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METHOD STATEMENT TITLE	Rev. -
Temporary Drainage and Sewage Management Plan	

	Prepared by:	Checked by:	Reviewed by:			Approved by:
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Name:	Kingsley Zhao	Vincent Li	KF Leung / WK Hui	MH Isa / WH Lam	MH Isa / Iris Ho	Eric Fong
Position:	Assistant Engineer	Construction Manager	SM/SO	QM/QE	EM/EO	Project Director
Date:	23/Feb/2024	23/2/2024	23/Feb/24	23/2/24	23/Feb/2024	23/Feb/2024

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<b>1.</b>	<b>Introduction</b> (Overview of the operation/works)																														
	<p>Wastewater generated from the construction activities need to be well treated to comply with the requirements of the Technical Memorandum on Effluent Standards under the Water Pollution Control Ordinance before discharging into any public sewer, storm water drain channel stream-course or sea. To fulfil this, CSHK prepared this method statement to outline the general temporary drainage and sewage management plan with measures for collection, diversion and disposal of sewage water/rainstorm water as well as proposed discharge points.</p> <p>The content of this document will be subject to review during the course of the works and may be amended if so required to suit actual site condition.</p>																														
<b>2.</b>	<b>Reference Documents</b> (Identify relevant documents by name and reference number)																														
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	The Sub-Contractor details would be advised in due course.																														
<b>4.</b>	<b>Responsibilities for Activities described within Method Statement</b>																														
	<p>CSHK is responsible to inspect and carry out the construction works. The following persons, as listed in the table below, will attend the specific tool-box talk and be responsible for the activities:</p> <table border="1"><thead><tr><th>Company</th><th>Name</th><th>Position</th></tr></thead><tbody><tr><td></td><td>Vincent Li</td><td>Construction Manager</td></tr><tr><td></td><td>Nana Chung</td><td>Assistant Construction Manager</td></tr><tr><td></td><td>Johnson Chung</td><td>Senior Engineer</td></tr><tr><td></td><td>David Lam</td><td>Senior Engineer</td></tr><tr><td></td><td>Jacky Luo</td><td>Engineer</td></tr><tr><td></td><td>Kingsley Zhao</td><td>Assistant Engineer</td></tr><tr><td></td><td>Li Man Hin</td><td>Graduate Engineer</td></tr><tr><td></td><td>CHEUNG Siu Kei</td><td>Superintendent</td></tr><tr><td></td><td>WONG Yu Fung</td><td>Senior Foreman</td></tr></tbody></table>	Company	Name	Position		Vincent Li	Construction Manager		Nana Chung	Assistant Construction Manager		Johnson Chung	Senior Engineer		David Lam	Senior Engineer		Jacky Luo	Engineer		Kingsley Zhao	Assistant Engineer		Li Man Hin	Graduate Engineer		CHEUNG Siu Kei	Superintendent		WONG Yu Fung	Senior Foreman
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<b>5.</b>	<b>Programme and Working Hours</b> (Start & finish date of operation/works)																														
	<p>For works areas after declared as CAs, works will be carried out during TH (08:00-18:00) and night time (18:00 – 08:00).</p> <p>Construction work carried out near the operation railway cannot be accessed during day time operation hours. It shall be accessed during non-peak hours (NPH from 11:00am to 15:00pm for West depot entry track or night time after the train services at non-traffic hour (NTH: from 2:00am to 4:00am) for mainline. Mainline on 3NTNs per week is allowable under contract.</p> <p>For test track, only 3 nos. of night time possessions are tentatively available on Fri^Sat, Sat^Sun, and one other night during the week.</p> <p>However, it may be required to carry out works from 19:00 to 23:00 and Sunday and Public Holidays in case of essential speeding up of the working process. CSHK would check internally</p>																														

	<p>to fulfil the Construction Noise Permit Requirement.</p>								
<b>6.</b>	<p><b>Plant, Equipment &amp; Material</b> (Identify type, model and specification of MAJOR plant &amp; equipment)</p> <p>All plants and equipment will be inspected prior to the mobilization on site to ensure that they are in good working condition and comply with the current regulations.</p> <p>The major plants and equipment will be deployed to carry out the works are as follow: -</p> <table border="1"><thead><tr><th><b>Plant / Equipment</b></th><th><b>Quantity</b></th></tr></thead><tbody><tr><td>AquaSed</td><td>5</td></tr><tr><td>Sump Pump</td><td>8</td></tr><tr><td>Backhoe</td><td>1</td></tr></tbody></table> <p>Actual plants and equipment to be used will be subject to site condition.</p>	<b>Plant / Equipment</b>	<b>Quantity</b>	AquaSed	5	Sump Pump	8	Backhoe	1
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<b>7.</b>	<p><b>Construction Methods / Construction Sequence Drawings</b></p> <p><b>1. Methodology of temporary sewage treatment and diversion</b></p> <p>A temporary drainage proposal, including how the sewerage would be collected, conveyed and discharged to the site, would be submitted to DSD to demonstrate that the proposed use of the site would not have adverse drainage impacts on the drainage issue to the area. Upon the satisfactory drainage submission approved by DSD, the proposed drainage facilities as per our submissions shall be implemented and completed as soon as possible.</p> <p>In general, a surface channel at the peripheral of the site should be constructed to intercept all such rain water falling onto the site. U-channel shall be located on the lower side to collect rain water from the site. Then sewage water/stormwater shall be collected by pump into catch pit (UU detection should be carried out before excavation for placing pre-cast catch pit), and "AquaSed" shall be equipped in every local area for sedimentation and treatment (Figure 1.0 for simply reference). We would take advantage of existing public drainage system by diverting waste water/stormwater into manholes and gullies to discharge them. The flow chart of overall treatment process may refer to Figure 1.1.</p> 								

Figure 1.0 SquaSed Wastewater Treatment System

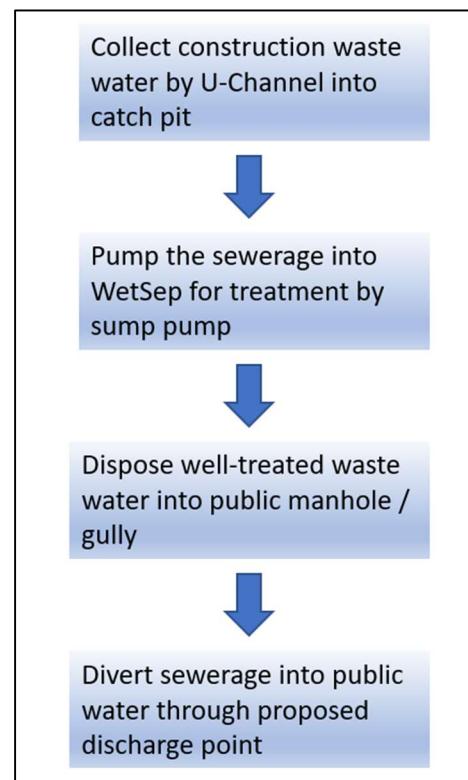


Figure 1.1 General Sequence of Disposal of Wastewater

## 2. Checking of drainage for temporary purposes

- The capacities of the existing drainage affected by the discharge of the additional construction generated waste water will be considered as an impact to the existing system and checked for the maximum capacity. The capacity calculation under review and will supplement later.
- The temporary drainage arrangement will be designed in accordance with DSD Technical Circular No. 1/2017 to ensure that the additional capacity as well as the surface run-off does not incur any adverse impact to the existing drainage system.
- There will be no significant alteration to the drainage pattern while treated water will be discharged to existing drainage system.
- The temporary drainage diversion will be checked and designed from time to time to suit the site activities.
- The sizes of existing drainage or permanent drainage pipelines designed by the Engineer form the basis to determine the minimum temporary pipeline sizes at the concerned locations.

## 3. Proposed temporary drainage arrangement

The overall arrangement layout refers to Figure 1.1. The temporary drainage system will be provided and reviewed accordingly to cope with the construction progress.



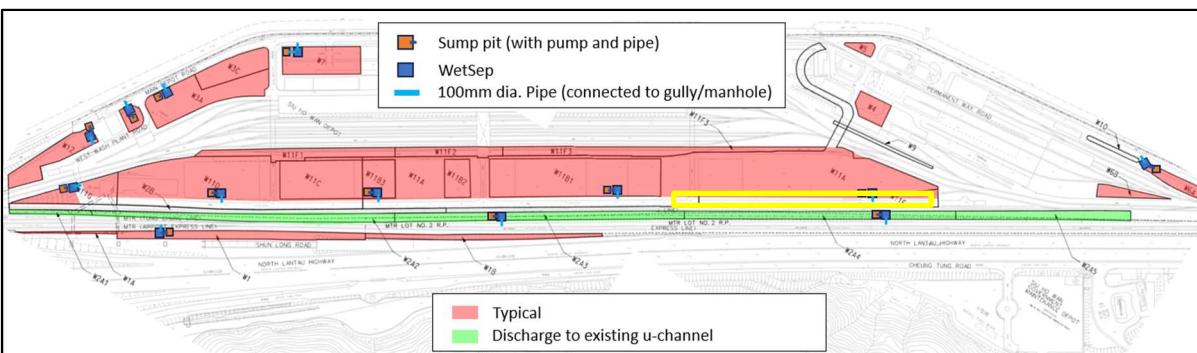


Figure 1.2 Overall Temporary Drainage Arrangement Layout

a. Area W12

Sewage in the Area W12 will be collected through U-channel constructed in this area into catch pit. Waste water stored in the catch pit shall be pumped into WetSep for treatment. And a 100mm dia. pipe is connected to nearby gully. After settling and reaching filtration requirements, waste water flows out from WetSep into gully through the 100mm link-up pipe. And then through the public drainage routing from M3.12.2 to M3.1, it is discharged into existing box culvert at the proposed discharge point M3.1.

b. Area W3B/W3A/W3C/W7

Area W3B, W3A, W3C and W7 are all Works Area in the north. Diverted waste water will be collected into "AquaSed". Dispose wastewater if it is properly treated into gullies in their respective areas through 100mm dia. pipe, and then discharge it along the same route which is from M1.10 to M1.1 finally to public box culvert.

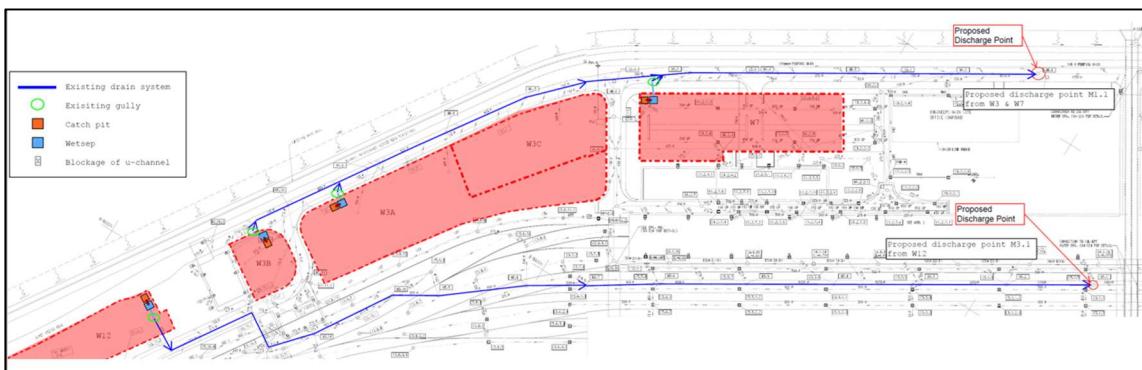
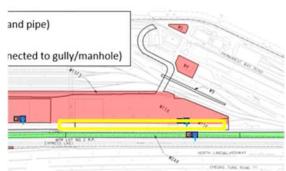


Figure 1.3 Discharging Routing for Area W12, W3 & W7

c. Area W11 and W2

For Area W11, sewage due to the construction works will be conducted by u-channel into sump pit, and pumped into wetsep from sump pit. Then it goes to gully on south road via 100mm dia. pipe, finally flows into respective discharge point (Figure 1.5 & 1.6).



Foundation work for that section of south road will be commenced around 3<sup>rd</sup> quarter 2025, drainage system will be reviewed and submit separately if required.

For Area W2, we proposed to utilize the existing u-channel (Figure 1.3.1) between AEL/ACL Track and Test Track to collect waste water. At the point where u-channel is approaching the existing final catch pit should be blocked downstream at each subsection, and the collected waste water will be pumped into pre-cast catch pit that is newly placed besides the u-channel. Then waste water is pumped into wetsep from pre-cast catch pit and well treated. After this, it will flow through the 100mm PVC drainage pipe which connects wetsep and existing final catch pit into discharge point (Figure 1.5 & 1.6).



Figure 1.3.1 Existing U-Channel

d. Area W6A

The set-up work for collection and treatment of wastewater is similar to general procedures (Figure 1.1) in area W6A, and M3.1 will serve as discharge point in area W6A to do said disposal of wastewater.

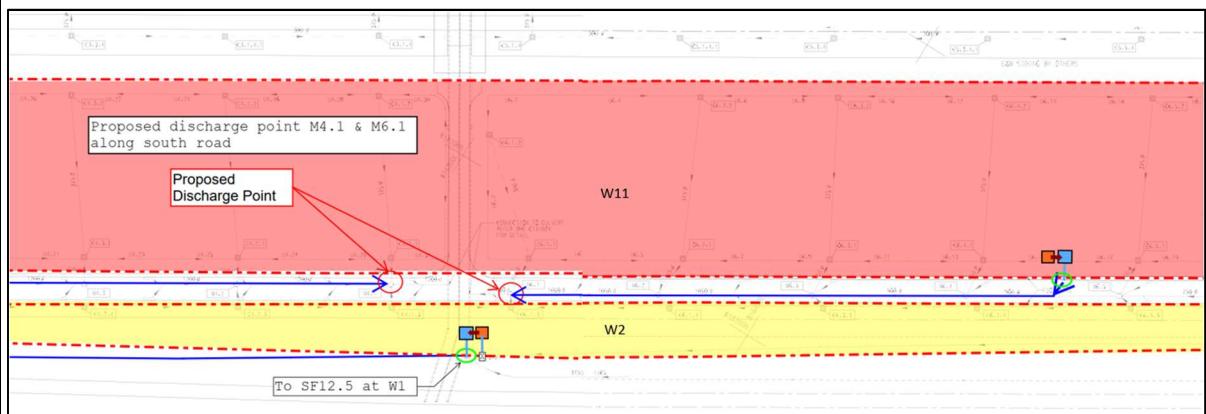


Figure 1.4 Discharging Routing for Area W11 & W2

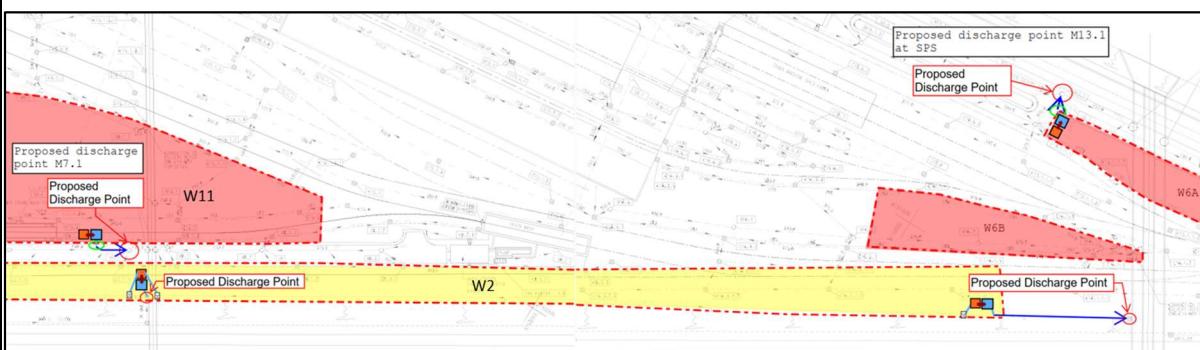


Figure 1.5 Discharging Routing for Area w11, W2 & W6A

e. Area W1

Area W1 is in the close vicinity to the public traffic. To enhance the drainage capacity and prevent flood and overflow water during rainy season, stand-by pump would be placed at the lowest point for diverting water rapidly to catch pit. The measure and set-up follow general procedures (Figure 1.1). SF12.5 will be the discharge point for this area.

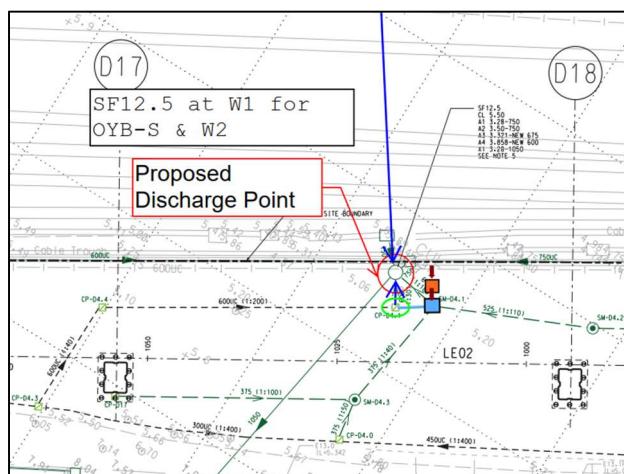


Figure 1.6 Discharge Point SF12.5

#### 4. Cement bunding

As considering the water-filled barriers and various protective fences would be used for site fencing, the land bunding shall be provided for waste water's diversion and closure. For the Works area fenced off by water-filled barriers, cement would be used to form a triangular shape paste at the internal bottom of the barriers to close off the water. For existing RP fencing on south road, cement paste which is approximately 100mm in thickness and 150mm high would be casted. Figure 1.7 is for easy reference. For those newly installed fencing in different heights, bunding for preventing water from flowing out should also be casted in the fence-off area. Figure 1.6 for reference.

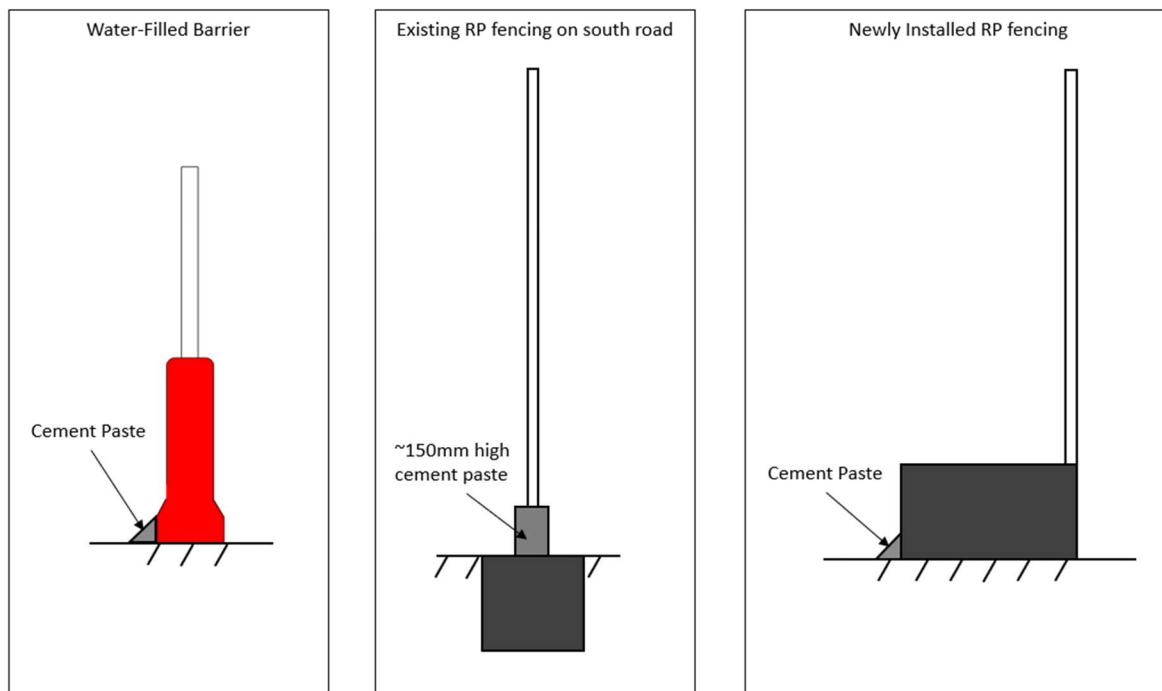


Figure 1.7 Various Bunding

## 5. Pipe Jacking

Pipejacking will be conducted outside the Depot (Figure 1.8), so the wastewater shall be collected and treated before discharging into nearby existing public drain following general procedures.

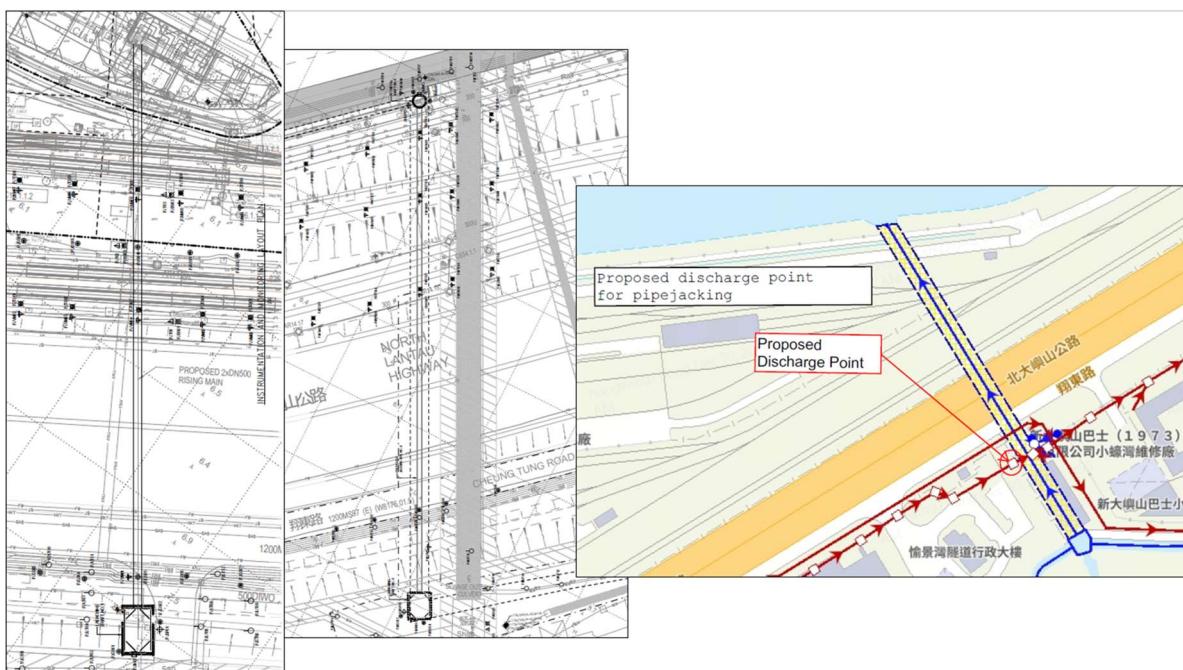


Figure 1.8 Discharge Point for Pipejacking

## 6. Maintenance for Temporary Drainage

Weekly inspection of the temporary drainage pipes will be implemented during the wet season or before a heavy rain warning signal.

The objective is to ensure that there is no obstruction to the drainage path and the system is functioning properly.

Sediment may be accumulated from time to time in the manholes. Therefore, removal of siltation will be carried out inside manholes when accumulation is reported during the inspection. In case of any blockage is found, a high-pressure water jet would be mobilized to flush out the sediment and unblock the drain pipe.

In addition, the sedimentation tanks will be cleaned regularly to ensure that they are functioning properly at all times.

Each inspection should be properly logged with the inspection results available for verification.

## 7. Flood preventive maintenance

Weekly inspection of the temporary drainage pipes will be implemented during the Wet Season or before a heavy rain warning signal.

The objective is to ensure that there is no obstruction to the drainage path and the system is functioning properly.

	<p>In addition, the sedimentation tanks will be cleaned regularly to ensure that are functioning properly all the times.</p> <p>Each inspection should be properly logged with the inspection results available for the Supervisor's verification.</p>
<b>8.</b>	<p><b>Safety</b> (Risk Assessments)</p> <p>Risk Assessment attached in Appendix A has been prepared for all general activities. Specific safety procedures and precautions have been developed for all site operatives to follow. The Construction Team Leader together with the Safety Team, will supervise the implementation and make adjustment according to the actual site operations, in order to maintain a safe and amicable working environment.</p> <p><b><u>General Site Safety</u></b></p> <p>With reference to the Project Safety Plan, the following items need to be instituted through the course of the works described within this method statement.</p> <ol style="list-style-type: none"><li>1. All works carried out on the railway are supervised by a Contractor's safety supervisor who has been qualified as a Competent Person (Track) [CP(T)] or a Competent Person (Non-Track) [CP(NT)]. Works are arranged so that the works are supervised at a minimum ratio of 1 CP(T)/CP(NT) to no more than 20 numbers of workers.</li><li>2. Works area in the vicinity of carriageway will be fenced off from the public and appropriate signage will be clearly displayed.</li><li>3. Proper PPE should be provided subject to type of task, including but not limited to safety helmets, reflective vests and safety shoes.</li><li>4. Relevant training will be provided for all workers before the commencement of temporary drainage works. Tool box talks will be conducted regularly.</li><li>5. All plant and equipment will be checked and approved. Only trained and licensed plant operators will be deployed.</li><li>6. All the potential hazards, consequences and mitigations are analysed in the risk assessment attached in the Appendix A.</li></ol>
<b>9.</b>	<p><b>Environmental</b> (Environmental aspect &amp; impact identification as well as mitigation measures)</p> <p>The following mitigation measures will be followed:</p> <ul style="list-style-type: none"><li>- After declared as CAs, works will be carried out during TH (08:00-18:00) and night time (18:00 – 08:00);</li><li>- Construction work carried out near the operation railway cannot be accessed during day time operation hours. It shall be accessed during non-peak hours (NPH from 11:00am to 15:00pm for West depot entry track or night time after the train services at non-traffic hour (NTH: from 2:00am to 4:00am) for mainline. Mainline on 3NTHs per week is allowable under contract.</li><li>- For test track, only 3 nos. of night time possessions are tentatively available on Fri^Sat, Sat^Sun, and one other night during the week.</li><li>- However, it may be required to carry out works from 19:00 to 23:00 and Sunday and Public Holidays in case of essential speeding up of the working process.</li></ul>

	<ul style="list-style-type: none"><li>- The specific working area will be surrounded by sandbags and the concerned surface run-off will be pump out to the sedimentation tank.</li><li>- All works area and adjacent areas will be kept and maintained clean and tidy;</li><li>- All muddy water would be treated by waste-water treatment system before discharging;</li><li>- Deposited silt and grit in sedimentation tanks will be removed regularly, particularly after the occurrence of adverse weather to ensure these facilities will function properly at all times;</li><li>- The frequency of removal of the deposited silt and grit in sedimentation tanks will be conducted once a week.</li><li>- ULSD Diesel will be used in all PME</li><li>- Plant with QPME label will be employed if available</li><li>- All chemicals will be placed on drip tray</li><li>- Only regulated NRMM with approved NRMM label to be used on site</li></ul>
<b>10.</b>	<b>Quality Control</b> (Inspection and Test Plan including hold points)  Day to day routine inspections of the works will be carried out by the Construction Team Leader, Site Engineers and Foreman as appropriate, to ensure that all works are performed following the requirements of this method statement.  The Inspection & Test Plan for the works is not available.
<b>11.</b>	<b>Appendices</b> (Identify and include additional information in the submission package)  Appendix A - Risk Assessment Appendix B - "AquaSed" Catalogue Appendix C - Temporary Drainage Layout Plan