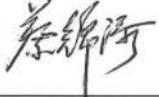
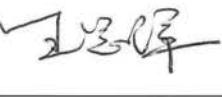
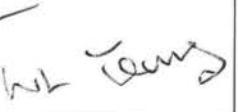


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METHOD STATEMENT TITLE	Rev. B
Method Statement for Plate Loading Test of PM Office	

	Prepared by:	Checked by:	Reviewed by:	Reviewed by:
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Position:	EM/EO	A. Project Director	Sr. Project Director / A. Project Director	Project Director
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1.	Introduction (Overview of the operation/works)															
	This Method Statement gives a general guideline for the execution of the Plate Loading Test procedure for the PM office. This method statement sets out the procedure for plate loading test as recommended in B,D. Code of Practice for Foundation: April 2017. The plate load test is to verify allowable bearing capacity and the value of Young's Modulus of soil adopted in settlement calculation as per Code of Practice.															
2.	Reference Documents (Identify relevant documents by name and reference number)															
	<ul style="list-style-type: none"> ● General Specification for Civil Engineering Works (NEC4) (MTR Corporation Limited - 2022) ● Code of Practice for Foundations 2017 ● Scope for Contract 1701. ● Materials and Workmanship Specification for Civil Engineering Works 															
3.	Location Plan															
	<p>PLATE LOAD TEST LAYOUT PLAN</p>															
4.	The Method															
	<p>Referring to the Foundation Code 2017, W_t is equal to the test load, which is 1.344kN as specified in the working drawing in Appendix A. The maximum test load will be $3W_t$ which is 4.032kN. The steel plate area is $0.15^2 \times \pi = 0.0707\text{m}^2$, so the pressure is equal to $W_t/\text{steel plate area} = 1.344/0.0707 = 19\text{kPa}$.</p> <table border="1"> <thead> <tr> <th>Stage</th> <th>Test pressure (kPa)</th> <th>Actual Test Load (kN)</th> </tr> </thead> <tbody> <tr> <td>0.5W_t</td> <td>9.5</td> <td>0.672</td> </tr> <tr> <td>1W_t</td> <td>19</td> <td>1.344</td> </tr> <tr> <td>1.5W_t</td> <td>28.5</td> <td>2.016</td> </tr> <tr> <td>2W_t</td> <td>38</td> <td>2.688</td> </tr> </tbody> </table>	Stage	Test pressure (kPa)	Actual Test Load (kN)	0.5 W_t	9.5	0.672	1 W_t	19	1.344	1.5 W_t	28.5	2.016	2 W_t	38	2.688
Stage	Test pressure (kPa)	Actual Test Load (kN)														
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2 W_t	38	2.688														

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	2.5W _t	47.5	3.360
	3W _t	57	4.032

5. Equipment & Material	
	<p>The major equipment will be deployed to carry out the works are as follow:</p> <ul style="list-style-type: none"> ● Rigid 300mm diameter circular steel plate with a minimum thickness of 20 mm ● A hydraulic jack system, with a minimum capacity of 5 tonne ● Calibrated load cell, with a minimum capacity of 25 kN ● 4 Dial gauges readable to 0.01mm with minimum travel of 50 mm ● Timer readable to 1s ● Measuring tape readable to 1mm ● Thermometer readable to 0.1°C ● Standard sand, for levelling the test area under the plate ● 6 Steel brackets, 1200*1000*760mm ● 3 H-Beams, 4.5m long ● 1 Spirit level
6. Test procedure	
	<p>6.1 Site Preparation</p> <p>6.1.1 Breaking the existing hard paving area and remove the concrete debris to explore the soil surface.</p> <p>6.1.2 Excavate to formation level and verify the final test level prior to the start of the test. (include necessary excavations, support and dewatering). The setting out level for each PLT locations are: PLT1 +4.15mPD, PLT2 +4.15mPD and PLT3 +4.55mPD.</p> <p>6.1.3 The location for plate loading test is levelled and cleared off all loose debris. Lay a thin layer of bedding sand (10mm approx.) onto the test surface to ensure that it is in good contact with the loading plate.</p> <p>6.1.4 Place two concrete blocks as the base with a crane truck on both sides of the loading plate. Set-up the kentledge system, hydraulic jack system and the load measurement device as per Appendix C.</p> <p>6.1.5 Set-up the reference beam, ensuring the beam is stable. Attach the dial gauges to the beam ensuring they are situated mutually at right angles to one another and at an equal distance from the centre of the test plate.</p> <p>6.1.6 An initial load not exceeding 25% of the initial overburden pressure may be applied to the test plate to reduce the bedding error before conducting the plate loading test</p> <p>6.1.7 The dial gauge readings shall be recorded as being the start of the test, and the level of the datum reference beam shall be recorded by the surveyor with respect to a stable benchmark clear of the loading area. This shall be recorded as the zero-loading point.</p> <p>6.2 Start the 1st cycle & 2nd cycle of loading</p> <p>6.2.1 Increase the load pressure beneath the plate to 0.5W and record the reading. Increase the load gradually and without shock to 1W. The load at each incremental stage should be held for a period of 10 minutes or longer, until the rate of settlement is less than 0.05 mm over a 10-minute period. Record the settlement and temperature at the end of each increment.</p> <p>6.2.2 After step 6.2.1, unload the pressure on the plate to 0.5W and then to zero and record the rebound at each increment and the final temperature</p> <p>6.2.3 Increase the load pressure beneath the plate to from zero to 2W slowly and evenly in increments of 0.5W. The load at each incremental stage should be held for a period of</p>

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	<p>6.2.4 10 minutes or longer, until the rate of settlement is less than 0.05 mm over a 10-minute period. Record the settlement and temperature at the end of each increment.</p> <p>After step 6.2.3, unload the pressure on the plate in decrements of 0.5W down to zero and record the individual rebound values at each decrement and the final temperature.</p>
	<p>6.3 Start the main-load cycle of loading</p> <p>6.3.1 Increase the load pressure beneath the plate from zero to 3W slowly and evenly in increments of 0.5W. The load at each incremental stage should be held for a period of 10 minutes or longer, until the rate of settlement is less than 0.05 mm over a 10-minute period. Record the settlement and temperature at the end of each increment. The maximum load shall be maintained for 72 hours. During the maintained loading period settlement, applied load and temperature shall be monitored once daily.</p> <p>6.3.2 At the end of the main-load cycle the dial gauge readings shall be taken and the level of the datum reference beam shall be recorded by the surveyor with respect to the same stable benchmark clear of the loading area.</p> <p>6.3.3 After step 6.3.1, unload the pressure on the plate to zero. The decrements shall be 0.5W and take readings of the rebound and temperature. The level of the datum reference beam shall also be recorded by the surveyor with respect to a stable benchmark clear of the loading area.</p>
7.	Acceptance Criteria
	<p>The allowable settlement shall be calculated according to Building Department Foundation Code 2017.</p> <p>The allowable bearing capacity shall be deemed to acceptable if the maximum net settlement of the plate S_{max} did not exceed $0.15B$, B is the width or diameter of the test plate. S_{max} shall not exceed $300 \times 0.15 = 45.0\text{mm}$</p>

8.	Setup Sketch
	<p style="text-align: center;">Kentledge Setup for Plate Load</p>

9.	Safety (Risk Assessments)
	<p>9.1 General Safety</p> <ul style="list-style-type: none"> All workers shall attend a site-specific induction course conducted by Safety Team. The Safety Officer shall explain the necessary safety requirements as identified in the Risk Assessment Record and the Construction Manager/ Engineer / Foreman in charge of the work shall explain the system of work to his supervisors and workers.

	<ul style="list-style-type: none">● All workers shall be equipped with reflective vests and safety helmets during operation. All workers must go through a briefing by the Construction Manager / Safety Officer / Safety Supervisor before commencement of any works. All workers on site shall obtain an approved "Mandatory Basic Safety Training Certificate".● Toolbox talk training with reference to the recommended safety and environmental control measures after Construction Risk Assessment will be provided to the site personnel prior to commencing works.● A pre-meeting will be arranged before commencement of the work among Foreman / Engineer / Construction Manager, MTR's representatives and Safety Department to brief the nature of works, the safety aspects and the requirements.● Safety helmets fitted with chin straps must be worn within the site, safety boots, hearing protectors (if needed), high visibility jackets / sashes, reflective vest, goggles, gloves and full body harnesses for work at height will be provided to all staff working on site. Warning signs and barriers will be erected where necessary.● Any emergency situation shall be reported to Subcontractor and Contractor (i.e. Construction Manager / Engineer / Foreman and Safety Department, etc.) for prompt response. The emergency contact list is shown in Appendix D.
	<p>9.2 Risk Assessment</p> <p>The risk for the works shall be assessed and the Risk Assessment Analysis is shown in Appendix E.</p>
10.	Environmental
	<p>The risk of causing damage to existing environment during the test works is low. Pay attention to the site clearance when the test completed.</p> <p>The works shall follow relevant mitigation measures as required under the Environmental Permit (EP) / EP submission and Contractor' s Environmental Management Plan (EMP)</p>
11.	Quality Control
	<p>Refer to Appendix F for Inspection and Test Plan. Construction works shall be fully complied with Quality Plan. For work activity which is classified as "Quality Hold Point", no subsequent work can be started unless the former work activity was inspected and accepted by MTR's inspectorate.</p>
12.	Appendices (Identify and include additional information in the submission package)
	<p>A. Loading Plan B. Loading Schedule C. Sketch of Plate Load Test Set-up D. Emergency Contact List E. Risk Assessment F. Inspection and Test Plan (ITP) G. Lifting Plan H. Sample of Plate Load Test Date Sheet</p>

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