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METHOD OF STATEMENT FOR CONCRETING WORKS OF PEDESTRIAN WALKWAY (BROOM FINISH)

Project No: (.....)

REVISION HISTORY	ISSUE DATE	DESCRIPTION	REVIEW / STATUS

PREPARED BY:	REVIEWED BY:	APPROVED BY:

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1.0. PURPOSE

The purpose of this document is to define the guidelines for the preparation of the concreting work for pedestrian walkway (broom finish) at Jalan Barat (Corner road of TRX Office towards TRX Surau) (Refer to Appendix 6) and to ensure the safe execution of all the concrete works during construction and commission phases of the project so as to eliminate the risk of injury or damage to personnel, equipment and property.

2.0. ACRONYM AND DEFINITIONS

EMPLOYER: ABC.

EMPLOYER'S CONSULTANTS: Mean the consultants appointed by the EMPLOYER to provide any consultancy or other services in respect of the Development and/or the Works.

PROJECT: [Project Details].

WORK: Means the works in relation to the project as specified in the Contract Documents and shall include Temporary Works and Permanent Works as well as all or any portion of the Goods wherever manufactured or prepared which are to be used in the execution of this Contract and whether the same may be on the site or not.

CONTRACTOR: Means Contractor engaged by the Employer to undertake the WORK.

SUBCONTRACTOR: Means any company which CONTRACTOR has engaged or proposes to engage (as the context may require) to undertake any part of the WORK services.

3.0. SCOPE OF WORK

This document outlines the method of how to execute the concrete work Broom Finish of including concrete, reinforce bars and formworks according to the requirement and standard code of practice for construction. In addition, it also covers the requirements for general concreting work including materials, mixing, formworks, reinforcement steel bar, curing, testing and other related requirement for concrete work of Broom Finish.

4.0. RESPONSIBILITIES

CONTRACTOR is responsible for ensuring that work activities are conducted safely and that personnel are not placed at risk from the hazards associated with the activities covered by this method statement.

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4.1. Project Manager

- 4.1.1. Exercise overall responsibility for HSE protection, including work for which a Permit to Work (PTW) and a Confined Space Permit have been issued.
- 4.1.2. Authorize Permit Requester's in writing and confirm that they are appropriately go through PTW competency training.
- 4.1.3. Responsible for the management of the site activities including the effective application of the quality system.
- 4.1.4. Liaisons and corresponding with the Consultant's Representative, Engineers, Local Authorities, Sub-subcontractor and Supplier to ensure that the works are carried out as per contractual requirement.
- 4.1.5. Monitoring and ensuring the Project is progressively positive in aspects of cash flow, cost quality and timely completion.

4.2. HSSE Personnel

- 4.2.1. Exercise overall responsibility for HSE protection.
- 4.2.2. Manage the overall safety, health and environmental activities in the organization.
- 4.2.3. Responsible for planning, formulating and enforcing safety policies and regulations.
- 4.2.4. To identify variances and take correction actions to protect personnel and property against accidents.
- 4.2.5. To advise management on all Occupation Safety & Health (OSH) matters.

4.3. Construction Manager

- 4.3.1. Control of the daily operation of the construction activities on site.
- 4.3.2. Overall planning and overseeing the implementation of the works programme over particular sections of the project.
- 4.3.3. Ensure implementation of the work procedures and method statement.

4.4. QAQC Personnel

- 4.4.1. Implement, monitor and verify that all construction operations are being conducted in accordance with the established quality procedure.
- 4.4.2. Monitor and review non-conformance and corrective actions, maintain records and ensure the corrective actions are followed and complied.
- 4.4.3. Responsible for conducting qualified and competent person in quality field to deliver project successfully.
- 4.4.4. Carry out inspection on site activities to ensure accordance with the IFC
- 4.4.5. drawings and project specifications.
- 4.4.6. Managing and witnessing material sampling, performance tests and inspections if required.

4.5. Site Engineer

- 4.5.1. Responsible for material management & engineering coordination.

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- 4.5.2. Checking and clarifying discrepancies in drawing well before work is carried out.
- 4.5.3. Managing and witnessing material sampling, performance tests and inspections if required.
- 4.5.4. Advising on technical matters.

4.6. Surveyor

- 4.6.1. Carry out all land surveying works on site which includes plotting, protecting and transfer of control points.
- 4.6.2. Responsible for setting out including identifying discrepancies in drawings.
- 4.6.3. Responsible for recording and maintaining all survey data and joint surveys.
- 4.6.4. Ensuring all equipment is calibrated and safekeeping of all survey instruments and equipment.
- 4.6.5. Cross checking the data / computation for as-built data.

4.7. Supervisor

- 4.7.1. Organize and supervise the duties of supervisors on site.
- 4.7.2. Issuing the RFI for construction works to be acknowledged by Quality Department.
- 4.7.3. Checking work to eliminate mistakes and abortive work.
- 4.7.4. Supervising and coordinating work among sub-contractors.

5.0. METHOD STATEMENT

5.1. Preliminary Works

- 5.1.1. Survey and setting out work shall be conducted to provide the existing slab levels and alignment.
- 5.1.2. The designated walkway area shall be removed with allowance for thickness of lean concrete, crusher run and concrete slab.

5.2. Excavation

- 5.2.1. Excavation work to be proceeded upon completed hacking / removed existing walkway slab
- 5.2.2. Excavation work to be executed by use manual manpower.

5.3. Concrete Walkway

- 5.3.1. The construction of concrete walkway will commence as soon as excavation work is accepted by consultant.
- 5.3.2. As excavation reaches the required depth, the surface shall be leveled and shall be compacted by use of plate compactor to prevent settlement.
- 5.3.3. Before the compaction starts, it shall make sure that the excavated level is free from standing water or excessive moisture content.
- 5.3.4. Built the formwork to the side of concrete walkway slab and support by timber bracing to prevent formwork collapse.
- 5.3.5. Lean concrete to be pour upon side formwork has been completed and space blocks are placed before BRC sheet been laid.



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- 5.3.6. BRC sheets were bent and cut into required length and tied inside the formwork.
- 5.3.7. Make sure the BRC sheet is placed properly on spacer blocks avoid touching the lean concrete below.
- 5.3.8. The BRC sheet shall clean free from loose mill scale, loose rust, oil or other coating which is liable to weaken bond between the concrete and steel, before being placed in the formwork.
- 5.3.9. Placing and bending of hooks, anchors, bars, clearance, laps and splices shall be in accordance with the requirement of BS 4449.
- 5.3.10. Before concrete placing, all the formwork support and bracing shall be checked and tightened properly and cleaning of the debris internal of formwork should be in order and maintain.
- 5.3.11. Concrete to be pour directly from concrete truck. Place the concrete as close to its destination as possible to avoid segregation.
- 5.3.12. Spread, screed, vibrate the concrete so that it completely fills all the space inside the formwork.
- 5.3.13. Using wood float, start floating the concrete to the desired level and flatness before the appearance of excess moisture.
- 5.3.14. Keep the surface open until bleed water comes out of the matrix and the surface become saturated dry.
- 5.3.15. After floating and the surface become hardened sufficiently, start troweling using steel trowels in constant medium pressure to ensure uniformity of the surface.
- 5.3.16. Groove line to be inserted according to the specification and drawing with 6mm rebar. Removed the rebar before the concrete hardened.
- 5.3.17. Expansion joint UPVC model xxxxx to be provided at every (6) meter as per drawing stated.
- 5.3.18. Broom the surface by pulling the broom towards oneself by edge to edge and repeat each pass with a slight overlap.
- 5.3.19. Keep the texture perpendicular to the traffic direction. Once you have finished brooming, go over the corners and control joint.
- 5.3.20. Formwork shall be dismantled and removed from the cast of concrete without shock, disturbance and damage.

6.0. SAMPLING AND TESTING

6.1. Work Cube Test

Samples of concrete for tests shall be taken for making cubes as and when directed by the Consultant The concrete compressive strength test shall be carried out for 7 days, 14 days and 28 days or as directed by consultant.

This number of cubes may be reduced if consistently satisfactory results are obtained, or increased to a maximum of 16 when, in the opinion of the Consultant, additional tests are required like, for example, in the early stages of the work. Test cubes shall be made, cured and stored under the same conditions as the works to which they relate and shall be transported and tested in compression in accordance with BS EN 12390-1. Reports of all test certificates shall be submitted to the Consultant within 24 hours after testing to close Request for Inspection (RFI).

The concrete cube test record shall be used to record the cube test information and summary cubes crushing test will record the results on the test cube conducted.

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6.2. Concrete Cubes Preparation

Nine (9) cubes shall be made in each batch of sample taken. Total cubes for each test (7 days, 14 days and 28 days) shall be determined by the Consultant. Every test cube shall be clearly and permanently marked with its code number and date of casting together with an indication of the part of the works to which it relates. The system of identifying and marking the cubes shall be decided by the Consultant. A record of such tests identifying the test cubes with the part of the work executed shall be kept at the site and made available to the Consultant on request.

6.3. Slump Test

Slump test shall be done in every batch / load of concrete supply. The slump tolerance shall be within the range specified in the design mix concrete. The slump to be ensured within the design slump as indicated in design mix to prevent honeycombing. In case of failed slump test, the load of concrete supply shall be rejected as it may have adverse impact to durability of completed concrete structure.

6.4. Curing and Protection

Concrete shall be protected during the first stage of hardening from the harmful effects of sunshine, drying winds, rain or running water. The protection shall be applied as soon as practicable after completion of placing concrete by one or more the following methods:

- The concrete shall be covered with a layer of sacking canvas, hessian, straw mats, or similar absorbent material, or a layer of sand, kept constantly wet for 7 days.
- After thoroughly wetting, the concrete shall be covered with a layer of approved waterproof paper or plastic membrane kept in contact with the concrete for 7 days.
- The concrete shall be cured by application of an approved liquid curing membrane which shall be applied immediately after placing the concrete during the initial set stage and on vertical surfaces after removing the formwork. The application of curing compound shall follow the instruction provided by the manufacturer.

7.0. QUALITY CONTROL INSPECTION

7.1. Pre-Concreting Inspection

- Prior to concrete pouring, pre-concrete inspection checklist shall be carried out and approved by consultant. Contractor's Quality Team shall ensure all the formwork and reinforcements are installed in accordance with the requirement specified in the specification or standard code of practice before commencement of concrete works. Concrete vibrator shall be in standby mode and available during concrete pouring. In addition, Contractor shall ensure all the formwork support and bracing to be checked and tightened properly and cleaning of the debris internal of formwork should be in order and maintain.

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- Except otherwise directed, concrete shall not be placed unless the Consultant is present and has previously examined and approved the positioning, fixing
- and condition of the reinforcement and of any other items to be embedded and the cleanliness, alignment and suitability of the containing surfaces.

7.2. During Pouring Concrete

- The temperature of the concrete shall be taken and recorded in the Concrete Pour Card. No concrete having an internal temperature exceeding 33°C shall be deposited and the concrete shall not be placed in formwork or around reinforcement whose temperature exceeds 36°C.
- Slump test shall be carried out in accordance with BS EN12350-2 and shall not less than 50mm. The slump tolerance shall be within the range specified in the design mix concrete. Concrete which has a slump of less than 50mm (2 in) will be rejected.
- The concrete shall be deposited as nearly as possible in its final position, working from the top end, if any. It shall be placed in such manner as to avoid segregation of the concrete or displacement of the reinforcement, other embedded items or formwork.
- All concrete shall be fully compacted by continuous vibration throughout the full extent of the layer before the initial set has taken place and shall not be subsequently disturbed. It shall be thoroughly worked against the formwork and around any reinforcement and other embedded items without displacing them.
- The concrete cube sample should, where applicable, be taken at the point of discharge from the mixer or in the case of ready-mixed concrete.

7.3. Post Concrete Defect

- Where the defect was detected during post concreting, the concrete repairing work shall be carried out after post concreting inspection.
- The defects like cracks and honeycomb shall be repaired using non-shrink grout cement or epoxy grouting

8.0. MATERIAL

The following list of materials shall be deployed to the site for the Broom to finish work: -

- Concrete
- Space block
- Reinforcement of steel bar/BRC Sheet
- Steel wire to tie reinforcement bars
- Plywood and timber
- Curing compound (If necessary)
- Expansion joint

9.0. MACHINERY & EQUIPMENT

The following list of machinery shall be deployed to the site for the concrete works: -

- Backhoe

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- Concrete vibrator
- Concrete pump (if required)
- Hand tools
- Bar cutter & bar bending machine
- Formwork
- Submersible pump (if required)
- Generator
- Air blower
- Concrete broom

10.0. 9 MANPOWER

The following labour resources shall be deployed to the site for the concrete work

- Backhoe operator
- Site Engineer
- Site supervisor
- QA/QC inspector
- Land surveyor
- Safety officer
- General workers
- Skilled workers

11.0. SAFETY & ENVIRONMENT

The following key areas of construction shall be adhered to by all site personal working on site.

11.1. Personnel Protective Equipment

The personnel protective equipment (PPE) will be provided to the workers onsite including the following: -

- Safety helmets (hard hat)
- Safety vest
- Safety boots
- Safety glasses
- Dust mask
- Working gloves (if necessary)
- Ear plugs (if necessary)

11.2. House keeping

- Housekeeping is an essential part of safety for the daily routine. Housekeeping would include the following items: -
- Maintain access / access to all working areas.
- Store and stack all construction materials in safe and orderly manner.
- Avoid littering around the jobsite.

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11.3. Environment Issues

Temporary drains / sediment pond / silt fence will be constructed and maintained throughout construction periods to ensure compliance with [Compliance] requirement. Water browser will be deployed at site to control the dust surface.

In summation, to achieve safe, free risk and healthy working environment that includes loss prevention, every practicable step must be taken by each one engaged in this project site.

12.0. APPROVAL SECTION

	Prepared by	Checked by	Approved by
Signature			
Name	[Project Engineer]	[Senior Engineer]	[Project Manager]
Designation			
Date			
Division	[Division Name]	[Division Name]	[Division Name]

<END OF METHOD STATEMENT>