic unless necessary (speed must be reduced to 40km/h if closer than 1.2m as per MUTCD)
- Warning signs and containment fences around worksites are to be maintained.

fgf is committed to being recognised as a dynamic, professional and highly respected company with the capacity to create and deliver quality civil infrastructure. A critical factor that will determine our success is the conduct of our employees. This code has been established to support an organisational culture in which individuals and the organisation will prosper. The term “employee” used in the code applies to employees at all levels and locations, including sub-contractors and consultants. Failure to comply with the requirements of the **fgf's** General Code of Conduct may result in disciplinary action or the termination of services.

Customer service

When dealing with internal and external customers, employees are to be honest, courteous and respectful. They are to provide accurate information, prompt attention, and observe fairness and equity in their dealings with others.

Behaviour on the job

Employees may only claim to have those skills that they can demonstrate. Employees shall perform their duties unaffected by the consumption of alcohol or the use of other drugs. Employees recognise that smoking restrictions apply and you can only smoke in designated areas. The appearance of employees is appropriate to the job, including wearing a uniform where required. Employees shall work towards eliminating **discrimination** and **harassment** from the workplace. Employees shall respect diversity in the workplace. Employees shall not use their positions to exert inappropriate influence over others.

Teamwork

Employees work together towards agreed work goals and communicate regularly with one another about progress. They are encouraged to look for ways to improve work methods and processes, and to solve workplace problems. Managers or supervisors (as team leaders) provide guidance, coaching, ensure appropriate training and development, and recognise results.

Job Standards

Employees shall comply with the relevant job standards, paying appropriate attention to quality and detail. They shall satisfactorily meet the requirements of the position and follow instructions that are reasonable and lawful, and within their capability and training. Employees shall not participate in **corrupt or fraudulent conduct**. Employees are encouraged to report suspected corrupt or fraudulent practices of others. Employees shall endeavour to minimise adverse environmental effects of their actions in accordance with the environmental components of the organisations **Management System**. Employees shall observe the relevant provisions for conditions of employment and safety as described in awards and agreements.

Use of resources

Employees shall ensure they have the necessary delegation to authorise expenditure. They shall carefully and economically use **fgf's** materials, facilities, funds, people and equipment for authorised purposes, and take all reasonable steps to prevent misuse of these by others. Employees shall conserve and efficiently use resources through recycling, energy saving and waste minimisation.

Information

Employees shall seek permission before disclosing **confidential information** or making official comment. They shall provide access to information when required by law or to assist other employees in their duties. They will not misuse information obtained at work either for financial reward / gain, or for taking advantage of another person. They shall only access information for which they are authorised. Employees must seek written permission before disposing **of intellectual property**.

Commitment to the work of fgf

Employees shall provide quality services for **fgf's** customers. Unauthorised **gifts or benefits** shall be refused, and **conflicts of interest** shall be disclosed. Employees should avoid actions that bring **fgf** into disrepute.

Attendance

Employees are to be punctual, attend work as required in their contract of employment, get their supervisor's approval before leaving the workplace (or notify others in extenuating circumstances), report and account for all absences, record attendance when required and obtain approval for changing their work roster.

Safety

Employees are to ensure that the health, safety and welfare of customers, the public, other employees and themselves are not endangered. They contribute to the development of safe working practices, comply with safety rules and regulations, undertake safety training and rehabilitation activities as required, take reasonable steps to prevent misuse of safety and first aid equipment, wear safety clothing and use safety equipment when provided. They shall also co-operate with safety committees and safety monitoring, and report to their supervisor accidents, injuries, unsafe practices and environmentally harmful situations in the workplace.



Site Specific Induction Checklist

I have attended a Site Specific Induction for construction work associated with construction of Bluewater Estate Stages 18, 22 & 23 and understand my obligation to comply with all safety and environmental requirements, standards and directions given by **fgf** management staff.

fgf Employee / Visitor / Subcontractor:

(Circle one)

Given Names:

(Please Print)

Signature:

Date:

Other Information:

Next of Kin & Phone No.:(in case of emergency)

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Allergies or Special Medical Requirements for Emergency Situations:

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Site Specific Induction Checklist

Item No.	Description	✓ To confirm
General (Includes Security Issues)		
1	I have a current QLD Construction General Safety Induction Card (Blue / White Card) which has been sighted by fgf management. <u>NO CARD – NO ACCESS</u>	
2	I have been shown on a drawing the extent of the work zone and the limits I am to remain within.	
3	The use of MOBILE PHONES for personal use (calls, text messaging) shall be kept to a minimum, where I need to make or receive a call, I'm to stop what I'm doing and remove myself from harms way whilst making / receiving the call. I must not operate plant while on the phone. ⚠ Public Media applications use shall only be permitted during designated breaks).	
4	I must comply with any directions given by the Site Foreman with regards to activities on site.	
5	The standard work hours on site are Mon to Fri 7:00am to 5:30pm and Sat 7:00am to 1:00pm.	
6	I will not bring my personal vehicle on site. Personal vehicles must be parked in designated parking area.	
7	I must not leave items laying around the site, all items are to be removed from site or locked away in site container at the end of each day.	
8	I am only permitted with-in the boundaries of the nominated work area. I must not access areas that are not part of the construction site.	
9	Subcontractors engaged by fgf must only communicate to the Client through fgf . All directions for activities on site must come from fgf and not from the Client unless it's a safety issue.	
Safety Issues		
1	Work activities that pose a significant risk must have associated Safe Work Method Statements (SWMS) providing step by step instructions on how to conduct the work safely. SWMS will be covered with you if you are involved in these activities. Subcontractors are required to provide their own SWMS or must follow fgf SWMS.	
2	As part of the Site Specific Induction I have read the SWMS for Locating and Potholing Services and have been shown a drawing identifying the approximate location of all underground services. As per the SWMS I shall pothole to locate all services prior to any excavation works in those areas.	
3	As per fgf's Drug & Alcohol policy, I must participate in random testing if nominated. Refusal to participate will be deemed as returning a positive result and I will be instructed to leave the site.	
4	The minimum PPE required for this site is a high visibility safety shirt or a safety vest and safety boots. All other PPE shall be as per SWMS or the activity I am undertaking. E.g. Hearing protection, safety glasses, safety gloves etc. ⚠ When working within 3 metres of the swing radius of plant that is performing lifting or excavation activities (e.g. Backhoes, Excavators or IT Loader with Jib attached) or works undertaken in or near trenches, all personnel must wear a safety helmet.	
5	To avoid complaints from residents, keep volumes of radios or music devices to a reasonable level. ⚠ Headphones or Earphones must not be worn as this might interfere with your awareness to other onsite hazards, especially struck-by hazards.	
6	I must only operate plant which I have been verified competent. All plant operators must remove the ignition key from the machine and ensure all doors are locked at the end of each day.	
7	As a plant operator or worker on this site, I must not enter or allow a worker to enter any excavation that is deeper than 1.5metres, unless that excavation is benched or shored and is safe to enter.	
8	A folder containing SDS's for hazardous substances will be kept in the Site Foreman's vehicle / site container. Subcontractors must provide to fgf copies of SDS's for substances they will be using.	
9	During an emergency, immediately contact fgf Site Foreman who will direct staff what to do on site.	
10	All accidents and injuries must be reported to the Site Foreman Immediately. ⚠ The Site Foreman is the First-aid Officer for this project.	

Site Specific Induction Checklist

11	All personnel attending site must attend the daily pre-start meeting and any toolbox meetings held throughout the duration of the project.	
12	I must not perform any work I consider potentially dangerous to my safety or health or that of others, I must STOP WORK immediately and contact the Site Foreman or HSEQ Officer.	
13	As stated in the WHS Act, I have a LEGAL OBLIGATION to work and act in a way that does not threaten the health and safety of myself or others at the workplace.	

Item No.	Description	✓ To confirm
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Environmental

1	As per my Environmental Duty and s319 and s320 of the Qld Environmental Protection Act 1994 , I must not carry out any activity that causes, or is likely to cause, environmental harm unless all reasonable and practicable measures are in place to prevent or minimise harm, I must notify fgf if whilst carrying out a work activity, I become aware of any event causing environmental harm.	
2	Where a licence, permit or approval from DEHP or other administering authority is required, fgf will make me aware of the licence conditions that apply to this site.	
3	As an Employee, Subcontractor or Visitor I must act responsibly at all times to minimise the potential for causing an environmental incident, immediately report to the Site Foreman any potential for an environmental incident and must co-operate with fgf in their efforts to comply with environmental requirements.	
4	Any personal waste I bring to site I will take off site again or dispose of in the appropriate locations. I WILL NOT place personal rubbish on the ground or in any trenches / excavations.	
5	Any spillages of gravel material on roads or other areas outside the work zone must immediately be reported to fgf Site Foreman.	
6	Haulage contractors will be required to maintain the same route from the quarry to the site and return, both internal and external to the site. Any requirements for dust control on site should immediately be reported to fgf Site Foreman.	
7	Environmental Controls have been planned and installed on this project, these controls will be monitored and maintained to ensure they remain in working order during construction, Environmental Control measures must not be altered or removed unless directed by the Site Foreman and alternate environmental control measures are in place. Site personnel should advise the Site Foreman immediately if they believe maintenance is required to these control measures.	
8	Where a major Environmental Incident (chemical or fuel spill) occurs personnel must contact the Site Foreman immediately so that the appropriate authorities emergency services can be alerted, and the measures taken to manage the spill.	
9	Only areas approved for clearing shall have trees etc removed. ⚠ Under no circumstances shall trees etc be removed outside of the permissible area.	
10	If you discover any items or areas that you consider to have cultural heritage significance you are to cease work immediately and contact the Site Foreman.	
11	I have read and understood the Environmental Site Specific Induction Topics.	

Housekeeping

1	Toilets have been made available for use, all staff are advised that under no circumstances will they be permitted to use the surrounding bush land.	
2	Everyone is advised to bring food and drink supplies with them on site each morning.	
3	Any rubbish generated from construction works shall be removed from site at the end of each day and placed in the appropriate bins provided on site.	
4	I will only place equipment delivered to the site in the designated set-down area, I will not allow deliveries to be stored in front of emergency equipment, nor will I block access for emergency vehicles to enter site compound. I will also ensure all materials are stored and stacked correctly.	
5	I will keep all amenities in a clean state and remove all rubbish and place in bins provided.	



Job No.: 210306

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Inspection Date:	Site / Location:	Bluewater Estate Stages 18, 22 & 23			
House Keeping / Emergency Equipment		Yes	No	NA	Comments / Action Required
Are areas clear, hygienic & free of slip / trip hazards		☐	☐	☐	
Caps on reinforcement bars and star pickets		☐	☐	☐	
Are materials stored correctly & within used by dates		☐	☐	☐	
Are access ladders & stairs in good condition		☐	☐	☐	
Access routes and exits clear		☐	☐	☐	
Is installed fire equipment maintained & adequate		☐	☐	☐	
Are first-aid kits available & maintained		☐	☐	☐	
Are workers aware of emergency procedures, emergency response personnel and emergency equipment onsite		☐	☐	☐	
Is clean drinking water readily available		☐	☐	☐	
Personal Protective Equipment (PPE)		Yes	No	NA	Comments / Action Required
Is safety footwear worn		☐	☐	☐	
Are hard hats worn where required		☐	☐	☐	
Is hearing and eye protection worn where required		☐	☐	☐	
Are respirators being worn where required		☐	☐	☐	
Are high visibility clothing worn where required		☐	☐	☐	
Is correct PPE readily available to all including visitors		☐	☐	☐	
Plant & Equipment Safety		Yes	No	NA	Comments / Action Required
Is all moving machinery & nip points guarded / quick hitch safety pins in place		☐	☐	☐	
Are all lock out devices operating		☐	☐	☐	
Are plant pre-starts completed daily		☐	☐	☐	
Is all defective plant and equipment tagged out		☐	☐	☐	
Are Plant Compliance Declarations completed for all hired mobile plant		☐	☐	☐	
Do operators hold appropriate certificates and/or licences		☐	☐	☐	
Electrical Safety		Yes	No	NA	Comments / Action Required
Is electrical equipment tested & tagged		☐	☐	☐	
Where required, are leads elevated		☐	☐	☐	
Is electrical equipment free of water, heat sources & cutting points		☐	☐	☐	
Excavations & Confined Spaces		Yes	No	NA	Comments / Action Required
Is the required access permit held		☐	☐	☐	
Are all openings barricaded		☐	☐	☐	
Are all excavations correctly battered / shored		☐	☐	☐	
Is access and egress provided		☐	☐	☐	
Are spoil heaps clear of excavation		☐	☐	☐	
Has water been removed for excavation		☐	☐	☐	
Hazardous Materials		Yes	No	NA	Comments / Action Required
Are all hazardous materials clearly labelled		☐	☐	☐	
Are all Safety Data Sheets readily available & registered		☐	☐	☐	
Is material stored in the correct location		☐	☐	☐	
Storage areas designed to contain spills		☐	☐	☐	
Working From Heights		Yes	No	NA	Comments / Action Required
Are heights clear of power lines		☐	☐	☐	
Scaffolds - Fully boarded, guard rails and toe boards		☐	☐	☐	
Are ladders tied off, angled correctly (1 in 4) & extend 1m above landing.		☐	☐	☐	
Working at heights equipment is inspected prior to use		☐	☐	☐	
SWMS / JSA's / Safety procedures		Yes	No	NA	Comments / Action Required
Workers are involved in SWMS / safety procedure development		☐	☐	☐	
Project risk register up to date		☐	☐	☐	
Reviews of SWMS or safety procedures carried out during inductions, prestart and safety meetings where required		☐	☐	☐	
Are workers inducted in SWMS applicable to their allocated tasks		☐	☐	☐	
Are Task Observations being carried out regularly		☐	☐	☐	
Are manual handling aids used where applicable		☐	☐	☐	
Has a marked up SWMS / JSA of the Task Observed during this site inspection been attached to this HSEQ Inspection checklist.		☐	☐	☐	

[illegible]

Note: Copies of this inspection must be circulated to responsible persons for any rectifications required.

APPENDIX B

CONSTRUCTION PROCEDURES

Place Cross in Box for Yes ☒

Environmental Management	☒
Clear and Grub	☒
Earthworks	☒
Sewer Main	☒
Installation of Concrete Pipe & Box Culverts	☒
Installation of Conduit	☒
Installation of Pits and Bases	☒
Water Reticulation	☒
Subsoil Drainage	☒
Unbound Pavements	☒
Kerb and Channel	☒
Sprayed Bituminous Surfacing	☒
Laying Asphalt	☒
Concrete Works	☒

FNQROC LOT REGISTER / ITP CHECKLISTS

FNQROC Master Lot Register	☒
Lot Descriptions	☒
Test Request – (Book Form)	☒

(Place cross in box ☒ for all ITP's applicable to project)

Erosion & Sediment Controls (Soil Water Management)	☒	Subgrade	☒
Clearing and Grubbing	☒	Subgrade Replacement	☐
General Earthworks	☒	Subsoil Drainage	☒
Sewer Reticulation	☒	Subbase Gravel Type 2.1, 2.2, 2.3, 2.5	☒
Sewer Manholes	☒	Kerb and Channel	☒
Sewer Pump Station	☐	Concrete Manhole and Kerb inlet tops	☒
Sewer Overflow Manholes	☐	Base Gravel Type 2.1, 2.2	☒
Sewer Pressure Main	☐	Surfacing – Bitumen	☐
Stormwater – Precast Concrete Culverts	☐	Surfacing – Asphalt	☒
Stormwater – Pipelaying	☒	Signs, Guardrails, Linemarking and Fencing	☒
Stormwater – Pits	☒	Concrete Structures (Paths, Driveway, Lined Drains)	☒
Pit Bases and Headwalls	☒	Grassing, Turfing and Hydromulching	☒
Power and Comms Conduiting	☒	Installation of Gabions and Rock Mattresses	☐
Water Reticulation - Pipelaying	☒	Segmental Pavers	☐
Water Reticulation – Reservoirs and Pump Stations	☐	Under boring / Jacking of Service	☐
Watermain Cut-in (250mm Dia)	☐	On Maintenance	☒

Specifications: fgf EMP

1. ENVIRONMENTAL MANAGEMENT PLAN

- The Environmental Management Plan shall address but not be limited to management of water quality, erosion and sedimentation, cultural heritage, noise, vibration, air quality, contaminated soils, fauna, vegetation, pest management, waste management chemicals and fuel.
- Works should not start until the EMP is assessed for suitability by the Client's Representative.

2. ADMINISTRATIVE REQUIREMENTS

- The EMP shall document all rolls and responsibilities of personnel and shall include:
 - Induction Register.
 - Environmental incidents, non-conformances and complaints.
 - Inspection Reports, checklists, diary entries.
 - Monitoring results, meeting minutes, formal letters.
 - Waste measurement and tracking records.
 - Any other record identified within the EMP.

3. MANAGEMENT OF ENVIRONMENTAL ELEMENTS

WATER QUALITY

- Construction activities shall be undertaken in a manner which ensures no environmental nuisance or harm of waters adjacent to, or immediately downstream of the construction zone, or permanent water bodies within the construction zone.

EROSION AND SEDIMENTATION

- Measures for the control of erosion and sediment shall be put into place throughout the construction zone to ensure construction works do not result in erosion and sedimentation that causes environmental nuisance or harm outside the construction zone.

CULTURAL HERITAGE

- Care shall be taken within the construction zone to ensure the protection and preservation of Indigenous and non-Indigenous cultural heritage artefacts, sites and values, and to ensure that activities within the construction zone do not impact on cultural heritage artefacts, sites and values adjacent to the construction zone.

NOISE

- The Foreman shall at all times take measures to assist in minimising noise associated with construction activities so as not to cause environmental nuisance or harm.

VIBRATION

- Care shall be taken to ensure that construction activities do not result in vibration causing property damage or cause environmental nuisance or harm.
- Prior to commencement of any activity, the Contractor shall undertake a risk assessment of the potential for damage to nearby premises, buildings and structures caused by vibration. A condition survey shall be undertaken of premises, buildings and structures at risk of damage.

AIR QUALITY

- The Foreman shall ensure that construction activities do not result in air quality impacts that cause environmental nuisance or harm.
- Regular watering or temporary sealing of the site and access road shall be undertaken regularly during the day.

ACID SULPHATE SOILS

- The Foreman shall be responsible for the management of Acid Sulphate Soils within the construction zone.

4. MANAGEMENT OF ENVIRONMENTAL ELEMENTS CONT'D

CONTAMINATED SOILS

- The Foreman shall be responsible for the management of contaminated sites (for example, contaminated soil, waste dumps etc) within the construction zone.

FAUNA

- All due care shall be taken to ensure no harm to native fauna. Any injury or death of fauna within the construction zone shall be included in the monthly report. Known cause of death should also be reported.

VEGETATION

- The Foreman shall be responsible for the management of vegetation within the construction zone. Keep clearing of vegetation to the limits of the construction zone and consider chipping the cleared vegetation for use on site.

PEST MANAGEMENT

- The Foreman shall manage all declared pests (Animals and plants) within the construction zone by preventing their spread on and off site.

WASTE

- The Foreman shall be responsible for management of wastes generated during construction. Bins fitted with lids shall be provided at common areas and shall be serviced prior to being filled to capacity.

CHEMICALS AND FUELS

- The Foreman shall be responsible for the management of all chemicals and fuels within the construction zone so as not to cause environmental nuisance or harm.
- Spill response equipment should be proportionate with the locality, time of the year that the works are to be undertaken and type of works undertaken under the project.

Specifications: FNQROC – S1 Earthworks – v 11/05

1. SET OUT APPROVAL

- Set out shall be as per project drawings and shall be approved by the Principal's representative prior to commencing clearing and grubbing.

2. AREAS TO BE CLEARED AND GRUBBED

- Area of lot to be clearly marked.
- The minimum width where earthworks are to be constructed, plus a margin of 2m beyond tops of cuts and toes of embankments.
- Trees, shrubs and overhanging branches identified by Principal to be left undisturbed shall be clearly marked prior to commencing clearing operations.
- Remove stumps and roots to a depth of not less than 300mm below ground surface.
- Remove rocks, rubbish, buildings and artificial obstructions and abandoned public utility plant to a depth of 300mm below ground surface.

3. DISPOSAL OF CLEARED AND GRUBBED MATERIALS

- The cleared and grubbed material shall be disposed of in accordance with all relevant State Government laws and regulations and Local Government by-laws.

4. ADDITIONAL REQUIREMENTS

- Any irregularities of the natural surface shall be trimmed so as not to cause hazard. The surface shall be lightly compacted if necessary to provide a surface consistent with existing surface prior to the works.

Specifications: FNQROC – S1 Earthworks – v 11/05, S2 Road Pavements – v 01/11

1. EXCAVATION

- Area of lot to be clearly marked.
- Excavator/Backhoe to remove spoil material, trucks to transport to locations nominated above.
- Materials encountered in excavation shall be loosened and broken down as required so that they are acceptable for incorporation in the works.

2. EMBANKMENTS/FILL AREAS - ROADWORKS

- All embankments and fill areas shall be constructed to the shape and slopes shown on the approved Project Documents.
- Where necessary, approved imported fill is to be spread in layers not exceeding 200mm (loose) and compacted to achieve 98% RDD at OMC.
(Note: 98% for the top 300mm and 95% for below 300mm)
- Compaction shall be achieved with a roller. The final tightening of the surface shall be performed by static rolling with a roller.
- Trimming of the embankment/fill areas shall be performed by the grader to heights set by the foreman.
- Horizontal tolerances for the embankment batters, measured at right angles to the batter line, shall be – 0mm +250mm (where the + tolerance is in the direction which increases the width of embankment).
N.B. - If any signs of visible vertical movement are detected refer to Section 5.

3. EMBANKMENTS/FILL AREAS – HOUSING ALLOTMENTS

- All embankments and fill areas shall be constructed to the shape and slopes shown on the approved Project Documents.
- Where necessary, approved imported fill is to be spread in layers not exceeding 200mm (loose) and compacted to achieve 95% RDD at OMC.
(Note: 98%RDD to be achieved for Commercial Allotments)
- Compaction shall be achieved with a roller. The final tightening of the surface shall be performed by static rolling with a roller.
- Trimming of the embankment/fill areas shall be performed by the grader to heights set by the foreman.
- Horizontal tolerances for the embankment batters, measured at right angles to the batter line, shall be – 0mm +250mm (where the + tolerance is in the direction which increases the width of embankment).
N.B. - If any signs of visible vertical movement are detected refer to Section 5.

4. SUBGRADE

- Existing subgrade material is to be compacted to a depth of 300mm. The moisture content of the existing subgrade shall be adjusted to achieve this.
- Trimming of the subgrade shall be performed by the grader to heights set by the foreman.
- The subgrade material shall be compacted to provide a relative compaction determined by AS1289 for a standard compactive effort of Minimum Dry Density Ratio (Cohesive soils) - 97%.
- Compaction shall be achieved with a roller. The final tightening of the surface shall be performed by static rolling with a roller.
- The following shall be achieved:
 - Tolerance
 - Vertical + 15 /- 30mm
 - Horizontal -50mm +250mm
 - Straight edge 25mm
 - Following completion of subgrade compaction, trimming, and satisfactory density testing, the whole of the subgrade area shall be inspected by proof rolling. Acceptable proof rolling shall be taken to be no visible signs of deformation or instability in the subgrade.
- N.B. - If any signs of visible vertical movement are detected refer to Section 5.

5. UNSUITABLE MATERIAL

- Unsuitable material/s shall be identified in conjunction with the Client's representative and shall be treated as per their instructions.

6. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder

Specifications: FNQROC - S6 Sewerage Reticulation - v 01/11

1. EXCAVATION

- The position of the centre of each manhole and area of excavation shall be pegged on the ground by a Registered Surveyor prior to the commencement of work
- Where trenching in existing pavement, the surface shall be pre-cut to the minimum width to minimise reinstatement work.
- Excavator/Backhoe to remove spoil material, trucks to transport to locations nominated.
- Trenches greater than 1.5 m in depth will be battered back at a slope greater than 45° to ensure the sides don't cave in.
- Trench width and depth shall be in accordance with the Standard Drawing S3015 at the trench base.
- 100mm of bedding sand shall be placed at the bottom of trench and compacted for the full width of the trench.

2. INSTALLATION OF SEWER PIPES

- **Before laying pipes check the level of existing sewer main to ensure constructed at correct level.**
- Before being laid all pipes, fittings, valves, etc shall be cleaned and examined for damage.
- Pipe lines shall be laid to lines, curves, gradients and levels as shown on project drawings.
- Pipes shall be uniformly bedded to ensure solid support for the full length of the pipe. Any bedding adjacent to the position of the pipe collar should be removed to provide a minimum 20mm clearance to the collar.
- Approved plugs shall be used to prevent foreign matter entering pipeline, which are left uncompleted overnight.
- Any pipes cut in the field shall have their ends prepared in accordance with the manufacturer's written instructions and a witness mark shall be made on the pipe at the length specified by the manufacturer from the end of the pipe. Scoring of uPVC pipes shall not be permitted.

3. BACKFILL TO TRENCH.

- Material is delivered to site and placed into the trench using a backhoe / loader / excavator or manually.
- Material for side support and overlay of pipe shall comply with the bedding material Spec.
- Bedding material shall be carefully placed and tamped uniformly in layers not exceeding 200mm (loose) to provide a minimum cover of 300mm to top of pipe.
- Flooding of non-cohesive material shall be considered as an acceptable method of compacting bedding material.
- The remainder of trench shall be backfilled with excavated material unless it passes under a roadway, where the material may be sand or a type 2.1 pavement material.

4. CONNECTION TO AND TESTING OF MANHOLES.

- Pipelines shall be connected to manholes, structures or embedded concrete by means of 600mm long pipes such that two flexible joints are provided, the first joint being at or within 150mm of the face of the structure.
- The position of the access chamber shall be as shown on the approved Project Drawings.
- Manholes shall be hydrostatic or vacuum tested to prove their water tightness unless directed otherwise from the Superintendent.
- **VACUUM TEST** - the maximum loss of vacuum is 3.5Kpa after achieving a vacuum of 33.5Kpa as per table S6.1 of Specification S6 of the FNQROC Development Manual.
- **HYDROSTATIC TEST** - all openings shall be plugged and the manhole filled with water to lowest point on top of manhole cover surround. Allow for absorption and refill, water level shall not drop by more than 25mm after 24 hours.

5. AIR TESTING SEWER LINES.

- **PRESSURE TEST** - Sewer line shall be pressurised to the initial pressure as per table S6.2 of Specification S6 of the FNQROC Development Manual. Allow line to stabilise for 3 minutes and drop pressure to Test Start Pressure and monitor for 5 minutes. Pressure not to fall more than 5Kpa in 5 minutes.
- **VACUUM TEST** – sewer shall be drawn to a vacuum of 28Kpa and monitored for 5 minutes. Vacuum shall not drop anymore than 5Kpa in 5 minutes.

6. TESTING OF RISING MAINS.

- Hydrostatic pressure testing of sewer rising main shall be carried out and successful prior to arranging a Council witness test.
- The hydrostatic test pressure shall be applied to each section of the pipeline, the test head shall be equal to or greater than the design head specified or shown on the approved Project Drawings, but shall not exceed same by more than 20 per cent.
- The specified test pressure shall be maintained as long as required, while the whole section is examined, and in any case not less than 15 minutes.

7. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder

Specifications: FNQROC – S4 Stormwater Drainage – v 01/11

1. PRECAST UNITS

- Inspected and Accepted.
- Stacked and supported correctly.

2. EXCAVATION

- Area of lot to be clearly marked.
- Excavator/Backhoe to remove spoil material, trucks to transport nominated area.
- Trenches greater than 1.5 m in depth will be battered back at a slope greater than 45° to ensure the sides don't cave in.
- PIPES -Trench or foundation excavation for stormwater drainage works shall be undertaken to the planned level for the bottom of the specified bedding or foundation level. All loose material shall be removed from the bottom of the trench.
- The width of trenching excavation shall be in accordance with the Standard Drawing S1046 at the trench base.
- BOXES - The foundation shall be trimmed to height and compacted.
- The width of trenching excavation shall be in accordance with the Standard Drawing S1045 at the trench base.

3. UNSUITABLE MATERIAL

- Unsuitable material/s shall be identified in conjunction with the Client's representative and shall be treated as per his instructions.

PIPE CULVERTS

4. BEDDING

- Approved bedding material shall be used.
- A backhoe /loader /excavator shall dump the material into place and it shall be hand screeded to give the correct profile.
- Ensure bedding provides continuous even support
- Bedding material under each spigot to be greater than 50mm with pegs being placed for height.

5. LAYING / INSTALLATION

- Pipe units free of damage and contamination.
- Orientation of pipe units is correct, spigot end facing out.
- The pipes shall be lifted into place and may need to be positioned into their final resting position using a crowbar.
- The excess bedding material shall be heaped and tamped around the haunches of the pipe to secure it into position.
- Ensure ends are free of foreign matter before jointing
- External joints shall be taped with the manufacturers supplied tape or rubber external sand bands upon final bedding and alignment.
- Lifting holes plugged.
- If required the ends shall be sand bagged to form the rear face of the endwall of concrete structures (e.g. manhole) so backfilling of pipe can commence before the endwalls are constructed.

6. CHECK PIPES, LOCATION, ALIGNMENT AND JOINTING BEFORE COMMENCING BACKFILL

- Vertical +/- 10mm
- Horizontal +/-100mm
- Grade +/- 1%

7. BACKFILL TO PIPES.

- Material is delivered to site and placed into the trench using a backhoe / loader / excavator.
- Backfill shall be placed and compacted uniformly in layers not exceeding 200mm **loose**.
- Maximum level difference on opposite sides shall not exceed 150mm (compacted) during placement of backfill.
- Density testing > 0.3m Below Subgrade.....(Density > 95%)
- Density testing < 0.3m Below Subgrade.....(Density > 98%)
- Correct coverMin 300 mm
- Sand Index > 0.3m Below Subgrade(Density > 65%)
- Sand Index < 0.3m Below Subgrade(Density > 80%)

BOX CULVERTS

8. BEDDING

- Approved bedding material shall be used.
- Bedding for precast and cast insitu base slabs shall be selected backfill to a compacted depth of 150mm laid to the line and level of the underside of the base slab. The bedding shall be finished to a smooth surface with a tolerance of $\pm 10\text{mm}$ in level and $\pm 50\text{mm}$ in line.

9. INSITU BASE SLAB

- An authorisation to place concrete shall be received from Client's representative prior to placing concrete.

10. LAYING / INSTALLATION

- Ensure slab strength is adequate.
- Culvert units free of damage and contamination.
- Orientation of culvert units is correct.
- The culverts shall be seated on a continuous 3:1 sand / cement mortar pads to prevent any imperfections.
- The culverts shall be lifted into place and may need to be positioned into their final resting position using crowbar.
- Ensure ends are free of foreign matter before jointing.
- Concrete end blocks min. 250mm along gap shall be constructed to full height at end of culvert before infill.
- Infill between legs with 1:10 concrete / mortar lean mix having maximum aggregate size of 9.5mm packed dry. Do not use fluid grout, as hydrostatic head will damage culvert legs.
- If required the ends shall be sand bagged to form the rear face of the endwall of concrete structures (e.g. manhole) so backfilling of pipe can commence before the endwalls are constructed.

11. CHECK CULVERTS, LOCATION, ALIGNMENT AND JOINTING BEFORE COMMENCING BACKFILL

- Vertical $\pm 10\text{mm}$
- Horizontal $\pm 100\text{mm}$

12. BACKFILL TO CULVERTS.

- Material is delivered to site and placed into the trench using a backhoe / loader / excavator.
- Backfill shall be placed and compacted uniformly in layers not exceeding 200mm **loose**.
- Maximum level difference on opposite sides shall not exceed 150mm (compacted) during placement of backfill.
- Density testing > 0.3m Below Subgrade.....(Density > 95%)
- Density testing < 0.3m Below Subgrade.....(Density > 98%)
- Correct coverMin 300 mm
- Sand Index > 0.3m Below Subgrade(Density > 65%)
- Sand Index < 0.3m Below Subgrade(Density > 80%)

13. SURVEY OF FINISHED ITEM

- After backfilling.

14. PIPE, INLET/OUTLET CHANNELS CLEAR OF DEBRIS, SILT

15. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder.

Specifications: FNQROC – S1 Earthworks – v 11/05

1. TIMING OF EXCAVATION IN NEW WORKS

- Earthworks completed to subgrade.

2. EXCAVATION

- Area of lot to be clearly marked.
- Trenching operations shall be carried out after compaction of earthworks and prior to placement of pavement material.
- Where trenching in existing pavement, the surface shall be pre-cut to the minimum width to minimise reinstatement work.
- Excavator/Backhoe/Manual to remove spoil material, trucks to transport to locations nominated.
- Trenches greater than 1.5 m in depth will be battered back at a slope greater than 45° to ensure the sides don't cave in.
- Trench width shall provide a minimum of 50mm clearance between conduit and trench wall. With approval from the Electrical Supervisor the trench width may be less than 450mm.
- The minimum cover to the top of conduit under roadways shall be 500mm.
- The foundation shall be trimmed to height and compacted.

3. INSTALLATION OF CONDUITS

- PVC glue for joining conduits shall be an approved adhesive. No smoking is allowed near PVC glue.
- PVC conduits with drawstrings installed (free & tied off) shall be placed into trench manually.
- Conduit shall be placed in trench with a minimum of 75mm bed and cover of bedding sand.
- Electrical caution tape installed 75mm min and 150mm max above conduit. (as per Ergon Drawing No. 5162)
- All wiring and connections are to be performed by certified electricians.
- All joints between the conduit and pit shall be sand and soil proof.

4. BACKFILL TO STRUCTURE.

- Material is delivered to site and placed into the trench using a backhoe / loader / excavator or manually.
- Backfill to conduits/pits shall be placed and compacted uniformly in layers not exceeding 150mm
- Maximum level difference on opposite sides of pit shall not exceed 150mm during placement of backfill
- Density testing(Density > 95%)

5. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder

Specifications: FNQROC – S1 Earthworks – v 11/05

1. TIMING OF EXCAVATION IN NEW WORKS

- Earthworks completed to subgrade.

2. EXCAVATION OF PITS AND POLE BASES

- Area of lot to be clearly marked.
- Excavation operations shall be carried out after compaction of earthworks.
- Excavation of Pits shall be dug using a Excavator/Backhoe to remove spoil material, trucks to transport to locations nominated.
- Check drawings to determine if a **Major (2425mm deep)** or **Minor (1200mm – 1500mm deep)** footing is required.
- Pole Bases Footings shall be dug using a backhoe with auger attachment or similar machine. **(Depth of footing shall depend on soil type and the appropriate Standard Drawing).**

3. INSTALLATION OF PITS

- All wiring and connections are to be performed by certified electricians.
- Before pit is installed the soil under the pit shall be compacted so base is firm.
- The pit shall be installed so the top is level with the finished surface and shall be backfilled with coarse sand consisting of 100% passing 4.75mm sieve and not greater than 10% passing 0.3mm sieve.
- All joints between the conduit and pit shall be sand and soil proof.
- Lids shall be appropriately stamped. (Electrical Cables/Com-Cab)

4. INSTALLATION OF STREET LIGHTING POLE BASES

- Reinforcing hot dipped galvanised cages shall be installed and fixed into position manually. **(Where ground is soft/sand, Riblok shall be placed in excavation prior to installing cage).**
- Concrete shall be poured from agitator trucks and placed using chutes and left to cure for 7 days before attaching pole.
- Any holes shall be covered temporarily or barrier mesh placed around obstruction.

5. BACKFILL TO STRUCTURE.

- Backfill to pits shall be placed and compacted uniformly in layers not exceeding 150mm
- Maximum level difference on opposite sides of pit shall not exceed 150mm during placement of backfill

6. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder

Specifications: FNQROC – S5 Water Reticulation – v 01/11

1. EXCAVATION

- The main shall be setout from an approved datum line set by a Registered Surveyor (Consulting). The datum line may be either the road centreline, property boundary, a pegged chainage offset line, or any alternative datum suitable for the purposes of accurately setting out the works.
- Where trenching in existing pavement, the surface shall be pre-cut to the minimum width to minimise reinstatement work.
- Excavator/Backhoe to remove spoil material, trucks to transport to locations nominated.
- Trenches greater than 1.5 m in depth will be battered back at a slope greater than 45° to ensure the sides don't cave in.
- Trench width and depth shall be in accordance with the Standard Drawing S2016 at the trench base.
- 100mm of bedding sand shall be placed at the bottom of trench.

2. INSTALLATION OF WATER PIPES

- **Before laying pipes check the level of existing water main to ensure constructed at correct level.**
- Before being laid all pipes, fittings, valves, etc shall be cleaned and examined for damage.
- Pipe lines shall be laid to lines, curves, gradients and levels as shown on project drawings.
- Pipes shall be uniformly bedded to ensure solid support for the full length of the pipe with bell holes formed to accommodate the sockets to ensure a clearance of 20mm.
- Approved plugs shall be used to prevent foreign matter entering pipeline, which are left uncompleted overnight.
- Any pipes cut in the field shall have their ends prepared in accordance with the manufacturer's written instructions and a witness mark shall be made on the pipe at the length specified by the manufacturer from the end of the pipe. Scoring of uPVC pipes shall not be permitted.

3. BACKFILL TO TRENCH.

- Material is delivered to site and placed into the trench using a backhoe / loader / excavator or manually.
- Material for side support and overlay of pipe shall comply with the bedding material Spec.
- Bedding material shall be carefully placed and tamped uniformly in layers not exceeding 200mm (loose) to provide a minimum cover of 300mm to top of pipe.
- Flooding of non-cohesive material shall be considered as an acceptable method of compacting bedding material.
- The remainder of trench shall be backfilled with excavated material unless it passes under a roadway, where the material may be sand or a type 2.1 pavement material.

4. PRESSURE TESTING/FLUSH OUT LINES.

- Hydrostatic testing of all water mains shall be carried out. A minimum test pressure of 1200 KPa unless advised otherwise shall be used.
- Test pressure to be maintained as long as it takes to inspect the entire line, but not less than 15 minutes.
- After pressure testing, lines shall be flushed and water samples taken for testing by a Council approved authority.

5. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder

Specifications: FNQROC – S2 Road Pavements – v 01/11

1. TIMING OF EXCAVATION IN NEW ROADWORKS.

- Earthworks completed to subgrade.
- Approval to proceed shall be received from Client's representative prior to excavation of subsoil drainage.

2. EXCAVATION.

- Area of excavation to be clearly marked.
- Trenching operations shall be carried out after compaction of earthworks and prior to placement of pavement material.
- Where trenching in existing pavement, the surface shall be pre-cut to the minimum width to minimise reinstatement work.
- Excavator/Backhoe to remove spoil material, trucks to transport to locations nominated above.
- Trenches greater than 1.5 m in depth will be battered back at a slope greater than 45° to ensure the sides don't cave in.
- Trench width shall be 300mm for Drainage Pipes and 100mm for Strip Filter Drains.
- Where grades are not specified, the bottom of trenches shall be trimmed to provide longitudinal fall towards outlets of not less than 0.5% for Drainage Pipes, and not less than 1.0% for Strip Filter Drains.

3. INSTALLATION OF DRAINAGE PIPES/STRIP FILTER DRAINS.

- Clean-outs shall be located at the heads of all subsoil drains and at subsequent spacings not exceeding 60m for Drainage Pipes and 50m for Strip Filter Drains, and shall be constructed as per Standard Drawing S1095.
- Where an outlet, inlet or clean-out pipe passes through the filter fabric, a separate piece of fabric of sufficient size shall be wrapped around the pipe and flared against the main fabric to provide a seal.
- Subsoil drains shall be joined in accordance with manufacturer's recommendations. Clean-out pipes shall be joined to the subsoil using oblique tee connections.

4. BACKFILL TO STRUCTURE.

- Material is delivered to site and placed into the trench using a backhoe / loader / excavator or manually.
- Backfill material shall be damp when placed in the trench.
- Backfill shall be carefully placed and tamped uniformly in layers not exceeding 200mm.
- Where the subsoil is constructed within the roadway they shall be extended to the underside of the pavement unless specified otherwise. Where the subsoil is constructed outside the roadway the trench backfill material shall be placed to within 150mm of ground surface.

5. FLUSH OUT DRAINS.

- After the drains are constructed, they shall be flushed out. Flushing shall continue until the outlet water is clean and flows consistently.

6. TESTING FOR COMPLIANCE INSPECTION.

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder.

Specifications: FNQROC – S2 Road Pavements – v 01/11

1. APPROVAL TO PLACE PAVEMENT

- Approval to proceed shall be received from Client's representative prior to the placement of material/s.

2. MATERIAL DELIVERY

- Gravel shall be mixed to achieve OMC through a pugmill.
- Gravel shall be delivered to site via a pre-arranged route that will avoid conflict with traffic.
- Material shall be dumped directly on to the Subgrade/Subbase at a predetermined tip rate.
- Cart trucks shall not be allowed to tip within 5m (Horizontal) from either side of overhead power lines or stay lines.
- Material used within this area shall be pushed beneath lines using a grader.

3. CONSTRUCTION

- A grader shall spread the material to form the relevant layer.
- The thickness of any loose layers shall be such that after compaction it shall not be less than 100mm nor more than 200mm thick.
- Appropriate compaction equipment (roller) shall immediately follow the spreading and shaping of the loose materials to obtain the compaction of the layer as indicated on the project drawings.
- The grader shall trim the pavement to level and crossfalls as per plans.
- The roller shall be used to tighten and finish the surface.
- The surface finish shall be as follows:
 - Uniform surface
 - No loose, segregated or contaminated areas
 - Coarse particles slightly exposed
- If required a drag broom towed by the roller shall be used to obtain a hard finish to the surface.

4. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder.

Specifications: FNQROC – S2 Road Pavements – v 01/11

1. MATERIAL

- Kerbing shall be constructed on sub base material compacted to 100% standard.
- SUBBASE COURSE – 100mm Type 2.3 compacted to 100%.

2. MATERIAL DELIVERY

- Gravel shall be mixed to achieve OMC through a pugmill.
- Gravel shall be delivered to site via a pre-arranged route that will avoid conflict with traffic.
- Cart trucks shall not be allowed to tip within 5m (Horizontal) from either side of overhead power lines or stay lines.
- Material used within this area shall be pushed beneath lines using a grader/backhoe.

3. CONSTRUCTION

- The material shall be spread to form the relevant layer. (100mm).
- A roller shall be used to obtain the compaction of the layer.
- The grader shall trim the pavement to level and crossfalls as per plans.

CONCRETE KERB AND CHANNEL

- The extrusion machine shall be fitted with a tamper and an automatic control which allows adjustment of the position of the forming mould while the machine is in operation.
- The finished Kerb and Channel shall be well compacted and be free from voids and honeycombing.
- Contraction joints shall be installed at regular intervals not exceeding 3m. The joints shall be constructed by forming grooves 40mm deep and not more than 6mm wide and shall be normal to the top and square to the alignments of the Kerb and Channel.
- The surface finish shall be as follows:
 - Horizontal/Vertical ± 10 mm
- The invert of all channels shall be finished true to grade and alignment and no channelling in which water is found to pond will be accepted.

4. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder.

Specifications: FNQROC – S2 Road Pavements – v 01/11

1. APPROVAL TO SEAL

- Approval to proceed shall be received from Client's representative prior to the commencement of spraying. Copies of approved material testing analysis of the underlying lot shall also be provided.

2. SPRAYING PREPARATION

- The pavement shall be damped with a water truck and swept using a rotary broom or suction sweeper. Hand brooming may also be required.
- Road Temperature shall be greater than 20 ° C prior to commencement of spraying.
- Aggregate checked in stockpile for dampness and turned over if necessary.
- The foreman shall set out the limits of the sprayer operations with paint.

SPRAYER

- Paper shall be placed at both ends prior to spraying.
- Safety equipment shall be available.
- Volatile additives that are introduced into sprayer tank via sprayer pump shall have the mixture circulated twice at >1000 L/m.
- Drums that have been previously opened shall not be used.

3. SPRAYING

- Spray runs shall be programmed to ensure sufficient aggregate trucks per run are available.
- All joints shall abut neatly to adjacent spray run without gap or overlap. - Heavy paper (min. mass 120g/m² and min. width 500mm) shall be laid across the join and weighed down. (agg. from the cockrel truck may be used).
- The sprayer starts spraying the hot bitumen on the paper at the predetermined rate over the area of pavement.
- Protective covers should be ready for use if required to control over spray.
- If required traffic controllers shall be used to stop the traffic.
- Employees shall keep 6 metres clear and up wind if possible of the sprayer whilst spraying to avoid contact with any over spray.
- Paper shall be removed manually and disposed after cooling.
- Actual spray rates to be recorded.

4. SPREADING AGGREGATE

- Once the sprayer has sprayed a sufficient length and the paper removed, trucks fitted with cockrels will reverse over the sprayed hot bitumen with an operator on the back working the cockrel to ensure the required spread rate is achieved.
- Only trucks fitted with safety rails on their cockrels shall be used.
- Aggregate shall be spread so that after compaction it forms a single layer with the aggregate being partially interlocked.
- Binder shall not be left longer than 10min. without cover aggregate.
- Actual spread rates to be recorded.

5. ROLLING

- Two multi-tyred rollers shall be used to provide a minimum rolling of 6 passes within 1hr of spraying at every point.
- Steel wheeled rollers shall not be used unless approved by Client's representative.

6. SURFACE SWEEPING

- Excess cover aggregate shall be lightly swept and/or vacuumed from the pavement. This work shall be completed before work is opened to traffic.

7. CLEAN UP

- All tar paper and additive bags (if used) etc. are to be disposed of at a suitable dumping site.

8. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder.

Specifications: FNQROC – S2 Road Pavements – v 01/11

1. APPROVAL TO PLACE ASPHALT

- Approval to proceed shall be received from Client's representative prior to the placement of material/s and shall include copies of approved materials testing analysis of the underlying lot.

2. PREPARATION

- Surface is prepared clean of loose or deleterious material with cracks, joints and holes being rectified in conjunction with Client's representative.
- The surface should also be free of surface water.

3. EMULSION TACK COAT

- The surface shall be uniformly covered with a fine sprayed coat of bituminous emulsion, and allowed to break and harden before asphalt is laid.

4. MATERIAL DELIVERY

- Asphalt shall be mixed to achieve the approved mix design through the plant.
- The asphalt shall be delivered in a leak proof, spill proof, clean truck trays with loads covered to contain heat.
- Asphalt shall be delivered to site via a pre-arranged route that will avoid conflict with traffic.
- Traffic controllers shall be utilised where required.
- Material shall be dumped directly into the paver hopper.
- Cart trucks shall not be allowed to tip within 5m (Horizontal) from either side of overhead power lines or stay lines.
- Material used within this area shall be pushed beneath lines using the paver.

5. CONSTRUCTION

- The number of joints should be minimised through a planned laying program.
- The asphalt is then laid to contain the compacted layer thickness within specified limits, using an approved paving machine capable of laying a minimum of 30 t per hr.
- The temperatures of the asphalt as it enters the hopper of the paver to be at the specified laying temperature.
- Hand spreading should be limited to any surface irregularities or tight places.
- The asphalt shall then be compacted using the vibrating steel drum roller and rubber tyred roller.
- Finished surface should have a uniform appearance with no segregation or irregularities in texture, levels, roll-off edges, etc.
- Steel wheeled and Vibratory rollers shall operate at a steady speed of 5km/h (fast walking pace). The rubber tyred roller shall operate at a speed of 2.5km/h for the first pass, increasing in speed by 2.5km/h for each pass up to 15km/h.
- Rollers shall not be left stationary on newly compacted asphalt.
- Joints shall be staggered and square to the traffic flow if practical.
- Joints left overnight shall be cut back to conforming asphalt, normal to the finish surface level of the pavement, and tack coated for join or a taper.
- Finished surface should have a uniform appearance with no cracked, bony or fatty sections.
- The foreman shall ensure that the new Asphalt layer is joined neatly to the existing Bitumen and Kerb where applicable.

6. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder

Specifications: FNQROC – S7 Concrete Works – v 01/11

1. SET OUT APPROVAL

- Set out shall be as per the project drawings and shall be approved by the Client's representative prior to commencing excavation.

2. EXCAVATION

- Area of lot to be clearly marked.
- Excavator/Backhoe to remove spoil material, trucks to transport to nominated location.
- The foundation shall be trimmed to height and compacted.

3. UNSUITABLE MATERIAL

- All soft, yielding or other unsuitable material shall be replaced with sound material and the subgrade shall be compacted to provide a minimum of 95 per cent standard compaction

4. FOUNDATIONS

- Foundations for concrete structures shall be prepared as specified on the Project Drawings.
- Rock foundations shall be neatly excavated to form a bed for the concrete, and shall be thoroughly scraped and cleaned.
- Soil foundation shall be excavated neatly from the solid material to coincide with the under-surface of the concrete, or of the subbase material (where specified).

5. FORMWORK

- Ensure the surface is smooth, mortar tight and rigid.
- Ensure forms are set to specified line and level.
- Provision for effective closure of access openings.
- Formwork shall be treated with the lightest practical coating of release agent before the reinforcement is placed. Release agent shall not be placed on reinforcement or construction joints.

6. REINFORCEMENT

- Ensure reinforcement is located and fixed as specified on drawings, and cover is correct as follows:
- As per plan
- Ensure that reinforcement is clean and un-contaminated.
- While lifting and carrying reinforcing, hand protection in the form of gloves shall be worn.

7. CORES/BLOCKOUTS/WEEPHOLES

- Ensure above are located and fixed as specified.

8. EMBEDDED BOLTS/DOWELS/CONDUITS/DUCTS

- Ensure above are located and fixed as specified.

9. CONSTRUCTION/EXPANSION/CONTRACTION JOINTS

- Ensure above are located, prepared, cleaned and coated as specified.

10. APPROVAL TO PLACE CONCRETE

- Approval to proceed shall be received from Client's representative prior to the placement of concrete.

11. CONCRETE PLACEMENT

- Ensure sufficient approved vibrators are available. (Minimum of 2)
- Chutes/Flexible tubes set to limit drop to 2 m.
- All foreign material completely removed from forms.
- Concrete and operations performed continually between approved construction joints.
- No interruptions to pour > 45 Min.
- Vibrators to be inserted vertically at intervals < 450 mm.
- Operation continued until air bubbles ceased to emerge
- Vibrators to be withdrawn slowly to avoid leaving a pocket.
- Placement without segregation or damage to reinforcement.
- No strain shall be placed on any projected reinforcing steel for a period of 12 hours.

12. FINISHING

- Ensure all unformed surfaces are dense and free of cracking.
- Ensure all unformed surfaces are true to line and level.
- Ensure all operations are completed prior to the application of any curing.
- The concrete surface shall be reworked as necessary to eliminate plastic cracking after the initial set has taken place and before the commencement of curing.

13. REMOVAL OF FORMWORK, FALSEWORK & EARLY LOADING

- Shall remain in place until the following have been achieved:
 - Structural Concrete
 - Headstock to reach 70% of characteristic 28 day strength or 4 days which ever is the greater.
- Removal of formwork with care and without damage to concrete.
- No loads, which may cause damage, placed on or against structure.

14. SURFACE DRESSING

- Ensure all exposed surfaces smooth and dense
- Ensure all honeycombed areas are remedied
- Ensure all surfaces are finished / bagged / rendered
- After removal of forms from concrete work, all rough places, holes and porous spots shall be repaired by removing defective work and filling with stiff cement mortar having the same proportions of cement and fine aggregate as used in the concrete.

15. TESTING FOR COMPLIANCE INSPECTION

- Quality Verification Testing shall be in accordance with Inspection Test Plan and test request/s.
- Copy available in foreman's folder



Project No: 210306

[illegible]

LOT DESCRIPTIONS

Lot Number	Activity Description	Lot Number	Activity Description
SITE SET UP			
SEnn	Site Establishment	PTnn	Provision for Traffic
STnn	Side Track	EVnn	Environmental Management Systems
UTnn	Utilities Relocation/Coordination	QSnn	Quality Project Management Systems
ECnn	Erosion Controls		
CONCRETE, DRAINAGE & EROSION CONTROLS			
CUnn	Culvert, Concrete Pipe	CBnn	Culvert Concrete Box
CSnn	Culvert, Steel/Aluminium	DTnn	Drainage Troughs
CPnn	Concrete Pour	KCnn	Kerb, Kerb & Channel
GLnn	Gullies	MHnn	Gullies, Pits & Chambers
PWnn	Concrete Protection Works	SDnn	Subsoil Drains
RMnn	Rock Mattress/Gabion Protection	RPnn	Rock Protection
RWnn	Retaining Walls	RFnn	Rock Fill
REnn	Reinforced Soil Structures	DCnn	Drains & Channels
BFnn	Backfill to Structures	CEnn	Culvert Earthworks
CRnn	Concrete Beams / Ground Slabs	CMnn	Concrete Manholes & Kerb Inlet Tops
CDnn	Concrete Driveways	CFnn	Concrete Footpaths
EARTHWORKS			
CGnn	Clearing & Grubbing	GSnn	Ground Surface Treatment
ASnn	Treatment of Acid Sulphate Soils	GUnn	Unsuitable Material
EXnn	General Excavation	SFnn	Select Fill/Backfill
EMnn	Road Embankment	SGnn	Road Subgrade
DLnn	Drainage Layer	PFnn	Profiling Footpaths & Allotments
PAVEMENTS			
BAnn	Pavement, Unbound Base	SBnn	Pavement, Unbound Subbase
LSnn	Pavement, Unbound Lower Subbase	PSnn	Pavement, Stabilised In Situ
CTnn	Pavement, Plant Mixed Stabilised	PCnn	Pavement, Concrete Base
SEALING			
BSann	Sprayed Bitumen Surfacing	BEann	Sprayed Bitumen Emulsion Surfacing
ACnn	Hot Mix Asphalt	DGnn	Surfacing, Dense Grade Asphalt
OGnn	Surfacing, Open Graded Asphalt	SMnn	Surfacing, Stone Mastic Asphalt
FGnn	Surfacing, Fine Gap Graded Asphalt	RRnn	Surface Evenness (Road Roughness)
SSnn	Surfacing, Bituminous Slurry	SPnn	Surfacing, Segmental Pavers
ROAD FURNISHINGS			
GPnn	Road Furnishings - Guide Posts	GDnn	Road Furnishings - Steel Beam Guardrail
LMnn	Road Furnishings - Line Marking	FEnn	Road Furnishings - Fencing & Gates
RFnn	Road Furnishings - Remove Existing	MFnn	Road Furnishings - Miscellaneous
TBnn	Road Furnishings - Traffic Barriers	SI nn	Road Furnishings - Road Signs
NBnn	Road Furnishings - Noise Barriers	WRnn	Road Furnishings - Tensioned Wire Rope
ICnn	Install Machinery Crossings	RCnn	Remove Machinery Crossings
SIGNALS & LIGHTING			
XSnn	Remove Existing Signals & Lighting	DPnn	Ducting & Cable Pits
PBnn	Pole Bases	TSnn	Traffic Signals
SLnn	Street Lighting	El nn	Electrical Services & Switchboards
LANDSCAPING			
LDnn	Landscaping		
WATER RETICULATION			
WPnn	Water Reticulation - Pipelaying	WSnn	Water Reticulation - Reservoirs & Pump Stns
WMnn	Water Main Cut-in (250mm Dia)	Ubnn	Underboring, Jacking of Services
SEWER RETICULATION			
SA nn	Sewer Manholes	SB nn	Sewer Overflow Manholes
SCnn	Sewer Pressure Main	SHnn	Sewer Pump Station
SJnn	Sewer Reticulation		
MISCELLANEOUS			
MSnn	Miscellaneous	DWnn	Day Works
MMnn	Maintenance		

Notes: 1. "nn" is a 2 digit sequential number

2. "a" is the Spray Coat number



LOT No:



Project Name	Bluewater Estate Stages 18, 22 & 23	Job No	210306	Purchase Order No		Date/Time Required	
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[illegible]

Notes:

Test Codes: 1 - Sand Replacement, 2 - Nuclear, 3 - HILF, 4 - Concrete Compression, 5 - CBR, 6 - Grading (PSD)

7 - Atterberg (LL/LS/PI), 8 - MDD (Std/Mod), 9 - Moisture Content, 0 - Other

Test Criteria Codes:

A - Acceptance, D - Audit (Subcontractors), P - Preliminary Test, Q - Quality Control (Suppliers)

R - Retest, U - Unvalidated Test (Prelim. Result only to be issued)

Method:

Australian Standard
DMR

(Delete one)

Requested	Chris Stewart
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Date

6/4/2021

Cardno Bowler

Date	/	/
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by: _____ (Print Name & Sign)

Requested

(Company & Technician Name)

(of Lab Test)



Ref: ITP-A

INSPECTION AND TEST PLAN / CHECKLIST

EROSION & SEDIMENT CONTROL

LOT NO:

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Pre-construction meeting	CP 1.09	Held	Prior to start	PF	C			H				Diary note
2	Construction Environmental Management Plan	CP 1.13	All workers on site	Prior to start	EM	V				H			CEMP
3	Site Safety and Environmental Inductions	Project WH S plan	All workers on site	Prior to start	PF	H							Induction registers
4	Project Sign	CP 1.11	Installed	Prior to start	PF	C							
5	Parks & Environmentally significant areas and or trees for preservation	CP 1.09	Inspect & identify/mark	At Pre-start meeting	PF	C							
6	Areas to be left undisturbed	CP 1.09	Identify	At Pre-start meeting	PF	C							
7	Areas of disturbance (Stage works)	CP 1.09	Limit to a min.	Ongoing	PF	M							
8	Run-off and wind erosion to stockpiles	CP 1.13/CEMP	Protect	As required	PF	C							
9	Water and wind erosion to exposed areas	CP 1.13	Protect	Prior to and during activity	PF	C							
10	Drainage/runoff from exposed areas.	CP 1.13	Control	Prior to activity	PF	C							
11	Site traffic/vehicle access points, shaker grid established	CP 1.13	Limit or restrict	Prior to activity	PF	C							
12	Vehicular movement in muddy or dusty conditions	CP 1.13	Restrict	As required	PF	C							
13	Materials in kerbs and channel	CP 1.13	Clean out	As required	PF	C							
14	Temporary sediment barriers to filter soil particles	CP 1.13/CEMP	Install	Prior to activity	PF	C							

Key: 1. IP = Inspection Personnel which are: PF = Project Foreman; LH = Leading Hand; O = Operator; S = Surveyor; EM = Environmental Manager; (QAO = Quality Assurance Officer; QAS = Quality Assurance Supervisor)

2. Inspecting Agencies: ITA = Independent Testing Authority; S/S = Supplier or Subcontractor; RA = Regulatory Authority; CT = Customer/Client

3. Inspection Type : C = Self Check or visual inspection; M = Monitor (on a random basis); W = Witness (if desired); H = Hold; V = Verification Test; R = Review (of verifying documentation) When Complete

4. References: All items in the reference column refer to the FNQROC Development Manual - Version 6 - 2014



INSPECTION AND TEST PLAN / CHECKLIST

EROSION & SEDIMENT CONTROL

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
15	Large flows to sediment traps before discharge from site	CP 1.13	Divert	Prior to activity	PF	C							
16	Concentrated run off on, access roads /driveways / kerb edges	CP 1.13	Disperse	Prior to activity	PF	C							
17	Truck loads entering / exiting site	CP 1.13	Cover Loads	Ongoing	PF	M							
18	Silt and Sediment Control structures	CP 1.13	Maintain	Weekly	PF	C							Form - EM
19	Environmental complaints and Incident / NCR Reports	fgf QA	Close Out	End of activity	QAS	R							Fixit Diary

Key: 1. IP = Inspection Personnel which are: PF = Project Foreman; LH = Leading Hand; O = Operator; S = Surveyor; (QAS = Quality Assurance Supervisor)

2. Inspecting Agencies: ITA = Independent Testing Authority; S/S = Supplier or Subcontractor; RA = Regulatory Authority; CT = Customer/Client;

3. Inspection Type : C = Self Check or visual inspection; M = Monitor (on a random basis); W = Witness (if desired); H = Hold; V = Verification Test; R = Review (of verifying documentation); When Complete

4. References: All items in the reference column refer to the FNQROC Development Manual - Version 6 - 2014



Ref: ITP-B

INSPECTION AND TEST PLAN / CHECKLIST

CLEARING AND GRUBBING

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Construction Drawings	fgf QA	Current	Prior to activity	PF	C							Form SS-001/1
2	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox Talk
3	All services	DBYD	Pot Holed & Located	Prior to activity	PF	H							
4	Road Centre line and boundary limits for clearing	CP 1.16	Marked	Prior to activity	PF	C			W	H			
5	Environmental Controls	CP 1.13/CEMP	In Place	Prior to activity	PF	M							ITP-A
6	Trees nominated on Drawings	S 1.08	Protected	Prior to activity	PF	C							
7	Timber stockpile sites for mulching or disposal (if applicable)	CP 1.08,1.13	Identified	Prior to activity	PF	C							ITP-A
8	Topsoil stockpile sites	S 1.09	Identified	Prior to activity	PF	C							ITP-A
9	Grubbing complete	S 1.08	Minimum 300mm	End of activity	O	C							
10	Topsoil stripped	S 1.09 / AS 3798 CL 6.1.5	Free of unsuitable material	End of activity	O	C							
11	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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Ref: ITP-C

Project: Bluewater Estate Stages 18, 22 & 23

INSPECTION AND TEST PLAN / CHECKLIST

GENERAL EARTHWORKS

Chainage Bounds

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Construction Drawings	fgf QA	Current	Prior to activity	PF	C							Form SS-001/1
2	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
3	Bench marks and centre line levels	DWGS	Correct	Prior to activity	PF	C							Level Book
4	Environmental controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
5	Off-set pegs	DWGS	Protected	Prior to activity	PF	C							
6	All services	DBYD	Located	Prior to activity	PF	H							
7	Cut/fill zones	DWG	Identified	Prior to activity	PF	C							
8	Work free draining	AS 3798 CI 6.2.3	No ponding	Close of each day	O	C							
9	Ground Surface Treatment - GST	Q140A/Q141B 1289.5.4.1/5.7.1	98% within 300mm of S/grade 95% elsewhere	1 / 2500m2. Minimum of 3 Tests.	PF	C	V						NATA Test Certificate
10	Placing fill	AS 3798 CI 6.2.2	Layer thickness match equipment	Each Layer	O	C							
11	Fill moisture control	AS 3798 CI 6.2.3	Uniform	Each Layer	O	C							
12	Fill compaction:												
a	Road embankment	Q140A/Q141B 1289.5.4.1/5.7.1	98% within 300mm of S/grade 95% elsewhere	1/200mm lift/2500m2 or 1/500m3. Min of 3 Tests.	PF	R	V						NATA Test Certificate
b	Allotments	AS 3798 CI 5.2 & CI 8.2	95% std	1/500m3	PF	R	V						NATA Test Certificate
c	Embankments-Concentrated areas - Filling in Gullies, Creeks etc	Q140A/Q141B 1289.5.4.1/5.7.1	98% within 300mm of S/grade 95% elsewhere	1/200mm lift/500m2 or 1/100m3. Min of 3 Tests.	PF	R	V						NATA Test Certificate
13	Tolerances	S 1.12	Horizontal -0 / +250mm Vertical ± 50mm	Each Batter	PF	C							Level Book
14	Incident / NCR Reports.	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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Ref: ITP-E

INSPECTION AND TEST PLAN / CHECKLIST

SEWER RETICULATION

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Boundaries pegged	S 6.10	Principals Surveyor	Prior to activity	PF	C							
2	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
3	Off-set pegs	S 6.10	Established	Prior to activity	LH	C							
4	Drawings/job particular items	fgf QA	Current/Check	Prior to activity	LH	C							Form SS-001/1
5	Check plans for other services	fgf QA	No clash	Prior to activity	LH	C							
6	All services	DBYD	Pot Holed & Located	Prior to activity	LH	H							
7	Environmental controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
8	Shoring/battering/benching techniques	WH&S	Safe	Trench 1.5m deep	QAS	W							
9	Field measurements vs plan	fgf QA	Regrade	Prior to activity	LH	C							Level book
10	Bedding:												
a	Type 1 or 2 material	S 6.14	As required	Prior to activity	PF	C							
b	Type 1 - Material (if applicable)	S 6.14	100% pass 6.7mm <5% pass 0.150mm	Prior to activity	PF	R		V					QA material supplier
c	Visual Inspection of Trench	CP 1 App A	Visual	After Excavation Prior to Bedding	PF	C			H	H			
d	Type 1 - Compaction (if applicable)	S 6.14	95% std or 65% DI	All lines	PF	R	V						NATA Test Certificate
e	Type 2 - Material (if applicable)	S 6.14	Crushed rock geofabric	Prior to activity	PF	R		V					QA material supplier
11	Lay and joint pipes	S 6.15	Close joint, line and	All lines	LH	C							

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Ref: ITP-E

INSPECTION AND TEST PLAN / CHECKLIST

SEWER RETICULATION

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
12	Backfill:												
a	Material	S 6.24	<6% LS	Prior to activity	PF	R		V					QA Material supplier
b	Compaction	S 6.24	Subgrade 98% std, below subgrade 95% std	1/150m of Trench Road Crossings: 1/25m incl Shoulders.	PF	R	V						NATA Test Certificate
13	Manholes	Refer ITP-Ea			PF	C							
14	House Connection Branches (HCB)	DWG S 3005	Raise to surface	Every HCB	PF	C							
15	Cleaning sewer lines	S 6.25	Clean	All lines	PF	C							
16	Testing of lines	S 6.27, Table S6.2, S6.28	5kpa drop in < 5 minutes	All lines	PF	C			H	H			Cert. Of Inspection
17	Tolerances	S 6.31 Table S6.4	Inverts ±10mm Alignment Lat ±100mm Long ±300mm Grade as per design	All lines	PF	V							Level book
18	CCTV Inspection	S6.29	No defects in Pipes, Joints & Grade	All Lines	PF		V			W			ITA Report
19	As constructed drawings	CP 1.21 to CP 1.25	As built	All works	S PF	V							As Con drawing
20	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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Ref: ITP-Ea

INSPECTION AND TEST PLAN / CHECKLIST

SEWER MANHOLES

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1-7	Refer to ITP-E Sewer Reticulation				PF	C							
8	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
9	Pipe for embedding in concrete	S 6.15	Retain position & level	Each item	PF	C							
10	Manhole base	S 6.15	Pipe bedded in concrete	Each item	PF	C							
11 a	Manhole Cast-In-situ (if applicable): Construction	S 6.07 S 6.15 S 6.21	Inspected	Prior to concrete pour	PF	C							
b	Concrete	DWG S3000 S 6.07	N32	Prior to activity	PF	R		V					QA Material supplier
12 a	Manhole Pre-cast (if applicable): Construction	AS 4198	DWG S3000	Each item	PF	C							
b	Riser unit joints	S 6.08	As per manufacturers Spec	Each joint	PF	C							

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INSPECTION AND TEST PLAN / CHECKLIST

SEWER MANHOLES

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:

Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
13	Benching	S 6.21	DWG S3000	All manholes	LH	C							
14	Testing of manholes	S 6.26	Water level drop <25mm in 24 Hrs	As directed	LH	C			W	H			Cert of Inspection
15	Tolerances	S 6.31	Alignment Lat ±100mm Long ±300mm	All works	LH PF	V							As Con dwg
16	As constructed drawings	CP 1.21 to CP 1.25	As Built	All works	LH PF	V							As Con dwg
17	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

STORMWATER PIPELAYING

Twin-wall Corrugated Polypropylene Pipes

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Alignment	S 4.14	As per drawings	Prior to activity	S	C							Field book
2	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
3	Services/Sewer cover	DBYD	Locate / clearance	Prior to activity	PF	H							
4	Construction Drawings	fgf QA	Current	Prior to activity	PF	C							Form SS-001/1
5	Environmental Controls	CP 1.13	In Place	Prior to activity	PF	M							ITP-A
6	Regrade to field measure	fgf QA	Adjust	Prior to activity	PF	C							Level Book
7	Shoring/battering/benching techniques	WH&S	Safe	Trench >1.5m deep	QAS	W							Safety Plan
8	Size of pipe (375mm)	S 4.03	Check	Prior to activity	PF	C							
9	Pit centres and offsets	S 4.14	Offset	Prior to activity	PF	C				H			
10	Excavation: Foundation	S 4.16	95% Std	1/50 lm (900mm Bucket)	PF		V		W				NATA Test Certificate
a	Visual Inspection of Trench (Trench width > 830mm)	CP 1 App A	Visual	After Excavation Prior to Bedding	PF	C			W	H			
11	Bedding, Haunch and Overlay: Material	CP 1.16 S 4.07	Table 19.2.6, MRTS04	Prior to activity 1/material type	PF	R		V		H			QA Material Supplier
b	Bedding: Compaction	S 4.20 Table S4.1	100mm deep Tamped full support 70% DI	Under Roads 1 per 50 lm Elsewhere 1 per 100 lm	PF	R							
12	Lay and joint pipes	S 4.19	Rubber ring in last valley between corrugations. Witness mark on crest of 4th rib.	Each pipe	PF	C				H			

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INSPECTION AND TEST PLAN / CHECKLIST

STORMWATER PIPELAYING

Twin-wall Corrugated Polypropylene Pipes

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
13	Haunch/Overlay Zone: H1, H2 and Overlay Compaction	S 4.20 Table S4.1	Tampered haunch zone, full support 70% DI	H1 - 150mm lift 1 per side/50 lm H2 - 150mm lift 1 per side/50 lm Overlay - 150mm 1 per 50 lm	PF								
14	Backfill Material	S 4.13 Table S4.1	100% passing 75mm sieve, evenly graded free of stones on 25mm	Prior to activity 1/material type	PF	R	V						NATA Test Certificate
15	Backfill Compaction < 300mm below Pavement	S 4.20 Table S4.1	Subgrade 98% Std or 80% DI	Roads 1/300mm lift/50lm	PF	R	V						NATA Test Certificate
16	Offsets (for pit builders)	fgf QA	Maintained	Each line	PF	C							
17	Tolerances	S 4.25	Inverts +/- 10mm , <50mm in Ch	All works	PF	V							As con. drawings
18	CCTV Inspection	S4.26	All lines Inspected	After AC is placed & not more than 2 weeks before works acceptance.	PF	R	V						CCTV Report
17	As Constructed Drawings	CP 1.21 to CP1.25	As built	All works	S PF	V							As con. drawings
18	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

STORMWATER PITS

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	All Services	DBYD	Located	Prior to Start	PF	H							
2	All Permits / Approvals	TMR / CRC	Received	Prior to Start	PF	H							Permits
3	Subcontractor Requirements	Subcontractor	Discussed with	Prior to Start	PF	H		V					Correspond
4	Environmental Controls	CP 1.13	EMP	Prior to Start	EM	V				H			
5	Traffic/Pedestrian Controls	CP 1.09	TMP	Prior to Start	PF	C							
4	Set Out Survey	S 4.14	As per Dwgs	Prior to Start	PF S	C							
6	Concrete quality	DWGS1050 to DWG S1090 S 7.03	As specified	Prior to activity	PF	R		V					QA Material Supplier
7	Concrete – place, finishing and curing	S 7.11 S 7.15 S 7.18	AS 1012.3.1, .8, .9 Slump - 80±15mm Each pour	2 cys per batch 1 slump As soon as finished	PF	C	V						
8	Formwork/reinforcement quality, placement, size, location and blockouts:	AS 1302/3610 S7.09, S7.10	As per drawings	1 per lot	PF	W				W			
9 a	Base Pour	S 7.11, .15, .18	DWG S1065	Each Lift	PF	H				H			ATP
b	1st Lift	S 7.11, .15, .18	DWG S1065	Each Lift	PF	H				H			ATP
c	2nd Lift	S 7.11, .15, .18	DWG S1065	Each Lift	PF	H				H			ATP
d	3rd Lift	S 7.11, .15, .18	DWG S1065	Each Lift	PF	H				H			ATP
e	Roof/Lid Pour	S 7.11, .15, .18	DWG S1065	Each Lift	PF	H				H			ATP
10	Tolerances	S 7.22	Vert. ± 10mm Horiz. ± 25mm	Each Activity	PF	V							Field Book
11	Incident / NCR Reports	fgf QA	Closed Out	End of Activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

PIT BASES AND HEADWALLS

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Construction Drawings	fgf QA	Current	Prior to activity	PF	C							Form SS-001/1
2	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
3	All services	DBYD	Pot Holed & Located	Prior to activity	PF	H							
4	Environmental Control	CP 1.13	In place	Prior to activity	PF	M							
5	Subsoil inlet requirements	DWG S1095	In place if required	Prior to activity	PF	C							
6	Offset pegs	fgf QA	In place	Prior to activity	PF	C							
7	Alignment with K&C	fgf QA	Parallel	Prior to activity	PF	C							
8	Angle of cut of stormwater pipe	fgf QA	Parallel	Prior to activity	PF	C							
9	End pipe grade after cutting	fgf QA	Maintained	Prior to forming up	PF	C							
10	Pit base level	fgf QA	Specified depth below top of kerb	Prior to pouring	PF	C							
11	Formwork, reinforcing, blockouts etc	S 7.06 DWG S1050-1090 S 7.07, S 7.10	As specified	Prior to pouring	PF	C			H	H			
12	Concrete quality	DWGS1050 to DWG S1090 S 7.03	N25 or N32 as specified	Prior to activity	PF	R		V					QA Material Supplier
13	Concrete – place, finishing and curing	S 7.11, S 7.15 S 7.18	As specified	Each activity 2 Cyls/15m3/pour	PF	C							

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INSPECTION AND TEST PLAN / CHECKLIST

PIT BASES AND HEADWALLS

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
14	Strip, bench and board off pit base	S 7.14	Completed	Each activity	LH	C							
15	Tolerances (Location)	S 7.22	As stated in te drawings	Each activity	LH	C							
16	As constructed drawing	CP 1.21 to CP 1.25	As built	All works	S PF	V							As con. drawings
17	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

POWER AND COMMS CONDUITING

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency	IP	fgf	ITA	S/S	RA	CT	fgf	CT	
1	Construction Drawings	fgf QA	Current	Prior to activity	PF	C							Form SS-001/1
2	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
3	All services	DBYD	Pot Holed & Located	Prior to activity	PF	H							
4	Environmental Control	CP1.13	In place	Prior to activity	PF	M							ITP-A
5	Clash with stormwater pits	fgf QA	No clash	Prior to activity	PF	C							
6	Road crossings to boundary alignment	Telstra/Ergon drawings	Correct boundaries	Prior to activity	PF	C							
7	Cover to stormwater/sewer lines	fgf QA	Clear cover	Prior to activity	PF	C							
8	Footpath profile	fgf QA	Correct	Prior to activity	PF	C							
9	Verify conduit details	Ergon Drawings	Trench X Sections	Prior to trenching	PF	V							
10	Trenching (common)	Ergon Drawings 5162 Sheets 1, 2	Width and depth sufficient for 300mm separation	Ongoing	PF	M							
11	Earthwire to HV cable	Ergon Drawings	In place	As conduit laid	PF	C							
12	Street light conduits	Ergon	Min 600mm deep &	As conduit laid	PF	C							

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3. Inspection Type : C = Self Check or visual inspection; M = Monitor (on a random basis); W = Witness (if desired); H = Hold; V = Verification Test; R = Review (of verifying documentation) When Complete

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INSPECTION AND TEST PLAN / CHECKLIST

POWER AND COMMS CONDUITING

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
13	Road crossing conduit location	Telstra/Ergon	Telstra 500mm offset to Ergon & closest to Ch 00	As conduit laid	PF	C							
14	Ergon bends and sweeps	Ergon Drawings 5022 sheet 1 , 2	As detailed	As conduit laid	PF	C							
15	Conduit ends	Ergon & fgf QA	Capped and red marker	As conduit laid	PF	C							
16	Backfill road crossings	AS 3798	Subgrade 98% std, Elsewhere	1 per road crossing	PF	R	V						NATA Test Certificate
17	Line and level of conduits	Telstra/Ergon Drawings	Correct	As conduit laid	PF	C							
18	As constructed drawings	Ergon	As built	All works	PF	V							As con. drawing
19	Temporary boundaries	fgf QA	Remain until K&C poured	All works	PF	C							
20	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

WATER RETICULATION PIPELAYING

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Construction Drawings	fgf QA	Current	Prior to activity	PM	C							Form SS-001/1
2	Existing services	DBYD	Pot Holed & Locate	Prior to activity	PF	H							
3	Alignment	DWG S2016	Correct	Prior to activity	PF	C							
4	Environmental controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
5	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
6	Footpath level/profile	fgf QA	Top of kerb	Prior to activity	PF	C							
7	Shoring/battering/benching techniques	WH&S	Safe	Trench >1.5m deep	QAS	W							Safety Plan
8	Visual Inspection of Trench	CP1 App A	Visual	After excavation prior to bedding	PF	C		V	W	H			
9	Pipe class	DWG	Correct	Prior to activity	PF	C							
10	Lay and joint pipe	S 5.20	Correct line level, grade, no joints pinched	As laying	PF	C							
11	Service valves and hydrant location	Project DWG	Opp. boundary & 150mm below footpath level	All valves & hydrants	PF	C							
12	Thrust blocks	DWG S2015 S 5.25	N25 & DWG S2015	All bends, tees, dead ends & valves	PF	C			W	H			

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2. Inspecting Agencies: ITA = Independent Testing Authority; S/S = Supplier or Subcontractor; RA = Regulatory Authority; CT = Customer/Client; FTR = Field Test Result

3. Inspection Type : C = Self Check or visual inspection; M = Monitor (on a random basis); W = Witness (if desired); H = Hold; V = Verification Test; R = Review (of verifying documentation) When Complete

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INSPECTION AND TEST PLAN / CHECKLIST

WATER RETICULATION PIPELAYING

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
13	Sand	Dwg S2016	100mm 150mm	Bedding Backfill	PF	C							
14 a	Bedding / Backfill Material	S 5.09 S 5.19	Sand 100% pass 6.7mm sieve, <5% pass 0.150mm sieve	Prior to activity	PF	R		V					QA material supplier
b	Compaction: roadcrossing & elsewhere	S 5.27	Subgrade 98% std, or 80% DI, below subgrade 95% std or 70% DI	Road xings 1 test per 25m of trench Elsewhere 1 test per 150 m of trench	PF	R	V						NATA Test Certificate
15	Testing mains	S 5.29	1200kpa for 15 minutes	Each line	PF	C			H	H			Certificate of Inspection
16	Flush of lines	S 5.30	Flushed and tested	All works	PF	C			W	H			Test Certificate
17	As constructed drawings	CP 1.24	As built	All works	S PF	V							As Con Drawing
18	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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; FTR = Field Test Record

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Ref: ITP-D

Project: Bluewater Estate Stages 18, 22 & 23

INSPECTION TEST PLAN / CHECKLIST

SUBGRADE

Chainage Bounds

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Construction Drawings	fgf QA	Current	Prior to activity	PF	C							Form SS-001/1
2	All Services	DBYD	Located	Prior to activity	PF	H							
3	Environmental Controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
4	Level Tolerance	S 2.14	+15/-30mm	20m	PF	C							Level Book
5	Shape Tolerance	S 2.14	25mm in 3m	20m	O	C							Level Book
6 a	CBR: To Confirm design (if required)	Q113 C	-	1 test for each Subgrade material type	PF	H	V						FTR-D
b	Subgrade	CP1 App A	CBR >10 material 98% Std, 100% OMC	Prior to activity 1/ 500m Carriageway	PF	R		V		H			QA Material Supplier
7	Compaction	S 2.14	98% std	1/1000m2. Minimum of 3 Tests.	PF	R	V		W	H			NATA Test Certificates
8	Proof rolling on trim completion	S 2.14	No visible movement	Whole area	PF	C			W	H			
9	Incident / NCR Reports	fgf QA	Closed out	Prior to activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

SUBSOIL DRAINAGE

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Construction Drawings	fgf QA	Current	Prior to activity	PF	C							Form SS-001/1
2	Environmental Controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
3	Existing services	DBYD	Pot Holed & Located	Prior to activity	PF	H							
4	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
5	Alignment	DWG	Correct	Prior to activity	PF	C							
6	Materials Quality	S 2.21 S1095	10mm or 20mm Aggregate. <5% passing 0.150mm	Prior to activity 1/material type	PF	R		V					QA Material Supplier
7	Grade	DWG S1095	Min 0.5%	Each line	PF	C							
8	Trench bedding and backfill	S2.21	As specified	Each line	PF	C							
9	Flush points and outlets	DWG S1095	Outlet to stormwater max. 150m spacing. Flush points max 50m in pits or behind kerb	Each line	PF	C				W			
10	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

SELECT FILL AND SUB-BASE GRAVEL

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Previous layer	fgf QA	Tested and approved	Prior to activity	PF	R				H			ATP
2	Environmental Controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
3	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
4	Sub-base materials: For Access Places and Access Streets	S 2.03	MRTS05 Type 2.3 Grading B,C,D CBR 45	Prior to activity	PF	R		V					QA material supplier
	All Major Collector roads or greater	S 2.03	MRTS05 Type 2.2 Grading B,C,D CBR 60	Prior to activity	PF	R		V					QA material supplier
5	Compaction	AS 1289 5.4.1 S2.15	100% std	1/500m2 with min of 4	PF	R	V						NATA Test Certificate
6	Proof rolling on completion of trim	CP1 App A	No visible movement	Whole area	PF	C			H	H			
7	Pavement profile and depth: Design level tolerance	S 2.15	Stringline +/- 20mm	Every 20m	PF	C							Level book
	Layer thickness tolerance	As above	+40/-20 mm	Every 20m	PF	C							Level book
	Shape tolerance	As above	25mm in 3m straight edge	Every 20m	PF	C							Level book
8	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

KERB AND CHANNEL

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Setout	DWG	In place	Before trim	S	V							Field book
2	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
3	Trim to underside of K&C	fgf QA	Trimmed	Before stringing	O	C			H	H			
4	Pit entry requirements, low points and kerb type	DWG	Identified	Before stringing	PF	C							
5	String for K&C	DWG	Correct line and level	Before casting	PF	M		C					
6	Concrete Quality	S2.20	N25	Before casting	PF	R		V					QA material supplier
7	Cast K&C	S2.20	In place	Each activity	PF	M		C					
8	Pit entries/driveways	DWG	Cut out	Each activity	PF	M		C					
9	Tolerances	S 2.20	Horizontal/ Vertical $\pm$ 10mm	Each activity	PF	C			H				Level Book
10	Telstra/ERGON markers	Telstra/ERGON drawings	In place at road xings	Each activity	PF	M		C					
11	Incident / NCR Reports	fgf QA	Closed out	Each activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

CONCRETE MANHOLE AND KERB INLET TOPS

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Underground services	fgf QA	Located	Prior to activity	PF	H							DBYD
2	Inlet types	fgf QA	Identify	Prior to activity	PF	C							
3	K&C/Footpaths backfilled and to grade	fgf QA	Check	Prior to activity	PF	C							ITP-A
4	Environmental controls	CP 1.13	In place	Prior to activity	PF	M							CEMP
5	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
6	Kerb inlet/pits in roadways	fgf QA	Compacted bed sand and backfill	Each pit	PF	C							
7	Pre-casts/formed work parallel to K&C or boundaries	S 4.23	Check	Prior to setup	PF	C							
8	Trough dimensions	DWG S1050 DWG S1055	Check	Prior to setup	PF	C							
9	Formwork / reinforcements quality, placement, size and location	DWG S1050 to DWG S1070	Inspected	Prior to pour	PF	C			W	H			
10	50mm Drainage pipe for pavement box	fgf QA	In place	Prior to pour	PF	C							
11	Concrete quality	S 7.03 DWG S1050 to DWGS1070	N25 or N32 as specified	Prior to activity	PF	R		V					QA Material Supplier

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INSPECTION AND TEST PLAN / CHECKLIST
CONCRETE MANHOLE AND KERB INLET TOPS

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: **Bluewater Estate Stages 18, 22 & 23**

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
12	Concrete – place, finish and curing	S 7.11 S 7.15 S 7.18	As specified	Each activity	PF	C							
13	Lintel placement	fgf QA	25mm behind grate hinge	Each activity	PF	C							
14	Kerb markers/arrows in lead-ins	fgf QA	Replace if removed	Each activity	PF	C							
15	Pit stripped, benched, cleaned and boarder off	S 7.14	Completed	Each activity	PF	C							
16	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

BASE GRAVEL

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency	IP	fgf	ITA	S/S	RA	CT	fgf	CT	
1	Previous layer	fgf QA	Tested and approved	Prior to activity	PF	R				H			ATP
2	Environmental Controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
3	Task Safety Induction	WH&S	WMS	Prior to activity	PF	H							Toolbox talk
4	Base materials: For Access places and Access Streets	S 2.03	MRTS05 Type 2.2 grading B,C,D CBR 60	Prior to activity	PF	R		V					QA material supplier
b	Major Collector roads or greater	As above	MRTS05 Type 2.1 grading B,C,D CBR 80	Prior to activity	PF	R		V					QA material supplier
5	Compaction	AS1289 5.4.1 S 2.15	100% std	1/500m2 minimum of 4	PF	R	V						NATA Test Certificate
6	Proof roll / Profile check on completion of trim	CP1 App A	No visible movement	Whole area	PF	C			H	H			
7	Pavement profile and depth: Design level tolerance	S 2.15	+/-10mm	Every 20m	PF	C							Level book
b	Layer thickness tolerance	As above	+/-15mm	Every 20m	PF	C							Level book
c	Shape tolerance	As above	15mm in 3m straight edge	Every 20m	PF	C							Level book
8	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

SURFACING - ASPHALT

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Underlying pavement	fgf QA	Tested and approved	Prior to activity	PF	R			H	H			ITP-P
2	Environmental Controls	CP 1.13	In place	Prior to activity	PF	M							ITP-A
3	Primer Seal (if applicable)	S2.17	Grades of more than 10%	Prior to activity	PF	C							QA material Supplier
4	Materials approved:								W				
	a Asphalt depth > 30mm (if applicable)	S 2.17 MRTS30	As specified	Prior to activity	PF	R		V					QA material Supplier
	b Dense/Open graded asphalt (if applicable)	S 2.17 MRTS30	As specified	Prior to activity	PF	R		V					QA material Supplier
5	Tack coat/prime	S 2.17	Applied	Prior to surfacing	PF	R		V					QA from Sub-contractor

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INSPECTION AND TEST PLAN / CHECKLIST

SURFACING - ASPHALT

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
6	Placing temperature	S 2.17 MRTS30	<40mm: 135°C min >40mm: 125°C min	As placing	PF	R		V					QA from Sub-contractor
7	Placement depth	Project Spec.	As specified	As compacted	PF	R		V					QA from Sub-contractor
8	Compaction	Project Spec.	Dense smooth mat	Immediately after laying	PF	R		V					QA from Sub-contractor
9	Compaction Testing	Project Spec.	DG 10= 90% mean relative density	1/1000m2 minimum of 3	PF	R		V					QA from Sub-contractor
10	Finished Level Tolerances	S 2.17											
	Design Level		~10 mm	Every 20m									
	Layer Thickness		~5 mm	Every 20m					W				
	Shape Tolerance		5mm in 3m	Every 20m									
11	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

SIGNS, GUARDRAILS, LINEMARKING & FENCING

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Street signs/traffic control devices: All services	fgf QA DWG	Locate	Prior to activity	PF	H							DBYD
	Locations and dimensions	DWG S1040 DWG S1041	As indicated	Prior to activity	PF	C							
	Height and verticality	DWG S1040	As indicated	As erecting	PF	C							
	Concrete footing	DWG S1040 DWG S1041	N20	As erecting	PF	C							
2	Guardrails: All services	fgf QA	Locate	Prior to activity	PF	H							DBYD
	Locations and dimensions	DWG	As indicated	Prior to activity	PF	C							
	Height and alignment	MRTS14	As indicated	As erecting	PF	C							
	Concrete footings to terminal posts	MRTS14	N20	As erecting	PF	C							
3	Guideposts: All services	fgf QA	Locate	Prior to activity	PF	H							DBYD
	Locations and dimensions	DWG	As indicated	Prior to activity	PF	C							
	Height and verticality	DWG	As indicated	As erecting	PF	C							
	Orientation	fgf QA	Red to left, White to	As erecting	PF	C							
	Earthfootings	fgf QA	Rammed	As erecting	PF	C							

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INSPECTION AND TEST PLAN / CHECKLIST
SIGNS, GUARDRAILS, LINEMARKING & FENCING

LOT NO: .
 OPEN:
 CLOSED:/...../.....
 ITP SIGN-OFF:



Project: **Bluewater Estate Stages 18, 22 & 23**

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
4	Linemarking:												
a	Setout	DWG	As indicated	Prior to activity	PF	M		C					
b	Paint and reflectorisation	DWG	Applied	On application	PF	M		C					
c	Raised pavement markers	DWG	Red to left, White to	As applying	PF	M		C					
5	Fencing:												
a	All services	fgf QA	Locate	Prior to activity	PF	H							DBYD
b	Locations	DWG	As indicated	Prior to activity	PF	C							
c	Materials	DWG	As specified	Prior to activity	PF	M		C					
d	Post height, spacing, alignment and verticality	DWG S1025	As indicated	As erecting	PF	M		C					
e	Post footings	DWGS S1025, S1026 S1027	N20	As erecting	PF	M		C					
f	Wire / chainmesh	DWGS S1025, S1026 S1027	Tensioned and fixed	As erecting	PF	M		C					
6	Incident / NCR Reports	fgf QA	Closed out	End of activities	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

CONCRETE STRUCTURES (Paths / Driveways / Lined Drains)

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	All services	fgf QA	Locate	Prior to activity	PF	H							DBYD
2	Environmental controls	CP 1.13	In place	Prior to activity	PF	M							
3	Location and dimensions	DWGS S1015, S1035 S1110	As specified in DWG/ 100mm thick with SL72 mesh	Prior to activity	PF	C							
4	Service conduits (if required)	Telstra/ERGON Dwg	As specified	Prior to activity	PF	C							
5	Bedding	DWGS S 7.08	As specified	Prior to setup	PF	C							
6	Formwork, reinforcement, expansion & contraction joints (incl. crossover)	S 7.09, S 7.10 S 7.17	Inspected. In place as per DWGS	Prior to concrete pour	PF	C			W	H			
7	Concrete quality	DWG S 7.03	As specified DWGS	Prior to activity	PF	R		V					QA Material supplier
8	Concrete - place, finishing and curing (incl. stamping & colour if required)	DWG, S 7.11 S 7.15, S 7.18	As specified	Each activity	PF	C			W	W			
9	Access	fgf QA	Restricted	Until cured	PF	C							
10	Incident / NCR Reports	fgf QA	Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST
GRASSING, TURFING AND HYDROMULCHING

LOT NO: .
 OPEN:
 CLOSED:/...../.....
 ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	All services	fgf QA	Locate and protect	Prior to activity	PF	H		H					
2	Boundary pegs	fgf QA	Locate and protect	Prior to activity	PF	C		C					
3	Area to be treated	fgf QA	Identify	Prior to activity	PF	C		C					
4 a	Grassing (if applicable): Materials	S 8.03	30% green couch (hulled) 30% green couch (unhulled) 30% carpet grass 10% Tetila Rye or Japanese Millet	Prior to activity	PF	R		V					QA Sub-Contractor
b	Application	S 8.11	Seed - 50kg/ha Fertilizer - 350 kg/ha Disc cuts 12mm deep	Activity	PF	R		V	W				QA Sub-Contractor
5 a	Turfing (if applicable): Materials	S 8.04	Project DWG's	Prior to activity	PF	R		V					QA Sub-Contractor

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 3. Inspection Type : C = Self Check or visual inspection; M = Monitor (on a random basis); W = Witness (if desired); H = Hold; V = Verification Test; R = Review (of verifying documentation) When Complete
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INSPECTION AND TEST PLAN / CHECKLIST

GRASSING, TURFING AND HYDROMULCHING

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
5 b	Turfing - continued: Application	S 8.12	Prior to turfing: Place Topsoil, Water 24 hrs prior. Approved pesticides applied. Topsoil raked, Turf laid in straight lines. Topsoil worked in joints. Roll with light roller - 80kg / 1m width	Activity	PF	R		V	W				QA Sub- Contractor
6 a	Hydromulching (if applicable): Materials	S 8.05	33% green couch (hulled) 33% green couch (unhulled) 33% carpet grass. Mulch, pulped paper bagasse or cane fibre, fertilizer	Prior to activity	PF	R		V					QA Sub- Contractor

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Ref: ITP-U

INSPECTION AND TEST PLAN / CHECKLIST

GRASSING, TURFING AND HYDROMULCHING

LOT NO: .

OPEN:

CLOSED:/...../.....



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

ITP SIGN-OFF:

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
6 b	Hydromulching continued: Application	S 8.13	Application rate depends on % slope. Thickness 1 - 6mm	Activity	PF	R		V	W				QA Sub-Contractor
7	Watering	S 8.13	Immediately first day. Week 1 - 1/2 times a day Week 2 - 1 per/day Week 3&4 - 1 per 2 days Week 5 - twice week	After activity	PF	C							
8	Incident / NCR Reports		Closed out	End of activity	QAS	R							Fixit Diary

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INSPECTION AND TEST PLAN / CHECKLIST

ON MAINTENANCE

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
1	Margin blocks	CP1.27	25mm proud	Water reticulation	LH	C							
2	Markers (kerb/post)	CP 1.27	In place	Water, Telstra, Ergon	LH	C							
3	Fire hydrants	CP 1.27	Exposed to 50mm below head. Ball clean. Dust cap fitted	Water reticulation	LH	C							
4	Kerb and channel	CP 1.27	Clean and no overhanging grass. Mow if necessary	Roadways	LH	C							
5	Stormwater lines, pits and manholes	CP 1.27	Clean	Stormwater	LH	C							
6	Pavement surfaces	CP 1.27	Damage repaired	Roadways	LH	C							
7	Batters/slopes	CP 1.27	Scours repaired	Footpaths, roadways & allotments	LH	C							
8	Street signs/traffic control signs	CP 1.27	In place & mowing strips as req'd	Roadways	LH	C							

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INSPECTION AND TEST PLAN / CHECKLIST

ON MAINTENANCE

LOT NO: .

OPEN:

CLOSED:/...../.....

ITP SIGN-OFF:



Project: Bluewater Estate Stages 18, 22 & 23

Chainage Bounds

Item No.	WORK SEQUENCE - INSPECTION/TEST DESCRIPTION	ACCEPTANCE CRITERIA			fgf IP	INSPECTION TYPE					HP/WP Sign Off		Report Doc
		Reference	Specification	I/T Frequency		fgf	ITA	S/S	RA	CT	fgf	CT	
9	Trench subsidence	CP 1.27	Backfilled	Sewer/water reticulation, stormwater, Ergon & Telstra	LH	C							
10	General cleanliness	CP 1.27	All rubbish picked up	Whole subdivision	LH	C							
11	Erosion control structures	CP 1.27 / CEMP	Those needed for maintenance period	Whole subdivision	LH	C							
12	Incident / NCR Reports	CP 1.27	Closed out	End of activity	QAS	R							Fixit Diary
13	On maintenance inspection	CP 1.27	Conducted	End of activity	PF	C			H	W			Cert. Of

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APPENDIX C

SAFETY

Place Cross in Box for Yes ☒

[Hazard and Risk Register - SAFETY](#) ☒

Safe Work Method Statements (SWMS)

[Locate and Pothole Services](#) ☒

[Work Near Overhead Electrical Services](#) ☐

[Excavation Near Underground Essential Services](#) ☒

[Working with – Operation of Construction Plant](#) ☒

[Excavation – Trenching Works](#) ☒

[Work on or Adjacent to a Road](#) ☒

[Working 2 Metres or Higher](#) ☐

[Confined Space Entry](#) ☐

[Manual Tasks](#) ☒

[Survey Activities](#) ☒

[Operating Cut-off Saw](#) ☒

[Using a Hazardous Substance](#) ☐

[Operating Elevating Work Platform \(EWP\)](#) ☐

[Placing & Finishing Concrete](#) ☒

[Clear & Grub Using Mobile Plant](#) ☒

[Laying Pipes](#) ☒

[Driving Sheet Piles](#) ☐

[Trenching - Excavation Works Using Trench Boxes](#) ☐

[Operating a Chainsaw](#) ☐



Integrated Project / Site Management Plan

Bluewater Estate Stages 18, 22 & 23

Safe Work Instructions (SWI)

Place Cross in Box for Yes ☒

Site Conditions	☒
Eye Protection	☒
Exposure to Noise	☒
Personal Protective Equipment	☒
Fitness for Work	☒
Operating Construction Plant	☒
Concrete Pumping	☒
Lifting & Slings	☒
Work Near Underground Services	☒
Demolition	☒
Housekeeping, Stacking & Storage	☒
Using Ladders	☐
Using Powered Small Plant	☒
Using Hand Tools	☒
Using Electrically Operated Tools	☒
Using Laser Survey Equipment	☒
Sunburn & Skin Cancer	☒
Thermal Heat Stress	☐
Load and Unload Plant	☒
Cyclonic Conditions	☐
Erecting & Using Fixed Scaffolding	☐
Erecting & Using Mobile Scaffolding	☐
Using Compressed Air	☐
Welding – Oxy Acetylene Cutting	☐
Out of Service Tag	☒
Working with Raw Sewage	☐
Isolation and Lock-Out	☐
Refuelling Plant (Diesel)	☒
Earthworks and Subgrade	☒
Operation of a Tip Truck	☒
Working Outdoors	☒
Line Marking	☒

BlueWater Estate Stages 18, 22 & 23
Completed DM & MBM on 1/4/21

fgf Hazard and Risk Register - SAFETY

Activity/ Aspect	Risk Owner	Process Line Model											Potential Hazard	Consequence	Initial Risk			Hierarchy of Controls Applied						Proposed Control Measures	Controlled Risk		
		Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Retention	Water Retention	Quarry/ Earthworks & Extraction	Crushing / Processing	Spray Seal	Asphalt Pavements	Depot and Workshop			L	C	RR	Elimination	Substitution	Isolation	Engineering	Administration	PPE		L	C	RR
Clearing and Grubbing ✓	fgf	x	x	x	x	x	x	x					Contact with fauna and flora Dust Fatigue Heat Stress Hazardous manual task	Injury Illness Silicosis	Possible	Moderate	M-13				x	x	x	SWMS-Locate and Pothole Services ✓ SWMS-Work with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Work Near OH Electrical Services ✓ SWMS-Clear and Grub using Mobile Plant ✓ SWMS-Using a Hazardous Substance ✓ SWMS-Manual Tasks ✓ SWI-Using Powered Small Plant ✓	Unlikely	Insignificant	L-24
Acid Sulphate Soils ✓	fgf	x	x		x	x	x						Mobile Plant Underground services Collapse of trench or excavation Hazardous manual task	Injury Electrocution Engulfment	Possible	Moderate	M-13				x	x	x	SWMS-Locate and Pothole Services ✓ SWMS-Work with / Operation of Plant ✓ SWI-Operation of a Tip Truck ✓ Environmental Management Plan / IPMP ✓ ENVI 01: Excavation Soil Management ✓ Emergency Response Plan ✓	Unlikely	Insignificant	L-24
Excavation / Trenching (<1.5m) ✓	fgf	x	x	x	x	x	x						Mobile Plant Underground services Collapse of trench or excavation Dust Contaminated atmosphere Engulfment Hazardous manual task	Injury Silicosis Electrocution Engulfment	Possible	Major	H-8				x	x	x	SWMS-Locate and Pothole Services ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Excavation Near UG Services ✓ SWMS-Excavation / Trenching Works ✓ SWMS-Work with / Operation of Plant ✓ SWMS-Manual Tasks ✓ SWI-Operation of a Tip Truck ✓ SWI-Using Powered Small Plant ✓ SP-22 Permit to Work ✓	Unlikely	Minor	L-21
Excavation / Trenching (> 1.5m) ✓	fgf				x	x	x						Mobile Plant Underground services Collapse of trench or excavation Dust Contaminated atmosphere Engulfment Hazardous manual task	Injury Silicosis Electrocution Permanent disability Potentially fatal	Possible	Extreme					x	x	x	SWMS-Locate and Pothole Services ✓ SWMS-Work with / Operation of Plant ✓ SWMS-Excavation / Trenching Works ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Excavation Near UG Services ✓ SWMS-Manual Tasks ✓ SWI-Operation of a Tip Truck ✓ SWI-Using Powered Small Plant ✓ SP-22 Permit to Work ✓	Unlikely	Minor	L-21
Embankments	fgf		x										Mobile Plant Working near roads Uneven / unstable surface Hazardous manual task	Injury Potentially fatal	Possible	Major	H-8				x	x	x	SWMS-Work with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Manual Tasks ✓ SWI-Operation of a Tip Truck ✓ SWI-Earthworks and Subgrade ✓	Unlikely	Minor	L-21
Subgrade ✓	fgf		x	x									Mobile Plant Working near roads	Injury Potentially fatal	Possible	Major	H-8				x	x	x	SWMS-Working with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWI-Operation of a Tip Truck ✓ SWI-Earthworks and Subgrade ✓	Rare	Insignificant	L-25
Backfill ✓	fgf	x	x	x	x	x	x						Mobile Plant Uneven / unstable surface	Injury Potentially fatal	Possible	Major	H-8				x	x	x	SWMS-Working with / Operation of Plant ✓ SWI-Operation of Tip Trucks ✓ SWI-Earthworks and Subgrade ✓ SWI-Using Powered Small Plant ✓	Unlikely	Minor	L-21
Turnouts, Entrances and Stopping Places ✓	fgf		x	x						x	x	x	Interaction with traffic Interaction with public	Impact / collision	Possible	Major	H-8				x	x	x	Traffic Management Plan ✓ SWMS-Work with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓	Unlikely	Minor	L-21
Stockpiling ✓	fgf		x	x				x	x				Dust Trucks rolling over Tipping of loads Location, size and shape of the stockpile	Silicosis Bodily injury Potentially fatal engulfment from collapse of inappropriate batters	Unlikely	Moderate	M-16				x	x	x	SWMS-Work with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWI-Operation of a Tip Truck ✓	Unlikely	Insignificant	L-24
Removal and Demolition of Culverts and Culvert End Structures ✓	fgf	x	x		x	x							Noise Power tools Dust Mobile Plant Working near roads Hazardous manual task	Injury Silicosis Hearing loss / impairment Impact / Collision	Possible	Major	H-8				x	x	x	SWMS-Working with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Operating Cut-off Saw ✓ SWMS-Manual Tasks ✓ SWI-Using Powered Small Plant ✓	Unlikely	Minor	L-21
Removal and Demolition of Kerbs and Channels and Concrete Slabs	fgf	x	x		x								Working near roads Hazardous manual task Dust Noise Mobile Plant	Impact / Collision Injury Silicosis Potential fatality	Possible	Major	H-8				x	x	x	SWMS-Working with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Operating a Cut-off Saw ✓ SWMS-Manual Tasks ✓ SWI-Using Powered Small Plant ✓	Unlikely	Minor	L-21

fgf Hazard and Risk Register - SAFETY

Activity/ Aspect	Risk Owner	Process Line Model												Potential Hazard	Consequence	Initial Risk			Hierarchy of Controls Applied						Proposed Control Measures	Controlled Risk		
		Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Retention	Water Retention	Quarry Earthworks & Extraction	Crushing / Processing	Spray Seal	Asphalt Pavements	Depot and Workshop	Transport of Bitumen or Quarry products			L	C	RR	Elimination	Substitution	Isolation	Engineering	Administration	PPE		L	C	RR
Installation of Precast Culverts	fgf	x			x									Working near roads Lifting gear Hazardous manual task Mobile Plant Working near water Tipping loads	Impact / Collision Injury Potential fatality Potential engulfment	Possible	Major	H-8				x	x	x	SWMS-Locate and Pothole Services SWMS-Working with / Operation of Plant SWMS-Excavation / Trenching Works SWMS-Placing and Finishing Concrete SWMS-Manual Tasks SWI-Using Powered Small Plant SWI-Operation of Tip Truck SWI-Lifting and Slings	Unlikely	Minor	L-21
Rock Protection	fgf				x									Mobile Plant Working near water Tipping loads Hazardous manual task	Impact / Collision Injury Potential fatality	Possible	Moderate	M-13				x	x	x	SWMS-Manual Tasks SWMS-Working with / Operation of Plant SWI-Operation of a Tip Truck SWI-Using Powered Small Plant	Unlikely	Insignificant	L-24
Unbound Pavements	fgf		x	x										Interaction with traffic Interaction with public Dust Hazardous manual task Working near roads	Impact / Collision Injury Silicosis Potential fatality	Unlikely	Major	M-12				x	x	x	SWMS-Working on or Adjacent to a Road SWMS-Working with / Operation of Plant SWMS-Manual Tasks SWI-Working Outdoors SWI-Using Powered Small Plant	Unlikely	Minor	L-21
Reinforced Soil Structures	fgf	x	x		x									Mobile Plant Working near water Tipping loads Hazardous manual task	Impact / Collision Injury Potential fatality	Possible	Major	H-8				x	x	x	SWMS-Working with / Operation of Plant SWMS-Manual Tasks SWI-Operation of a Tip Truck SWI-Using Powered Small Plant	Unlikely	Minor	L-21
Stabilised Pavements	fgf Subcontractor	x	x	x										Interaction with traffic Interaction with public Hazardous manual task Working near roads	Impact / Collision Injury Potential fatality	Possible	Major	H-8				x	x	x	SWMS-Working on or Adjacent to a Road SWMS-Working with / Operation of Plant SWMS-Manual Tasks SWI-Using Powered Small Plant SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Asphalt Surfacing	fgf			x							x		x	Interaction with traffic Interaction with public Hazardous manual task Working near roads	Impact / Collision Injury Potential fatality	Possible	Major	H-8				x	x	x	SWMS-Working on or Adjacent to a Road SWMS-Working with / Operation of Plant SWMS-Using a Hazardous Substance SWMS-Manual Tasks SWMS-Working Near Off Electrical Services SWI-Using Powered Small Plant SWMS-Asphalt, Sealing & Profiling SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable <i>AS PER SUBCONTRACTOR</i>	Unlikely	Minor	L-21
Road Furniture	fgf		x	x							x			Interaction with traffic Interaction with public Working near roads Changed traffic conditions Hazardous manual task	Impact / Collision Injury Lost time	Unlikely	Major	M-12				x	x	x	Traffic Management Plan SWMS-Working on or Adjacent to a Road SWMS-Manual Tasks SWI-Using Powered Small Plant	Rare	Minor	L-23
Noise	fgf	x	x	x	x	x	x	x	x	x	x	x		Interaction with traffic Interaction with public Hazardous manual task Working near roads	Community complaint Hearing impairment / loss	Possible	Major	H-8					x	x	Safety Management Plan Environmental Management Plan ENVI 07-Noise and Vibration Health Surveillance and Monitoring	Unlikely	Minor	L-21
Landscaping / Vegetation Protection Works	Subcontractor	x	x	x	x	x	x	x						Recycled water Fertilisers Pesticides / Herbicides Organic Soil Conditioners Water Holding Agents Hazardous manual task Small plant	Injury / Illness Lost time and productivity	Possible	Moderate	M-13				x	x	x	SWMS-Working on or Adjacent to a Road SWMS-Using a Hazardous Substance SWMS-Operating Chainsaw SWMS-Manual Tasks SWI-Working Outdoors SWI-Using Powered Small Plant SWI-Operation of a Tip Truck SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Site Camp and Facilities	fgf Subcontractor	x	x	x	x	x	x	x	x	x	x	x	x	Community and public access and safety Damage of Existing Property Visitor Access Hazardous manual task	Hit by Moving Plant / Equipment Injury Potential fatality	Likely	Moderate	H-9					x	x	SWMS-Manual Tasks SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Possible	Minor	M-17

fgf Hazard and Risk Register - SAFETY

Activity/ Aspect	Risk Owner	Process Line Model												Potential Hazard	Consequence	Initial Risk			Hierarchy of Controls Applied						Proposed Control Measures	Controlled Risk		
		Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Reticulation	Water Reticulation	Quarry Earthworks & Extraction	Crushing / Processing	Spray/Seal	Asphalt Pavements	Depot and Workshop	Transport of Bitumen or Quarry products			L	C	RR	Elimination	Substitution	Isolation	Engineering	Administration	PPE		L	C	RR
Traffic Management	fgf Subcontractor	x	x	x	x	x	x	x	x	x	x	x	Interaction with traffic Interaction with public Speed Uneven surfaces Changed traffic flow / conditions Potential for exposure to external bullying or violence from road users or members of the public	Injury Collision / Impact Potential fatality Community complaint	Possible	Extreme					x	x	x	Traffic Management Plan SWMS-Working on or Adjacent to a Road SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21	
Blasting	Subcontractor		x					x					Premature detonation Excessive noise Dust Projected objects and debris	Injury Potential fatality Hearing impairment Silicosis	Possible	Extreme					x	x	x	Approved Subcontractor Management Plan Notification to Public Exclusion Zones SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Rare	Moderate	L-20	
Concrete Piling / Sheet Piling ✓	fgf Subcontractor	x											Working near roads Working outdoors Mobile Plant Noise Hazardous manual task	Injury Hearing Impairment Potential fatality Impact / collision	Possible	Major	H-8						x	x	SWMS-Locate and Pothole Services SWMS-Driving Sheet Piles SWMS-Manual Tasks ✓ SWMS as per Subcontractor ✓ Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Steel Girders	Subcontractor	x											Working near roads Working outdoors Mobile Plant	Injury Potential fatality Impact / collision	Unlikely	Major	M-12					x	x	x	SWMS-Working 2m or Higher SWMS-Manual Tasks SWI-Lifting and Slinging SWI-Welding / Oxy Acetylene Cutting SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Installation and Removal of Formwork and Falsework ✓	fgf Subcontractor	x											Hazardous manual task Mobile Plant Exposed steel Formwork Failure (collapse)	Bodily injury Potential fatality	Unlikely	Major	M-12					x	x	x	SWMS-Manual Tasks ✓ SWI-Welding / Oxy Acetylene Cutting SWI-Using Powered Small Plant ✓ SWMS as per Subcontractor ✓ Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Placing and Compacting of Concrete ✓	fgf Subcontractor	x			x	x	x						Mobile Plant Exposed steel work Working with Concrete Lifting of Formwork Hazardous manual task Noise and vibration	Bodily Injury Skin infections Concrete poisoning Temporary threshold shift (TTS)	Unlikely	Major	M-12					x	x	x	SWMS-Excavation / Trenching Works ✓ SWMS-Working with / Operation of Plant ✓ SWMS-Using a Hazardous Substance SWMS-Placing and Finishing Concrete ✓ SWMS-Manual Tasks ✓ SWI-Using Powered Small Plant ✓ SWMS as per Subcontractor ✓ Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Spray Sealing	fgf Subcontractor									x		x	Mobile Plant Working Near Roads Fumes Overhead Services Bitumen Burns	Bodily Injury Light headedness	Possible	Moderate	M-13					x	x	x	Traffic Management Plan SWMS-Working with / Operation of Plant SWMS-Working on or Adjacent to a Road SWMS-Work Near OH Electrical Service SWMS-Asphalt Sealing & Profiling SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Insignificant	L-24
Pit Chamber Construction ✓	fgf	x	x		x	x							Mobile Plant Engulfment Confined spaces Working with Concrete Lifting of Formwork	Bodily injury Potential fatality Skin infections Concrete poisoning	Unlikely	Major	M-12					x	x	x	Permit to Work SWMS-Confined Space Entry ✓ SWMS-Locate and Pothole Services ✓ SWMS-Working with / Operation of Plant ✓ SWMS-Excavation / Trenching Works ✓ SWMS-Placing and Finishing Concrete ✓ SWI-Operation of a Tip Truck ✓ SWI-Using Powered Small Plant ✓	Unlikely	Minor	L-21
Cut and Fill ✓	fgf	x	x										Mobile Plant Underground services	Bodily Injury Potential fatality Electrocution	Unlikely	Major	M-12					x	x	x	SWMS-Locate and Pothole Services ✓ SWMS-Working with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Excavation Near UG Services ✓ SWI-Operation of a Tip Truck ✓ SWI-Using Powered Small Plant ✓	Unlikely	Minor	L-21

fgf Hazard and Risk Register - SAFETY

Activity/ Aspect	Risk Owner	Process Line Model												Potential Hazard	Consequence	Initial Risk			Hierarchy of Controls Applied						Proposed Control Measures	Controlled Risk		
		Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Reticulation	Water Reticulation	Quarry Earthworks & Extraction	Crushing / Processing	Spray Seal	Asphalt Pavements	Depot and Workshop	Transport of Bitumen or Quarry products			L	C	RR	Elimination	Substitution	Isolation	Engineering	Administration	PPE		L	C	RR
Installation of Pipes and Fittings ✓	fgf	x			x	x	x							Mobile Plant Engulfment Dust Noise Hazardous manual task Underground services	Bodily Injury Silicosis Potential fatality Electrocution	Possible	Major	H-8				x	x	x	SWMS-Locate and Pothole Services ✓ SWMS-Working with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Laying Pipes ✓ SWMS-Operating Cut-off Saw ✓ SWMS-Manual Tasks ✓ SWMS-Excavation / Trenching Works ✓ SWMS-Work Near OH Electrical Services SWI-Lifting and Slinging ✓ SWI-Using Powered Small Plant ✓	Unlikely	Minor	L-21
Surveying ✓	fgf Subcontractor	x	x	x	x	x	x	x		x	x			Working near roads Mobile Plant Wildlife	Bodily injury Snake bites	Possible	Moderate	M-13				x	x	x	SWMS-Working on or Adjacent to a Road ✓ SWMS-Survey Activities ✓ SWMS-Manual Tasks ✓ SWMS as per Subcontractor ✓ Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Installation, Removal or Reloaction of Road Lighting ✓	Subcontractor		x	x										Working near roads Hazardous manual task	Injury Potential loss of life	Rare	Major	L-18				x	x	x	SWMS-Working with / Operation of Plant ✓ SWMS-Working on or Adjacent to a Road ✓ SWMS-Manual Tasks ✓ SWI-Lifting and Slinging ✓ SWI-Using Powered Small Plant ✓ SWMS as per Subcontractor ✓ Subcontractor to identify additional control measures as applicable	Rare	Insignificant	L-25
Working at Heights (> 2m) ✓	fgf	x	x	x	x	x	x	x						Uncontrolled falling from heights Falling on a hard surface Miscommunication Slips / trips / falls Falling objects Fall protection and rescue equipment Scaffolding Elevated Platforms Access and Egress	Injury Potential loss of life Property damage	Possible	Major	H-8						Emergency Response Plan Toolbox Meeting Form Prestart Meeting Form SWMS-Working 2m or Higher SWMS-Operate Elevating Work Platform (EWP)	Unlikely	Moderate	M-16	
Asbestos	Subcontractor	x	x		x	x	x							Breathing or ingesting asbestos fibres	Injury Mesothelioma Potential loss of life	Unlikely	Major	M-12					x	x	Asbestos Survey (prepared by suitably qualified person) Asbestos Management Plan (prepared by suitably qualified person) Emergency Response Plan Health Surveillance and Monitoring SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Moderate	M-16
Temporary Support Structures	Subcontractor		x	x	x	x	x							Falling objects injuring persons and the public	Injury / loss of life	Unlikely	Major	M-12				x	x	x	Scaffold erected by a competent installer Tilt up construction in accordance with AS 38050-2003 Formwork and back propping in accordance with AS 3601-1995 SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Confined Spaces	fgf	x	x	x	x	x	x					x		Contaminated atmosphere Limited access and egress	Injury / loss of life Asphyxiation Explosion	Unlikely	Major	M-12				x	x	x	Permit to Work SWMS-Confined Space Entry SWI-Using Hand Tools Emergency Response Plan	Unlikely	Moderate	M-16
Chemical, Fuel or Refrigerant Lines	Subcontractor	x	x	x	x	x	x							Release of contaminants	Injury / loss of life Environmental harm	Possible	Moderate	M-13				x	x	x	SWMS-Locate and Pothole Services SWMS-Working on or Adjacent to a Road SWMS-Using a Hazardous Substance SWMS-Laying Pipes SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Moderate	M-16

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Activity/ Aspect	Risk Owner	Process Line Model											Potential Hazard	Consequence	Initial Risk			Hierarchy of Controls Applied						Proposed Control Measures	Controlled Risk					
		Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Reticulation	Water Reticulation	Quarry Earthworks & Extraction	Crushing / Processing	Spray Seal	Asphalt Pavements	Depot and Workshop			Transport of Bitumen or Quarry products	L	C	RR	Elimination	Substitution	Isolation	Engineering	Administration		PPE	L	C	RR		
Overhead Electrical Installations and Services	fgf Subcontractor	x	x	x	x	x	x			x	x		x	Live services / electrical shock Interaction with public and traffic	Injury / Loss of Life Collision impact / damaged services Trip / slip / fall	Possible	Moderate	M-13						x	x	x	Traffic Management Plan SWMS-Work Near OH Electrical Services SWMS-Working on or Adjacent to a Road SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Moderate	M-16
Contaminated or Flammable Atmospheres	fgf	x	x	x	x	x	x							Risk of explosion Lack of oxygen / Asphyxiation	Injury Potential loss of life	Unlikely	Extreme	H-7						x	x	x	Permit to Work SWMS-Confined Space Entry SWMS-Using a Hazardous Substances	Unlikely	Moderate	M-16
Working on or Near Roads	fgf	x	x	x	x	x	x			x	x		x	Struck by passing vehicle Aggravated motorists and residents Interaction with public and pedestrians	Injury Potential fatality Damaging public relations Injury / slips / trips / falls Property damage	Unlikely	Major	M-12						x	x	x	Traffic Management Plan SWMS-Working on or Adjacent to a Road TRAFFIC GUIDANCE SCHEME	Unlikely	Minor	L-21
Hiring Plant	Subcontractor	x	x	x	x	x	x	x	x	x	x	x	x	Plant not maintained to manufacturers requirements Plant not suitable for the task Plant not supplied with appropriate information	Injury Medical treatment	Possible	Moderate	M-13						x	x		SP08 Procurement and Subcontractor Management Procedure Verification of plant service history Plant fitted with all safety devices Plant serviced by qualified persons Subcontractor to identify additional control measures as applicable	Rare	Insignificant	L-25
Subcontractor Engagement	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Subcontractors with poor performance history Lack of communication and planning	Injury Potential loss of life	Unlikely	Major	M-12							x		SP08 Procurement and Subcontractor Management Procedure Subcontractor Trade Contract Subcontractor to identify additional control measures as applicable	Rare	Insignificant	L-25
Underground Services and Structures	fgf		x		x	x	x							Live services / electrical shock Interaction with public and traffic	Injury Potential loss of life Collision impact Damaged services Trip / slip / fall	Possible	Moderate	M-13						x	x	x	Traffic Management Plan SWMS-Locate and Pothole Services SWMS-Excavation Near UG Services SWMS-Working with / Operation of Plant SWMS-Manual Tasks SWMS-Excavation / Trenching Works SWI-Using Powered Small Plant	Unlikely	Moderate	M-16
Pressurised Gas Distribution Mains or Piping	fgf		x		x	x	x							Release of flammable or toxic gases Risk of explosion	Injury Potential loss of life	Possible	Moderate	M-13						x	x	x	Consultation with Local Authorities SWMS-Locate and Pothole Services SWMS-Laying Pipes SWMS-Excavation Near UG Services SWMS-Excavation / Trenching Works	Unlikely	Moderate	M-16
Handling, Storage and Transportation of Hazardous Substances	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Hazardous substances Flammable substances Toxic substances Inhalation Indigestion	Combustion Poisoning Damage to skin Damage to eyes Damage to respiratory tract	Possible	Moderate	M-13						x	x	x	SP10 Handling, Storage, Packaging, Preservation & Delivery Procedure SP24 Hazardous Chemicals Procedure Emergency Response Plan SWMS-Using a Hazardous Substance SWMS-Manual Tasks SWI-Refuelling Plant (Diesel)	Unlikely	Minor	L-21
Housekeeping	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Unsafe and clear entry to and from workplace No system for collecting, storing and disposing of waste materials Not enough area to store safety materials	Slips / trips / falls / injury / medical treatment	Likely	Moderate	H-8							x	x	Project Specific Site Induction SWMS-Manual Tasks SWI-Housekeeping / Stacking and Storage	Unlikely	Insignificant	L-24
Site Access and Egress	fgf	x	x	x	x	x	x	x	x	x	x			Traffic through and around the work area Pedestrians moving through and around the work area Speeding vehicles Chemicals and fuels	Collision / Impact Injury / slips / trips / falls	Unlikely	Moderate	M-16						x	x	x	Traffic Management Plan TCS	Unlikely	Minor	L-21

fgf Hazard and Risk Register - SAFETY

Activity/ Aspect	Risk Owner	Process Line Model												Potential Hazard	Consequence	Initial Risk			Hierarchy of Controls Applied						Proposed Control Measures	Controlled Risk		
		Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Retention	Water Retention	Quarry/Earthworks & Extraction	Crushing / Processing	Spray Seal	Asphalt Pavements	Depot and Workshop	Transport of Bitumen or Quarry products			L	C	RR	Elimination	Substitution	Isolation	Engineering	Administration	PPE		L	C	RR
Inclement Weather ✓	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Inclement weather	Poor visibility Electrocution Altered environment Uncontrolled movement Collision / Impact Slips / trips	Likely	Minor	M-14				x	x	x	SWI-Site Conditions ✓ Emergency Response Plan ✓	Rare	Minor	L-23
Tilt-up and Precast Concrete	Subcontractor	x												Falling objects	Injury Potential loss of life	Possible	Major	H-8				x	x	x	SWMS-Working 2m or Higher SWMS-Working with / Operation of Plant SWMS-Work Near OH Electrical Services SWMS-Manual Tasks SWI-Using Powered Small Plant SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Hot Works	fgf Subcontractor	x		x	x	x	x	x	x	x	x	x		Burns / Fire / Explosion Welding flash to workers and public	Injury Potential loss of life	Unlikely	Major	M-12				x	x	x	Permit to Work SWI-Welding / Oxy Acetylene Cutting Emergency Response Plan SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Rock Drilling	Subcontractor		x					x						Working on slopes Refuelling Energised plant operating systems Entanglement Dust Noise Slips / trips / falls Traffic Interaction with the public Damage to services Exhaust fumes Uneven ground	Collision / Impact Plant rollover Potential loss of life Silicosis Hearing impairment Illness / injury Slip / trip / fall	Unlikely	Major	M-12				x	x	x	SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Hand Tools ✓	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Sharp edges Pinch points Energised implements Hazardous manual task	Injury Potential loss of life	Possible	Moderate	M-13					x	x	SP12 Plant, Machinery & Equipment Usage & Maintenance Procedure ✓ SWMS-Manual Tasks ✓ SWI-Using Hand Tools ✓	Rare	Minor	L-23
Hazardous Manual Tasks (Manual Handling) ✓	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Lifting materials Hazardous manual task	Injury / strain / sprain Lost time Decreased productivity Fatigue	Possible	Moderate	M-13					x	x	SWMS-Manual Tasks ✓	Unlikely	Minor	L-21
Working Adjacent to Water	fgf	x	x	x	x	x	x							Communication Access / Egress Falling into water Power tools / Electrical equipment near water Slippery surfaces	Injury Drowning Electric shock / electrocution Potential loss of life	Possible	Moderate	M-13				x	x	x	SWMS-Work Near, Over or Adjacent to Water Emergency Response Plan	Unlikely	Minor	L-21
Scaffolding	fgf Subcontractor	x				x	x							Falling objects Scaffold collapse	Injury Potential loss of Life	Possible	Moderate	M-13				x	x	x	SWMS-Working 2m or Higher SWI-Erecting and Using Fixed Scaffold SWI-Erecting and Using Mobile Scaffold SWI-Using Hand Tools SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Adjacent Facilities/ Properties ✓	fgf	x	x	x	x	x	x			x	x	x		Interaction with public Interaction with traffic	Collision / impact Damage to private property Noise Community dissatisfaction / complaint	Unlikely	Moderate	M-16				x	x	x	TCS Traffic Management Plan SWMS-Working on or Adjacent to a Road ✓	Rare	Minor	L-23
Ladders	fgf	x				x	x		x			x		Uneven surface Slips and falls from ladders Falling objects	Injury Loss of Life	Unlikely	Major	M-12				x	x	x	Site Rules SWMS-Working 2m or Higher SWI-Using Ladders SWI-Using Hand Tools	Rare	Minor	L-23

fgf Hazard and Risk Register - SAFETY

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		Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Reticulation	Water Reticulation	Quarry Earthworks & Extraction	Crushing / Processing	Spray Seal	Asphalt Pavements	Depot and Workshop			Transport of Bitumen or Quarry products	L	C	RR	Elimination	Substitution	Isolation	Engineering	Administration		PPE	L	C	RR
Mobile Crane Activities	fgf Contractor	x	x	x	x	x	x	x	x			x	x	Untrained operators High wind conditions Damaged / unsuitable lifting gear	Shortlegging Injury Potential loss of life	Unlikely	Major	M-12				x	x	x	Qualified Dogger / Rigger SWMS-Working with / Operation of Plant SWMS-Manual Tasks SWI-Lifting and Slinging SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Mobile Powered Plant	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Working on slopes Refuelling Dust Entanglement Ergonomics Noise Slips / trips / falls Traffic Interaction with the public Damage to services Exhaust fumes Uneven ground	Collision / Impact Silicosis Plant rollover Potential loss of life Hearing impairment Illness / injury Slip / trip / fall	Possible	Major	H-8				x	x	x	SWMS-Working with / Operation of Plant SWMS-Working on or Adjacent to a Road SWI-Load and Unload Plant SWI-Refuelling Plant (Diesel) Machine Pre-start Checklist	Unlikely	Minor	L-21
Refuelling	fgf	x	x	x	x	x	x	x	x	x	x	x	x	Hazardous substances Flammable substances Toxic substances Contaminated atmosphere Contact with eyes / skin Inhalation / ingestion	Uncontrolled release Combustion / explosion Skin or eye irritation Central Nervous System effects Dizziness / lack of concentration Vomiting Loss of consciousness	Possible	Moderate	M-13				x	x	x	SP24 Hazardous Chemicals Procedure SWMS-Using a Hazardous Substances SWI-Refuelling Plant (Diesel)	Rare	Minor	L-23
Night Works	fgf			x						x	x			Poor visibility Changed traffic flow and conditions Fauna Noise	Collision with Plant Fatigue Prolonged exposure to noise / hearing impairment	Unlikely	Major	M-12				x	x	x	Traffic Management Plan SWMS-Working with / Operation of Plant SWMS-Working on or Adjacent to a Road	Unlikely	Moderate	M-16
Line Marking	Subcontractor			x										Working near roads Interaction with traffic Working in hot conditions Working in cold conditons Hazardous manual task	Impact with traffic Collision with plant Injury Potential loss of life Fatigue	Possible	Major	H-8				x	x	x	Traffic Management Plan SWMS-Manual Tasks SWMS-Working on or Adjacent to a Road SWI-Line Marking SWI-Using Hand Tools SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21
Subsoil Drainage	fgf	x	x		x									Mobile Plant Working Near Roads Uneven / unstable surface Excavation / exposed trenches Hazardous manual task Underground services	Injury Potentially fatal Trench collapse Electrocution	Unlikely	Major	M-12				x	x	x	SWMS-Locate and Pothole Services SWMS-Excavation / Trenching Works SWMS-Working with / Operation of Plant SWMS-Working on or Adjacent to a Road SWMS-Manual Tasks SWI-Operation of a Tip Truck	Unlikely	Minor	L-21
Poly Welding	Subcontractor					x	x							Hot Welder Hazardous manual task - Pipes	Burn Injury Crush Injury Sprain / Strain	Possible	Major	H-8					x	x	SWMS-Manual Tasks SWMS as per Subcontractor Subcontractor to identify additional control measures as applicable	Unlikely	Minor	L-21

fgf Hazard and Risk Register - SAFETY

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Emergency Response	fgf	x	x	x	x	x	x	x	x				x	Fire Medical Emergency Heat Stress Bomb Threat Flooding Storm / Cyclone Threat Electrical Emergency Confined Space Incident Plant Rollover Fall from Heights Trench Collapse Traffic Incident Oil or Chemical Spill Gas Leak Explosion Structural Damage Personal Threat / Civil Disturbance Earthquake Armed Robbery Injured Fauna	Injury Potential loss of life Environmental harm Damage to property Damage to plant and equipment	Unlikely	Major	M-12					x	x	SP13 Emergency Preparedness and Response Procedure Emergency Response Plan Emergency Equipment and First-Aid-assessment	Unlikely	Minor	L-21	
Design	Performed by Designer	x	x	x	x	x	x					x	Constructability issues associated with design Design related buildability hazards	Potential injury to workers due to poor design	Likely	Moderate	H-9					x	x	Residual risk from the SID Register will be addressed during the Project Risk Review. In the event that a Safety in Design Risk Assessment is not provided by the Designer, fgf will request a meeting with the design team to collaborate a risk assessment in-line with fgf Risk Assessment Procedures.	Unlikely	Minor	L-21		
Health Factor - Chemical	fgf	x	x	x	x	x	x	x	x	x	x	x	Diesel Fuel, Smoking, Diesel Exhaust, Recreational Drugs Chemicals Requiring Health Surveillance if present (NA = not on project) Acrylonitrile - NA Asbestos - NA Benzene - NA Cadmium - NA Creosote - NA Crystalline silica - NA Inorganic arsenic - NA Inorganic chromium - NA Inorganic mercury - NA Isocyanates - NA (often found in 2-pack glues and paints) Organophosphate pesticides - NA Pentachlorophenol (PCPs) - NA Polycyclic aromatic hydrocarbons - NA Thallium - NA Vinyl chloride - NA Lead - NA (lead dust, fumes or mist)	Potential illness to worker Potential loss of life Injury / acid burns Respiratory burns Dizziness / lightheadedness Unconsciousness Combustion Poisoning Damage to skin Damage to eyes Damage to respiratory tract	Likely	Major		x	x	x				x	x	Emergency Response Plan SWMS-Using a Hazardous Substance SWI-Refuelling Plant (Diesel) PPE provided - sunblock, gloves, wide brim hats Smoking area allocated away from workplace Drug and Alcohol Policy SP24 Hazardous Chemicals Procedure SP16 System Audits, Inspections and Health Monitoring Procedure Site Rules and fgf Code of Practice Hazardous Substance Risk Assessment	Unlikely	Moderate	M-16
Health Factor - Biological	fgf	x	x	x	x	x	x	x	x	x	x	x	Food Poisoning, Water bourne infections, Hepatitis A, Poor personal hygiene, Bitten or stung by wildlife (see Flora & Fauna), Insect carrying disease	Personal injury / illness Food Poisoning Water bourne infection Hepatitis Anaphylactic shock Allergic reaction Ross River & Dengue Fever	Possible	Moderate	M-13						x	x	SWI-Working Outdoors Insect repellant provided Accommodation licences checked for compliance with Food Safety Act Emergency Response Plan SP16 System Audits, Inspections and Health Monitoring Procedure Site Rules and fgf Code of Practice	Unlikely	Minor	L-21	

fgf Hazard and Risk Register - SAFETY

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Health Factor - Physical ✓	fgf	x	x	x	x	x	x	x	x	x	x	x	Heat, Dust, Noise and Vibration, Radiation – UV, Poor Workplace design, Heavy use of VDU's, Hazardous manual task	Sun Stroke Heat Exhaustion Silicosis Temporary threshold shift (TTS) Noise-induced hearing loss NIHL (tinnitus) Skin burn Skin cancer Musculoskeletal injury (MSI) Repetitive strain injury (RSI)	Possible	Major	H-8						x	x	SWMS-Manual Tasks ✓ SWI-Working Outdoors ✓ PPE provided - sunblock, gloves, wide brim hats Emergency Response Plan ✓ SP16 System Audits, Inspections and Health Monitoring Procedure ✓ Site Rules and fgf Code of Practice ✓	Unlikely	Moderate	M-16
Surrounding Structures ✓	fgf	x	x	x	x	x							Vehicle impact Vibrations Falling trees Other external sources	Structural Damage Potential injury to worker / public Potential loss of life	Possible	Major	H-8			x		x		Emergency Response Plan ✓	Unlikely	Minor	L-21	
Community Consultation	Undertaken by Client	x	x	x	x	x	x		x	x			Complaints by the community, Disruption to local business	Verbal abuse from the community and interference work operational activities	Possible	Moderate	M-13						x		Community notified by client of the works being undertaken, Local police involved in discussions with client and project team in relation to local road transport disruptions and material deliveries to work locations. ✓	Unlikely	Insignificant	L-24

NOTIFICATION LOGGED IN
CAIRNS POST BY FGF
DEV. FOR 3/04/21



SAFE WORK METHOD STATEMENT – fgf 000

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 53 108 511 637

LOCATE & POTHOLE SERVICES

Workplace Location: Bluewater Estate Stages 18, 22 & 23

Task/ Activity: fgf 000 – Locate and Pothole Services

Employer: fgf Developments Pty Ltd

Date Reviewed: March 2021

Revision No.:

Personnel Consulted on Development of SWMS:

Mark Jeynes, Jarryd Londino, Warren McKenzie

Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie

Personnel Responsible for Monitoring this Activity:

Brendan Rogina, Warren McKenzie, Bert Pajor

Codes of Practice/ Standards Consulted and to be complied with:

WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Risks of Haz Chemicals COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019, Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.

Plant and Equipment Required for this Activity: Vacuum Truck, General Hand Tools.

Materials Used: Dy-mark Spray Paint

SDS Required: ☒ Yes ☐ No.

Personnel Qualifications Required for this Activity: HR Truck Licence.

PPE Required: Safety glasses, hi-visibility shirt/vest, steel cap boots

Specific Training Required for this Activity: Training in Cable Locating.

Nil

Control Categories Considered (Tick all those considered - ☒):

☐ Design/ Redesign

☐ Substitution

☒ Engineering

☒ Administration

☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: fgf 000 – Locate and Pothole Services

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
Obtain all service location drawings for the work area from Dial-Before-You-Dig.	Underground services	H8	⚠ This SWMS shall form part of the Site-Specific Induction. All personnel involved in excavation activities on this site shall sign on to this SWMS. The following plans shall be obtained and attached to this SWMS or retained in the Construction Folder: - Dial-Before-You-Dig (DBYD) plans - Sketch/report provided by a qualified Service Locator as evidence of locations. - As constructed drawings provided from the Client or Consultant (where available) to be issued to Service Locator. ⚠ Assets situated on private property will not be represented on DBYD plans. Some assets on Government land (including that of Council and DTMR) may also be omitted.	L21	All Staff
Mark out location of all underground services.	Struck by plant, vehicular traffic Muscle strain.	M13	Foreman to organise, supervise and assist (where required) a qualified Service Locator to locate all existing services within the vicinity of the area to be excavated. ⚠ Service locations MUST be marked on drawings/DBYD plans for future reference. Foreman, with assistance from the Surveyor (where required), to mark locations on the ground using spray paint, wooden pegs with coloured ribbon or PVC conduit. Where the marked locations may be lost / forgotten prior to potholing, the Surveyor, under supervision of the Foreman, will survey pick-up the located services. Surveyor will re-mark these locations prior to potholing if required. Construction plant or other traffic to maintain exclusion zones while this activity is completed.	L23	Site Foreman/Surveyor
Potholing services by hand.	Manual Handling/muscle strain, working in heat.	H8	Once services have been located and marked on the ground, potholing (by hand using a shovel or by Hydrovac) MUST be undertaken to physically expose and confirm each service. ⚠ No mechanical excavation (e.g. backhoe, excavator) shall be undertaken within 2.5m of any service until that service has been potholed using hand tools and physically located. ⚠ Confirmed service locations must be marked on the Drawings/DBYD plans for future reference. Where hand excavation is completed rotate / share the work to prevent manual handling injuries. Avoid damage to conduit or cables by gentle digging using a scraping motion. When excavating across a service, ensure the service is fully located within the excavation area. When excavating parallel to a service, the service MUST be potholed at least every 4 meters (Electrical) and 10 metres (all other services) along the excavation to confirm its alignment.	L21	Site Foreman/All staff

			⚠ Old AC water mains may be replaced with new mains on non-standard alignments (i.e. in front of kerb) if footpath is heavily treed, constrained, etc. All potholes to be backfilled with sand for ease of location. All workers to take regular breaks, wear sun screen and maintain fluids. ⚠ Where excavation works are undertaken within 3 metres of a Pad Mount Substation, a Hydrovac truck MUST be engaged to Hydrovac right around the Pad Mount to the maximum depth of the excavation works.		
Potholing services by Hydrovac.	Operation of Construction Plant, rollover, pedestrians, faulty equipment, damage to services, fuel spillage, hydraulics, noise, cuts, suffocation, slips, trips, falls, security.	H8	⚠ Do not wear loose fitting clothing that can be sucked into the vacuum hose, do not point high pressure water tools towards body, keep hoses and vacuum tools away from face and body to reduce chance of suffocation. Ensure ground is stable prior to commencing excavation, avoid operation on steep incline. Create exclusion zone and only persons undertaking task to be in area. Check pressure nozzles are clean and working properly, check pressure hose is free from cracks and fittings are tight, ensure vacuum hoses are clean and free from holes or cracks. When exposing conduit, avoid using operating pressure greater than 2000psi (138bars), use a circular motion to loosen soil, hold nozzle at least 100mm above asset and do not apply direct pressure at one point for long periods. A spill kit is located on site for any hydraulic hose bursts with all fgf staff trained in spill response and are aware of correct disposal process. Operate plant and equipment only when required within permitted site hours to reduce noise complaints and report excessively noisy machinery. Hearing protection (ear muffs or ear plugs) to be worn if in a hearing protection required zone. Where pothole is left open while unattended or overnight barricades MUST be erected a min of 1.5m from the edge of the pothole.	L21	Hydrovac Operator
Identifying conduit.	Damage to services, damages to other stakeholders assets.	H8	Where clusters of conduit are identified in drawings / Dial-Before-You-Dig plans, ensure all conduit is exposed and identified. In sandy conditions and where water table is present expose a larger area of the conduit to ensure all conduit identified.	L21	Hydrovac Operator
Disposal of excavated spoil.	Disposal of spoil in wrong area causing environmental harm, runoff into waterways and drainage systems, damage to vegetation and harm to fauna, rollover, crushing.	M13	Area where excavated spoil is to be disposed of shall be identified prior to commencing any Hydrovac works. Spoil disposal area to be away from drains and water ways to prevent possible escape. Limit vehicle movement to the designated access routes, to minimise disturbance to trees, vegetation and surrounding earth and fauna. Ensure ground is stable prior to unloading spoil, avoid unloading on steep incline and ensure parking brake is engaged and where necessary wheels chocked. Stay away from door and spoil while dumping to prevent possibility of crushing.	L23	Hydrovac Operator

SAFE WORK METHOD STATEMENT – fgf 000

JOB SAFETY ENVIRONMENT ANALYSIS

Hazardous Substance /Dangerous goods.	Skin Contact, eye contact, ingestion, inhalation, chemical handling and spills.	M16	Dy-Mark Spray and Mark Paint will be used for line marks on ground and painting of wooden pegs. Spraying will take place in well ventilated areas and standing up wind of the spray. Clearly identify contents of containers and where required dispose of containers correctly.	L23	Site Foreman/All Staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access / egress areas are clear of obstacles. The Project Manager / Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start / toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

[illegible]

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT - fgf 002

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 53 108 511 637

EXCAVATION NEAR UNDERGROUND ESSENTIAL SERVICES

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 002 – Excavation Near Underground Essential Services
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.: _____
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino, Warren McKenzie	Reviewed By: Mark Jeynes, Jarryd Londino
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Excavation Work COP 2021; Managing Noise & Preventing Hearing Loss at Work COP 2021; Electrical Safety Act 2002; Electrical Safety Regs 2013; Electrical Safety COP 2020 Working Near OH and UG Electric Lines; Env Protection Act 1994; Env Protection (Air) Policy 2019; Env Protection (Noise) Policy 2019.
Plant and Equipment Required for this Activity: Vacuum Truck, General Hand Tools, Excavator, Backhoe.	Materials Used: SDS Required: ☐ Yes ☐ No.
Personnel Qualifications Required for this Activity: HR Truck Licence, Appropriate plant operators tickets or VOC from registered RTO.	PPE Required: Safety glasses, safety Helmet, hi-visibility shirt/vest, steel cap boots
Specific Training Required for this Activity: Training in Cable Locating. Nil	

Control Categories Considered (Tick all those considered - ☒):

☐ Design/ Redesign

☐ Substitution

☒ Engineering

☒ Administration

☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

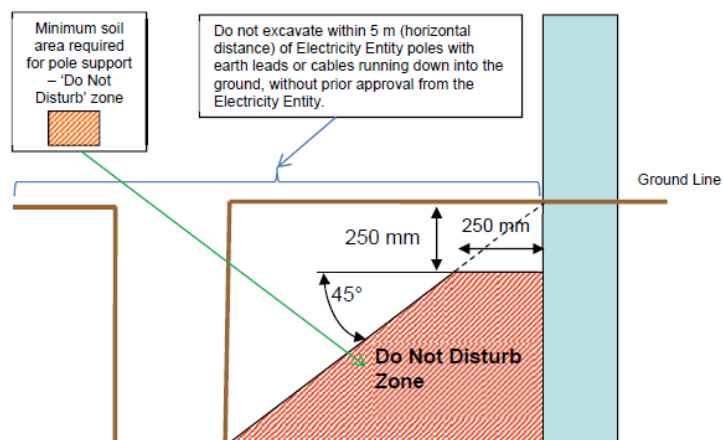
Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: fgf 002 – Excavation Near Underground Essential Services

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
	Underground services, Operation of Construction Plant	H8	Before any excavation works are undertaken Refer to and sign onto SWMS fgf 000 Locate and Pothole Services for underground services that may be present. Refer to SWMS for Working With - Operation of Construction Plant	L21	All Staff
Location of all underground services.	Damage to underground services, gas leak, electrocution, water leak, sewerage leak, disconnection of telecommunication services etc.	H8	Check that service locations have been identified and marked on the ground. ⚠ Where Ergon Energy plant is identified as being in the excavation zone a Safety Advice Request form must be completed and submitted to Ergon for advice. Where possible request to have service de-energised. Potholing has been completed to expose the services and all services identified as per the drawings. Where electrical assets are identified on private property, contact the property owner for locations prior to undertaking any excavations works.	L21	All Staff
Excavation near or around services	Struck by plant, rollover, pedestrians, hitting unidentified services not located on drawings, electrocution, fuel spillage, hydraulics, noise.	H8	Create exclusion zone and only persons undertaking task to be in area. Ensure ground is stable prior to commencing excavation, avoid operation on steep incline. Excavating with a backhoe or excavator near underground services should be carried out only with a toothless bucket, with no side cutters. The observer must be in a position where they can see into the excavation and monitor the spoil for any noticeable change in soil which may indicate backfill material and warn the plant operator of any services or other obstacles. Once exposed, services may need to be supported and should never be used as handholds or footholds for climbing out of excavations. A spill kit is located on site for any hydraulic hose bursts with all fgf staff trained in spill response and are aware of correct disposal process. Operate plant and equipment only when required within permitted site hours to reduce noise complaints and report excessively noisy machinery. Hearing protection (ear muffs or ear plugs) to be worn if in a hearing protection required zone.	L23	Site Foreman/All staff
Excavating across ERGON cables	Damage to services, electrocution	H8	A minimum clearance of 500mm above or below cables shall be maintained. If the width or depth of excavation is such that the Ergon Energy cables will be exposed or unsupported, then Ergon Energy shall be contacted on 13 10 46. In no case shall a cable cover be removed without approval from ERGON. Protective cover strips when removed must be replaced under Ergon Energy supervision.	L21	Site Foreman/All staff

			Under no circumstances shall they be omitted to allow separation between Ergon Energy cables and other services.		
Excavating parallel to underground services	Damage to underground services, gas leak, electrocution, water leak, sewerage leak, disconnection of telecommunication services etc	H8	If excavation work is parallel to underground services, then non mechanical excavation (potholing) at least every 4 metres is required to establish the location of all services. Where possible make every effort to excavate alongside the service rather than directly above it. ⚠ Be aware that services depths & directions may change suddenly along the route. If an excavation exceeds the depth of the services it is likely that the covers or bedding material around the services will move causing the services to be unsupported, contact the service owner and request Safety Advice prior to excavation.	L21	Site Foreman/All staff
Excavation works near a power pole or stay wire foundations.	Compromise the structural integrity of power poles and stay wire foundations. Struck by falling pole or electrocution from contact with wires.	H8	Excavation and trenching work undertaken in the vicinity of poles and stay wire foundations shall not be attempted: • within 5m of pole stays where excavation is deeper than 250mm, or 5m of poles with earth leads or cables running into the ground without approval from Ergon Energy. • within “Do Not Disturb” zone (see diagram below) of pole without a certified engineering assessment being completed and then reviewed and approved by Ergon Energy. • if the soil is exceedingly wet or there is more than minimal wind unless pole support is provided in accordance with certified engineering assessment and approved by Ergon Energy. Excavation shall be backfilled as soon as possible (within same day where pole is supported) and mechanically compacted in layers of 150mm with all rock and vegetable material excluded from the backfill.	L21	Site Foreman/All staff



Maximum Trench Depth	Minimum Distance from pole without pole support
Not more than 0.25 m (250 mm)	Can trench or hand dig (where cables and leads exist) right up to pole
1.0 m	1.0 m
1.5 m	1.5 m
2.0 m	2.0 m
2.5 m	2.5 m
3.0 m	3.0 m



SAFE WORK METHOD STATEMENT – fgf 002

JOB SAFETY ENVIRONMENT ANALYSIS

On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access / egress areas are clear of obstacles. The Project Manager / Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start / toolbox meetings.	Project Manager/Site Foreman
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.	All Staff



I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

[illegible]

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT – fgf 003

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 53 108 511 637

WORKING WITH / OPERATION OF CONSTRUCTION PLANT

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 003 – Working With / Operation of Construction Plant
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.: _____
Personnel Consulted on Development of SWMS: Jarryd Londino, Mark Jeynes, Warren McKenzie	Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Risks of Haz Chemicals COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019; Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.
Plant and Equipment Required for this Activity: Excavator, IT Loader, Vibrating Roller, Grader, Backhoe, Rubber Tyre Roller, Dozer, Water Truck.	Materials Used: Diesel SDS Required: ☒ Yes ☐ No.
Personnel Qualifications Required for this Activity: Appropriate plant operator's tickets or VOC from registered RTO.	PPE Required: Safety glasses, hi-visibility shirt/vest, steel cap boots
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☐ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

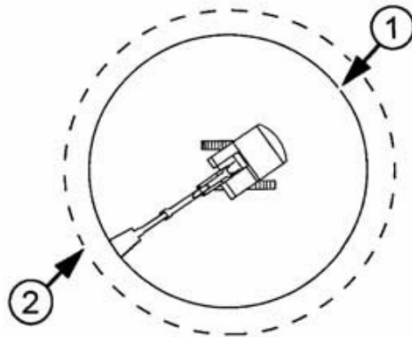
Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: **fgf 003** – Working With / Operation of Construction Plant

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
Load and Unload Plant from Float / Trailer.	Overhead services, roll over, struck by plant, slips, trips and falls.	H8	⚠️ Ensure the loading / unloading area is clear of overhead power lines. Float / trailer should be parked on flat, firm, even ground. Separate work activities and enforce exclusion zone around mobile plant and float. Only use the designated access to the plant and where applicable clean any mud off any access points for the plant. Have at least 3 limbs in contact with the plant while accessing or disembarking plant. Personnel operating plant must wear the seatbelt (where fitted). Where required engage a spotter to assist with the loading / unloading process.	L21	Float Operator/Plant Operator
Operator Competency and Pre-start Check of Machine.	Operator not ticketed, faulty machine and attachments, overhead/underground services	H8	Check that all operators are ticketed and competent operators. ⚠️ Subcontractors to complete SPF 09.1 Mobile Powered Plant Competency Verification Checklist. Excavator / loader / roller / dozer to have ROPS / FOPS fitted and certified. Operators must complete a machine pre-start checklist and ensure all attachments are in good working condition prior to commencement of work. All machines to have working reverse beepers and flashing amber lights. Report any major faults to the Site Foreman. ⚠️ Where plant is fitted with a quick hitch or backhoe bucket fitted with flip-out forks, manufacturer supplied safety pins must be used at all times. Under no circumstances will the item of plant be operated without a safety pin inserted. Where overhead / underground services are present Operators must comply with: SWMS fgf-001 - Work Near Overhead Electrical Services SWMS fgf-002 – Excavation Near Underground Essential Services. ⚠️ Plant Operator must not commence works near or around overhead powerlines / underground services without a Safety Observer present.	L21	Site Foreman/Plant Operator
Communications.	Struck by plant.	H8	Communications will be via UHF radios which should be fitted to most plant. Where radios are not fitted, eye contact must be made with the operator before approaching. Ensure plant has stopped and is stationary before approaching.	L21	Plant Operator/All Staff

Operating Machine.	Machine rollover, struck by falling attachments/ objects, slips, trips, falls, dust, hearing loss, pedestrian being struck by plant, damage to vegetation and harm to fauna, hydraulic oil or fuel spill, noise, working in the heat.	E4	⚠ All plant must only be used for the purpose for which it was designed / manufactured. Operators to undertake visual inspection of the area for uneven / unstable ground, avoid operation on steep incline. Personnel operating plant must wear the seatbelt (where fitted). Mobile plant should stay at least 1.5 – 2 metres away from edge of trench / open excavations. Operators to have boots free of mud, no loose clothing and use 3 points of contact for access and egress to plant. ⚠ The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³). Plant operators MUST always keep cabin door closed during operation to assist with controlling dust and noise inhalation (engine noise). If doors or windows are open during operation the operator should wear adequate hearing protection and MUST wear a P2 dust mask. Where possible, face plant up wind, so wind is blowing dust away from plant. Staff on foot working around plant in operation should stand up wind of dust or MUST wear a P2 dust mask. Create a swing / exclusion zone of approx. 3 metres with only persons undertaking works permitted in the area. ⚠ All personnel working in the 3m swing / exclusion zone or any excavations MUST wear a safety helmet otherwise plant operator MUST stop work until safety helmet is worn. If pedestrians are approaching the swing / exclusion zone stop work and request them to move away from the machine. Only plant fitted with Burst Protection will undertake lifting activities. Prior to reversing machine, operator must check area behind is clear. Limit plant movement to the designated access routes / work area, to minimise disturbance to trees, vegetation and surrounding earth and fauna. A spill kit is located on site for any hydraulic hose bursts with all fgf staff trained in spill response and are aware of correct disposal process. Operate plant and equipment only when required within permitted site hours to reduce noise complaints and report excessively noisy machinery. All workers to take regular breaks, wear sun screen and maintain fluids.	L21	Site Foreman/All staff
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**SAFETY HELMET AREA**

The safety helmet area is the space necessary for the machine to operate at the maximum range and a 360° swing, plus 3 metres.

1. Swing Radius of Plant (exclusion zone unless working directly with plant).
2. Swing Radius plus 3 metres (Safety Helmet Area)

Hazardous Substance / Dangerous goods.	Skin Contact, eye contact, ingestion, inhalation, chemical handling and spills.	M13	Diesel Fuel will be used to fill the machines, at no time will anyone come in contact with the fuel. Refuelling is taken place using a fuel truck. Clearly identify contents of containers and where required, dispose of containers correctly.	L23	Site Foreman/All Staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access / egress areas are clear of obstacles. The Project Manager / Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start / toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



SAFE WORK METHOD STATEMENT – fgf 003

JOB SAFETY ENVIRONMENT ANALYSIS

ACTIVITY: fgf 003 – Working With / Operation of Construction Plant

I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

Date	Print Name	Company/ Employer	Signature	Date	Print Name	Company/ Employer	Signature

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT - fgf 004

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 53 108 511 637

EXCAVATION / TRENCHING WORKS

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 004 - Excavation / Trenching Works
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.: _____
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino, Warren McKenzie	Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Risks of Haz Chemicals COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019, Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.
Plant and Equipment Required for this Activity: Excavator, Backhoe, IT Loader, Dump Truck.	Materials Used: SDS Required: ☐ Yes ☐ No.
Personnel Qualifications Required for this Activity: HR Truck Licence, Appropriate plant operators tickets or VOC from registered RTO.	PPE Required: Safety glasses, safety helmet, hi-visibility shirt/vest, steel cap boots
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☐ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: fgf 004 – Excavation / Trenching Works

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
	Overhead/Underground services, Operation of Construction Plant	H8	Before excavation works are undertaken Refer to and sign onto SWMS fgf 000 Locate and Pothole Services for underground services that may be present. Refer to SWMS fgf-001-Work Near OH Electrical Service Refer to SWMS fgf-002-Excavation Near UG Essential Services Refer to SWMS fgf-003 - Working With - Operation of Construction Plant	L21	All Staff
Mark out location for trench / excavation	Struck by plant, vehicular traffic, muscle strain, working in heat	M13	Location of trench / excavation marked out by Site Foreman / Surveyor. No construction plant or other traffic to be operated while the above activity is being undertaken. Take regular breaks, wear sun screen and maintain fluids.	L23	Site Foreman/Surveyor
Excavate trench / excavation using excavator / backhoe	Struck by plant, vehicular traffic, rollover, pedestrians, collapse of excavation, fall from heights, fuel spillage, hydraulics, noise, sediment runoff, hitting unidentified services not located on drawings.	H8	⚠ The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³). Staff on foot working around plant in operation should stand up wind of dust or MUST wear a P2 dust mask. Create a swing / exclusion zone of approx. 3 metres with only persons undertaking works permitted in the area. ⚠ All personnel working in the 3m swing / exclusion zone or any excavations MUST wear a safety helmet, plant operator MUST stop work until safety helmet is worn. Truck driver to stay in truck cab at all times whilst getting loaded. Set detour for other traffic (Where required). Ensure ground where plant is located is stable, avoid operation of plant on steep incline. Prior to excavation check drawings, all trenches deeper than 1.5m must be benched, battered, shored or certified by Geotechnical Engineer prior to entering trench. When battering, the bottom 1m of the trench can be vertical however after that the remaining depth of the trench is to be battered to provide a max of 45 degree angle. When benching no vertical face may exceed 1m in the vertical, benching should consist of 1.0m deep by 1.0m benched. ⚠ Operator to ensure correct benching or battering of excavation. Excavated materials shall be placed on one side of the excavation and a minimum of 1.0m from the edge to prevent possible collapse. Where necessary ladders, steps or ramps will be placed at regular intervals for access / egress. Excavations deeper than 1m to be barricaded when left unattended.	L21	Site Foreman/All staff

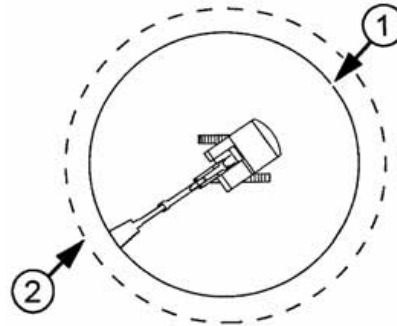
			Barricading shall be erected a min of 1m from the edge of the excavation. A spill kit is located on site for any hydraulic hose bursts with all fgf staff trained in spill response and are aware of correct disposal process. Operate plant and equipment only when required within permitted site hours to reduce noise complaints and report excessively noisy machinery. Where trenches are open at the outlet a silt fence should be erected on the downstream site of pipes to prevent any sediment runoff that may occur during rain periods. A spotter will be in place during excavation to identify any possible services.		
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Benching (**fgf** preferred method)

Battering



Combination of Benching and Battering

**SAFETY HELMET AREA**

The safety helmet area is the space necessary for the machine to operate at the maximum range and a 360° swing, plus 3 metres.

1. Swing Radius of Plant (exclusion zone unless working directly with plant).
2. Swing Radius plus 3 metres (Safety Helmet Area)

Backfill to trench/excavation	Engulfment, dust, noise.	H8	Personnel in trench / excavation directing plant operator placing backfill material MUST stand clear of the machine bucket while backfill material is being placed. Backfill material will be rolled and compacted using a vibrating roller / trench roller. Where backfill material is sand the sand will be flooded to allow for settlement. Water truck will be available to control dust issues. Wear adequate hearing protection (ear muffs or ear plugs) where required.	L21	Site Foreman/All staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access / egress areas are clear of obstacles. The Project Manager / Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start / toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

[illegible]

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
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Possible	L-22	M-17	M-13	H-8	E-4
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Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT - fgf 005

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 53 108 511 637

WORK ON OR ADJACENT TO A ROAD

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 005 – Work on or Adjacent to a Road
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.: _____
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino, Warren McKenzie	Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Risks of Haz Chemicals COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019, Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.
Plant and Equipment Required for this Activity: Traffic Signs, Stop/Slow Bats, Portable Traffic Lights, Traffic Control Vehicle.	Materials Used: SDS Required: ☐ Yes ☒ No.
Personnel Qualifications Required for this Activity: Traffic Controllers Licence	PPE Required: Safety glasses, hi-visibility shirt/vest, steel cap boots
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☐ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: **fgf 005** – Work on or Adjacent to a Road

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
Pre-Start	Little or no planning of worksite, Team not trained for task, communication.	H8	Obtain Traffic Guidance Scheme (TGS) and ensure is correct and relevant to site, if not amend TGS. Only accredited traffic controllers shall be used to traffic control. Traffic controllers must have their tickets available on site. A Traffic Management Checklist for each worksite shall be completed at the start and finish of each shift. Only trained persons will be given responsibility for worksite signage. (Traffic Management Implementation) Pre-start briefing to ensure all staff are fully aware of the scope of work before work commences. Records must be kept for all work site signing and delineation. Hand held radios available with spare batteries (where required).	L21	All Staff
Set up equipment in TGS sequence.	Struck by passing traffic, Manual handling, damage to vegetation and harm to fauna.	M13	All work will comply with the Manual of Uniform Traffic Control Devices (MUTCD). Use correct lifting technique when erecting signage. Check there is sufficient separation of workers from passing vehicles. Do not walk or unload from trafficked side of vehicle unless appropriate gap in traffic to do so. Ensure any control device applied do not become a potential hazard to workers, pedestrians or vehicles. Signage devices must be clean and in good condition. Signage devices will be set up at correct height and distances as stated in TGS. Local speed shall be reduced to an acceptable level. ⚠ All Traffic Controllers (where used) to have escape route established and identified. All Traffic Controllers shall comply with the Traffic Control Accreditation Scheme. Where Portable Traffic Lights are used, regularly monitor to ensure they are working. Continue to monitor worker / vehicle separation (minimum 1.2m). Once all signs are in place complete a test "drive-through", if required alter signage layout. Limit vehicle movement to the designated access routes, to minimise disturbance to vegetation and surrounding earth and fauna.	L23	Site Foreman/All Staff

Pedestrian Access	Struck by plant, vehicular traffic, slips, trips and falls.	H8	Install safety barriers where necessary to provide safe pedestrian access. ⚠ Where water filled barriers are used ensure they are alternating colours e.g. white, orange, white etc. If required clearly marked pedestrian access ways should be made available for pedestrians. Pedestrian access ways will be made smooth and free from uneven surfaces. Pedestrian access ways crossing kerb and channelling must have non-slip ramps suitable for wheelchairs, baby strollers, pedestrian scooters and aged or disabled persons.	L21	Site Foreman/All Staff
Working next to traffic lane.	Struck by passing traffic.	H8	Ensure all workers have high visibility clothing (day / night works) and that clothing is not faded. Create the work zone as per the TGS and ensure all personnel are at least 1.2 m from the passing traffic and that all workers remain within the work zone, unless traffic has been stopped by traffic controllers. Where works will be undertaken closer than 1.2 meters to traffic, reduce the speed of traffic to 40km/h ensure worker is facing the traffic, where required have a spotter to assist.	L21	Site Foreman/All Staff
Controlling Traffic and pedestrians through job site.	Pedestrians, Traffic control devices removed or relocated, Traffic speed or flow increases, Employee fatigue, Weather or lighting conditions worsen.	H8	Check portable traffic lights and signage devices at periodic intervals and adjust as required. Monitor all pedestrians that pass through work area and ensure they do not enter construction site. Monitor traffic flow and speed. If either increases, discuss options with Site Foreman as to what additional controls are required. Where Traffic Controllers are used, monitor their work hours, work rate and breaks to reduce possible fatigue. ⚠ Traffic Controllers are required to be relieved of their duties every 2 hours for a period of rest or other duties of at least 15minutes. Discuss any changes in weather with Site Foreman and team and adjust TGS as required. If conditions become extreme look at shutting down works.	L21	Site Foreman/All Staff
Removal of Traffic Management Signage.	Struck by passing traffic, Manual handling.	M13	Do not walk or load from trafficked side of vehicle unless appropriate gap in traffic to do so. Use correct lifting technique when dismantling and storing signage.	L23	Site Foreman/All Staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: - SWMS is relevant to the activity and all staff are following as required. - All trip hazards are removed or marked out. - All access / egress areas are clear of obstacles. The Project Manager / Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start / toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

[illegible]

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT – fgf 008

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 53 108 511 637

MANUAL TASKS

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 008 – Manual Tasks
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.:
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino	Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regulation 2011; Manage WHS Risk COP 2021; Hazardous Manual Tasks COP 2021.
Plant and Equipment Required for this Activity: N/A.	Materials Used: SDS Required: ☐ Yes ☐ No.
Personnel Qualifications Required for this Activity: General Safety Induction.	PPE Required: Safety glasses, hi-visibility shirt/vest, steel cap boots
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☒ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: fgf 008 – Manual Tasks

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
Planning	Musculoskeletal injuries	H8	The best way to prevent injuries is to eliminate the manual work by using mechanical devices. ⚠ Wherever possible always use a mechanical aid e.g. trolley, trolley jacks, forklift, gantry crane, backhoe, loader, excavator etc.	L21	All Staff
Working postures	Bending, twisting, sprains and strains	M13	BACK Where possible position materials between thigh and shoulder height. Position tools, machine controls and work items close to eliminate routine horizontal reaches. Place the most used items on your preferred side and within easy reach. Move your feet to turn your whole body, rather than twist your back. HEAD AND NECK Have the working surface high enough so you're not leaning / bending forward. Review levels of light. Inadequate levels of light can contribute to awkward postures. ARMS AND SHOULDERS Avoid working above shoulder height for sustained periods, use a platform to raise the effective height of the worker. Use arm rests to support the forearm during activities requiring sustained reaching. ELBOW AND FOREARM Select tools that do not require the forearm to turn. Avoid rotating the forearms in opposite directions (clothes wringing action). Stabilize one section so movement is needed from only one hand. WRIST, HAND AND FINGERS Use tools or levers that allow the wrist to remain straight. Use jigs (where available) to hold parts in the best orientation to reduce bending the wrist. Avoid working with the wrist bent down when fingers are moving or an object is being gripped. Reduce the requirement to repetitively apply high hand force with a bent wrist by rotating staff. Avoid using pinch grips unless precision is required. Use a hook grip where possible when handling thin items. Avoid sustained gripping requirements in repetitive work that spread fingers and thumb apart. LEGS AND FEET Organise work so low levels of squatting or kneeling are required (comfortable work height). Use a cushioned surface, such as knee pads or padding for kneeling on the floor. Avoid squatting / kneeling in repetitive work (long durations).	L23	Site Foreman/Surveyor

SAFE WORK METHOD STATEMENT – fgf 008

JOB SAFETY ENVIRONMENT ANALYSIS

Repetition and duration.	General fatigue, muscle fatigue, tissue damage.	M13	Rotate activities to help distribute the work load over a larger number of workers to give individuals the chance to recover from fatigue. Plan rotation activities carefully so that the same body parts are not exposed to similar risk factors (if one task stresses the left shoulder, then the next task in the rotation should allow the left shoulder to recover). When undertaking repetitive or heavy work ensure frequent short rest breaks are taken to help prevent fatigue and to allow recovery of body tissues. Reduce stress on muscles and tendons by stretching the working muscles.	L23	Site Foreman/All staff
Vibration	Disrupted blood and oxygen circulation, damaged nerves and tendons, vibration-induced white finger, carpal tunnel syndrome.	M13	Where different people drive the vehicle adjust the suspension seat for the driver's weight. To reduce vibration levels, keep speed low, steer the vehicle to avoid hitting objects and pot holes and use work site routes with the smoothest terrain. Rotate staff so they are not using vibrating tools for more than 4 hours in any one day. To avoid constant continued exposure to vibration, take a short 10minute break per hour. Maintain equipment on a regular basis to minimise vibration.	L23	Site Foreman/All Staff
Hand tool use.	Carpal tunnel syndrome, wrist tendonitis.	M13	Choose tools that can be held with a neutral wrist or handshake position. Tools should be used in either hand so workers can use their preferred hand because it is stronger, faster and more accurate. For repetitive work, change hands, whatever the dominant hand to rest the working limb and reduce the load on that shoulder.	L23	Site Foreman/All Staff
Load handling.	Overexertion, fatigue, back strain	M13	Consider manual lifting or carrying of heavy loads only as a last resort. Where possible modify the load weight, size and shape for easier handling. Ensure the location where the load is to be placed is clear and ready for the load. Where possible conduct all lifts from a comfortable height, not from the ground. The best level of muscular effort can be exerted at about knee height (70 - 80 cm). Ensure feet and body are facing the direction of travel. Bend knees, firmly grasp the load with the back slightly curved slowly raise by straitening the legs, keep the load as close as possible to the body, never twist the back with a load, when lowering the load keep the back straight and lower by bending knees. Use team handling only in emergency situations.	L23	Site Foreman/All Staff
Lower and place / stack objects	Strain the spine and back muscles, stress on back and limbs, Slips, trips and falls, Lacerations, abrasions, fractures and crush injuries	M13	Ensure feet and body are facing the direction the object is to be placed. Bend your knees, keep your back straight and hold the object close to the body. Allow room for your fingers. Be sure the object is secure when placed down. (chock round objects to prevent rolling) Store heavier loads where possible between knee and shoulder height. Store light objects head height or above. All items that require a mechanical aid to move must be placed on the floor.	L21	Site Foreman/All staff



SAFE WORK METHOD STATEMENT – fgf 008

JOB SAFETY ENVIRONMENT ANALYSIS

On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access/egress areas are clear of obstacles. The Project Manager/Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start/toolbox meetings.	Project Manager/Site Foreman
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.	All Staff



SAFE WORK METHOD STATEMENT - fgf 008

JOB SAFETY ENVIRONMENT ANALYSIS

ACTIVITY: fgf 008 – Manual Tasks

I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

Date	Print Name	Company/ Employer	Signature	Date	Print Name	Company/ Employer	Signature

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 – 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT – fgf 009

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN – 53 108 511 637

SURVEY ACTIVITIES

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 009 – Survey Activities
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.: _____
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino, Mike Dillon, Matthew Compton	Reviewed By: Mark Jeynes, Warren McKenzie, Jarryd Londino
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Risks of Haz Chemicals COP 2021; Env Protection Act 1994.
Plant and Equipment Required for this Activity: Motor Vehicle, General hand tools, Theodolite, Tripod, Staff.	Materials Used: Dy-mark Spray & Mark Paint SDS Required: ☒ Yes ☐ No.
Personnel Qualifications Required for this Activity: Surveying Associate.	PPE Required: Safety glasses, hi-visibility shirt/vest, steel cap boots
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☐ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: **fgf 009** – Survey Activities

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
Pre-start	Struck by plant, pedestrians, slips, trips and falls, rollover.	M13	For works completed on road refer to SWMS fgf-005- Work on or Adjacent to a Road . Surveyor to have the minimum required PPE. ⚠ Epirb must be worn when working isolated. Personnel not directly involved with this activity are to be kept clear. Surveyor to visually inspect the site for the safest area to set up and ground is stable. Communicate with plant operators to set up where you are not in their way, using your vehicle as a buffer from plant. Where there is no room for vehicle to be parked near work area, place traffic cones around to identify your (tripod) work area.	L21	Surveyor/All staff
Undertaking Survey Activities.	Slip, trips and falls, damage to vegetation and harm to fauna, struck by plant, damage to theodolite.	H8	Limit vehicle movement to the designated access routes, to minimise disturbance to trees, vegetation and surrounding earth and fauna. Set-up on side of vehicle that is furthest away from plant. Set up tripod, check legs are stable and base is level before placing Theodolite on top.	L24	Surveyor/All staff
Pegging Work Area.	Struck by plant, Injury from tools, noise, manual handling, working in heat.	M13	When working with construction plant, ensure you have eye contact with the operator and he acknowledges he has seen so he is aware of your whereabouts. Use tools correctly and don't use faulty / damaged equipment. Where required, hearing protection shall be worn while working with plant.	L21	Surveyor/All staff
Hazardous Substance /Dangerous goods.	Skin Contact, eye contact, ingestion, inhalation.	M13	Spray Paint will be used for spot levels and mark lines on ground and painting of survey pegs. Spraying will take place in well ventilated areas and standing up wind of the spray.	L24	Surveyor/All staff
All tasks	Sunburn/ dehydration	M16	Drink plenty of fluids to keep hydrated. Where possible take regular breaks, and avoid hot times of day.	L21	Surveyor/All staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: - SWMS is relevant to the activity and all staff are following as required. - All trip hazards are removed or marked out. - All access/egress areas are clear of obstacles. The Project Manager/Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start/toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



SAFE WORK METHOD STATEMENT - fgf 009

JOB SAFETY ENVIRONMENT ANALYSIS

ACTIVITY: fgf 009 – Survey Activities

I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

Date	Print Name	Company/ Employer	Signature	Date	Print Name	Company/ Employer	Signature

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 – 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT - fgf 010

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 53 108 511 637

OPERATING CUT-OFF SAW

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 010 – Operating Cut-off Saw
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.: _____
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino	Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Noise & Preventing Hearing Loss at Work COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019, Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.
Plant and Equipment Required for this Activity: Cut-off Saw, Water.	Materials Used: Petrol SDS Required: ☒ Yes ☐ No.
Personnel Qualifications Required for this Activity: General Safety Induction, Site Specific Induction.	PPE Required: Safety glasses, hi-visibility shirt/vest, steel cap boots, hearing protection, P2 dust mask.
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☐ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: **fgf 010** – Operating Cut-off Saw

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
Pre-start check and starting Cut-off Saw	Risk of injury to personnel or members of the public, injury due to inexperience, incompetent operator, faulty equipment, lacerations, serious bodily harm.	H8	Create an exclusion zone with personnel not involved in the activity kept clear. Personnel operating the saw have been trained and competent in the safe use of the saw. Operator is aware of manufactures instructions and has undertaken a pre-start check of the saw before starting. Choose the correct cutting blade type, make sure it is compatible with the saw, make sure the blade isn't damage and that the blade is fitted correctly and securely. (Consult manufacturers equipment manual if required). Ensure all safety guards are fitted, functional and not tampered with. ⚠ DO NOT wear loose fitting clothing. (shirts tucked in and long sleeves buttoned up). Always work with a spotter in case of serious injury.	L21	Site Foreman/All Staff
Manual Handling	Back/joint strain/injury, muscle strain	M13	Operator is aware of correct lifting techniques. (bend knees, straight back.) When crouching / bending for long periods take a break and stretch.	L21	Site Foreman/All Staff
Operating Cut-off Saw.	Inhalation of fumes, crystalline silica dust, slips, trips and falls, environmental harm, hearing loss, moving parts, serious bodily harm (kickback), death, noise.	H8	⚠ The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³). Where possible stand up wind of demo saw to prevent fume and dust inhalation, water MUST be used for cutting and dust prevention, personnel involved MUST wear a P2 dust mask. All personnel working with the demo saw to wear hearing protection at all times. All personnel NOT directly involved in the activity should stay clear of the works or MUST wear a P2 dust mask and hearing protection. Ensure handles and grips are in good repair and free from grease, oil etc. Inspect area of stance for ground conditions before starting to cut - slope, wet, uneven. Prior to cutting, put in place any environmental controls to prevent slurry runoff from entering pits or stormwater pipes and clean up any slurry after cutting complete. Worker must assume a comfortable cutting position with firm footholds and a firm two-handed grip on the saw. Never reach or cut above shoulder height. Begin cutting and continue at full throttle. Use caution when re-entering a previous cut. Ensure water is on blade at all times while cutting. Be alert for shifting or other forces causing the cut to close and pinch the blade.	L21	Site Foreman/All Staff

SAFE WORK METHOD STATEMENT – fgf 010

JOB SAFETY ENVIRONMENT ANALYSIS

			Check cutting area for foreign objects prior to cutting. Always stand to the side of the cutting path of the demo saw. Operate cut-off saw within permitted site hours to reduce chance of noise complaint. Run cut-off saw only when required, shut off and report excessively noisy equipment. Stop Cut-off saw and allow to cool down before refuelling.		
High Temperature Refuelling.	Serious bodily harm, fire, fuel spills, burns.	M13	⚠ NO SMOKING or NAKED FLAMES during the refuelling process. Ensure any Oil / Fuel spills are cleaned up immediately. Never remove filler cap whilst engine is running. Move at least 3m from refuelling spot before re-starting. Avoid bodily contact with muffler and any other hot parts.	L21	Site Foreman/All staff
Hazardous Substance /Dangerous goods.	Skin Contact, eye contact, ingestion, inhalation.	M16	Petrol will be used for refuelling the Cut-off saw. Refuelling shall take place in a well ventilated area.	L23	Site Foreman/All Staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access/egress areas are clear of obstacles. The Project Manager/Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start/toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

[illegible]

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
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Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
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Possible	Could occur
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Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
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Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT - fgf 013

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 53 108 511 637

PLACING AND FINISHING CONCRETE

Workplace Location: Bluewater Estate Stages 18, 22 & 23

Task/ Activity: fgf 013 - Placing and Finishing Concrete

Employer: fgf Developments Pty Ltd

Date Reviewed: March 2021

Revision No.:

Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino, Warren McKenzie

Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie

Personnel Responsible for Monitoring this Activity:

Brendan Rogina, Warren McKenzie, Bert Pajor

Codes of Practice/ Standards Consulted and to be complied with:

WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Excavation Work COP 2021; Managing Risks of Haz Chemicals COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019, Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.

Plant and Equipment Required for this Activity: Backhoe/Loader, Generator, Power Leads, Dump Trucks, Excavator, Concrete truck, Power Float Level, General Hand Tools, Concrete Boom Truck.

Materials Used: Petrol, Cement, Bedding Sand, Visqueen, Wood Screws, Lyndons Multicure R

SDS Required: ☒ Yes ☐ No.

Personnel Qualifications Required for this Activity: HR Truck Licence, Appropriate plant operators tickets or VOC from registered RTO.

PPE Required: Safety glasses, hi-visibility shirt/vest, steel cap boots, hearing protection, P2 dust mask.

Specific Training Required for this Activity: Concrete pumping.

Nil

Control Categories Considered (Tick all those considered - ☒):

☐ Design/ Redesign

☐ Substitution

☐ Engineering

☒ Administration

☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: **fgf 013** – Placing and Finishing Concrete

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
	Underground services, Operation of Construction Plant	H8	Before any excavation works are undertaken Refer to and sign onto SWMS fgf 000 Locate and Pothole Services for underground services that may be present. Refer to SWMS fgf-003 Working With - Operation of Construction Plant	L21	All Staff
Mark out location for concrete works and excavate.	Struck by plant, vehicular traffic, muscle strain.	M13	Location of area to be excavated will be marked out by Site Foreman / Surveyor. No construction plant or other traffic to be operated while the above activity is being undertaken. Refer to SWMS fgf-004 Excavation / Trenching Works	L21	Site Foreman/Surveyor
Deliver and place bedding sand in excavation.	Struck by plant, rollover, vehicular traffic, pedestrians.	M13	Delivery driver to communicate with Site Foreman and dump sand at locations as indicated and as close as possible to the work area. Delivery driver to keep a lookout for pedestrians and vehicles near the delivery zone. Driver to visually inspect the dumping area for uneven / unstable ground (potential rollover) while entering site and prior to dumping material. Material will be dumped from trucks while slowly driving forward. Before reversing and dumping sand, operator to check area is clear behind and shall have a spotter in place to assist. The backhoe / excavator will spread the sand within the excavation to nominated depth.	L21	Site Foreman/All staff
Setting up Formwork.	Manual handling, impalement, slips, trips and falls.	H8	Formwork will be laid out beside excavation to ensure correct length. Mini star pickets will be driven using sledge hammer for supports for the formwork. This activity to be rotated by staff to reduce manual task injuries. Any star pickets that protrude above the top of the formwork shall have end caps fitted. Formwork will be attached to star picket using wood screw and cordless drill. Once formwork is in place bedding sand will be hand screeded to the required height. Black visqueen is to be placed over the sand.	L21	Site Foreman/All staff
Placing reinforcing mesh.	Manual handling, cuts, slips, trips and falls.	M17	Reinforcing mesh will be placed in the excavation as indicated on drawings. Safety gloves should be worn at all times whilst handling mesh. Where mesh has to be cut mesh cutters will be used. Sharp ends of any mesh that has been cut and is not used in the excavation should be hammered flat to reduce chances of being cut. Bar chairs will be put into place prior to the concrete pour commencing to reduce tripping hazards.	L23	Site Foreman/All staff

SAFE WORK METHOD STATEMENT – fgf 013

JOB SAFETY ENVIRONMENT ANALYSIS

Placing Concrete	Pedestrians, slips, trips and falls, rollover, manual handling, runoff into waterways or drainage systems, working in heat.	H8	On entry to work area Concrete truck driver to look for any pedestrians which may approach. Concrete truck driver to check area is clear behind before reversing or have a spotter to assist. Concrete will be discharged into the form work and spread using shovels, concrete vibrator and screeded to level. A bull float will be used to run over the concrete to give a smooth finish. The above tasks are to be rotated where possible with regular breaks to reduce over exertion. Concrete trucks to wash-out in designated wash out areas or back at concrete batch plant. Take regular breaks, wear sun screen and maintain fluids. ⚠ Where concrete is pumped SWMS must be requested from Pump Operator.	L23	Site Foreman/All staff
Finishing concrete.	Manual handling, cuts, slips, trips and falls.	M16	Once concrete has started to go off it will be surface finished with a power float. This activity will be undertaken by a person who is competent in the use of a power float.	L25	Site Foreman/All staff
Cutting in contraction joints.	Injury from tools, injury/manual handling, noise, electrocution.	H8	All electric leads and power tools must be in test and tag date and plugged into RCD and then plugged into the generator. Where contraction joints are required, all cuts MUST be completed with a dustless method , either a wet cut (see SWMS for Operating Cut-Off Saw) or dry cut using a circular saw fitted with a dead man switch, a diamond blade and vacuum cleaner fitted with HEPA H14 filter. Where possible stand up wind of the saw to prevent dust inhalation, wear adequate hearing protection and a P2 dust mask must be worn.	L21	Site Foreman/All staff
Penetrations in finished surface.	Trips and falls	H8	Penetrations left in the slab for poles or other items must be covered with a flush, tight fitting, trafficable cover so as to prevent a trip hazard. Covers should be painted in a bright colour and be marked with the words 'Danger Hole Under' or 'Danger Penetrations Below' or similar.	L18	Site Foreman/All Staff
Hazardous Substance /Dangerous goods.	Skin Contact, eye contact, ingestion, inhalation, chemical handling and spills.	M16	Petrol used for refuelling the generator, concrete vibrating needles and power float. Refuelling shall take place in a well ventilated area and only after the item has cooled down. Cement: personnel to have the required PPE to reduce contact with eyes. Lyndons Multicure R curing compound : applied to the finished surface of the concrete by spraying. Standard site PPE is all that's required and ensure used in a well ventilated area.	L23	Site Foreman/All Staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: - SWMS is relevant to the activity and all staff are following as required. - All trip hazards are removed or marked out. - All access/egress areas are clear of obstacles. The Project Manager/Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start/toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



SAFE WORK METHOD STATEMENT - fgf 013

JOB SAFETY ENVIRONMENT ANALYSIS

ACTIVITY: fgf 013 – Placing and Finishing Concrete

I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

Date	Print Name	Company/ Employer	Signature	Date	Print Name	Company/ Employer	Signature

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT - fgf 014

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 53 108 511 637

CLEAR AND GRUB USING MOBILE PLANT

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 014 - Clear and Grub Using Mobile Plant
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.: _____
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino, Warren McKenzie	Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Noise & Preventing Hearing Loss at Work COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019, Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.
Plant and Equipment Required for this Activity: Excavator, Loader, Grader, Dump Trucks, Roller.	Materials Used: SDS Required: ☐ Yes ☐ No.
Personnel Qualifications Required for this Activity: Appropriate plant operators tickets or VOC from registered RTO.	PPE Required: Safety glasses, hi-visibility shirt / vest, steel cap boots
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☐ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: **fgf 014** – Clear and Grub Using Mobile Plant

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
Pre-start	Underground/overhead services, struck by plant, traffic (pedestrians and vehicular).	H8	⚠️ Check for overhead power lines prior to undertaking any works. All plant shall avoid parking under overhead power lines. Refer to SWMS fgf-000 - Locate and Pothole Services for underground services prior to excavation. Where overhead/underground services are present refer to SWMS fgf-001 - Work Near Overhead Electrical Services / SWMS fgf-002 – Excavation Near Underground Essential Services. Refer to SWMS fgf-003 - Working With - Operation of Construction Plant. Where Chainsaw to be used to fell or cut trees refer to SWMS fgf-027-Operating Chainsaw. Separate work activities and enforce exclusion zone around plant undertaking clearing activities. Only personnel directly involved with this activity to be with-in the exclusion zone.	L21	All Staff
Mark out location for clear and grub works.	Over clearing, native fauna harmed.	L21	Location of area to be cleared will be marked out be Site Foreman to ensure no over clearing.	L25	Site Foreman/Surveyor
Clearing operations	Struck by plant, rollover, slips trips and falls, noise, disposal of spoil in wrong area causing environmental harm, runoff into waterways and drainage systems, cultural heritage significance, damage to vegetation and harm to fauna, fuel spillage, hydraulics, working in heat.	H8	Operators to undertake visual inspection of the area for uneven ground (potential rollover). Personnel operating plant MUST wear the seatbelt (where fitted). ⚠️ The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³). Plant operators MUST always keep cabin door closed during operation to assist with controlling dust and noise inhalation (engine noise). If doors or windows are open during operation the operator should wear adequate hearing protection and MUST wear a P2 dust mask. Where possible, face plant up wind, so wind is blowing dust away from plant. Staff on foot working around plant in operation should stand up wind of dust or MUST wear a P2 dust mask. The excavator will be used to push the trees from approximately 2/3 the way up the tree to knock it over. The ground will be cleared, grubbed and levelled using a grader. If required use the excavator to remove any large rocks or stumps. A Loader / Excavator will be used to load cleared material into truck for removal from site. Truck driver to stay in truck cab at all times whilst getting loaded.	Clearing operations	Site Foreman/All staff

			Dump trucks not to be overloaded. Limit dump truck movement to the designated access routes, to minimise disturbance to trees, vegetation and surrounding earth and fauna. Spoil disposal area to be away from drains and waterways to prevent possible escape. A silt fence will be erected on the downhill side of the works. Items appearing to be of cultural significance will be protected from harm and the site foreman must be notified immediately. Where fauna is spotted, clearing is to cease in that area until a decision on what actions to take are made by the client. A spill kit is located on site for any hydraulic hose bursts with all fgf staff trained in spill response and are aware of correct disposal process. Operate plant / equipment within permitted site hours to reduce chance of noise complaint. Run motors and equipment only when required, shut off and report excessively noisy machinery. All workers to take regular breaks, wear sun screen and maintain fluids.		
Rolling surface with Compactor/Vibrating Roller	Crushing, moving parts, working with plant, noise.	M16	Wear hearing protection (ear muffs or ear plugs) if in a hearing protection required zone. Operators to undertake visual inspection of the work area for pedestrians, fauna and uneven ground (potential rollover) while entering site and prior to rolling material. Personnel operating plant MUST wear the seatbelt (where fitted). Once work area is clear of the grader and personnel, the roller shall compact material. Before reversing operator to check area is clear behind.	L21	Site Foreman/All staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access/egress areas are clear of obstacles. The Project Manager/Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start/toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



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Date	Print Name	Company/ Employer	Signature

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

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STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
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3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK METHOD STATEMENT - fgf 015

JOB SAFETY ENVIRONMENT ANALYSIS

fgf Developments Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 67 102 951 039

fgf Bitumen Pty Ltd
Unit 5, 2 James Street, North Cairns
PO Box 6665, CAIRNS QLD 4870
Ph:07 4041 4350 ABN - 53 108 511 637

LAYING PIPES

Workplace Location: Bluewater Estate Stages 18, 22 & 23	Task/ Activity: fgf 015 - Laying Pipes
Employer: fgf Developments Pty Ltd	Date Reviewed: March 2021 Revision No.:
Personnel Consulted on Development of SWMS: Mark Jeynes, Jarryd Londino, Warren McKenzie	Reviewed By: Mark Jeynes, Jarryd Londino, Warren McKenzie
Personnel Responsible for Monitoring this Activity: Brendan Rogina, Warren McKenzie, Bert Pajor	Codes of Practice/ Standards Consulted and to be complied with: WHS Act 2011; WHS Regs 2011; Manage WHS Risks COP 2021; Haz. Manual Tasks COP 2021; Managing Risks of Plant in the Workplace COP 2021; Managing Risks of Haz Chemicals COP 2021; Env Protection Act 1994; Env Protection (Air) Policy 2019, Env Protection (Noise) Policy 2019; Env Protection (Water & Wetland Biodiversity) Policy 2019.
Plant and Equipment Required for this Activity: Excavator, Backhoe, IT Loader, Dump Truck.	Materials Used: Iplex PVC Cement Green / Blue, Iplex Priming Fluid Red
	SDS Required: ☒ Yes ☐ No.
Personnel Qualifications Required for this Activity: HR Truck Licence, Appropriate plant operators tickets or VOC from registered RTO.	PPE Required: Safety glasses, safety helmet, hi-visibility shirt/vest, steel cap boots
Specific Training Required for this Activity: Nil	

Control Categories Considered (Tick all those considered - ☒): ☐ Design/ Redesign ☐ Substitution ☐ Engineering ☒ Administration ☒ Personal Protective Equipment

I / We hereby accept this statement and confirm that the documented precautions / controls will be complied with.

Bert Pajor

Site Foreman

Name

Position

Signature

Date

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE JOB SAFETY AND ENVIRONMENT ANALYSIS EXPLAINED TO THEM PRIOR TO START OF WORKS

ACTIVITY: fgf 015 – Laying Pipes

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure management method is applied)
	Overhead/Underground services, Operation of Construction Plant	H8	Before excavation works are undertaken Refer to and sign onto SWMS fgf 000 Locate and Pothole Services for underground services that may be present. Refer to SWMS fgf-001-Work Near OH Electrical Service Refer to SWMS fgf-002-Excavation Near UG Essential Services Refer to SWMS fgf-003 - Working With - Operation of Construction Plant	L21	All Staff
Mark out location for trench / excavation	Struck by plant, vehicular traffic, muscle strain	M13	Location of trench / excavation marked out be Site Foreman / Surveyor. No construction plant or other traffic to be operated while the above activity is being undertaken.	L23	Site Foreman/Surveyor
Excavate trench / excavation using excavator / backhoe	Struck by plant, vehicular traffic, pedestrians, collapse of excavation.	H8	Create a swing / exclusion zone of approx. 3 metres with only persons undertaking works permitted in the area. ⚠ All personnel working in the 3m swing / exclusion zone or any excavations MUST wear a safety helmet, the plant operator MUST stop work until safety helmet is worn. Refer to SWMS fgf-004-Excavation / Trenching Works.	L21	Site Foreman/All staff
Deliver and place bedding sand in trench with IT Loader.	Struck by plant, rollover, vehicular traffic, pedestrians, driving into excavation, engulfment from sand.	H8	Delivery driver to communicate with Site Foreman and dump sand at locations as indicated. Delivery driver to keep a lookout for pedestrians and vehicles near the delivery zone. Driver to visually inspect the dumping area for uneven / unstable ground (potential rollover) while entering site and prior to dumping material. ⚠ The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³). Where possible, face plant up wind, so wind is blowing dust away from plant. Staff on foot working around plant in operation should stand up wind of dust or MUST wear a P2 dust mask. Materials will be dumped from trucks while slowly driving forward and stockpiled at a location close to the trench but no closer than 3.0m from edge of trench. IT loader / excavator to keep 1.5m back from edge of the trench while placing bedding sand in trench, where trench is deeper than 1.5m an excavator should be used to place sand in the trench. Personnel in trench spreading sand MUST stand clear of the excavator / loader bucket while sand is being placed in trench.	L21	Site Foreman/All staff

Delivery of pipes using IT Loader and placing pipes in excavation using excavator / franna crane / by hand.	Manual task, loss of load, crushing, rolling pipes.	M13	⚠ Water pipes / conduit will be laid beside the trench by hand and lifted into trench as required. Staff are aware of correct lifting techniques. (bend knees, straight back.) Concrete / Dicl Pipes should be moved to the work area with the IT loader by sliding the forks into the centre of pipe to the full length of the forks. ⚠ Care to be taken not to damage the pipes. Pipes will be stacked near the work area and should be secured so they can't roll. Personnel in trench MUST stand clear of the pipe while it is being lowered in trench. The excavator (with burst protection fitted) will be used to lift the pipes into place with a lifting chain that is tested and tagged, once in place sand shall be shovelled into the underside of pipe to prevent it from rolling. Where a Franna crane is being used to place pipes, all loads MUST be slung by a certified dogman.	L23	Site Foreman/All staff
Backfill to pipes / trench	Struck by plant, engulfment, dust, noise.	H8	Personnel in trench directing IT loader operator placing sand MUST stand clear of the machine bucket while sand is being placed in trench. Where backfill material is sand the sand will be flooded to allow for settlement. Backfill material will be rolled and compacted using a vibrating roller / trench roller. Water truck will be available to control dust issues. Wear adequate hearing protection (ear muffs or ear plugs) where required.	L21	Site Foreman/All staff
Hazardous Substance /Dangerous goods.	Skin Contact, eye contact, ingestion, inhalation.	M16	Iplex PVC Cement and Iplex Priming Fluid will be used for conduit joints.	L23	Site Foreman/All Staff
On- going Monitoring	Before work starts each day, site inspections to be completed by Project Manager or delegated officer to ensure that: • SWMS is relevant to the activity and all staff are following as required. • All trip hazards are removed or marked out. • All access / egress areas are clear of obstacles. The Project Manager / Site Foreman shall carry out regular inspections of the activity to ensure it complies with this SWMS. SWMS will be reviewed during pre-start / toolbox meetings.			Project Manager/Site Foreman	
Emergency Procedure	Raise the alarm by notifying your Supervisor and Project Manager immediately, follow any instructions given. Where a person is injured, provide assistance (where safe to do so) and stay with the injured person until emergency services arrive and take over. Follow any instructions given to you by emergency services and police. Do not move any item at the scene except to save a life or relieve suffering or to prevent injury to a person or property damage.			All Staff	



I / We acknowledge that I / We have had input into the development of, fully understand and agree to abide by the control measures set out in this SWMS / JSA, otherwise work is to cease immediately.

[illegible]

STEP 1 – CONSIDER CONSEQUENCES

What are the consequences of this hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard.

	OHS	Environmental	Quality complaint / rework / plant, property damage.
Extreme	Fatality or permanent disability, Life threatening event	Immediate, serious long term harm, high potential for adverse publicity and potential DEHP prosecution	Extreme financial impact > \$500K for actual rework, property / equipment damage, loss
Major	Reported as Lost Time Injury (LTI) (lost days duration 4 days or more, potential for permanent disability); Potential life threatening event, Potential for OHS prosecution	Offsite impact and DEHP reportable incident (offsite = effecting neighbouring property soil, water etc.), Measurable environmental harm penalised by DEHP	Major financial impact between \$50K and \$500K for actual rework, property / equipment damage, loss
Moderate	Injury reported LTI for 1-3 days, Injury as defined for medical lost time injury with restricted duties	Localised impact (contained within site boundary), Reportable to DEHP with infringement potential, Reported as an significant incident internally	Moderate loss between \$10K and \$50K rework, client complaint
Minor	Injury reported as medical injury, no restricted duties/ lost time, Technical breach/infringement of OHS Regulation	Minor impact - immediate containment/control, Potential harm to environment, some clean up, Reported as an incident internally	Minor between \$1K and \$10K loss or damage, rework, client complaint
Insignificant	Injury reported as First Aid Case, minor illness	Negligible impact or temporary inconvenience, Not requiring DEHP notification, Reported as an minor incident internally	Less than \$1K loss or damage

STEP 2 – CONSIDER LIKELIHOOD (What is the likelihood (below) of the hazard consequence in Step 1 occurring?)

Almost Certain	Expected to occur in most circumstances/ repeating
Likely	Known to occur, or it has happened
Possible	Could occur
Unlikely	Event could occur at some time
Rare	May occur only in exceptional circumstances/ rare

STEP 3 – CALCULATE RISK

1. Take Step 1 rating and select the correct column.
2. Take Step 2 rating and select the correct row.
3. Use the risk score where the two ratings cross on the matrix below.

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
Almost Certain	M-15	H-10	E-6	E-3	E-1
Likely	L-19	M-14	H-9	E-5	E-2
Possible	L-22	M-17	M-13	H-8	E-4
Unlikely	L-24	L-21	M-16	M-12	H-7
Rare	L-25	L-23	L-20	L-18	M-11

		Identify the hazards or risks of the work. Assess the likelihood and consequences from the hazards or risks. Control the hazards or risks using control options.
Legend		Control Options
1 – 6 E	Extreme risk, Do not proceed until all hazards are eliminated or reduced to moderate risk.	ELIMINATE - eliminate the process, material or substance completely. SUBSTITUTE - replace the process, material, equipment or substance with a safer one.
7 – 10 H	High risk, Control measure need to be implemented to reduce risk to moderate.	ISOLATE - Isolate the person(s) from the process, material or substance.
11 – 17 M	Moderate risk, Control measures implemented to reduce risk to as low as possible.	ENGINEER - design or re-design the process, plant, equipment or premises.
18 - 25 L	Low risk, Ensure nominated control measures are in place.	ADMINISTRATE - limit exposure to risk - job rotation, procedure, training.



SAFE WORK INSTRUCTION – SWI 1

SITE CONDITIONS

Hazard: General Site Conditions

- Risk:**
- Slippery / steep tracks causing injury and damage.
 - Untidy work areas injury and damage.
 - Plant or personnel making contact with underground / overhead power lines.
 - Personnel / plant falling into the trench causing fractures and lacerations.

- Keep travel speed slow enough to maintain control at all times (20km/h site speed limit).
- Don't drive plant close to the edge of a trench / excavation / batter / bench / quarry face.
- Drive to the site speed limit and weather conditions. (Drive slower in wet and slippery conditions)
- Wear seat belt if fitted.
- Personnel moving close to or behind plant are to watch the operator and make eye contact to ensure they have been seen.
- Obey warning signs erected around the site.
- High visibility shirts / vests are to be worn at all times.
- All work areas are to be kept clean and clear of trip hazards. Remove all tools, leads etc. when not in use.
- Access and egress is to take into account the use of tools, plant and equipment.
- Ensure there is access and egress for emergency vehicles available at all times.
- At the start of each project or before the commencement of works the Site Supervisor is to assess the site to determine the location of any overhead power lines.
- Obtain plans of services from Dial-before-you dig (call 1100).
- Set out locations on site.
- Check locations coincide with surface markers, pits, hydrants, poles, meters etc.
- Any trench or excavation deeper than 1m left unattended must be barricaded.
- All trenches and or excavations left opened overnight or longer must be barricaded.
- Be aware of your surroundings e.g. plant working near by, open excavations, vehicles passing near by and general activities on site.

PPE:

Long Sleeve Shirt	☒	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☐
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 2

EYE PROTECTION

Hazard: Working with small plant / hand tools / flying objects from construction activities.

Risk: Eye injury, loss of eye sight

- Safety glasses are to be worn where there is a possibility of eye injury, by physical or chemical agents or by light radiation or when a risk assessment identifies the requirement.
- At all times, suitable eye protection equipment will be available to all employees who work in situations where eye protection is required.
- Eye protection is to be selected, fitted and used with regard to the type of hazard and the optical condition of the user.
- Glasses must be worn whenever using drilling, cutting, breaking or grinding machines or tools, in the workshop or on the work sites.
- In some cases double eye protection (safety glasses with a face shield) may be required to prevent flying particles for getting under or around the safety glass.
- The use of demolition saws, concrete cutting saws and compressor attachments such as drills and jack hammers are dangerous and eye protection shall be worn at all times.
- Tinted safety glasses are to be worn to protect against UV radiation.
- Safety glasses are to be maintained and cleaned regularly.
- Scratched or damaged eye protection is to be replaced.
- Where there is a possibility of glasses falling off, head strap or lanyard is to be worn.
- Face shields are to be worn when there is a risk of injury from flying particles, sprays of hazardous liquids, splashes of molten metal and hot solutions.
- As required safety glasses and chemical goggles are to be worn under the face shield.
- Appropriate eye protection is to be worn when Welding / Oxy Cutting.
- Welding is dangerous to the eyes. All Welders shall use screens or position themselves behind screens.
- In addition to the above mentioned activities, any other activity which may be dangerous to the employee's eyes, shall be discussed with the site HSEQ officer, safety committee or management and protection shall be provided.

REFUSAL TO WEAR SUPPLIED PROTECTIVE GLASSES IN THE ABOVE SITUATIONS MAY RESULT IN DISMISSAL TO PROTECT THE EMPLOYEE FROM INJURY AND THE COMPANY FROM EXCESSIVE CLAIMS AT A LATER DATE.

EYE DAMAGE CANNOT BE REPAIRED SO MAKE SURE YOUR PERSONAL PROTECTION EQUIPMENT IS USED AND IS KEPT IN GOOD CONDITION.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☐	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☐	Goggles	☒	Dust Mask	☐	Overalls	☐	High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 3

EXPOSURE TO NOISE

Hazard: Working in noisy conditions
Risk: Tinnitus, Noise induced hearing loss

REDUCING NOISE ON SITE IS EVERYONE'S RESPONSIBILITY, WEARING HEARING PROTECTION IS THE LAST OPTION, THE BEST OPTION IS TO REDUCE THE NOISE AT THE SOURCE.

Administrative Control

- Noisy plant and equipment can be a sign of damage, wear, etc. Regular maintenance is to be carried out.
- Noisy plant or equipment is to be enclosed with sound absorbing material where possible.
- Schedule noisy work when least number of persons are present if possible.
- Training is to be carried out in regard to safe use, fitting and maintenance of hearing protection.

Worksite Controls

- Obey warning signs to keep away from noisy operations.
- Use a quieter process, such as pressing or bending instead of hammering.
- Wear hearing protection, earmuffs, ear plugs that are comfortable and suitable.
- To avoid infection or disease don't share hearing protection.
- Take regular breaks when working in noisy environments or using noisy plant or equipment.
- Hearing protection is to be the correct type to reduce noise exposure to acceptable levels.
- Report any hearing problems, ringing in the ears etc. as soon as possible.
- Machine operators or employees exposed to dangerous noise levels from machines or work practices shall wear the protection at all times while exposed to the noise. Excavators with rock breaking hammers, compressors with jack hammers, vibrating rollers and operations such as loading rock onto trucks, are all dangerous to hearing. If an employee is not working directly with the machine they shall keep a reasonable distance (at least 10 metres) away from the noise.
- When in the Workshop at all times be aware of other workers when cutting, grinding or when using equipment with excessive noise.

Note: If working with a Loader or Grader stand always to side or front of machine in view of the operator, not at rear. It is not safe to wear hearing protection and stand at rear.

REFUSAL TO WEAR PROTECTION IN SITUATIONS WHICH ARE DANGEROUS TO HEARING COULD RESULT IN DISMISSAL TO PROTECT THE EMPLOYEE FROM INJURY AND THE COMPANY FROM EXCESSIVE CLAIMS AT A LATER DATE.

HEARING DAMAGE CANNOT BE REPAIRED SO MAKE SURE YOUR PERSONAL PROTECTION EQUIPMENT IS USED AND IS KEPT IN GOOD CONDITION.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☐	Hard Hat	☐	Safety Glasses	☐
Hearing Protection	☒	Goggles	☐	Dust Mask	☐	Overalls	☐	Gloves	☐
								High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 4

PERSONAL PROTECTIVE EQUIPMENT

Hazard: Carrying out work which requires the use of PPE

Risk: Increased risk of injury due to the use of inappropriate or ineffective PPE

Foot Protection

- Safety footwear **MUST** be worn at all times on project sites / TopRock Quarry.
- Safety footwear is to be properly fitted.
- Safety footwear is to be kept in good repair.
- Worn or damaged footwear is to be replaced.
- Don't allow soles to become covered in mud, grease etc.
- **fgf** does not approve 'Fashion' type safety footwear for use.

Head Protection

Safety helmets **MUST** be worn when:-

- **At all times when on-site at TopRock Quarry**
- Working in trenches or excavations e.g. manholes, sewers, chambers, stormwater
- When working together with a machine that is able to rotate, lift, carry or load trucks such as excavators, backhoes, track loader, front end loader, crane, or forklift.
- When working in designated areas where the wearing of helmets is mandatory and signposted.
- Wherever it is a specified condition from the client or authority.
- Working below steel erection, scaffolding, cranes, hoists, vehicles being loaded / unloaded etc., where a possibility of being struck by falling objects exists.
- Safety helmets are to be kept in clean condition and replaced when damaged.
- Contact with substances such as petrol, cleaning agents, paint, adhesives is to be avoided as this may damage the helmet.
- Wide brims are to be attached during periods of high exposure to UV rays.
- Safety helmets are not to be painted.
- Holes are not to be drilled in safety helmets.
- Safety helmets subject to penetration, high impact or extreme heat are to be scrapped.

EMPLOYEES MUST ENSURE THEY NEVER WORK UNDER MACHINE BUCKETS, ATTACHMENTS OR LOADS SUSPENDED FROM MACHINES. WHILE EMPLOYEES ON THE GROUND NEED TO FOLLOW THIS PRECAUTION, OPERATORS SHOULD ENSURE THEY DO NOT LOAD OR LIFT ABOVE ANY EMPLOYEE.

Hand Protection

Gloves are to be worn to protect against abrasions, hot / cold surfaces, electric shock, infections and disease, contact with hazardous substances, vibration, fire, slipping or when a risk assessment identifies the requirement.

- Gloves are to be worn when handling hazardous substances in accordance with the Safety Data Sheets.
- Damaged or worn gloves are to be replaced as soon as possible.
- Don't wear gloves when operating equipment where gloves may be caught.
- Types of gloves are:-
 - Heat resistant,
 - Rubber moulded for protection from chemicals,
 - Leather gloves for protection from abrasions,
 - Welding gloves for protection from sparks and slag.

Eye and Face Protection

Safety glasses are to be worn where there is a possibility of eye injury, by physical or chemical agents or by light radiation or when a risk assessment identifies the requirement.

- Eye protection is to be selected, fitted and used with regard to the type of hazard and optical condition of the user.
- Appropriate eye protection is to be worn when welding.
- Tinted safety glasses are to be worn to protect against UV radiation.
- Safety glasses are to be maintained and cleaned regularly.
- Scratched or damaged eye protection is to be replaced.
- Face shields are to be worn when there is a risk of injury from flying particles, sprays of hazardous liquids, sparks and hot solutions.
- As required safety glasses and chemical goggles are to be worn under the face shield.



SAFE WORK INSTRUCTION – SWI 4

PERSONAL PROTECTIVE EQUIPMENT

Protection from collision with plant and other traffic

- High visibility vests / shirts are to be worn when there is a risk of collision between employees and internal or external plant or vehicles.
- During hours of darkness retro-reflective vests are to be worn.
- Vests are to be worn over clothing, not hidden by coats, jumpers etc.
- The vests are to be done up at all times.
- Wear vests that are comfortable, the correct size and fit for unrestricted movement.
- Vests are to be maintained in a good and clean condition.
- Damaged or faded vests are to be replaced as soon as possible.

Hearing Protection

Hearing protection is to be worn when exposed to excessive noise from plant and equipment such as hammer drills, explosive power tools, breakers, high speed cutting machines, etc., or when a risk assessment identifies the need.

- Hearing protection can be either earplugs or earmuffs.
- Hearing protection is to be adequate to reduce noise exposure.
- Hearing protection is to be maintained in a clean and hygienic condition.
- To avoid infections don't share hearing protection.
- Take regular breaks from noisy tasks.
- Report any hearing problems, ringing in the ears etc. as soon as possible.

Protective Clothing

- Protective clothing is to be worn in wet conditions or when working with hazardous or contaminated materials or when a risk assessment identifies the possibility of bodily contact.
- Waterproof clothing is to have light reflective features.
- Protective clothing is not to be tight or loose fitting.
- Is to be suitable for the task e.g. non-flammable, anti-static, chemical proof etc.
- Is to be removed from site and cleaned regularly.
- Torn, damaged or faded protective clothing is to be replaced.

Respiratory Protection

- The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³).
- Plant operators **MUST** always keep cabin door closed during operation to assist with controlling dust inhalation.
- If doors or windows are open during operation the operator **MUST** wear a P2 dust mask and where possible face plant, so wind is blowing dust away from plant.
- Ground staff working around plant that is producing dust during operation are required where possible to move away and stand up wind of dust, if this is not possible a P2 dust mask **MUST** be worn.
- Water truck provided to control dust on site.
- Mist spray fitted to conveyor belt to assist with dust control.
- Checks that door seals are in good condition (not broken or cracked) and air conditioners filters cleaned.
- P2 dust mask to be worn by ground staff working around crusher while plant is in operation and where possible stand up wind of dust.
- Regular health monitoring (every 5 years) for staff working at TopRock Quarry.

Non-Negotiable PPE for fgf Bitumen Personnel

PPE – (Non-Negotiable) shall be worn during the following activities (operating and / or maintaining plant and / or equipment and / or carrying out any manual handling tasks on site or within the depot or during required working hours) excludes travelling to and from site.

- Steel capped safety boots.
- Long sleeved shirts, sleeves rolled down and / or buttoned up.
- Trousers (must overlap safety boots).
- Additional PPE may be required for handling hazardous substances in accordance with the applicable SDS.

PPE:

Long Sleeve Shirt	☒	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☒
Hearing Protection	☒	Goggles	☒	Dust Mask	☒	Overalls	☐	Gloves	☒
								High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 5

FITNESS FOR WORK

Hazard: Person at work with an existing injury or illness

Risk:

- Aggravation of existing injury or illness
- Further injury or illness

- Personnel attending work with an existing injury or illness e.g. severe headache, are to be mindful of effects such as lack of concentration that may compromise their ability to work safely.
- If a person is unable to work safely due to an existing injury or illness they are to stop work and discuss the matter with their supervisor.

Hazard: Consumption of prescribed drug

Risk: Lack of concentration, impaired judgement or drowsiness caused by the drugs side effects

- Any person that attends work and is taking a prescribed drug that has drowsiness etc., as a side effect is to report the matter to the Supervisor.
- The Supervisor is to discuss the matter and seek further medical opinion as necessary.
- If it is considered that use of the drug will affect the person's ability to work safely then the person is to be given alternative duties or sent home.

Hazard: Consumption of alcohol and illegal drugs

Risk: Lack of concentration, impaired judgement or drowsiness

- Civil Construction work involves hazardous work such as operating dangerous plant and equipment, working at heights, confined spaces, excavation work etc.
- Drugs and alcohol can impair concentration, co-ordination and increase the risk of injury to yourself and others.
- Alcohol or illegal drugs are banned from the workplace. It is an offence under the various State Safety Legislation:-
 - To bring alcohol or illegal drugs to the workplace.
 - To consume alcohol or illegal drugs at work.
 - To report to work whilst under the influence of alcohol or illegal drugs.
- Persons in breach of the above legislation will be subject to disciplinary action.
- Any incident involving alcohol or drugs is to be reported to management.

Hazard: Worker is Fatigued

Risk: Inability to concentrate, impaired judgement or drowsiness, headaches

- Where possible working hours shall be from 6:00am to 6:00pm which shall include any travel to and from site as well as required meal breaks (Smoko's and Lunch).
- These hours are to be limited to 5 days a week allowing personnel 2 complete days to recover.
- All personnel are required to have regular breaks to rest, eat and rehydrate.
- Personnel should advise their supervisor when they are feeling fatigued.
- They should avoid undertaking safety critical tasks when they know it is likely they are fatigued.
- Where personnel present themselves as being fatigued to their Immediate Supervisor, they shall be accompanied to their home or suitable accommodation shall be provided for them to recover.

You have an obligation to do what is reasonably practical to protect your own Health and Safety and that of others by not being effected by any drug or alcohol at work.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☐	Hard Hat	☐	Safety Glasses	☐
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Overalls	☐	Gloves	☐
								High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 6

OPERATING CONSTRUCTION PLANT

Hazard: General Operation of Plant

Risk: Incompetent plant operation causing damage or injury

- Daily pre-start checks are to be done prior to commencing work.
- Pre-start checks are also to be done when taking over from another operator.
- All warning devices are to be checked and operating.
- Faults or damage are to be reported to the Site Foreman and recorded on the Machine Pre-start Checklist.
- Defects effecting safety are to be reported immediately to the Site Foreman.
- Regular maintenance and servicing is to be carried out in accordance with manufacturer's specification.
- Operators are to read the Operation Manual and be aware of the manufacturer's guidelines for safe operation.
- Where the item of plant is fitted with a quick hitch (e.g. Backhoes, Excavators) safety pins must be used at all times. If the safety pin is broken or lost substitutes such as structural bolts or reinforcing bar must not be used. Under no circumstances will the item of plant be operated without a safety pin inserted in the quick hitch.
- Before commencing **Look Up and Live** (Look for overhead power cables and obstacles)
- No person is to drive or operate company plant unless authorized to do so by their Supervisor.
- Plant operators must be trained and hold appropriate certificate of competency or license.
- The Supervisor must be immediately notified of the expiry or loss of license.
- No person is to operate or attempt to operate any company plant whilst under the influence of drugs or alcohol.
- It is the responsibility of a driver or operator to notify their Supervisor if any medication has been prescribed that may affect their ability to operate plant.
- Only the operator or authorized persons are permitted to ride on mobile plant. Personnel may be given authority to ride on plant for specific purposes e.g. training or fault finding.
- Keep travel speed slow enough to maintain control at all times and don't drive plant close to the edge of a trench or excavation.
- Wear seat belt if fitted.
- Be aware of people, plant and equipment in the area.
- Don't reverse unless there is a clear view or a spotter directing movement.
- When parked, secure plant against rolling or any other movement with blades, buckets or other implements lowered to the ground and handbrake correctly applied. Park across a slope, not down the slope.
- Always leave plant parked in a safe location, easily seen and secured, particularly when left overnight.
- Never leave the keys in unattended plant.
- Clean mud from footwear before climbing into plant.
- Truck operators during loading operations are to remain either:
 - Totally within the cab of the truck, or
 - Remote from the truck at a suitable distance to ensure that they cannot be struck by falling rocks and other debris. The truck operator is not to return to the truck until such time as loading operations are completed and the load has reached a stable state with no risk of further falling debris while the truck is standing.
- Mobile telephones are not to be used whilst operating plant.

Hazard: Machines working on steep slopes

Risk: Rollover of plant causing serious bodily injury

- Rollover protection (ROPS) is to be fitted to all plant unless otherwise determined by a risk assessment.
- Operator to wear seat belt if fitted.
- Operator to comply with manufacturer's recommended gradient limits. (Where specified)

Hazard: Exposure to excessive noise

Risk: Noise induced hearing loss to operators and other personnel

- Equipment is to be maintained in good working condition.
- Keep cabin doors / windows on plant closed during operation.
- Noise monitoring is to be carried out as required.
- PPE (earmuffs or earplugs) is to be supplied and worn as necessary.



SAFE WORK INSTRUCTION – SWI 6

OPERATING CONSTRUCTION PLANT

Hazard: Exposure to dust

Risk: Serious illness (Silicosis) to operators and other personnel

- The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³).
- Plant operators **MUST** always keep the cabin door closed during operation to assist with controlling dust inhalation.
- If doors or windows are open during operation the operator **MUST** wear a P2 dust mask and where possible face plant, so wind is blowing dust away from plant.
- Ground staff working around plant that is producing dust during operation are required where possible to move away and stand up wind of dust, if this is not possible a P2 dust mask **MUST** be worn.
- Equipment is to be maintained in good working condition.
- Door seals in good condition (not broken or cracked) and air conditioners filters cleaned.
- PPE (P2 Dust Mask) is to be supplied and worn, as necessary.

PPE:

Long Sleeve Shirt	☒	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☒	Goggles	☐	Dust Mask	☒	Gloves	☐	High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 7

CONCRETE PUMPING

Hazard: Placing Concrete – General Operations

Risk: Plant failure causing damage to property and serious bodily injury

- Truck mounted concrete placing units are to be registered.
- Machine maintenance methods and records are to be submitted (log book) including pre-operational, routine maintenance and annual assessment records.
- Pump operator is to supply documented evidence of certification.
- Ensure the instruction manual is available in the pump at all times.

Hazard: Setting up Pump

Risk: Inexperienced operator making errors in setup process causing injury to workers and the general public and damage to property and equipment

- Location of pump to be on level ground and within level tolerance of pump.
- Don't place pump on unstable ground or adjacent to trenches or excavations.
- All outriggers are to be fully extended with sole plates to distribute the load.
- Adequate access for concrete trucks to be maintained.
- Ensure pump location does not affect other workers in nearby vicinity or effect safe access and egress.
- Locate pump safe distance from edges of excavations.
- Allow for sudden movement of pump lines during operation, particularly at changes of direction.
- Ensure safe clearance from overhead power lines.
- Check immediate area for power lines. Windy conditions can cause power lines to sway.
- Earthing chain is to be provided if there is a risk of contact with overhead power lines.
- Ensure height of hopper is accessible to concrete trucks and grill fitted to hopper. Hopper is to have emergency pump cut off switch fitted.
- Ensure exhaust gases from pump are not directed into immediate work zone.
- Ensure delivery hose is checked prior to use and that all pins and clamps in position and secure.
- Ensure concrete pipelines on booms are fitted securely into location with clamps and brackets to prevent pipeline section falling from boom if a coupling fails.
- Ensure effective communication between pump and work face.

Hazard: Placing Concrete

Risk: Inexperienced operator causing boom to strike workers or hopper to run dry causing serious bodily injury or damage

- Operator to be in a position where both the pump and the hoseman are in view and in clear communication range.
- Operator and hoseman to discuss and agree on placement strategy.
- Operator to ensure clear communication with concrete truck drivers filling hopper, so that they can notify operator to stop pumping when trucks are empty.
- Pump operator to ensure hopper remains full and that no pumping is to occur whilst truck is not feeding hopper.
- Hoseman to direct Operator as to movement of boom to facilitate concrete placement.

Hazard: Clearing Pump and Line

Risk: Objects in line acting as high velocity projectiles causing serious bodily injury

- Only experienced and trained personnel to carry out line cleaning.
- Ensure air relief valve fitted to pipeline to allow depressurisation.
- Always remove the rubber hose at end of pipeline to prevent hose whipping around during line blow out.
- Keep all workers away from discharge end a minimum of 4 metres whilst line is under pressure during cleaning.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☒
Hearing Protection	☒	Goggles	☐	Dust Mask	☐	Gloves	☒	High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 8

LIFTING AND SLINGING

Hazard: Lifting materials and equipment

Risk: Falling load, load swinging, machine rolling over causing serious bodily injury

Machine Maintenance

- Daily pre-start checks to be done prior to commencing work.
- Pre-start checks also to be done when taking over from another operator.
- All warning devices to be checked and operating.
- Faults or damage to be reported.
- Defects effecting safety to be reported immediately to the Supervisor.
- Plant with safety defects to be stood down until hazards are rectified.
- Regular maintenance and servicing to be carried out in accordance with manufacturer's specifications.
- Operators to read appropriate sections of the operation and maintenance manual.

Lifting Equipment

- Chains, slings and other attachments are to be tested and tagged.
- Lifting equipment is to be inspected for damage, including stretching and surface damage to links and nicks to slings, prior to each use by the person slinging the load.
- Never combine different types of slings.
- Shackles are to be used where slings are attached to eyebolts or lugs.
- All hooks are to be supplied with devices to prevent load movement.
- Store fabric slings away from chemicals.
- Torn or damaged fabric slings are not to be used.

Slinging Methods for Loads

- The slinging method is to be determined for each load only by a person who is competent in load slinging in accordance with Workplace Health and Safety Regulations.
- The slinging method is to be determined by the shape, size and weight of each load.

Lifting Limits

- Only 1 person is designated to control the lift **[must be qualified dogger if judgment is required (lift is not pre-engineered / or engineer designed and controlled)]** prior to beginning each lift.
- If the weight of the load is unknown, do not guess, but seek further advice.
- Refer also to the Load Chart for load-reach relationship.
- No loads in excess of the safe working load shown on the load chart are to be lifted.
- The load chart is to be kept in the cab of the machine at all times.

Slinging the Load

- Slings are to be positioned over flat surfaces not over sharp edges or corners.
- Secure the lifting area from unauthorised entry.
- Tag lines are to be used as necessary to control load sway.
- For large or long loads (12m+) attach 2 taglines with 2 tagline controllers.
- Make sure the load is balanced and not top heavy.
- Make sure no part of the load can slide or fall out during lifting.
- Don't stand between the load and other obstructions.
- Keep hands and feet well clear of pinch points.
- Never leave load suspended without an operator at the controls.
- Loads are not to be lifted over personnel.



SAFE WORK INSTRUCTION – SWI 8

LIFTING AND SLINGING

Travel with Load

- When working with a lifting item of plant keep clear of the swing area of the machine and boom.
- Loads are to be kept as close to the ground as possible whilst being moved.
- Tag line controller to signal to operator when OK to lift/lower load.
- Tag line controller to ensure no worker walks under the load or boom or walks between the machine and the load.
- When working with lifting equipment watch and warn the operator if safety pins or chains are not connected.

Lower Load

- No person is to enter the exclusion zone until load is a minimum of 300mm from ground.

Machines with attachments can cause serious injuries or even death. (Do not work under platforms or suspended loads as they have been known to fall off.)

Keep unauthorised persons away from the work area. As the person on the ground you are usually in a better position to be aware of danger to the public or other workers from the machine or trucks. Advise management of the danger and ensure it is rectified.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☐
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Overalls	☐	Gloves	☒
								High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 9

WORK NEAR UNDERGROUND SERVICES

Hazard: Excavating or digging mechanically or manually

Risk: Contact with live underground service causing explosion, electrocution, contamination or damage to property.

Administrative Controls

- Obtain plans of services from Dial-before-you dig (call 1100).
- Set out locations on site.
- Check locations coincide with surface markers, pits, hydrants, poles, meters etc.
- Don't assume all services have been identified.
- Mark locations by appropriate means.
- If possible disconnect or de-energise service.
- Ensure all operators and workers are aware of service location.
- Emergency contact numbers to be available on site.
- Report any damaged service as soon as possible to the relevant authority and to the client.

Worksite Controls

- Locate all services with-in excavation zones by hydro-vac potholing and mark on drawings for future reference.
- Spotter to be present when excavating by machine.
- Excavate by hand when in close proximity to live services to obtain exact location (pot holing).
- Do not cut or damage any unidentified services.
- Assume all services are live until notified otherwise.
- Cease work if presence of live services is suspected or uncovered e.g. some services may be surrounded by concrete or Tiger Tails warning tape. Report it immediately.
- Exposed cables in trenches are to be supported.
- If contact is made with live electrical cables:-
 - Don't panic
 - Contact the Site Supervisor, Director, HSEQ and Client,
 - Stay on the machine,
 - If operating, move away,
 - If a fire occurs jump well clear landing on both feet and hop away DO NOT WALK
 - Don't make contact with the machine and ground at the same time.
- If a service is damaged barricade the area or place warning signs until the areas is made safe.
- If contamination is suspected, any worker entering the area is to wear appropriate PPE such as rubber boots, gloves, overalls and safety glasses.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☒
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 10

DEMOLITION

Hazard: Demolishing structures

Risk: Falling objects, falls from height, contact with live services causing serious bodily injury

Planning

- A risk assessment is to be carried out prior to any demolition
- A Safe Work Procedure specific to the scope of work is to be prepared.
- The risk assessment is to address:-
 - Are there any permits or licenses required to perform this activity.
 - Structural elements of the subject structure and its method of construction.
 - Alternative methods of demolition.
 - Adjacent structures or other premises.
 - Public safety and warning signs, barricades, gantries, etc.
 - Structural integrity of adjacent structures.
 - Safe access and egress to adjacent premises.
 - Maintenance of services to adjacent premises.
 - Termination of services to structure being demolished.
 - Selection of plant and equipment.
 - Potentially hazardous conditions e.g. fragile roofs, openings, in floors etc.
 - Potentially hazardous materials e.g. asbestos.
 - Dust control and noise control.
 - Access to the demolition area.
 - Anticipated weather conditions and possible emergencies.
 - Methods of lowering materials from upper floors.
 - Disposal of rubble and other waste products.
 - Training of workers.
 - Personal protective equipment.
 - Site-specific induction.
 - Emergency / evacuation procedures including fire fighting.

General Requirements

- Demolition warning signs are to be put in place before work commences.
- All services, gas, electricity, water etc., are to be disconnected.
- The area is to be fenced or barricaded to prevent unauthorised entry.
- Where required overhead structures are to be erected to protect any public place or persons.
- Work is not to be carried out from a fragile roof unless adequate protection provided.
- Openings in floors are to be barricaded.
- Access roads, paths etc, are to be closed off and only used in connection with the work.
- Stairways are to be maintained in a clean condition, free from debris and materials.
- Keep dust to the minimum by vacuuming, extraction or wetting.
- Run-off water is to be collected for recycling, if possible.
- Don't drop or throw waste from a structure, lower by hoist or use chutes.
- Materials are not to be allowed to accumulate on overhead structures.
- Vehicle movement is to be restricted and kept to a minimum.
- Water supply hoses are to be strong enough to withstand impact from demolition waste.
- Appropriate fire fighting and emergency plans are to be established.

Hazard: Exposure to dust

Risk: Serious illness (Silicosis) to operators and other personnel

- The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³).
- Plant operators **MUST** always keep the cabin door closed during operation to assist with controlling dust inhalation.
- If doors or windows are open during operation the operator **MUST** wear a P2 dust mask and where possible face plant, so wind is blowing dust away from plant.



SAFE WORK INSTRUCTION – SWI 10

DEMOLITION

- Ground staff working around plant that is producing dust during operation are required where possible to move away and stand up wind of dust, if this is not possible a P2 dust mask MUST be worn.
- Equipment is to be maintained in good working condition.
- Door seals in good condition (not broken or cracked) and air conditioners filters cleaned.
- PPE (P2 Dust Mask) is to be supplied and worn, as necessary.
- If possible wet down the area to reduce potential for dust.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☒
Hearing Protection	☒	Goggles	☐	Dust Mask	☒	Gloves	☒	High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 11

HOUSEKEEPING, STACKING AND STORAGE

Hazard: Untidy work areas

Risk:

- Inadequate access causing slips and trips
- Hazardous materials and storage

GOOD HOUSEKEEPING IS EVERYONE'S RESPONSIBILITY

- All work areas are to be kept clean and clear of tripping hazards. Remove all tools, leads etc. when not in use.
- Ensure there is access and egress for emergency vehicles available at all times.
- No sharp or rough edges of materials are to protrude into any walkway areas, scaffolds, stairways and other work areas.
- There is to be clear access to emergency equipment, fire extinguishers, fire hoses, emergency exits, switchboards and amenities.
- Tools and equipment are to be returned to the store or container after use.
- Adequate lighting for night work is to be provided or when light is poor. (If Applicable)
- Clean up spills, oils, chemicals etc. as soon as possible, warning signs or barricades are to be erected as necessary.
- Use absorbent material to clean up spills, in accordance with Safety Data Sheets (SDS).
- Dispose of absorbent material in accordance with Safety Data Sheet (SDS).
- Scrap waste is to be removed as soon as possible from work areas.
- All amenities are to be kept in a clean and hygienic condition.
- All waste is to be placed in the appropriate waste bin or nominated area.

Hazard: Stacked materials in store and on site.

Risk: Falling objects causing serious bodily injury and damage to property.

- Materials are to be securely stacked in a neat and orderly manner so as to not fall or be easily dislodged.
- Materials must be stored in a stable condition, on the base rather than in the upright position e.g. concrete rings and pipes.
- Adequate access and egress is to be maintained around material stacks for emergencies, fire fighting etc.
- Stack heavy items at waist height with lighter items at head height or ground level.
- Ensure that it is safe to retrieve any material from a stack or storage.
- Materials are to be stacked and stored so as to reduce double handling.
- Non-compatible materials are not to be stored or stacked together.
- Where required use bearers to improve stack stability.
- Round items may need to be strapped or chocked.
- Material stacks are to be secured to prevent access by unauthorised persons.
- Appropriate protective equipment is to be worn when handling any materials e.g. gloves.
- Housekeeping is to be regularly carried out to reduce build up debris and any fire hazard.
- Hazardous substances are to be stored in accordance with the Safety Data Sheet (SDS).

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☒
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Gloves	☒	High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 13

USING POWERED SMALL PLANT

Hazard: Using powered small plant e.g. vibrating plates, wacka packa, chainsaws, Cut-off saws

Risk: Inappropriate use of plant / faulty plant, causing serious bodily injury

If using Cut-off saw or Chainsaw refer to SWMS 010-Operating Cut-off Saw and SWMS 018-Operating Chainsaw.

Operator Competency

- Employees are not permitted to operate powered small plant unless they have been suitably trained or are deemed to be competent through prior experience.
- Employees using small plant are to be periodically reminded of the operation and maintenance requirements of the equipment.

Maintenance and Storage

- Small plant must be inspected and if required serviced prior to use.
- Hired in plant is to be inspected and tested by the supplier prior to delivery to site.
- Hired in plant is to be regularly maintained by the supplier / operator.
- Plant is to be stored in lockable containers when not in use.

Pre-start Checks

- Check for any defects thoroughly before use. Be sure to not use any equipment if it has been tagged out.
- All guarding is to be in place, secured and cut off / braking systems operating.
- All controls must be operating correctly and easily accessible.
- Emergency controls are to be properly maintained, easily accessible and clearly marked.
- Before starting, clear the area of all hazards.
- Check all electrical connections and that plant is filled with oil, fuel etc. before starting.
- Ensure all persons not involved with the activity are well clear or protected by barricades, screens etc.
- Defective plant or tools to be tagged and isolated to prevent use.

Small Plant Use

- Don't lift or move heavy plant on your own. Get help or use a lifting device.
- Wear all designated Personal Protective Equipment.
- Safety glasses and appropriate dust masks to be worn at all times while drilling and cutting operations are in progress.
- Ensure Adequate hearing protection (Class 3) worn where required.
- **NEVER** run engine in enclosed or confined spaces.
- Every tool is designed for a specific use and should not be misused.
- Don't place cables, hoses where they could become a tripping hazard or be damaged.
- Stand out of the line of any blade, chain, pulley etc. when in use.
- All pneumatic hoses must be fastened securely and inspected for damage prior to use.
- Before disconnecting air tools shut off and bleed down air hoses.
- When refuelling ensure:-
 - Refuelling is completed in a well-ventilated area.
 - There is **no smoking** or **naked flames**, be careful to prevent spills, use of filler spout or funnel.
 - You Do Not refuel any pieces of equipment whilst the engine is running, you **MUST** always turn the engine off and allow it to cool before refuelling. (**Note:** Where it's **not possible** to allow the engine to cool prior to refuelling, organise a second piece of equipment to swap out).
 - **DO NOT** over fill the tank, and ensure cap is secure.
 - Clean up any spillage using spill kit and allow vapours to dissipate before starting the engine.



SAFE WORK INSTRUCTION – SWI 13

USING POWERED SMALL PLANT

Hazard: Exposure to dust

Risk: Serious illness (Silicosis) to operators and other personnel

- The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³).
- Ground staff working with or around plant that is producing dust during operation are required where possible to move away and stand up wind of dust, if this is not possible a P2 dust mask MUST be worn.
- If possible use water to wet down area and reduce the potential for dust.
- PPE (P2 Dust Mask) is to be supplied and worn, as necessary.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☒	Goggles	☐	Dust Mask	☒	Overalls	☐	Gloves	☐
								High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 14

USING HAND TOOLS

Hazard: Using hand tools

Risk: Being struck by tools causing lacerations, bruising

General Requirements

- Hand tools are only to be used for their intended purpose. Don't improvise.
- Use the correct tool, size and type for the job.
- Inspect tools regularly for signs of damage or wear. Hammers with loose heads or damaged shafts, mushroom-headed chisels, hammers and drifts, sprung spanners and bent bars are to be repaired or replaced. Check for wear of jaws and pivot points.
- Withdraw from service any worn or damaged tools.
- When using hand tools, watch out for persons working nearby. Don't crowd.
- Never use attachments for extra leverage.
- Stow tools securely when not in use. Don't leave them lying around to cause a hazard or become damaged.
- Take particular care when stowing sharp edged tools to prevent damage and personal injury.
- Never throw tools.
- Tools are to be secured by wrist straps or lanyard where there is a risk of falling.

Screwdrivers

- Use correct size of tip to fit the slot of the screw.
- Don't over tighten screw.
- Don't use pliers for better leverage.
- Don't hit the screwdriver with a hammer.
- Don't carry screwdrivers in pockets.

Hammers

- Use the correct type of hammer.
- Handles are to be smooth and easy to grip.
- Hammerheads are to be secured to wooden handles with correct wedges.
- Use eye protection when using hammers.

Chisels

- Keep cutting edges sharp. Blunt tools are difficult to control and make the work harder.
- Direct the sharp edge away from the body.
- Rearden cold chisels after sharpening.
- Regrind chisel heads to remove mushrooming.
- Use eye protection when using cold chisels.
- When striking a chisel with a sledgehammer a second person is to hold the chisel with tongs.

Spanners and Wrenches

- Use correct size tool.
- Use box end in preference to adjustable wrenches.
- Don't use an improvised extension to increase leverage.
- Don't strike wrenches with a hammer.

Pipe Wrenches

- Wrenches are to be large enough for the job.
- Keep teeth clean and sharp.
- Don't strike with a hammer or use as a hammer.

Pliers

- Only use for gripping, not as a wrench.
- Keep free from dirt and grit.
- Insulated handles to be fitted when used for electrical work.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☐	Goggles	☒	Dust Mask	☐	Gloves	☐	High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 15

USING ELECTRICALLY OPERATED TOOLS

Hazard: Use of power tools

Risk: Contact with live electrical conductors causing serious burns or electrocution

General Requirements:

- All power tools are to be tested and tagged. **Untagged tools are not to be used.**
- Employees are not permitted to operate power tools unless they have been suitably trained or are deemed to be competent.
- Power tools are to be stored in clean, dry conditions.
- Power tools are to be used for the purpose they were designed. Don't improvise.
- All power tools are to be earthed when in use except for double insulated tools.
- Residual Current Device (RCD) are to be fitted at supply source.
- Power tools are not to be used unless guards and other protective devices are in place. Guards are not to be removed or locked open.
- Before use check for damage to switches, connections, leads, guards etc. Do not use faulty equipment.
- Tools are to be checked, maintained, tested and tagged at the required intervals (3 monthly).
- Operating switches or levers requiring constant pressure for operation are not to be tampered with to make the tool operate without constant hand or finger pressure.
- Power leads are to be long enough to reach the job without straining.
- Always switch off power and remove plug before making any adjustments or changing attachments.
- Power tools are to be kept dry and are not to be used in wet or damp conditions.
- Power tools are not to be left unsecured in overhead locations.

Angle Grinders

- Angle grinders are to be fitted with a guard allowing only the working part of the wheel to be exposed.
- Maximum running speed to be clearly marked.
- Maximum running speed of spindle is not to exceed the maximum speed marked on the grinding wheel.
- Wheels are to be checked for defects before mounting.
- Defective wheels are to be destroyed.

Drills

- Drill large diameter holes in stages by using small bore drills and gradually increasing the size as necessary.
- Firmly hold onto drill with both hands at all times while drilling holes.
- Unless drill is braced in a drill press Do Not Lock on Trigger while drill holes.

Saws

- Hand operated power saws are to be fitted with spring-loaded guards allowing only the working part of the blade to be exposed.
- Guards are not to be removed or locked open.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☐	Hard Hat	☐	Safety Glasses	☐
Hearing Protection	☒	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 16

USING LASER SURVEY EQUIPMENT

Hazard: Using laser equipment in the vicinity of personnel

Risk: Contact with laser radiation causing eye injury

All Laser Classes

- All lasers are to be labelled with a classification number i.e. class 1, 2, 3A, etc.
- No unclassified laser is to be used.
- Lasers classes 1, 2 and 3A only are permitted to be used on construction sites.
- Lasers are to be used and maintained in accordance with the manufacturers instructions.
- On site safety precautions appropriate to the class of laser are to be enforced.
- DO NOT stare into the beam or view directly with optical instruments.
- The stationary beam is to be terminated at the end of its useful path.
- The beam is to be placed well above or well below eye level.
- Use a receiver to check if laser is working, **Not the eyes.**
- Avoid directing laser beams at reflective surfaces or at any person.
- Wear appropriate PPE (if required)
- The instrument is to be turned off when not in use.

Class 2 and 3A Additional Requirements

- A responsible person is to be appointed as a Laser Safety Officer (LSO) to assess and implement controls appropriate to the laser, the type of installation and the associated hazards.
- Only suitably trained personnel approved by the LSO are to be allowed to install, adjust and operate the laser equipment.
- The laser is to be used and maintained in accordance with the manufacturer's instructions.
- Precautions are to be taken to ensure that persons do not look directly in the laser beam.
- Precautions are to be taken to prevent 'scattering' of the beam into other areas, e.g. by removal of ladders, containers and the like from the beam path.
- Take precautions to ensure that the laser beam is not directed at mirror like surfaces. (This is because reflections from such surfaces have the same qualities as the direct beam)

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Overalls	☐	Gloves	☐
								High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 17

SUN BURN AND SKIN CANCER

Hazard: Working outdoors

Risk: Exposure to ultra violet rays causing sunburn, skin damage, eye damage and skin cancer

The sun can damage skin even on cloudy days. Ultra violet rays are stronger from 10am to 2pm. On a clear summer's day, it can take only 10 to 15 minutes for skin damage to occur, similarly, cloud cover does not necessarily protect from ultraviolet radiation, hence protective steps should be taken at all times when working outdoors.

- Wear loose fitting, light coloured clothing, sleeves rolled down, long pants.
- Apply SPF30+ sunscreen.
- For optimum effect apply to dry clear skin 20 minutes before going out.
- Apply sunscreen to exposed parts of the body and regularly re-apply every 2 hours.
- Wear hats that protect ears and neck. Wear tinted safety glasses to reduce ultra violet radiation to the eyes.
- Wear a broad brimmed hat or legionnaire style cap.
- When safety helmets are worn, a brim is to be attached.

Ensure that adequate supply of drinking water is on site or taken to the worksite and consumed regularly (ultraviolet radiation can cause dehydration).

Check for skin cancers

- Checks should be carried out on parts of the body mostly exposed, for example face, ears, neck, shoulders, arms and hands.

Melanoma

- Very dangerous can be fatal, a spot, usually freckle or mole that changes colour, size and thickness over months. Colours range from dark brown, black, red, blue or a combination. Can appear on body parts protected from the sun.

Basal Cell Carcinoma (BCC)

- Most common type, a small round or flattened lump, red, pale or pearly in colour, may have blood vessels over the surface.

Squamous Cell Carcinoma (SCC)

- Less common than BCC's but more dangerous, can spread, usually red scaly areas that bleed, turn into ulcers and has the appearance of a sore that does not heal.

Sun Spots

- Usually rough dry, firm spots. These are not skin cancers but show the skin has had an overdose of ultra violet light and on very rare occasions can turn into cancers.

PPE:

Long Sleeve Shirt	☒	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 19

LOAD AND UNLOAD PLANT

Hazard: General Operation of Plant, Overhead/Underground Services, Uneven Ground, Construction Traffic

Risk: Incompetent plant operation causing damage or injury, electrocution, plant rollover, struck by plant

- Float / trailer is serviced as per manufactures requirements with daily inspections carried out.
- The dimensions and capacity of the trailer or float to safely carry the plant item is confirmed.
- Tools and load securing equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified prior to commencement.
- Ensure the loading area is clear of overhead power lines and underground services.
- Float / trailer to be parked on firm, even ground.
- The loading / unloading site is made safe and isolated from general traffic flow and public.
- Operators to have clean boots free of mud and no loose clothing.
- Only use the designated access to the plant.
- Have at least 3 limbs in contact with the plant while accessing or disembarking plant.
- If it is raining or has been raining clean any mud (where applicable) off the access points for the plant that is to be floated.
- Personnel operating plant shall wear the seatbelt (where fitted).
- Depending on the type of plant consideration should be given as to whether to load by reversing on float for ease of getting off at destination and the possibility of plant slipping.
- If an item of plant is fitted with articulation avoid articulating the plant while loading / unloading.
- Preparation of the plant for transportation is confirmed as having been completed in accordance with manufacturers' requirements.
- Loading aids, including ramps and bridging materials, are placed and secured in accordance with the trailer or float specifications.
- The plant item is secured for transportation in accordance with approved specifications.
- Where required engage the assistance of a spotter to assist with the unloading process.
- When parked, secure plant against rolling or any other movement with blades, buckets or other implements lowered to the ground and handbrake correctly applied.
- Park across a slope, not down the slope.
- Always leave plant parked in a safe location, easily seen and secured, particularly when left overnight.
- Never leave the keys in unattended plant.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☒	Goggles	☐	Dust Mask	☐	Overalls	☐	Gloves	☐
								High Visibility Vest	☒

Hazard: Operating plant or equipment that is faulty or requires maintenance.

Risk: Equipment failing cause serious bodily harm or death or major damage to equipment.

DEFINITIONS

Authorised Person

An Authorised Person means a person who has acquired, through training, qualifications, experience, or combination of these, the knowledge and skill enabling the person to inspect, test or repair machinery / equipment or installation.

Out of Service

Plant and equipment that is deemed to be unsafe to operate can be taken Out of Service by the placement of a Warning – Out of Service Tag.

Out of Service Tags

'Warning – Out of Service' Tags are yellow and black, they are placed on unsafe plant or equipment when the use or operation of that plant or equipment could cause further damage to that plant or equipment, cause injury to people or cause damage to other equipment. An Out of Service Tag readily identifies that plant or equipment as being unsafe - not to be used. Out of Service Tags are available from your Site Foremen or the Workshop Supervisor. **(Refer to example of tag below)**



PROCEDURE

Identify Hazard and Cease Operating

All **fgf** Plant Operators / Employees are responsible for:

- Participating in routine visual checks of plant and equipment, and
- Reporting any plant / equipment hazards or faults to their Site Foreman.

Where an employee identifies any item of plant or equipment that appears unsafe, the employee shall cease operating the plant or equipment.

Notification and Arrange for Maintenance

Employee's have a responsibility to advise their Site Foreman of plant or equipment that appears unsafe and the Site Foreman will tag the plant or equipment as Out of Service.

Site Foreman will contact the Workshop Supervisor so he can arrange for the repair, maintenance or replacement of the faulty plant or equipment.



SAFE WORK INSTRUCTION – SWI 26

OUT OF SERVICE - PROCEDURE

Affix an Out-of-Service Tag

An Out-of-Service Tag is to be obtained, filled out completely and affixed to the item of plant or equipment.

An Out of Service Tag shall be fully completed to include:

- the person attaching the tag and their contact details supported by their signature and date,
- a clear indication of why the machinery / equipment has been taken out of service,

The completed Tag is to be placed in a prominent position, clearly visible from the position where the plant or equipment is started / operated. Where possible the Tag shall obstruct the method of starting the equipment (e.g. key access, the Tag for electrical energised machinery / equipment should be placed onto the electrical cord adjacent to the electrical plug.

Small items of plant or equipment should also be removed from service with the Tag still prominently displayed.

Operation of Plant

Plant or equipment which has an Out of Service Tag attached should not be operated unless by an **authorised person** for the purpose of maintenance, testing or repairing that plant or equipment or loading plant on float to remove from site to be repaired.

Removal of Out-of-Service Tags

Out of Service Tags are only to be removed by an **authorised person** after completion of repairs. For example, an A-Grade electrician repairing an electrical fault could remove the tag after repair and further inspection.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☐	Hard Hat	☐	Safety Glasses	☐
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Overalls	☐	Gloves	☐
								High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 29

REFUELLING PLANT (DIESEL)

Hazard: Refuelling mobile plant on various construction sites

Risk: Overhead services, struck by plant, spills causing environmental harm, slips, trips and falls

Operator Competency

- Truck Driver has relevant licence e.g. MR, HR
- All operators are ticketed and competent operators.
- Operators shall ensure that machine pre-start checklists are completed each day and truck is in good working order.
- Spill kit available in fuel truck.

Refuelling Plant

- **Fuel truck driver to be aware of overhead power lines and not to park under power lines while refuelling.**
- Operators to undertake visual inspection of the area for pedestrians, fauna and uneven/unstable ground (potential rollover) while entering site and prior to refuelling plant.
- Plant to move to level / stable ground and **engine is shut down** for refuelling.
- Refuelling to take place away from drains and water ways to prevent possible escape causing environmental harm.
- **Smoking shall not be permitted with-in 20m of refuelling truck.**
- Fuel truck approaches plant and parks next to plant leaving a space of approx 3m between plant and fuel truck.
- Operator to maintain 3 points of contact while exiting plant; footholds, hand-holds and walkways are to be in good condition, free from dirt, oil or grease.
- Refuelling personnel to be aware of wet conditions when climbing on the machine and accessing the fuel inlet point.
- Operator to unlock fuel cap for refuelling.
- Once refuelling is complete the fuel hose shall be wound up and locked in place prior to proceeding to next item of plant.

Hazardous Substances

- Diesel Fuel will be used to fill the machines, where possible avoid contact with the fuel.
- If contact is made wash affected area with soap and water.
- Refuelling is taken place using a fuel truck.
- SDS's available on site for Diesel.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☒	Goggles	☐	Dust Mask	☐	Overalls	☐	Gloves	☐
								High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 30

EARTHWORKS AND SUBGRADE

Hazard: General operation of plant, overhead power.

Risk: Plant causing damage, serious bodily injury or death, electrocution.

Ensure all staff involved have signed SWMS 003-Work With-Operation of Construction Plant

- Plant operators must be trained and hold appropriate certificate of competency or license.
- Daily pre-start checks are to be done prior to commencing work.
- All warning devices are to be checked and operating.
- Defects effecting safety must be reported to the Site Foreman and recorded on the Machine Pre-start Checklist.
- Before commencing **Look Up and Live** (Look for overhead power cables and obstacles).

Hazard: Dumping and spreading gravel, stockpiling gravel, potential roll-over, pedestrians in work area

Risk: Rollover of plant, struck by plant causing serious bodily injury

- Be aware of people, plant and equipment in the area - create exclusion zone if required.
- Truck operators during loading operations are to remain either:
 - Totally within the cab of the truck, or
 - Remote from the truck at a suitable distance to ensure they cannot be struck by falling rocks and other debris. The truck operator must not return to the truck until the loading operations are completed and the load has reached a stable state with no risk of falling debris.
- The Truck Operator must also drive to site rules and speed limits;
 - Stay on the haul routes and do not veer off them.
 - No parking or stopping on haul roads.
- Once at the delivery site, material will be dumped from trucks while slowly driving forward.
- Do not tip if there is the chance of rollover from uneven ground.
- Do not reverse towards or tip close to batters without a spotter.
- When work area is clear of trucks and personnel, the grader / loader shall spread material.
- Before reversing operator to check area is clear behind.
- Water truck will be available to control dust issues.
- A silt fence will be erected on the downhill side of the earthworks, all drains and waterways to be protected.
- If working with plant and you don't have radio contact and you need to approach the plant, make eye contact with the operator and wait for him to signal for you to approach.
- If stockpiling gravel, loader operator will ensure all plant and personnel are clear.
- When creating a stockpile ensure the ramp is wide enough for the loader with a suitable bund on each side to prevent possible rollover.
- Stockpile should not be greater than 3m in height.

Hazard: Rolling gravel with roller / compactor

Risk: Noise induced hearing loss, rollover of plant, struck by plant

- Wear adequate hearing protection (ear muffs or ear plugs) if in a hearing protection required zone.
- Personnel operating plant shall wear the seatbelt (where fitted).
- Once work area is clear of the grader and personnel, the roller will compact material.
- Before reversing operator to check area is clear behind.
- Do not roll along fill batter in reverse.
- Turn vibration off to change direction near batters.
- If roller gets stuck on a batter turn vibration off and call for assistance.

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☐
Hearing Protection	☒	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☐



SAFE WORK INSTRUCTION – SWI 31

OPERATION OF A TIP TRUCK

Hazard: General Truck Operation

Risk: Faulty equipment, overhead power, rollover of plant, struck by plant causing serious bodily injury, driving too fast for conditions causing damage or injury.

- Daily pre-start checks are to be done prior to commencing work.
- All warning devices are checked and operating.
- The Driver must drive to site rules and speed limits.
- During loading operations the driver is to remain in the vehicle.
- The national workplace exposure standard for respirable crystalline silica for an eight-hour time-weighted average airborne concentration is 0.05 milligrams per cubic metre (mg/m³).
- Drivers **MUST** always keep cabin door / windows closed during operation to assist with controlling dust inhalation.
- If doors or windows are open during operation the Driver **MUST** wear a P2 dust mask and where possible face truck, so wind is blowing dust away from truck.
- Before commencing tipping operations **Look Up and Live** (Look for overhead power cables and obstacles).
- Do not tip if there is the chance of rollover from uneven ground.
- Before tipping Driver is to check that no persons are in the exclusion zone of the vehicle.
- The Driver will only tip where they believe it to be safe.
- Don't reverse unless there is a clear view or a spotter directing movement.
- Where a Spotter is engaged the Spotter must;
 - Position themselves at least 5m behind the truck while it tips its load, **DO NOT** stand beside the truck.
 - Keep constant eye contact with the driver through the rear-view mirrors (preferably on the Drivers-Side).
 - Also check for overhead hazards such as power lines trees and awnings.
 - Keep a safe system of communication (e.g. two-way radios; or hand signals as appropriate).
- The Driver is expected to check the site as well and not go off the spotter's direction alone.
- Once at the delivery site, material will be dumped from trucks while slowly driving forward.
- Driver is to remain in his vehicle during the tipping process.
- Semis must be straight when tipping (never jack-knife and tip).
- Driver is not to tip next to a trench or open excavation.
- Drivers or spotters are not to be on a hand-held mobile phone at any stage during tipping operations.
- Drivers are to lower bin prior to moving away from the dump site.

PPE:

Long Sleeve Shirt	☒	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☒
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 32

WORKING OUTDOORS

Hazard: Working outdoors, sun burn, animals and insects, wet conditions, dust

Risk: Foot injury, sunburn, skin damage, eye damage, animal and insect bites, serious illness

Footwear

- Safety footwear is to be worn at all times on project sites.
- Safety footwear must be steel or composite capped.
- Worn or damaged footwear is to be replaced.
- **fgf** does not approve 'Fashion' type safety footwear for use.

Solar Radiation Protection

- Work processes and planning should take possible exposure to solar UV radiation into account.
- Schedule outdoor activities to times when solar UV radiation levels are less severe, (e.g. early or late in the day) if possible.
- Persons working outdoors should be provided with and wear suitable hats and sunscreens.
- Hats should have a wide brim to cover the ears (or caps fitted with neck flap).
- Safety Helmets with snap brims should be worn when working with plant that can rotate, lift, carry or load trucks such as excavators, backhoes, front end loader, crane, or forklift.
- Sunscreen should have a SPF30+ rating.
- Tinted safety glasses should be worn to protect the eyes from solar UV radiation, especially where high glare or scattered light is encountered.

Working in Poor Light Conditions

- Persons working in poorly lit or in low-light conditions outdoors in the vicinity of mobile plant and / or traffic should wear high-visibility clothing.

Working on Site

- When working outdoors, be aware of potential hazards caused by insects, snakes and wild animals.
- Take care when opening doors or lids of enclosed compartments (e.g. manholes, electrical switchboards) where wild or dangerous animals may be concealed.
- Ground staff working around plant that is producing dust during operation are required where possible to move away and stand up wind of dust, if this is not possible a P2 dust mask MUST be worn.
- Use water truck where possible to reduce dust.
- If challenged by a wild pig, dog, dingo or snake, move to a safe location if possible.
- Do not approach the animal.
- If attacked by an animal, protect yourself (if possible).

Encounter Bees, Wasps and Hornet (Stings and Bites)

- Take notice of your surroundings whilst working outdoors e.g.: in the bush, in or near long grass, around manholes and switchboards.
- Check the work area before starting the activity, especially in summer when bees and wasps are most active.
- If you are allergic to bees, wasps etc, carry medication with you at all times, ensure you advise assistant.

Encounter Mosquitoes (Mosquito Bites, Diseases like Malaria & Dinghy Fever)

- Use a mosquito repellent appropriate to the expected exposure.
- Tip out containers full of stagnate water.
- Remove most stagnate water sources.

Encounter Snakes (Snake Bite)

- Treat all snakes as dangerous.
- Take notice of your surroundings and beware of places snakes are likely to be, watch where you put your hands and feet.
- If you see a snake, stop until it moves away, If that is not possible, step away slowly, keeping the snake in view at all times.
- Wait for it to move away from the work area, Do Not corner a snake.
- Give it plenty of room to escape.



SAFE WORK INSTRUCTION – SWI 32

WORKING OUTDOORS

Working in Wet Conditions (Protection from Water, Heat Stress, Low-Visibility)

- Light-duty showerproof clothing may be suitable for occasional spray protection, but will not be suitable for storm or monsoon conditions.
- Waterproof clothing should allow adequate ventilation for perspiration to be evaporated from the body.
- Waterproof clothing should be of a colour which will be conspicuous in overcast, dark or other poor light conditions, with reflectorized clothing provided for persons working in the vicinity of moving plant or vehicles.

General Work Clothing

- Clothing should offer protection from dirt, cuts, abrasions, and minor burns and splashes as required.
- Clothing should be loose enough to allow easy movement and ventilation, but not cause a hazard to the wearer when working around moving machinery and equipment.
- Persons working in the vicinity of mobile plant and / or traffic should wear high-visibility clothing.

PPE:

Long Sleeve Shirt	☒	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☒	Safety Glasses	☒
Hearing Protection	☐	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☒



SAFE WORK INSTRUCTION – SWI 33

LINE MARKING

Hazard: Operation of Plant, working on traffic lanes, setting out line marking area, drums of paint.

Risk: Faulty high-pressure equipment, struck by passing vehicles causing damage or injury, muscle strain.

- Regular maintenance and servicing should be carried out in accordance with manufacturer's specification.
- Daily pre-start checks are to be done prior to commencing work.
- Check machinery for damage, leaks, hose kinks, guns for correct operation, pressure leaks.
- Faults or damage are rectified prior to commencing any spraying on site.
- Correct procedures for handling high pressure equipment to be followed.
- SDS must be available or provided for paint.
- Assess weather conditions if they are poor hold off on the works.
- Use traffic control when working next to or on-site roads and ensure TGS is available and signage in place.
- Location where lines to be painted will be marked out by Technician / Site Foreman / Surveyor.
- Line Marking Technician to undertake visual inspection of the area to ensure no vehicles are being driven in the area or parked in the way prior to spraying paint.
- Be aware of people, plant and equipment in the area. (when line marker is operating).
- No person is to operate or attempt to operate any plant whilst under the influence of drugs or alcohol.
- Keep travel speed slow enough to maintain control at all times.
- Wear seat belt if fitted.
- Mobile telephones are not to be used whilst operating plant.
- Adequate hearing protection to be worn while using line marking machine (Where required).
- When lifting paint drums Line Marking Technician is aware of correct lifting techniques. (bend knees, straight back.)

PPE:

Long Sleeve Shirt	☐	Long Trousers	☐	Safety Footwear	☒	Hard Hat	☐	Safety Glasses	☒
Hearing Protection	☒	Goggles	☐	Dust Mask	☐	Gloves	☐	High Visibility Vest	☒



APPENDIX D

ENVIRONMENTAL

Place Cross in Box for Yes ☒

Hazard and Risk Register - ENVIRONMENTAL ☒

Environmental Instructions (ENVI)

Excavation Soil Management ☒
Air Quality ☒
Cultural Heritage ☐
Erosion Sediment Control ☒
Flora & Fauna ☒
Hazardous Substance ☐
Noise and Vibration ☒
Waste Management ☐
Water Quality ☒
Site Visual Impacts and Amenities ☒
Erosion and Sediment Control Plans ☒

Environmental Control Measures

Place Cross in Box for Yes ☒

SD 4.01 – Stockpiles ☒
SD 5.01 - Temporary Waterway Crossings ☐
SD 5.04 - Rock Check Dams ☒
SD 5.05 - Earth Bank Low Flows ☐
SD 5.06 - Earth Bank High Flows ☐
SD 5.07 - Concentrated Flow ☐
SD 6.01 - Rock Sediment Basin ☒
SD 6.04 - Earth Basin Wet ☐
SD 6.07 - Straw Bale Filter ☐
SD 6.08 - Sediment Fence ☒
SD 6.11 - Mesh Gravel Inlet Filter ☐
SD 6.12 - Geotextile Inlet Filter ☐
SD 6.13 - Kerbside Turf Strip ☒
SD 7.01 - Seedbank Preparation ☐
On-Grade Kerb Inlet Sediment Trap ☒

fgf Hazard and Risk Register - ENVIRONMENTAL

Environmental Aspect	Process Line Model											Potential Hazard	Consequence	Initial Risk			Administrative Control Measures (Taking into Consideration the Hierarchy of Controls)	Behavioural Control Measures (Taking into Consideration the Hierarchy of Controls)	Physical Control Measures (Taking into Consideration the Hierarchy of Controls)	Controlled Risk		
	Concrete Works	Earth Works	Pavements	Storm Water	Sewerage Retreatment	Water Retreatment	Quarry Earth Works & Extraction	Crushing / Processing	Spraying / Sealing	Asphalt Pavements	Depot and Workshop or Transport of Bitumen or Quarry products			L	C	RR				L	C	RR
Excavation Soil Management	x	x		x	x	x						Expose PASS/ASS to air and surface runoff causing increased oxidisation and acid release into environment. Changing surface runoff patterns have the potential to leaching acid into the environment.	The release of acid sulphate soils has the potential to result in ground water acidification, structural damage to steel and concrete works, damage to exposed vegetation (loss of agriculture productivity), harm to aquatic ecosystems as well as illness and injury to exposed personnel.	Possible	Major	H-8	ENVI 01: Excavation Soil Management ENVI 09: Water Quality	Education and Site Inductions Site Inspections and Monitoring Ongoing pH Testing Environmental Awareness Training	Cover the ASS with water or other soil that does not contain iron sulfides. Neutralise with agricultural lime. Liming rates will depend upon the pH level (acidity) of the soil.	Possible	Minor	M-17
Air Quality	x	x	x	x			x	x	x	x	x	Fumes and dust generated by earthworks, crushing and during the transport of quarried products. Dust can be generated from earthworks, stockpiling fill and transporting fill. Activities at the site have the potential to create large amounts of dust which could affect flora and fauna.	Reduced air quality and visibility. Potential health and environmental productivity impacts. Potential to carry contaminants to adjacent surface and stormwater.	Unlikely	Moderate	M-16	ENVI 02: Air Quality ✓ ENVI 09: Water Quality ✓	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	All disturbed works to be regularly watered during dry and windy weather to prevent formation of dust. Use of wheel shakers to minimise dirt tracked onto bitumen roads. Remove dirt tracked onto roads removed by rotary sweeping or washing down. Clean fuel and air filter elements along with regular maintenance of fuel injection systems.	Rare	Minor	L-23
Cultural Heritage	x	x	x	x			x					Recognition, protection and conservation of both Indigenous and European cultural heritage; including traditional places, practices values and items of significance.	Loss of national cultural heritage. Degradation of fgf's relationships with Indigenous communities.	Possible	Moderate	M-13	ENVI 03: Cultural Heritage	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	Machinery and vehicles must be kept clear of cultural heritage areas allowing a buffer zone of at least 10 meters. Machinery that may cause excessive vibratory damage shall not be used in the vicinity of these sites.	Unlikely	Insignificant	L-24
Soil Erosion and Stability	x	x	x	x	x	x	x	x			x	Where exposed by removal of vegetation and consequent loss of stabilising root systems, or where exposed by earthworks, friable soils are the subject of erosive forces by wind and water due to the lack of soil stability.	Erosion will contribute to the sedimentation and increased turbidity of water courses. Erosion and sedimentation can adversely affect drainage capacity and drainage patterns as well as impact on any adjacent vegetation habitat areas and species composition.	Likely	Moderate	H-9	ENVI 04: Erosion-Sediment Control ✓ ENVI 09: Water Quality ✓	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	Grass Buffer Zones Silt Fences Kerb Side Sediment Traps Sediment Basins Rock Check Dams Straw bale / geo-textile fabric filter Diversion drains / banks Level spreaders Flow control berms Geo logs Filter socks Mulch filter berms Construction exists	Possible	Minor	M-17
Flora and Fauna	x	x	x	x			x	x			x	Fragmentation or destruction of habitats are correlated to reduced biodiversity- a measure of an ecosystems health and may refer to the preservation of species, ecosystems and genetic diversity. Maintaining biodiversity facilitates the preservation of ecosystems and the species which they support and interact. Biodiversity also has strong links to individuals' quality of life by supporting processes such as air quality, climate change, pollination and erosion prevention.	Alters the functionality of the environment and therefore has the potential to interfere with the ecosystems carrying capacity / ability to support endemic species and processes. In addition habitat destruction has been linked to increased vulnerability to natural disasters and global climate change issues.	Likely	Moderate	H-9	ENVI 02: Air Quality ✓ ENVI 03: Cultural Heritage ✓ ENVI 05: Flora and Fauna ✓ ENVI 06: Waste Management ✓ ENVI 09: Water Quality ✓	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	Minimal disturbances to vegetation. Install barriers to protect trees to be retained. Avoid maneuvering machines under the tree canopy. No fuel, oil or chemicals to be stored and no plant servicing to be undertaken within the drip line of trees.	Possible	Minor	M-17
Hazardous Substances	x	x	x	x	x	x	x	x	x	x	x	Handling, use, transportation and storage hazardous substances have the potential to harm personnel and affect receiving environments if spill or disposed of incorrectly.	The uncontrolled release of hazardous substances have the potential to contaminate land. In addition, spills and poor hazardous substance waste management may have a persistent toxic effect on both terrestrial and aquatic ecosystems.	Possible	Major	H-8	ENVI 06: Hazardous Substances	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	Secure lids on all hazardous substances and materials. Do not use hazardous substance and materials near water ways. Constructing and implementation of bunds. Installation of silt curtains into waterways. Rock check dams.	Possible	Insignificant	L-22
Noise and Vibration	x	x	x	x			x	x	x	x	x	The major potential generation of noise during the construction / extraction period is the operation of vehicles, plant and equipment, trucks, earthmovers and jackhammers. Ground vibrations generated during construction with particular reference to vibratory compaction have the potential to cause damage to property and/or nuisance-particularly for sensitive receptors.	Excessive and disturbing noise and vibration cause environmental nuisance and have the potential to disrupt normal activity. This includes a reduced ability to communicate and concentrate, and increases in anxiety. Noise and vibration may also have detrimental health effects such as hearing impairment, cardiovascular, skeletal muscular and mental health effects and may affect the breeding, feeding and roosting patterns of fauna.	Unlikely	Moderate	M-16	ENVI 05: Fauna and Flora ✓ ENVI 07: Noise and Vibration ✓	Education and Site Inductions Site Inspections and Monitoring Dilapidation reports Environment Awareness Training	Locate equipment e.g. compressors away from sensitive areas. Only run noisy equipment when required. Turn reversing alarms to low tone where able. Limit work to hours specified by local by-laws. Vibratory machinery not to be used within close proximity of buildings.	Unlikely	Minor	L-21

fgf Hazard and Risk Register - ENVIRONMENTAL

Waste Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	The potential still exists for litter from workers to impact upon the habitat conditions of local flora and fauna. Refuse, construction, sanitary and equipment waste should always be disposed of correctly. Decomposing plant material stored on site can produce contaminants.	Waste contributes to landfill volume, attracts vermin, has the potential to harbour / spread disease and contribute to greenhouse gas emissions. Poor waste management also contributes to visual disamently and may cause harm to fauna and flora.	Likely	Moderate	H-9	ENVI 08: Waste Management	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	Provisions on site for the disposal of general refuse such as personal litter. Removal of hazardous waste in accordance with Safety Data Sheets, DEHP requirements and local by-laws	Possible	Minor	M-17
Water Quality	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Activities such as earthworks require a substantial amount of water to control dust. Inadequate sediment control procedures or heavy rainfall periods may lead to contamination of stormwater drains, local creeks or other nearby waterways. Contamination could be from excavation activities, concrete cutting or oil associated with construction equipment.	Increased turbidity and decreased dissolved oxygen in water bodies may lead to eutrophication. Contaminants may have a toxic effect on aquatic ecosystems.	Likely	Major		ENVI 01: Excavation Soil Management ENVI 02: Air Quality ENVI 04: Erosion-Sediment Control ENVI 09: Water Quality	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	Installation of silt fencing / traps.	Possible	Minor	M-17
Site Visual Impacts & Amenities	X	X	X	X	X	X	X	X					X	X	The potential exists for litter from workers to impact upon the habitat and local residenst perception of the works. Inadequate sediment control for heavy rainfall periods may lead to contamination of stormwater drains, local creeks or other nearby waterways. Interaction between local residents and work vehicles in and around the site.	Poor waste management contributes to visual disamently. Contaminants may have a toxic effect on aquatic ecosystems. Complaints from the local community and Council.	Possible	Moderate	M-13	ENVI 10: Site Visual impacts & Amenities	Education and Site Inductions Site Inspections and Monitoring Environmental Awareness Training	Provisions on site for disposal of general refuse. Installation of rock shaker grids and silt fencing / traps. Installation of tempary fence and mesh banners.	Unlikely	Insignificant	L-24

OBJECTIVES:	- To manage the excavated soil in accordance with relevant State regulations and guidelines. - To ensure soil is suitable for its intended use. - To prevent the spread of noxious weeds.
RISK:	Soil needs to be managed to ensure: - Good quality topsoil is not wasted and disposed of to landfill. - Spread of noxious weeds is prevented. - The contaminant concentrations are compatible with the intended use i.e. low density residential, commercial, public open space etc. - Worker health and safety issues are addressed if contaminant concentrations pose a health risk.
PLANNING & PREPARATION:	At the start of all projects assess the quantity and type of excavated material and determine onsite / or other reuse / disposal options. If required, discuss the use / disposal with the Clients Representative. Identify the presence of acid sulfate soils and prepare mitigation methods to comply with all regulatory requirements, including testing pH levels and liming of soils if necessary.
SITE OPERATION:	Also Refer to Water Quality Environmental Instruction - Ensure that any imported soil meets relevant fill material criteria. - Ensure that soil being transported offsite meets relevant State Fill Material guideline levels. - Should Acid Sulfate Soils (ASS) / Potential Acid Sulfate Soils (PASS) be encountered the Clients Representative will be notified immediately. - Every effort to be made by fgf Developments to avoid further disturbance until advice received from the Clients Representative on further action. - Where confirmed ASS / PASS material is encountered and disposal is instructed by Clients Representative excavated materials will be disposed of at Barron River Sands, or an alternate facility registered to receive such spoil. - Follow requirements stipulated within the Queensland Acid Sulfate Soil Technical Manual - Soil Management Guidelines. (NOTE: pH between 6.5 and 8.5) - The presence of noxious weeds in imported or exported soil should be considered. - Ensure all loads are secured/covered prior to transport. - Ensure erosion and sediment control measures are in place (refer to ENVI 03 - Erosion-Sediment Control). - If, during excavation, unanticipated soil contamination is encountered, follow Environmental Instruction - Waste. - Entry and exit points should be designed to prevent soil from being tracked onto public roads. Control measures include defining site access roads, placing 50-75mm crushed rock on access/haul roads, use of dry rumble grids, and in limited instances wheel washes may be effective. To clean dirt from public roads a street sweeper can be used. Roads are not to be washed unless adequate sediment controls are in place. Refer to soil erosion and sediment control maintenance requirements.
PERFORMANCE INDICATOR:	A visible build-up of soil on public roads and erosion of soil stockpiles would indicate unacceptable management, and corrective action should be taken.



Environmental Instruction - ENVI 01 - Excavation Soil Management

CORRECTIVE ACTION:	Review soil management and erosion and sediment control plan measures and modify accordingly.
RESPONSIBILITY:	Project Manager/ Construction Supervisor/ Site Foreman

Where obligations listed above are included in the client's scope under the contract, responsibility shall be appropriately transferred.

NOTE: This Environmental Instruction is not intended to be exhaustive or complete. Prior to commencement of work, task-specific hazards should be identified, risks assessed and risk control measures implemented.

OBJECTIVE:	To undertake operations so that adverse impacts of dust and other air pollutants e.g. odours, vehicle exhaust fumes, other toxic gases on the surrounding environment are minimised i.e.: • Health risk for nearby residents and site personnel • Nuisance for residents and users of the area • Build-up of dust on surrounding properties • Build-up of dust on roadways and other surfaces.
PLANNING & PREPARATION:	Inform affected residents about the project and potential impacts. Inform site personnel of the requirements to maintain schedules, perform pre-start checks and keep log books and daily diaries.
SITE OPERATION:	1. Check wind direction before commencement of activities likely to cause dust or other air emissions. 2. Keep stockpiled topsoil (retained to top dress the finished allotments at the end of works) damp by watering which will also assist with grass coverage. 3. Where possible minimise the amount of overburden and soil stockpiled on the site. 4. Keep plant and vehicle movements to a minimum and do not operate outside the approved work area. 5. Cover the loads of all vehicles leaving the site with overburden or soil, if required. 6. In dry and windy conditions, stockpiles of soil, and vehicle access routes are to be kept damp by watering. 7. Use temporary covers or screens, where necessary. 8. Check exhaust colour and condition regularly. 9. Shut down the motor if exhaust is not normal. 10. Regularly maintain exhaust and engine systems to reduce exhaust emission. 11. Shut down plant that is not required for use, do not leave idling for long periods. 12. No fires or burning off onsite. 13. Complete daily site inspections to verify the above strategies are effective.
PERFORMANCE INDICATOR:	A visible build-up of dust on surrounding ground, vegetation and building surfaces would indicate unacceptable dust and air emissions, and corrective action should be taken. In addition, more than one dust complaint in any one-week period could indicate unacceptable disturbance. If more than one complaint is received in this period, corrective action should be taken. Visible evidence and smell of exhaust fumes.
CORRECTIVE ACTION:	1. Review air pollution mitigation measures and modify accordingly. 2. Enforce exhaust checks and vehicle maintenance procedures.
RESPONSIBILITY:	Project Manager / Construction Supervisor / Site Foreman

Where obligations listed above are included in the client's scope under the contract, responsibility shall be appropriately transferred.

NOTE: This Environmental Instruction is not intended to be exhaustive or complete. Prior to commencement of work, task-specific hazards should be identified, risks assessed and risk control measures implemented.

Environmental Instruction - ENVI 04

Erosion-Sediment Control

OBJECTIVE:	To minimise and eliminate wherever possible, sediment laden water (carrying mud, sand, earth or any other construction material) from entering the stormwater system and adjacent waterways. • Minimise erosion of disturbed areas. • Ensure that spoil stockpiles are not a source of water pollution.
PLANNING & PREPARATION:	• Assess the risks and prepare a site specific Erosion and Sediment Control Plan (ESCP). • Prior to commencing works on site the Project Manager / Supervisor shall plan the implementation of control measures according to the site Erosion and Sediment Control Plan (ESCP). In situations of significant risk the control measures shall also be assessed and detailed within the Project Management Plan and given to the Client/Superintendent for approval. • Type 2 and 3 sediment control techniques are commonly installed to physically stop the sediment material from entering the drain or stream. Usual methods include: - Sand Bags or specifically designed entrapment devices, - Geotextiles positioned on the ground or in the form of a retaining fence between the work and the stream or drainage area, - Industry specific drain or pipe plugs • Mark out the limit of clearing so that minimal ground disturbance is achieved for the shortest possible time. • Identify suitable stockpile locations - a minimum of 50m away from runoff areas and possible erosion sources.
SITE OPERATION:	• The Project Manager / Supervisor is responsible for having the necessary equipment available that is required to satisfactorily complete the works in a safe environment manner. • Site work and the removal of vegetation shall be limited to the smallest area possible. • As specified in the project ESCP the Construction Foreman is responsible for the erection or placement of the control measures, and the regular monitoring and maintenance of the equipment. • Construct silt traps to slow the flow, collect silt and sediment and minimise erosion. • Provide temporary cut-off drains to divert flow from areas without vegetation and where stockpiles are created, or where erosion is likely to occur. • Compact or stabilise stockpiles to minimise erosion and run-off. • Stockpiles are to be surrounded with a secure sediment fence. • Provide temporary sediment traps in all open drains or cut-off drains e.g. Straw bales, geo-textile barriers, litter booms, rock check dam. • Where rock check dams are installed, the rock shall be clean, dense and durable, be well graded with a median size of 150mm and no material greater than 300mm. • Rock to be placed so that the larger rocks are uniformly distributed throughout the protection work, and the smaller rocks fill the spaces between the large rocks without leaving any voids. The layers of rock shall be placed to include a defined spillway within the crest of the structure. • The placing operations shall minimise the chances of rock running loose and damaging adjacent area. • Work to be avoided where possible during periods of heavy rainfall.

	- Regular site inspections shall include the identification of any erosion or sedimentation issues and the efficiency of control measures in place. - Prevent deposition of sediment on the road due to truck /equipment movements to and from the site. Any deposited matter to be cleaned up immediately. - Where possible, conduct progressive restoration of disturbed areas. - Inspect site after the works are complete to ensure erosion control devices have been removed along with any sediment in drainage lines and caught by erosion control devices and re-vegetation has been implemented in disturbed areas. - Should a breach of the control measures occur or if no control measures are in place the Construction Foreman is responsible for: - If possible repairing the breach and stop further flows into the drain or watercourse. - Remove deposited silt and material and re-assess the ESC design and choice of sediment control technique. - Contact Client/Superintendent and/or Government Agency (DEHP). - Use a Non-Conformance to describe in detail the breach. NOTE: All personnel on site have a <i>'duty to notify'</i> under environmental legislation. If any person becomes aware of an activity or incident that is causing or could cause environmental harm, they have a responsibility to notify their supervisor.
PERFORMANCE INDICATOR:	The following would indicate poor performance and requirements for additional controls: - Significant erosion of soil stockpiles, erosion of banks / batters, silt laden water entering the stormwater system etc. - Visible signs of sediment movement into drainage channels. - Excessive build-up of dirt on public access roads. Would all indicate unacceptable management of water onsite, and corrective action should be taken.
CORRECTIVE ACTION:	- Review the ESCP and modify accordingly. - If requires, provide additional erosion and sediment controls e.g. sedimentation basin. - It may be necessary to increase extent of sediment trapping (sediment fences, hay bales, etc.).
RESPONSIBILITY:	Project Manager / Construction Supervisor / Site Foreman / Site Personnel

Where obligations listed above are included in the client's scope under the contract, responsibility shall be appropriately transferred.

NOTE: This Environmental Instruction is not intended to be exhaustive or complete. Prior to commencement of work, task-specific hazards should be identified, risks assessed and risk control measures implemented.

OBJECTIVE:	To protect existing trees and other vegetation within and adjacent to the construction site from unnecessary damage and minimise the impact of construction activities on local fauna. To undertake operations so that adverse impacts on the environment from the spread of noxious weeds is minimised.
PLANNING & PREPARATION:	• Prior to commencing work the Project Manager / Supervisor will assess the risk to the vegetation and record any steps to take in the IPMP. • Consider fauna / flora in natural habitats – check with the local Council and landowners before commencing clearing, in case protected habitats and endangered species are present. • Identify and mark trees / shrubs to be retained in agreement with the client and local Council, if appropriate. • Where natural Flora and Fauna exist or the specification nominates they must be protected, then use this instruction or prepare a specific action plan that takes into account the level of risk to them. • Train staff to identify the protected / endangered Flora and Fauna and understand the actions to allow minimum disturbance of them. • Encourage staff, to identify and report environmental incidents and consider alternatives that will minimise damage to the vegetation, within the area. <u>Weeds and Seeds</u> • Where a noxious weed or undesirable seed is identified or the specification nominates they exist, use this instruction or prepare a specific action plan that takes into account the risk of distribution. • Check requirements and restrictions of any relevant Permits. • Seek prior approval to compact or mulch in designated areas. • Ensure staff have access to plant, equipment, and resources applicable to the risk, and the washing and cleaning that will be required.
SITE OPERATION:	<u>Before starting work at each location:</u> • Hold toolbox meeting to discuss environmental issues and the need to protect the natural flora and fauna and minimise the disturbance to all vegetation and (where required) the requirement to wash plant and equipment before they leave an area of weed infestation. • Prior to work starting The Project Manager / Supervisor or Construction Foreman will inspect the site with the Client / Superintendent. • Identify the limit of clearing and grubbing by placing pegs or marking the area on the ground. Mark flora that has to be removed and transferred to another location as well as any noxious or undesirable weeds and seeds. • No tree / shrub to be removed without the agreement of the Principal / Superintendent / Client. • Retained vegetation is to be sufficiently barricaded to prevent damage. <u>Grubbing and clearing:</u> • Barricade sensitive areas with permanent or temporary fencing. • Protect trees as necessary with barricading for root systems, or timber shields to stop damage to the trunk and branches. • Use signs to prohibit entry and warn others of sensitive flora and fauna or heritage issues etc.

- The Project Manager / Supervisor or Construction Foreman shall show the operator and relevant site personnel the extent of clearing and the Flora or Fauna that must be protected or moved.
- Remove the flora and fauna carefully and shift to a location agreed to within the IPMP. **NOTE:** Fauna relocation if required, is to be undertaken by a suitably qualified person (i.e. licenced spotter / Catcher).
- Salvage topsoil and vegetation for replacement at the completion of work.

Recording the inspection and protection:

The Construction Foreman shall keep a record of the inspection and removal of Fauna and Flora in the site diary.

- Limit vehicle movement to the designated access routes, to minimise the spread of weeds and seeds and disturbance to trees and surrounding earth.
- Isolate notifiable or noxious plants, chipping or mulching to be carried out only with the permission of the Principal / Superintendent / Client.
- Burning is not permitted, or environmentally appropriate.
- Any felled trees must remain within the approved clearing area.
- Trench excavation will be confined to the smallest possible area.
- The construction site will be restored, as close as possible, to its pre-construction condition.
- No firearms or pets are allowed on the construction site.
- Fauna habitat will not be removed unnecessarily.
- All site personnel immediately to report sighting of dead, injured or trapped fauna to their Supervisor.

Rehabilitation:

- Re-grass areas where vegetation is removed as soon as possible.
- Re grade or scarify to minimise erosion and assist new growth.
- In sensitive areas comply with contract conditions regarding landscaping and planting.

Washing and cleaning process:

- Wash and clean all plant and equipment that has left the roadway and entered the area that is identified with the undesirable plants and seeds.
- Where temporary clean-down bays are used, they shall be:
 - a) located in areas easily accessible for ongoing maintenance;
 - b) located greater than 200 metres from a watercourse, drainage line or environmentally sensitive area;
 - c) designed to contain weed seeds, sediments, oils and greases; and
 - d) designed to prevent vehicle recontamination.
- Normal procedure will be to wash down with the high-pressure pump on water truck.
- Inspect underneath the plant and equipment thoroughly before releasing to travel offsite.
- Notify the Project Manager / Supervisor if an item of plant or equipment cannot be cleaned satisfactorily with the resources made available and alter the process to allow the item of equipment to be cleaned.
- Ensure the cleaning site is kept tidy, free of pools of water and is not a HSE hazard.



Environmental Instruction - ENVI 05

Flora and Fauna

PERFORMANCE INDICATOR:	Visible signs of damage to protected trees or other vegetation. Unauthorised chipping or mulching onsite. Burning of cleared vegetation. A report of dead, injured or trapped fauna onsite. Evidence of fauna habitat removal. Noxious plants or seeds observed away from controlled areas. Neighbouring parties complaining disbursement of noxious plants and/or seeds.
CORRECTIVE ACTION:	Modify removal and disposal procedures, to prevent disbursement. Ensure washdown procedures are adequate. Refer to relevant Permits and EPAs. Review procedures for noxious weeds. Hold Toolbox Meeting / Safety Committee Meeting and re-emphasise to vehicle operators and other site personnel to observe the above measures. Rectify the situation immediately.
RESPONSIBILITY:	Project Manager / Construction Supervisor / Construction Foreman

Where obligations listed above are included in the client's scope under the contract, responsibility shall be appropriately transferred.

NOTE: This Environmental Instruction is not intended to be exhaustive or complete. Prior to commencement of work, task-specific hazards should be identified, risks assessed and risk control measures implemented.

OBJECTIVE:	To undertake operations so that adverse impacts on residents from noise and vibration are minimised. • No complaints of dust from residents • No damage to buildings / structures due to vibration.
PLANNING & PREPARATION:	Noise and Vibration is generated during some construction activities and has the potential to impact on human perception, buildings and structures and sensitive equipment e.g. operating theatres, electron microscopes, photographic equipment, analytical balances etc. The impact of noise and vibration is dependent on factors such as: • type of soil; • condition of buildings / structures; • construction activity being undertaken and the type of equipment being used; and • equipment or facilities located in nearby buildings. NOTE: Vibration from any given source will vary with distance and ground conditions. In all cases an inspection and report including photos should be made of any structure at risk prior to works commencing. This report should be agreed by the owner and contractor and can be used to assess any damage. Where doubt exists, measure the vibration adjacent to the structure using a geophone. This will enable method selection and vibration management. Ensure that all affected residents have been informed about the project and are aware of the potential impacts. Establish site hours. Normal construction hours (*Note: check with the local council as work hours may vary in some instances e.g. hospital, nursing home, school etc.): Monday to Friday 7:00am - 5:30pm Saturday 7:00am - 1:30pm Construction personnel should not commence work outside approved working hours. Where out-of-hours' work is necessary e.g. due to traffic management constraints, nearby residents will be notified (e.g. letter drop). The local Council and where required the Department of Environment and Heritage Protection (DEHP) will be informed so that they are aware the activity is taking place and the reason it has been scheduled out of hours. Council and DEHP may in some situations be supplied with a 24-hour contact number for the Project Manager. 1. Use of alternative construction methods, forms of communication or machinery e.g. bored piles instead of driven piles. 2. Use of noise barriers - barriers should be 0.5m above the highest noise source. 3. Scheduling noisy or vibrating activities at times of least impact. 4. Locate noise generating activities in non-sensitive areas. 5. Selection of equipment based on machinery noise levels. 6. Rescheduling work activities.
SITE OPERATION:	1. Ensure all site personnel attend a site induction, so that they are informed of the above requirements. 2. Restrict the speed of heavy equipment and ensure trucks / vehicles use designated access roads rather than suburban streets where possible. 3. Face reversing vehicles away from noise sensitive areas or introduce "White Noise Reverse Alarms". 4. Machinery and equipment generating excessive noise (e.g. due to poor maintenance) should not be used at the site.

	5. Run motors and equipment only when required – DO NOT ALLOW EXCESSIVE IDLING. 6. Record unusually loud exhausts and motors on Machine Pre-start and in a Site Diary – they may need urgent servicing. 7. Minimise the use of vibration in compaction equipment or reduce the magnitude of vibration in sensitive areas. 8. Use smaller plant if possible. 9. Use alternative methods i.e. hydraulic hammer in lieu of explosives, bored piles rather than driven piles. 10. Select pile-driving equipment to minimise vibration.
PERFORMANCE INDICATOR:	More than one noise or vibration complaint in any one-week period could indicate unacceptable disturbance. No damage to surrounding buildings / structures. To avoid damage to structures the following limits are suggested:- • 2.0mm/second for very fragile structures i.e. Historical buildings, monuments and buildings of special significance etc. • 5.0mm/second for houses and low rise residential buildings, commercial buildings not included below. • 5.0mm/second for commercial and industrial buildings or structures of reinforced concrete or steel construction including bridges. The above is a guide only and individual situations should be assessed by competent personnel. The client should be aware of limits adopted. If more than one complaint is received in any one-week period, corrective action should be taken.
CORRECTIVE ACTION:	1. If possible, modify start and finish times. 2. Ensure plant and equipment is adequately maintained and log books kept and pre-start checks are carried out. 3. Engage specialist consultant to undertake geophone measurements and provide advice where required.
RESPONSIBILITY:	Project Manager / Construction Supervisor / Site Foreman

Where obligations listed above are included in the client's scope under the contract, responsibility shall be appropriately transferred.

NOTE: This Environmental Instruction is not intended to be exhaustive or complete. Prior to commencement of work, task-specific hazards should be identified, risks assessed and risk control measures implemented.

E.g. The removal of water from site, boring works, pit, excavation, dam etc.

Preliminary

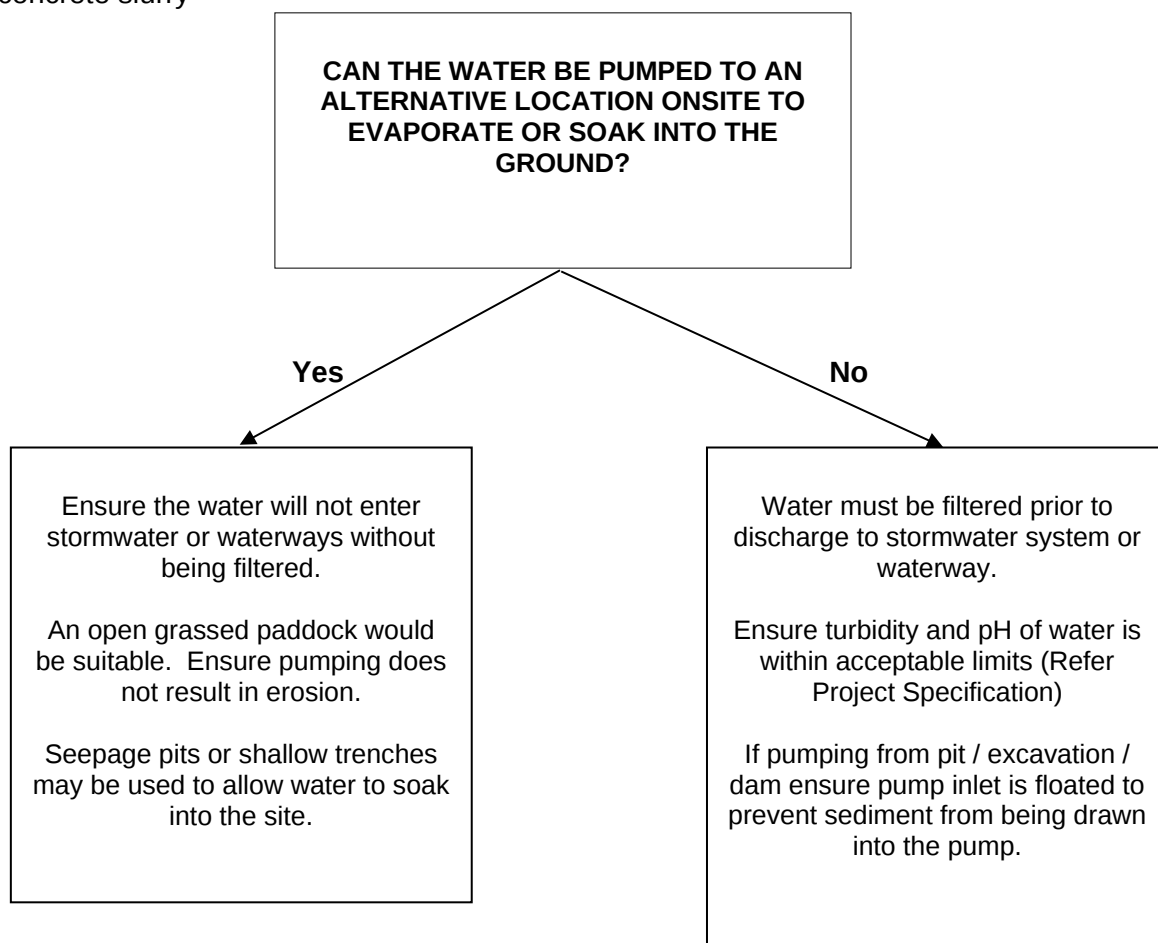
Always try to minimise the amount of water requiring treatment. This can be done by:

- Keeping the pressure to a minimum and turning the water off when it is not needed.
- Using cut off trenches, sheet piles, sand bags, hay bales etc. to hold the water in place.

If water does need to be removed the following steps should be undertaken:

SCENARIO 1 – No obvious contamination

- No foams or scum
- No sheen or oil on surface
- No unusual odours
- No unusual colours or opacity
- No mud or sediment in the water
- No concrete slurry



SCENARIO 2 – Water appears contaminated but the contamination is only due to combination of water and soil (muddy)

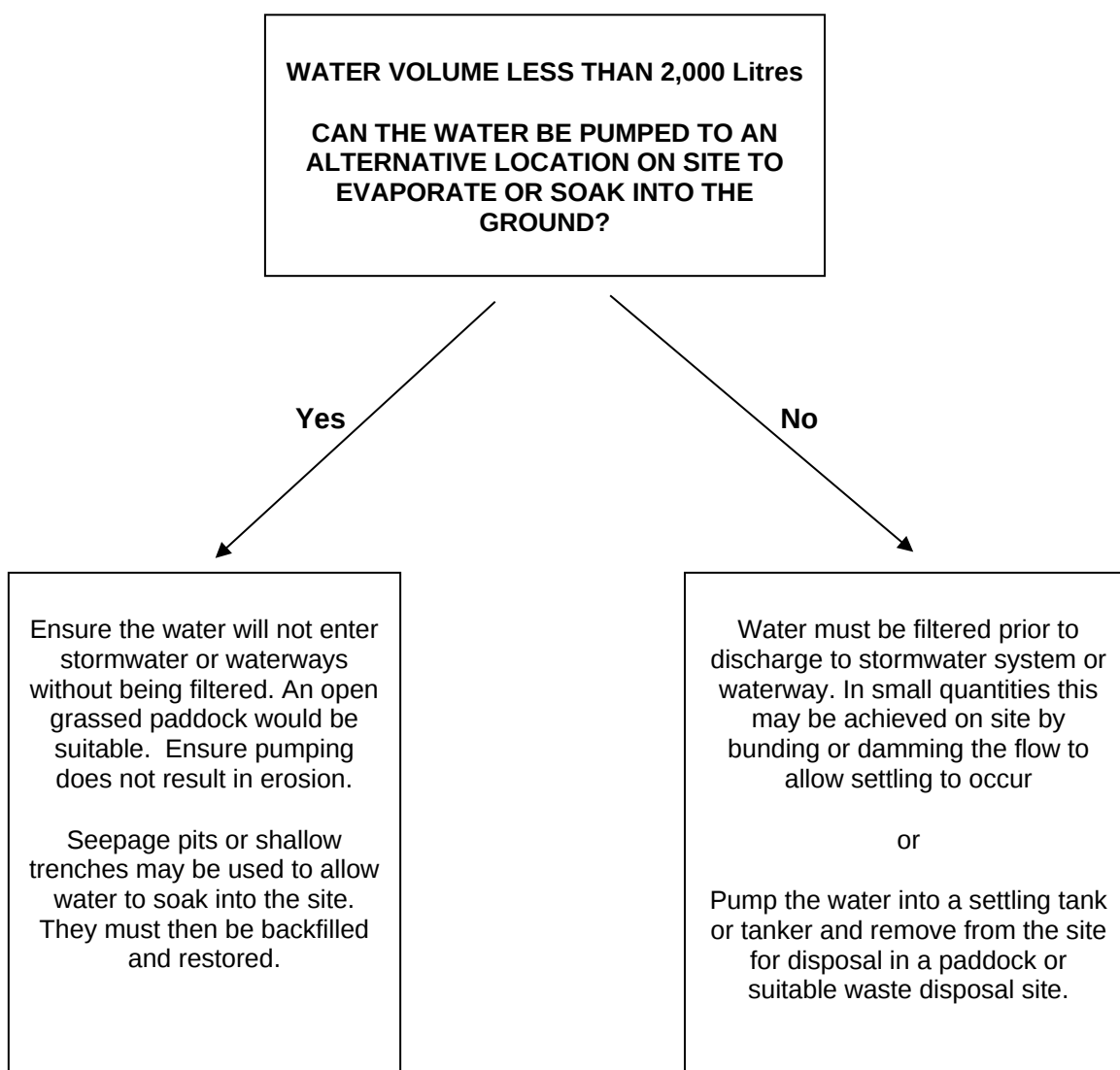
The **Construction Foreman** is experienced enough to judge that the contamination is only due to the mixing of existing soil with water e.g.

- Water containing mud or slurry from boring works.
- Water containing mud or slurry from directional drilling works.

Condition:

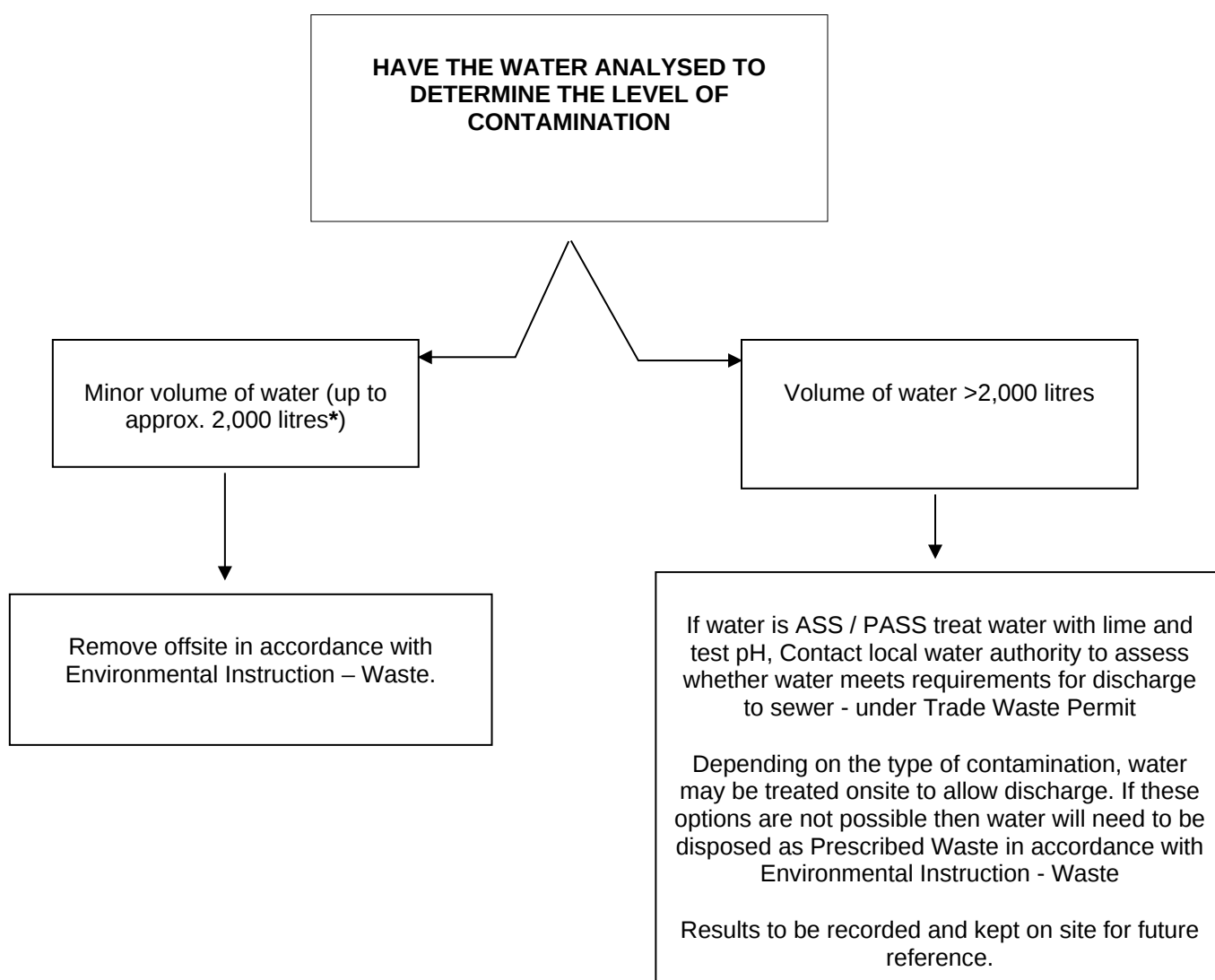
Volume of water is limited to less than 2,000 litres as described in **Scenario 3**.

If the volume of water is larger than 2,000 litres then **Scenario 3** must be applied and some extensive planning analysis and permission is required.



SCENARIO 3 – Water appears contaminated (other than clean soil / mud)

- May be odorous
- Unusual colour
- Foam or scum may be present
- Oil or sheen on surface
- May contain concrete slurry
- Contamination is known e.g. ASS / PASS



***Note:** Undertaking a cost benefit analysis will aid in determining the most cost effective disposal option. Usually if there is only a minor volume of water it is not worthwhile applying for a Trade Waste Agreement.



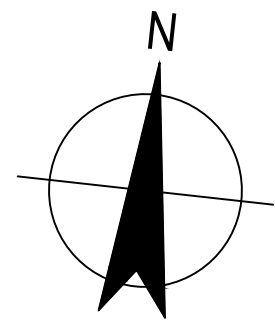
Environmental Instruction - ENVI 10

Site Visual Impacts and Amenities

OBJECTIVE:	To minimise any visual impact and / or local amenity loss where we work.
RISK	Sediment and litter such as paper, plastic, packing material and other refuse as well as being a possible safety risk may be carried offsite or washed into waterways resulting in pollution, impact to native fauna and loss of local visual amenity. Residents may also be impacted by construction generated lighting, litter, odour, mud, dirt and dust. Site sheds, toilets and storage of material can represent a nuisance if not kept clean and as neat as possible.
PLANNING & PREPARATION:	Inform affected residents about the project and potential impacts. Inform site personnel of the requirements to always maintain good housekeeping and keep the site tidy at all times.
SITE OPERATION:	1. Provide appropriate number of waste disposal bins and skips, including designating wash-down areas. 2. Use the site induction to communicate the requirements for a tidy site and to always have consideration for the local residents. 3. The use of temporary fencing alleviates visual intrusion and increases the security of the site. 4. Install lighting onsite to ensure that local residents are not affected i.e. lights not directed into residences. 5. If as a result of our construction, a resident is affected by dirt, mud, or litter then we will rectify this problem at our cost. 6. If bike paths or walkways are altered as a result of construction then appropriate signage will be installed to ensure the public are safe and diverted around the area. Where possible such signage will be installed in advance of the alterations. 7. Where possible, every effort will be made to keep pedestrian and cyclist access paths open at all times. 8. Inspect the site frequently. 9. Ensure public roads are kept free of dirt / mud from the construction site.
PERFORMANCE INDICATOR:	Inspection confirms that all litter / waste disposed of in appropriate bins. Pedestrian / cyclist access to remain open or alternatively to be well sign posted. Any visible build-up of litter / waste would indicate unacceptable visual impact management, and corrective action should be taken. Review of community enquiries and complaints - more than one complaint related to visual impact / loss of amenity in any one-week period could indicate unacceptable disturbance. If more than one complaint is received in this period, corrective action should be taken.
CORRECTIVE ACTION:	1. Review visual impact mitigation measures and modify accordingly. 2. Enforce site housekeeping rules through toolbox talk.
RESPONSIBILITY:	Project Manager / Construction Supervisor / Site Foreman

Where obligations listed above are included in the client's scope under the contract, responsibility shall be appropriately transferred.

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LEGEND

- 8.0 EXISTING SURFACE CONTOUR (0.2m INTERVAL)
- 8.6 FINISHED SURFACE CONTOUR (0.2m INTERVAL)
- EXTENT OF DISTURBANCE
- TEMPORARY CONSTRUCTION ENTRY/EXIT
- SF SEDIMENT FENCING
- KST KERB INLET SEDIMENT TRAP
- RFD ROCK FILTER DAM

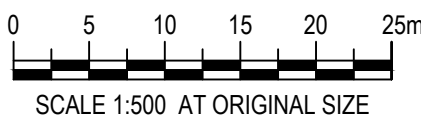
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By Lauren McKew at 9:48 am, Apr 06, 2021

NOTES

- REFER TO DRG 12528012-C002 FOR STANDARD NOTES.
- REFER DRG 12528012-C022 AND C023 FOR EROSION AND SEDIMENT CONTROL DEVICE DETAILS.

PLAN
SCALE 1:500



Level 8, 15 Lake Street, Cairns QLD 4870 Australia
PO Box 819, Cairns QLD 4870
T 61 7 4044 2222 F 61 7 4044 2288
E cnsmail@ghd.com.au W www.ghd.com.au

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Drafting Check G. APPLIN	Design Check G. APPLIN
Approved (Project Director) Date	
Scale 1:1000 H / 1:100 V	This Drawing must not be used for Construction unless signed as Approved

Client Project Title	BROOKFIELD BLUEWATER STAGES 5-8 PTY LTD BLUEWATER STAGES 18 22 AND 23 EROSION AND SEDIMENT CONTROL STRATEGY PLAN
Original Size	A1
Drawing No:	12528012-C021
Rev:	0

FABRIC:
POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140GSM. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

SUPPORT POSTS/STAKES:
1500mm² (MIN) HARDWOOD, 2500mm² (MIN) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT AND REQUIRED TYPE OF FABRIC (IF SPECIFIED); IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, FABRIC TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. TO THE MAXIMUM DEGREE PRACTICAL, AND WHERE THE PLANS ALLOW, ENSURE THE FENCE IS LOCATED:
 - i. TOTALLY WITHIN THE PROPERTY BOUNDARIES.
 - ii. ALONG A LINE OF CONSTANT ELEVATION WHEREVER PRACTICAL;
 - iii. AT LEAST 2m FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DRAINING THE FENCE.
3. INSTALL RETURNS WITHIN THE FENCE AT MAXIMUM 20m INTERVALS IF THE FENCE IS INSTALLED ALONG THE CONTOUR, OR 5 TO 10m MAXIMUM SPACING (DEPENDENT ON SLOPE) IF THE FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE RETURNS' SHALL CONSIST OF EITHER:
 - i. V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
 - ii. SANDBAG OR ROCK/AGGREGATE CHECK DAM A MINIMUM 1/3 AND MAXIMUM 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.
4. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5m, OR AS NECESSARY, TO MINIMISE WATER BYPASSING AROUND THE FENCE.
5. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE, AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.
6. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE. DO NOT ATTACH THE FABRIC TO THE TREES.
7. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200mm WIDE BY 200mm DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.
8. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3m IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2m.
9. IF SPECIFIED, SECURELY ATTACH THE SUPPORT WIRE OR MESH TO THE UP-SLOPE SIDE OF THE STAKES WITH THE MESH EXTENDING AT LEAST 200mm INTO THE EXCAVATED TRENCH, ENSURE THE MESH AND FABRIC IS ATTACHED TO THE UP-SLOPE SIDE OF THE STAKES EVEN WHEN DIRECTING A FENCE AROUND A CORNER OR SHARP CHANGE OF DIRECTION.
10. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC EITHER:
 - i. ATTACH EACH END TO TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN, AND WITH THE TWO STAKES TIED TOGETHER WITH WIRE; OR
 - ii. OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.
11. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 x 12.5mm STAPLES, OR TIE WIRE AT MAXIMUM 150mm SPACING.
12. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1m.
13. ENSURE THE COMPLETED SEDIMENT FENCE IS AT 450mm, BUT NOT MORE THAN 700mm HIGH. IF A SPILL-THOUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300mm ABOVE GROUND LEVEL.
14. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.

19. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY
REPAIRS IMMEDIATELY.

20. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.

21. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED
LAYOUT IS REQUIRED OR SPECIFIED.

22. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.

23. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.

24. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

25. REPLACE THE FABRIC IS THE SERVICE LIFE OF THE EXISTING FABRIC EXCEEDS 6 MONTHS.

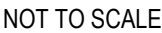
26. WHEN DISTURBED AREAS UP-SLOPE OF THE SEDIMENT FENCE ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE FENCE MUST BE REMOVED.
27. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
28. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.



NOT TO SCALE



NOT TO SCALE



1. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. CLEAR THE LOCATION OF THE ROCK PAD, REMOVING STUMPS, ROOTS AND OTHER VEGETATION TO PROVIDE A FIRM FOUNDATION SO THAT THE ROCK IS NOT PRESSED INTO SOFT GROUND. CLEAR SUFFICIENT WIDTH TO ALLOW PASSAGE OF LARGE VEHICLES, BUT CLEAR ONLY THAT NECESSARY FOR THE EXIT. DO NOT CLEAR ADJACENT AREAS UNTIL THE REQUIRED EROSION AND SEDIMENT CONTROL DEVICES ARE IN PLACE.
3. IF THE EXPOSED SOIL IS SOFT, PLASTIC OR CLAYEY, PLACE A SUB-BASE OF CRUSHED ROCK OR A LAYER OF HEAVY-DUTY FILTER CLOTH TO PROVIDE A FIRM FOUNDATION.
4. PLACE THE ROCK PAD FORMING A MINIMUM 200mm THICK LAYER OF CLEAN, OPEN-VOID ROCK.
5. IF THE ASSOCIATED CONSTRUCTION SITE IS UP-SLOPE OF THE ROCK PAD, THUS CAUSING STORMWATER RUNOFF TO FLOW TOWARDS THE ROCK PAD, THEN FORM A MINIMUM 300mm HIGH FLOW CONTROL BERM ACROSS THE ROCK PAD TO DIVERT SUCH RUNOFF TO A SUITABLE SEDIMENT TRAP.
6. THE LENGTH OF THE ROCK PAD SHOULD BE AT LEAST 15m WHERE PRACTICABLE, AND AS WIDE AS THE FULL WIDTH OF THE ENTRY OR EXIT AND AT LEAST 3m. THE ROCK PAD SHOULD COMMENCE AT THE EDGE OF THE OFF-SITE SEALED ROAD OR PAVEMENT.
7. FLARE THE END OF THE ROCK PAD WHERE IT MEETS THE PAVEMENT SO THAT THE WHEELS OF TURNING VEHICLES DO NOT TRAVEL OVER UNPROTECTED SOIL.
8. IF THE FOOTPATH IS OPEN TO PEDESTRIAN MOVEMENT, THE COVER THE COARSE ROCK WITH FINE AGGREGATE OR GRAVEL, OR OTHERWISE TAKE WHATEVER MEASURES ARE NEEDED TO MAKE THE AREA SAFE.

9. INSPECT ALL SITE ENTRY AND EXIT POINTS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.
10. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MATERIAL MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.
11. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO REMOVE AND SWEEP THE MATERIAL FROM THE ROADWAY.
12. IF ANY WATERS FROM THE ROADWAY ARE MIXED WITH WASTEWATER, THE EFFECTIVENESS OF THE ROCK PAD IS REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE. A NEW 100MM LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.
13. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES (e.g. FLOW CONTROL BERM) ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITIONS.
14. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

1. THE ROCK PAD SHOULD BE REMOVED ONLY AFTER IT IS NO LONGER NEEDED AS A SEDIMENT TRAP.
2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
3. RE-GRADE AND STABILISE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

By Lauren McKew at 9:48 am, Apr 06, 2021

0	ISSUED FOR CONSTRUCTION		IRM	JH	GA
18.03.21					
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director
					Date



Level 8, 15 Lake Street, Cairns QLD 4870 Australia
PO Box 819, Cairns QLD 4870
T 61 7 4044 2222 F 61 7 4044 2288
E cnsmail@ghd.com.au W www.ghd.com.au

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A1

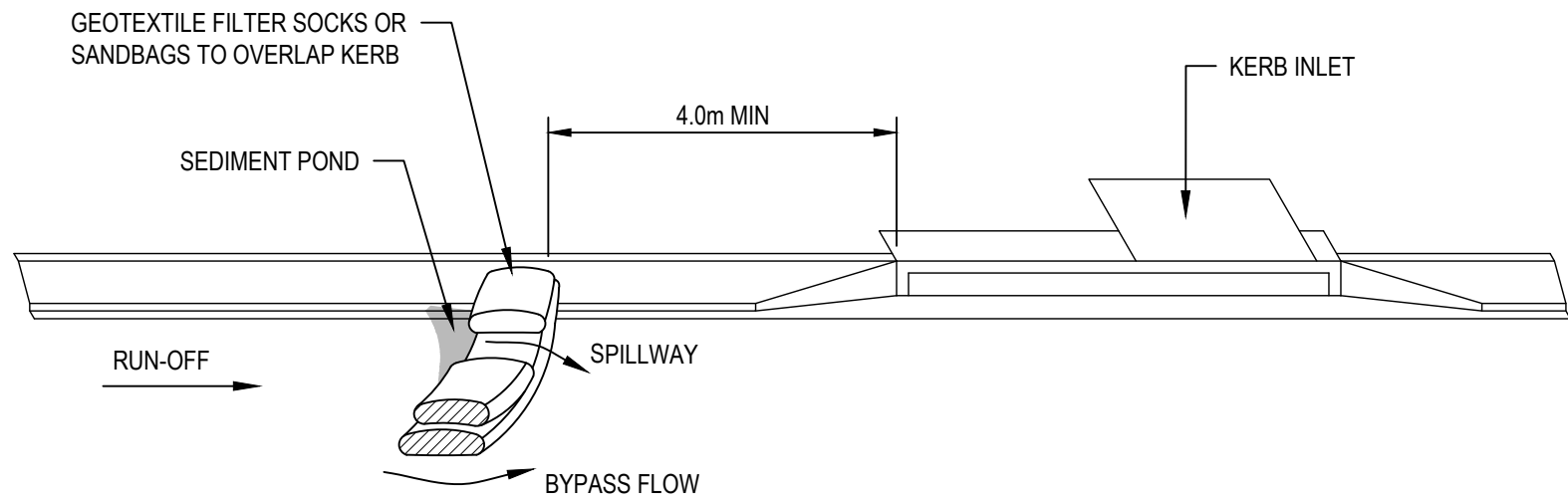
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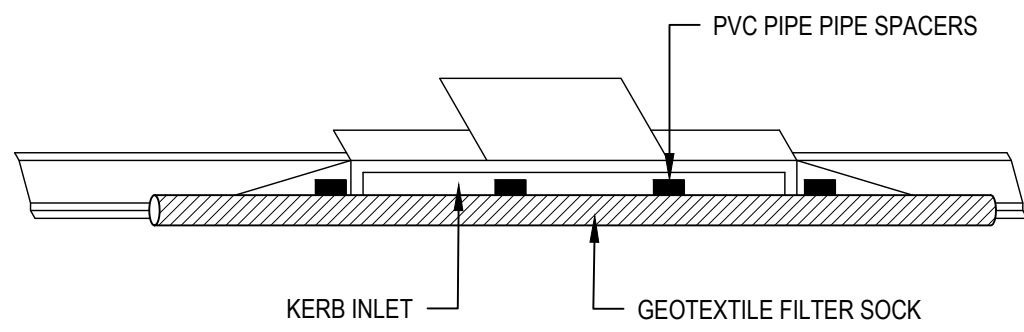
BROOKFIELD BLUEWATER STAGES 5-8 PTY LTD

BLUEWATER STAGES 18 22 AND 23

EROSION AND SEDIMENT CONTROL DETAILS - SHEET 1 OF 2



ON-GRADE INLET



SAG INLET

KERB INLET SEDIMENT TRAP

NOT TO SCALE

KERB INLET SEDIMENT TRAP

MATERIAL

SOCKS:

MINIMUM 200mm DIAMETER SYNTHETIC OR BIODEGRADABLE TUBES MANUFACTURED FROM NON-WOVEN OR COMPOSITE FABRIC SUITABLE FOR THE 'FILTRATION' OF COARSE SEDIMENT.

FILL MATERIAL:

STRAW CANE MULCH, COMPOSITE MATERIAL (AS4454), COURSE SAND OR CLEAN AGGREGATE.

INSTALLATION

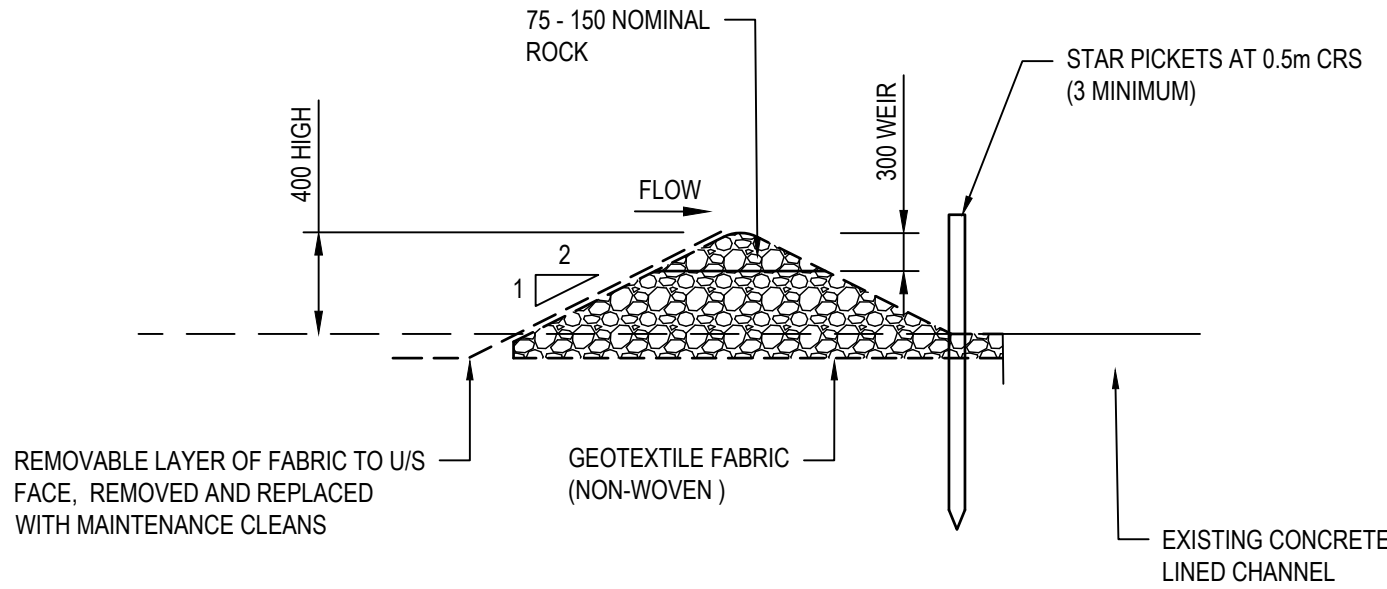
- REFER TO APPROVED PLANS FOR THE LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
- ENSURE THE SOCKS ARE PLACED INDIVIDUALLY OR COLLECTIVELY (AS A SINGLE SEDIMENT TRAP) SUCH THAT:
 - LEAKAGE AROUND OR UNDER THE SOCKS IS MINIMISED;
 - ADJOINING SOCKS ARE TIGHTLY BUTTED OR OVERLAPPED AT LEAST 450mm;
 - THE SURFACE AREA OF POTENTIAL WATER PONDING UP-SLOPE OF EACH SEDIMENT TRAP IS MAXIMISED;
 - TO THE MAXIMUM DEGREE PRACTICAL, ALL SEDIMENT-LADEN WATER WILL PASS THROUGH THE FORMED POND BEFORE FLOWING OVER THE DOWN-SLOPE END OF THE SEDIMENT TRAP.
- WHEN PLACED ACROSS THE INVERT OF MINOR DRAINS, ENSURE THE SOCKS ARE PLACED SUCH THAT:
 - THE CREST OF THE DOWNSTREAM SOCK IS LEVEL WITH THE CHANNEL INVERT AT THE IMMEDIATE UPSTREAM SOCK (IF ANY);
 - EACH SOCK EXTENDS UP THE CHANNEL BANKS SUCH THAT THE CREST OF THE SOCK AT ITS LOWEST POINT IS LOWER THAN GROUND LEVEL AT EITHER END OF THE SOCK.
- IF STAKES ARE REQUIRED TO ANCHOR THE SOCKS, THEIR SPACING DOES NOT EXCEED 1.2m OR SIX TIMES THE SOCK DIAMETER (WHICHEVER IS THE LESSER). A MAXIMUM STAKE SPACING OF 0.3m APPLIES WHEN USED TO FORM CHECK DAMS.

MAINTENANCE

- INSPECT ALL FILTER SOCKS PRIOR TO FORECAST RAIN DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER SIGNIFICANT RUNOFF PRODUCING STORMS OR OTHERWISE AT WEEKLY INTERVALS.
- REPAIR OR REPLACE DAMAGED SOCKS.
- THE BULK OF THE SEDIMENT COLLECTED BEHIND THE FILTER SOCKS SHOULD BE REMOVED BY SHOVEL AFTER EACH STORM EVENT.
- REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

REMOVAL

- ALL SAND, SOIL, SEDIMENT OR MUD MUST BE PHYSICALLY REMOVED FROM SEALED SURFACES, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.
- IF NECESSARY FOR SAFETY REASONS, THE SEALED SURFACE SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIALS FROM THE SURFACE.
- DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
- ALL SYNTHETIC (PLASTIC) MESH OR OTHER NON READILY BIODEGRADABLE MATERIALS MUST BE REMOVED FROM THE SITE ONCE THE SLOPE OR DRAIN IS STABILISED, OR THE SOCKS HAVE DETERIORATED TO A POINT WHERE THEY ARE NO LONGER PROVIDING THEIR INTENDED DRAINAGE OR SEDIMENT CONTROL FUNCTION.



ROCK FILTER DAM

NOT TO SCALE

ROCK FILTER DAM

MATERIALS

ROCK:

75 TO 100mm NOMINAL DIAMETER, HARD, EROSION RESISTANT ROCK.

GEOTEXTILE FABRIC:

HEAVY-DUTY, NEEDLE-PUNCHES, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

- REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
- PRIOR TO PLACEMENT OF THE FILTER DAM, ENSURE THE TYPE AND SIZE OF EACH CHECK DAMS WILL NOT CAUSE A SAFETY HAZARD OR CAUSE WATER TO SPILL OUT OF THE DRAIN.
- CONSTRUCT THE FILTER DAM TO THE DIMENSIONS AND PROFILE SHOWN WITHIN THE APPROVED PLAN.
- WHERE SPECIFIED, THE FILTER DAM SHALL BE CONSTRUCTED ON A SHEET OF GEOTEXTILE FABRIC USED AS A DOWNSTREAM SPLASH PAD.

MAINTENANCE

- INSPECT EACH FILTER DAM AND THE DRAINAGE CHANNEL AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.
- CHECK FOR DISPLACEMENT OF THE FILTER DAM.
- CHECK FOR SOIL SCOUR AROUND THE ENDS OF THE FILTER DAM. IF SUCH EROSION IS OCCURRING, CONSIDER EXTENDING THE WIDTH OF THE FILTER DAM TO AVOID SUCH PROBLEMS.
- IF SEVERE SOIL EROSION OCCURS EITHER UNDER OR AROUND THE FILTER DAM, THEN SEEK EXPERT ADVICE ON AN ALTERNATIVE TREATMENT MEASURE.
- REMOVE AND SEDIMENT ACCUMULATED BY THE FILTER DAM, UNLESS IT IS INTENDED THAT THIS SEDIMENT WILL REMAIN WITHIN THE CHANNEL.
- DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
- REPLACE GEOFABRIC LAYER ON UPSTREAM FACE WITH A CLEAN LAYER AS REQUIRED.

REMOVAL

- WHEN CONSTRUCTION WORK WITHIN THE DRAINAGE AREA ABOVE THE FILTER DAM HAS BEEN COMPLETED, AND THE DISTURBED AREAS AND THE DRAINAGE CHANNEL ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, ALL TEMPORARY CHECK DAMS MUST BE REMOVED.
- REMOVE THE FILTER DAM AND ASSOCIATED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

ISSUED FOR
CONSTRUCTION
FGF DEVELOPMENTS

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By Lauren McKew at 9:48 am, Apr 06, 2021

0	ISSUED FOR CONSTRUCTION		IRM	JH	GA	18.03.21
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date



Level 8, 15 Lake Street, Cairns QLD 4870 Australia
PO Box 819, Cairns QLD 4870
T 61 7 4044 2222 F 61 7 4044 2288
E cnsmail@ghd.com.au W www.ghd.com.au

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Drawn G. BROWNING

Designer G. BROWNING

Drafting Check G. APPLIN

Design Check G. APPLIN

Approved (Project Director)
Date

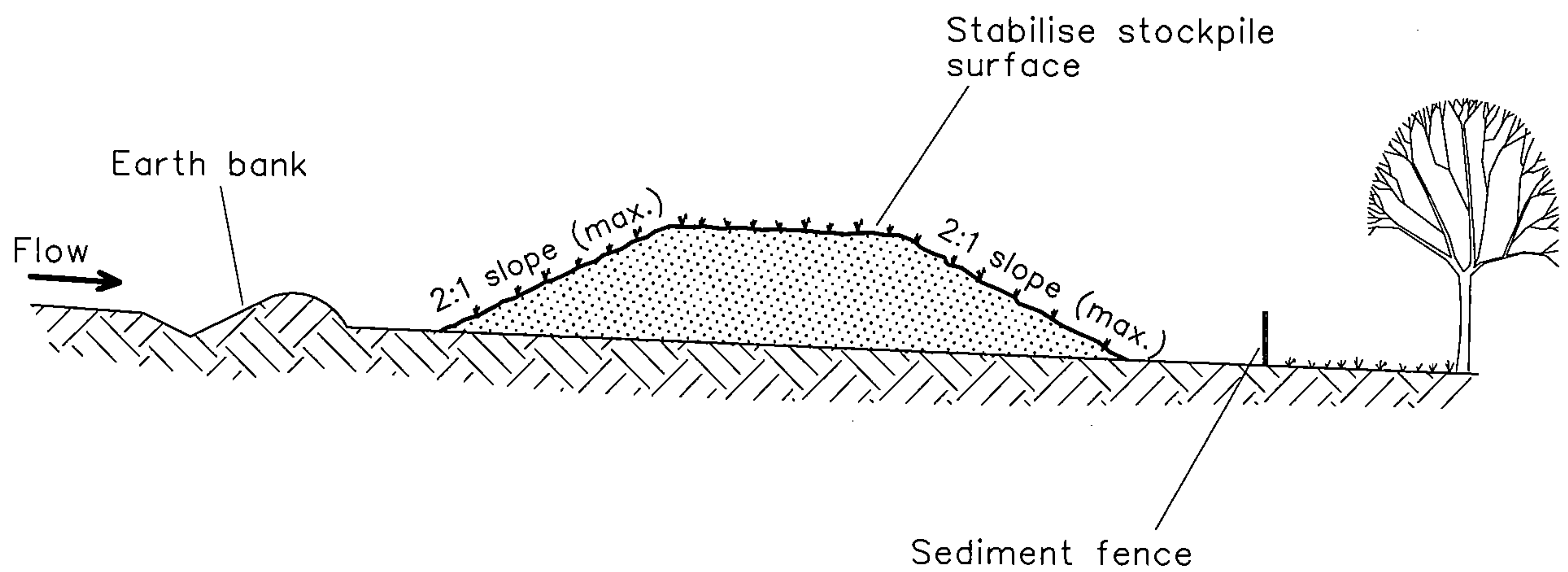
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This Drawing must not be used for Construction unless signed as Approved

Client
Project
Title
BROOKFIELD BLUEWATER STAGES 5-8 PTY LTD
BLUEWATER STAGES 18 22 AND 23
EROSION AND SEDIMENT CONTROL
DETAILS - SHEET 2 OF 2

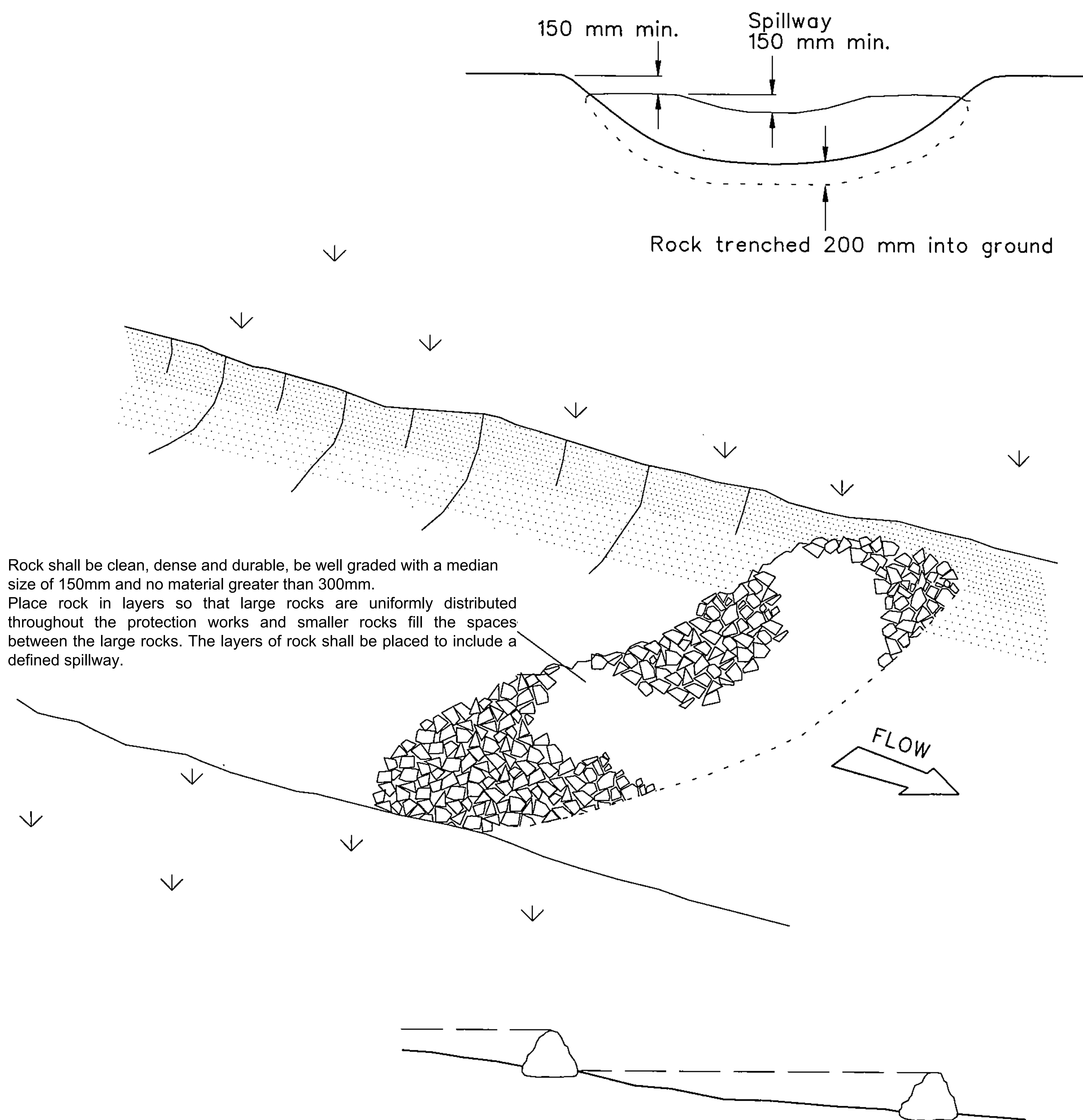
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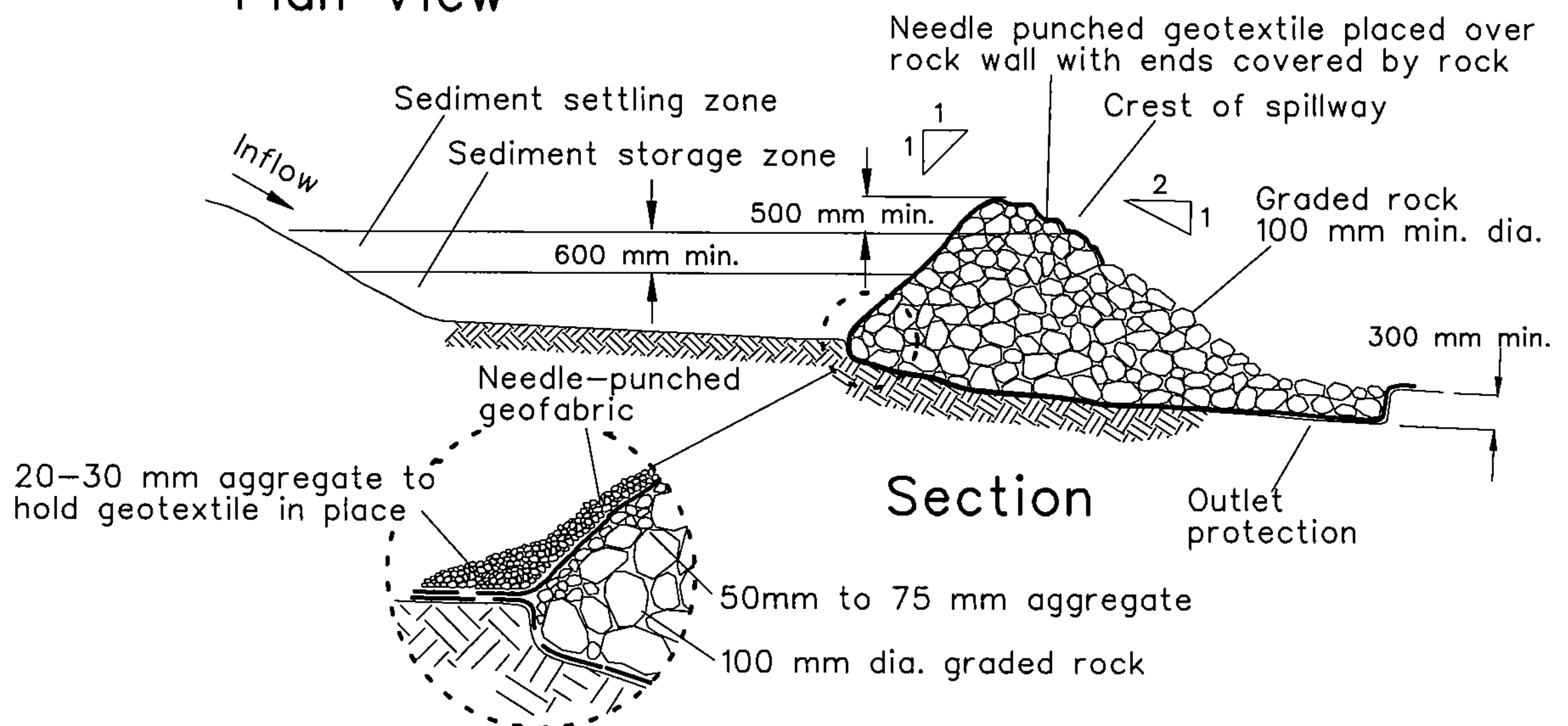
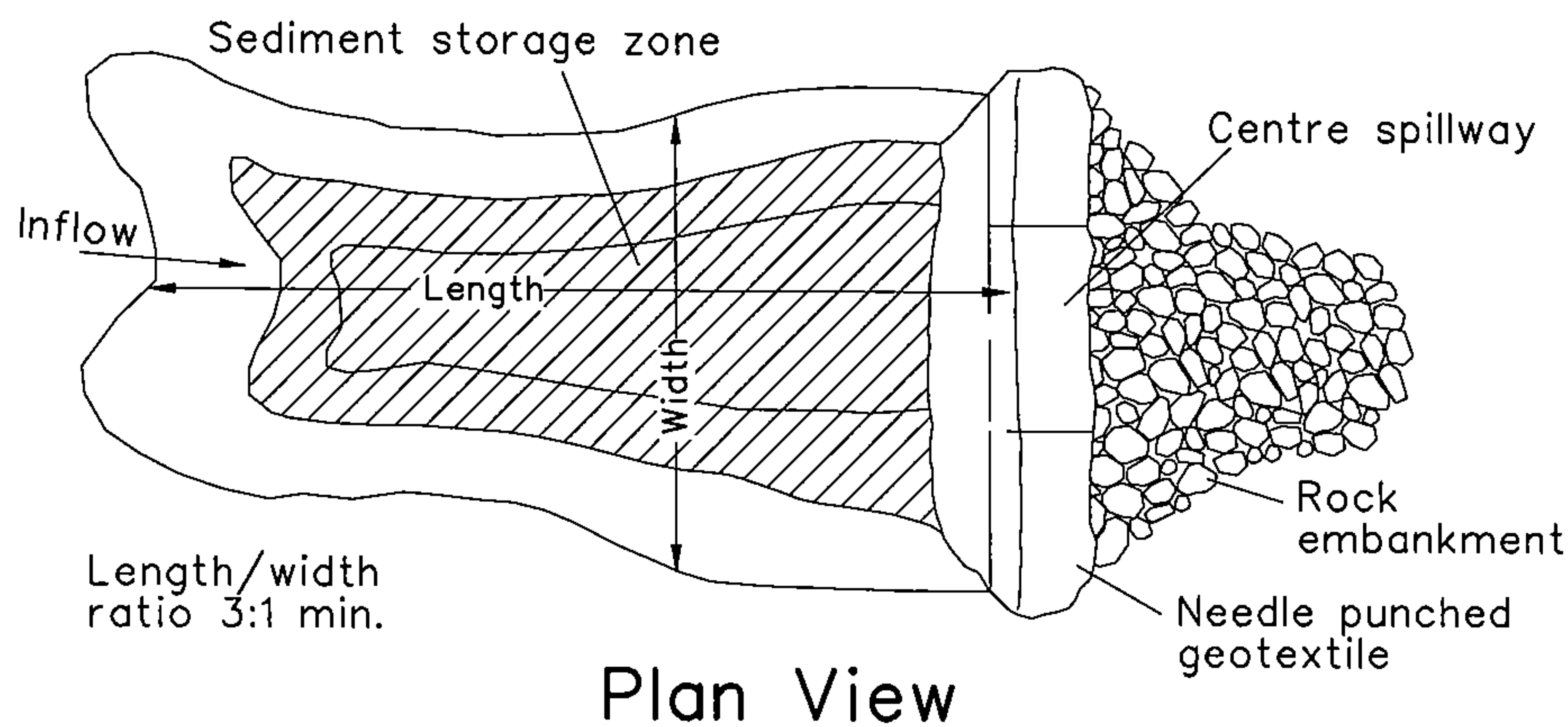
Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres 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 2 metres 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 2 metres downslope.

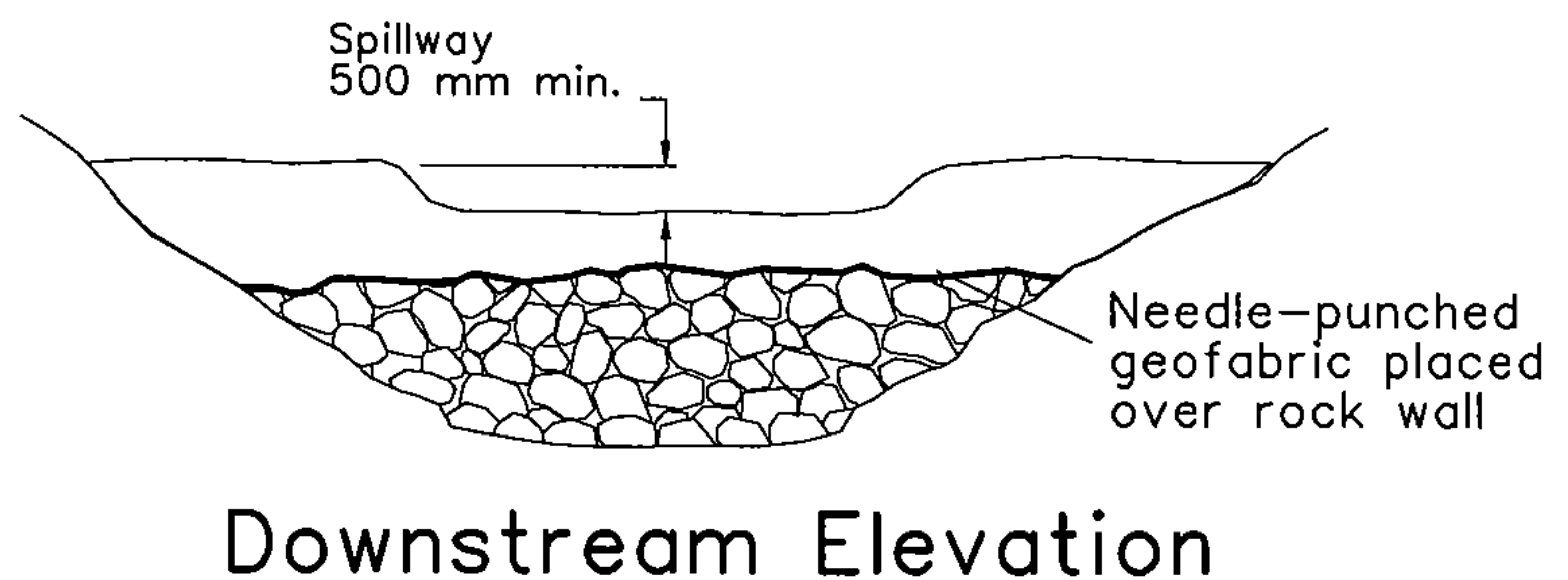


Construction Notes

1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.



NOTE:
Spillway width and depth, wall crest width and downstream outlet protection measures to be specified on SWMP.



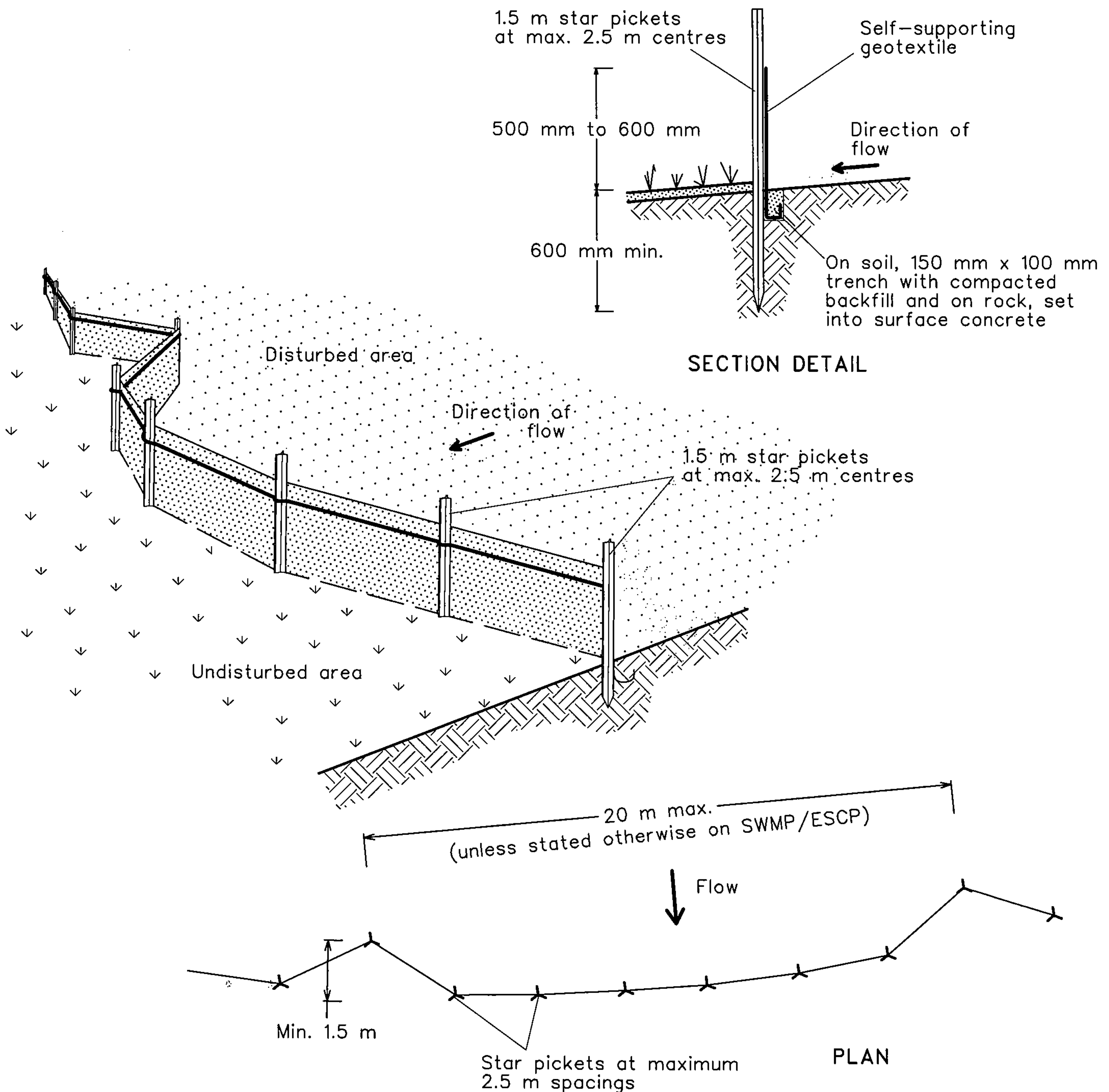
Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
2. Excavate to 300 mm depth for base of the dam wall.
3. Line the excavation with a needle-punched geotextile allowing sufficient to line below the wall, and over the upstream rock and the spillway to 500 mm below the spillway exit on the downstream face.
4. Make up the wall profile and outlet protection with 100 mm (min.) diameter graded rock. Spread a layer of 50 mm to 75 mm diameter aggregate over the upstream batter for a more even surface, and add 100 mm to 150 mm of 20 mm to 30 mm gravel over the 50 mm to 75 mm diameter aggregate.
5. Lay geotextile over the upstream batter and through the spillway, fixing in place with 100 mm rock.
6. Place a "Full of Sediment" marker to show when less than design capacity occurs and sediment removal is required.
7. Replace the upstream geotextile layer each time sediment is removed

ROCK SEDIMENT BASIN

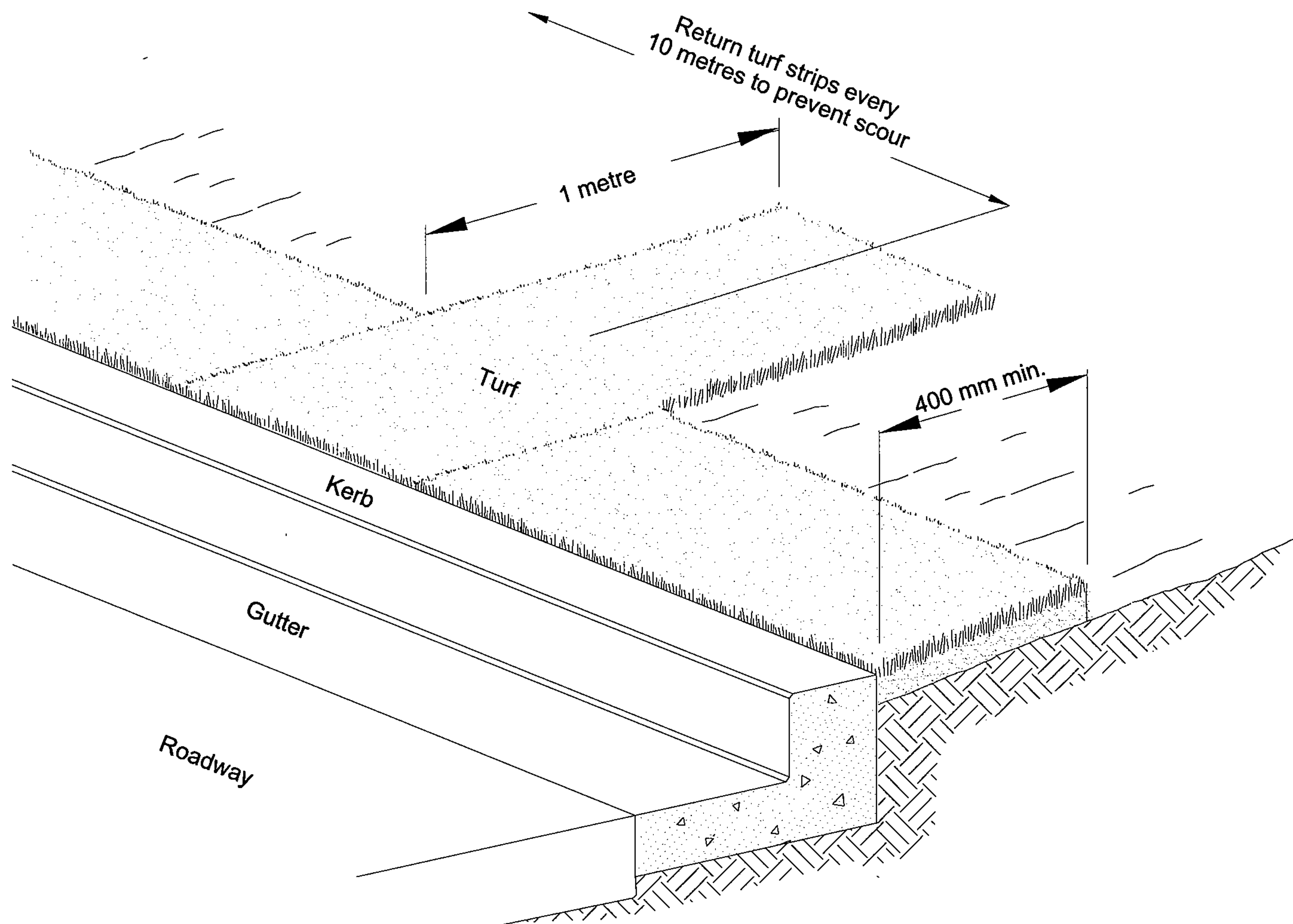
(APPLIES TO 'TYPE C' SOILS ONLY)

SD 6-1



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 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 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 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.



Construction Notes

1. Install a 400 mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the turf strip following the ESCP/SWMP.



On-grade kerb inlet sediment trap (OG)

A supplementary sediment trap

- One or more dam-type sediment traps are placed up-slope of on-grade kerb inlets (i.e. **not** at sag points on a road).

