

**Employer’s Requirement**

**of**

**Road Works Supervision**

**Tender ref. PLD-CS072/25/99**

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1. **Introduction**

CEM intends under this Tender to contract the consultancy services, on CEM behalf, to supervise the road works done by road work contractors, such as daily site inspection, progress monitoring, reporting, etc.

Road works (excavation of trenches, road repairs and digging up joints excavations) are not part of this contract.

The requirements stated in this document are the minimum requirements unless otherwise stated or approved by the Employer. For any particular details not specified, the Service Provider shall request in writing a clarification from the Employer.

The intended proposal(s) will be set for 2 years (Nov 2025 to Oct 2027), and may be extended for the subsequent 2 years (Nov 2027 to Oct 2029) subject to CEM’s decision based on the Contractor’s performance and CEM’s business needs, under the following pricing condition:

• First 2 years (Nov 2025 to Oct 2027): fixed unit prices

• Following 2 years’ extension (Nov 2027 to Oct 2029): unit prices to be adjusted once by the factor based on the formula:

 annual CCPI\* of the year 2026 / annual CCPI\* of the year 2025

*\* CCPI refers to the Composite Consumer Price Index published officially by the Statistics and Census Service of the Macau Special Administrative Region (MSAR).*

1. **Definition**

The following words and expressions shall have the meaning hereby assigned to them except when the context of this document otherwise specified: -

1. **Employer**: Companhia de Electricidade de Macau (CEM).
2. **Employer’s Representative:** person, company or firm appointed from time to time by the Employer to act on the behalf of the Employer;
3. **Job Owner**: Persons dedicated by CEM to in charge the CEM excavation jobs
4. **Supervision Service**: duties, works, services, inspections and investigations to be carried out and obligations to be fulfilled by the Service Provider under requirement in this document;
5. **Macau:** the whole territory under the jurisdiction of Macau Special Administrative Region;
6. **Government:** the Government of the Macau Special Administrative Region;
7. **DSAT**: Direcção dos Serviços para os Assuntos de Tráfego;
8. **IAM:** Instituto para os Assuntos Municipais;
9. **DSAL:** Direcção dos Serviços para os Assuntos Laborais;
10. **IAM license**: written approval issued by IAM giving consent to temporary occupy Government land to carry out trench excavation works and/or cable laying works at specified location within a specified period;
11. **DSAT aviso**: written approval issued by DSAT giving consent to temporary occupy public road to carry out trench excavation works and/or cable laying works at specified location within a specified period;
12. **TTA:** Temporary Traffic Arrangement;
13. **DWP**: Detailed Works Programs;
14. **QSSP**: Quality Site Supervision Plan;
15. **Days:** Calendar days;
16. **Project Manager**: the person assigned by the Service Provider to manage and execute the scope of service described under Section 4.2 of this document;
17. **Site Supervisor:** the person assigned by the Service Provider to execute the scope of service described under Section 4.2 of this document;
18. **Road work contractors**: firms or companies appointed by CEM or 3rd parties who are responsible for the trench related civil works and the associated cable laying works;
19. **Road Works:** all civil works and associated cable laying works required to install new cables and alter existing cables, including but not limited to earth excavation, temporary support, temporary drainage, concrete casting, sampling, backfilling, joint bay establishment, cable laying, pavement re-surfacing, protection and diversion of existing underground utilities;
20. **Temporary Works**: all temporary work of every kind required for the construction, completion and maintenance of the Road Works;
21. **Sites**: the lands and other places including the sea under, over, on, in or through which the Road Works are to be carried out and any other lands or places provided by the Employer to execute the Road Works;
22. **Plants:** the machinery, equipment, apparatus, appliance and all things of whatsoever nature required for the execution of the Road Works.
23. **Job Hazard analysis (JHA):** a technique to identify the dangers of specific tasks in order to reduce the risk of injury to workers, always presenting in tabular form for independent task.
24. **SHEQ:** an acronym for Safety, Health, Environment and Quality

1. **GENERAL CONDITION**
   1. **Singular and plural**

Words and expressions in the singular include the plural and words and expressions in the plural include the singular where the context so implies.

* 1. **LAWs**

The Supervision shall be governed by and construed according to the laws for the time being in force in Macau.

* 1. **Documents mutually explanatory**

The several documents forming the Contract are to be taken as mutually explanatory of one another but in the case of apparent ambiguities, discrepancies or contradictions between the contract documents, this document shall prevail.

* 1. **USE OF LANGUAGE AND METRIC UNITS and required submission format**

All the correspondence in connection with this Supervision Service shall be in English or Traditional Chinese. All submissions to the Employer shall be in English or Traditional Chinese and metric units shall be used throughout, unless otherwise stated or approved by the Employer. Softcopies should be submitted in MS Words, PDF or AutoCAD formats.

* 1. **confidentiality**

Save for the performance of the Supervision Service, the Service Provider shall not disclose the terms and conditions of the contract or any information, specification, documents, drawing, plan, software, data or particulars furnished by the Employer or Road work contractors in connection therewith, to any person other than a person employed or engaged by the Service Provider in carrying out this Supervision Service.

* 1. **information to be supplied by the employer**

The Employer shall keep the Services Provider informed on such matters as may appear to him to affect the performance of the Supervision Service and shall give such assistance, approvals, and decisions in writing as and when they shall reasonably be required for the performance of the Supervision Service. The Services Provider shall take all necessary steps to approach the Employer for the supply of information.

* 1. **information to be supplied by the SERVICE PROVIDER**

The Services Provider shall keep the Employer informed on all matters related to the Supervision Service within the Knowledge of the Services Provider and shall answer all reasonable enquiries received from the Employer and render reports at reasonable intervals when asked to do so.

* 1. **retention of documents and inspection records**

For a period of 5 years commencing with the completion of any Road Works, the Service Provider shall retain and provide spaces for that purpose all their records, measurement books, accounts and other information relating to the Supervision Service.

* 1. **EXCLUSIVE ownership**

The Employer shall become the exclusive owner of all submissions delivered by the Service Provider, as well as all records and any other materials collected by the Service Provider, during the performance of the Supervision Service.

* 1. **attendance at meetings**

The Service Provider shall, if reasonably possible, attend or be represented at all meetings convened by the Employer to which they may be summoned and shall advise and assist the Employer on all matters relating to the Supervision Service.

* 1. **APPROVAL of documents**

The Service Provider shall, when so requested by the Employer, submit to him for his approval the documents or records as required in this document. No such approval shall affect the responsibility of the Service Provider in connection with the Supervision Service.

* 1. **AMENDMENTS TO THE EMPLOYER’S REQUIREMENT**

The Employer shall make any changes to the Employer’s Requirement which he considers necessary or desirable for the successful execution of the Supervision Service. Any queries on, or suggestions for amendments to the Employer’s Requirement shall be referred to the Employer for his clarifications or instructions regarding further action.

* 1. **CARE AND DILIGENCE**

1. The Service Provider shall exercise all reasonable professional skill, care and diligence in the performance of the Supervision Service;
2. The Service Provider shall, in respect of any information supplied by or on behalf of the Employer, report to the Employer any errors, omissions and shortcomings of whatsoever nature of which the Service Provider become aware in the performance of the Supervision Service;
3. The Service Provider shall indemnify and keep indemnified the Employer against all claims, damages, losses or expenses arising out of or resulting from any negligence in or about the conduct of and performance by the Service Provider; and
4. In the event of any errors or omissions for which the Service Provider is responsible and as a result of which the re-execution of the Supervision Service is required, the Service Provider shall, without relieving any liability and obligation under the Contract, at their own cost re-execute such Supervision service to the satisfaction of the Employer.
   1. **INSTRUCTIONS & PROCEDURE**

The Service Provider shall comply with all reasonable instructions of the Employer. The Employer shall issue to the Service Provider instructions on procedure and shall supply such additional information as may be required. The Service Provider shall follow the Employer’s procedure so far as possible and shall obtain the prior approval to major departures from such procedure. Nothing in this clause shall be deemed to affect the responsibility of the Consultants in connection with the Supervision Services.

* 1. **DELAY**

The Service Provider shall report to the Employer all delays to the progress of the Road Works, including those delays related to inclement weather conditions or the hoisting of storm signals. The Service Provider shall also assess the extension of time for completion, if any, to enable the Employer to provide his view of the matter before granting any extension.

* 1. **PROGRAMME TO BE SUBMITTED AND AGREED**

The Service Provider shall submit Detailed Works Programmes incorporating the key dates with critical path. The Employer shall either agree the DWP or instruct the Service Provider to submit a revised DWP which he shall do.

* 1. **Supervision Staff**

The Service Provider shall be responsible for the acts, default and neglects of all his supervision staff in connection with any works under this Supervision Service.

* 1. **SUB-CONTRACTING**

The Service Provider shall obtain the prior written approval of the Employer to sub-contract any part of the Supervision Service. The appointment of sub-consultants to undertake any part of the Supervision Services shall not relieve the Service Provider from any liability or obligation under this Supervision Service and they shall be responsible for the acts, default and neglects of any sub-consultant, his agents, servants or workmen as fully as if they were the acts, default and neglects of the Service Provider, their agents, servants or workmen.

* 1. **PUBLICITY RELATING TO CONTRACT WORKS**

The Service Provider is not permitted to erect any notice or display board at the Sites for publicity purposes unless otherwise approved by the Employer.

* 1. **SPECIAL RISKS**

1. The Service Provider shall not be liable for any failure to perform the Supervision Service caused by the special risks;
2. Should the performance by the Service Provider of the Supervision Service be prevented or adversely affected by the special risks, he shall forthwith give notice in writing thereof to the Employer;
3. For the purpose of this Clause, “the special risks” means the outbreak of war affecting Macau, hostilities (whether war be declared or not), invasion, acts of foreign enemies, rebellion, revolution, military or usurped power, the overthrow whether by external or internal means of the Government, civil war, riot, disturbances, civil commotion or any similar cause beyond the control of the Service Provider which prevents or adversely affects the performance of the Supervision Service.
   1. **APPEAL TO EMPLOYER**

The Service Provider shall have the right to appeal to the Employer against any instruction or decision of the Employer which he consider to be unreasonable.

* 1. **Prevention of bribery**

The Service Provider shall inform their employees who are engaged either directly or indirectly in this Supervision Service that the soliciting or accepting of an advantage as defined in the Macau Law and CCAC anti-corruption guideline is not permitted. The Service Provider shall also caution their employees against soliciting or accepting any hospitality, entertainment or inducements which would impair their impartiality in relation to the execution of Supervision Service.

* 1. **DECLARATION OF INTEREST**

On appointment and during the currency of this Supervision Service, the Service Provider must declare any interest if it is considered to be in real or apparent conflict with the Supervision Service. The Service Provider shall not undertake any services, which could give rise to conflict of interest, except with the prior approval of the Employer.

1. **DESCRIPTION OF THE Project**
   1. **INTRODUCTION**

To cater for the development of Macau and meet the ever-increasing demand for power, CEM is endlessly required to carry out Road Works to install new cable routes or alter existing cable routes to continuously enhance its transmission and distribution network. However, this endless digging of roads has adversely affected the already congested traffic network and warranted better traffic management and site control to mitigate the traffic congestion.

CEM emphasized on the importance of site supervision and appointed Service Provider to provide Supervision Service to inspect, control, monitor, coordinate and report the Road Works executed by Road work contractors. Service Provider is required to provide sufficient resources to supervise all the Road Works located in multiple Sites in Macau during the contract period. For the avoidance of doubt, Service Provider is not required to carry out any civil works under the current scope of service.

* 1. **scope of SERVICE**

The Service Provider is required to provide the following services within the contract period (included public holidays):

*Pre-Construction Phase*

1. Coordinate with the Road work contractors and provide DWP, TTA schemes, risk assessments and Job hazard analysis (JHA) for all Road Works for the Employer’s approval;
2. Amend the DWP, TTA schemes and risk assessments according to the comments provided by IAM, DSAT, Employer and other relevant stakeholders;
3. Coordinate with the Road work contractors and provide the particulars of the Temporary Works for Employer’s approval;
4. Coordinate with the Road work contractors and provide the relative Job hazard analysis (JHA), method statement and material specification for Employer’s approval;
5. Inspect the Sites prior to the commencement of Road Works and supervise the Road work contractors to ensure the requirements stipulated on IAM license and DSAT aviso are strictly adhered to safeguard timely commencement of the Road Works;
6. Validate and administrative control on the following documents prepared by the Road work contractors aims for the construction work commencement:
   * Declaration for the execution of the works
   * Workers insurance
   * Other documents required by government entities
7. Identify the placement of existing CEM cables by using cable locator before the excavations works conducted by Road work contractors, inclusive of contractors appointed by 3rd parties, and mark alignment of the cables to confirm the vicinity of CEM cables in accordance with CEM’s guidelines.

*Construction Phase*

1. Appoint and manage a supervision team to provide the Supervision Service.;
2. Conduct routine inspection of the Sites, submit daily site inspection records onto e-platform and weekly report in formats approved by the Employer.
3. Supervise the Road Works executed by the Road work contractors and check for compliance with the health & safety regulation, environmental protection regulation, method statement, risk assessment, job hazard analysis, design standard and construction requirement;
4. Report non-compliances to the Employer by report in the formats approved by the Employer;
5. Assist the Employer in managing the non-compliances and changes related to the Road Works;
6. Report site accident to the Employer, regardless of its severely, in accordance with the agreed accident reporting procedure;
7. Monitor and track the progress of the Road Works against the approved DWP;
8. Monitor and ensure the Road works executed by Road work contractor are consistent with the IAM license, and report any non-compliance to the Employer instantly.
9. Monitor and ensure the TTA schemes, temporary and permanent traffic management measures for the Sites are adequately enforced at all time during the period specified on IAM license and DSAT aviso;
10. Report any delays in construction phase to Employer by report in the formats approved by the Employer;
11. Monitor all CEM facilities potentially affected by excavations works performed by Road work contractors, inclusive of contractors appointed by 3rd parties, submit daily site inspection record through employer mobile application, system, and the weekly report in the formats approved by the employer. Assist the Employer or Road work contractors to renew or extend the IAM license and DSAT aviso for the Road Works;
12. Assist the Employer to review and resolve all complaints and enquiries regarding the Road Works;
13. Attend all meetings convened by the Employer;
14. Promote, enhance and streamline the communication channels among related parties to facilitate smooth progress of the Road Works;

*Post-Construction Phase*

1. Inspect and verify the Sites are essentially restored to their pre-construction condition according to the codes and requirements of government entities.
2. Follow up non-compliances with Road work contractors during the defect liability period;
3. Review and validate the as-built information supplied by the Road work contractors;
4. Prepare and submit the commissioning report in a format approved by the Employer;
5. Validate and administrative control on the following documents prepared by the Road work contractors aims for the construction work commissions:
   * Declaration for the commissioning of the works
   * Commissioning reports in civil aspect
   * Other documents required by government entities

*Others*

1. Formulate the Action Checklist at Commencement, and conduct regular reviews, and as the need arise, make necessary update and modifications to the checklist to suit Employer’s need;
2. Formulate the Action Checklist at Completion, and conduct regular reviews, and as the need arise, make necessary update and modifications to the checklist to suit Employer’s need; and
3. Formulate the QSSP, and conduct regular reviews, and as the need arise, make necessary update and modifications to the checklist to suit Employer’s need.
4. **SUPERVISING PERSONNEL**

The Service Provider shall appoint a dedicated Project Manager and 4 Site Supervisors based on request to provide the Supervision Service. The Service Provider shall submit an organization chart on a monthly basis showing the details of the managerial and technical staff and the site supervision structure for the Employer’s approval. If there is a change in the organization, it shall be reported to the Employer. The Employer shall reserve right to request additional Site Supervisors if deemed necessary.

The Service Provider shall ensure that suitably qualified and experienced Project Manager to manage the execution of Supervision Service. The Project Manager shall ensure that the supervision team can perform the primary duties and tasks specified under this document to the satisfaction of the Employer.

The Service Provider shall ensure that suitably qualified and experienced Site Supervisors are appointed to supervise the Road Works. The Site Supervisors shall ensure that the Road Works carried out on Sites comply with the design, any specified requirements and acceptance limits. They shall inspect and check the actual site conditions encountered and the critical items of working procedure and validate the design assumptions and buildability of the Road Works. The Site Supervisors shall report to the Project Manager, and subsequently notify the Employer any necessary design review, design modifications and specification of preventive / mitigation / remedial measures to ensure that the Road Works meet the objectives.

1. **Supervision REQUIREMENT**

The Service Provider shall appoint a dedicated Project Manager and Site Supervisors based on request to provide the Supervision Service.

* 1. **PRE-construction PHASE**

The Employer shall furnish the particulars of the Road Works, inclusive of the drawings, specifications, working period, contact details of the appointed Road work contractors, acceptance limits, special requirements, IAM license, DSAT aviso and other relevant information, to the Service Provider during the pre-construction phase to supervise the Road work contractors to execute the Road Works. Upon receiving the aforementioned information, the Service Provider shall coordinate with the Road work contractors to perform the following tasks to the satisfaction of the Employer before commencement of Road Works: -

* Coordinate with the Road work contractors and provide the TTA schemes for all required Road Works to the Employer for comment and approval, containing details of traffic diversions, pedestrian routes, lighting, signing, guarding and traffic control arrangements and equipment, within 3 days after receiving Employer’s instruction to establish the TTA schemes;
* Coordinate with the Road work contractors and provide the DWP for all Road Works to the Employer for comment and approval, containing the key milestones and critical paths of the programs, at least 7 days before commencement of Road Works;
* Amend the TTA schemes and DWP according to the comments provided by IAM, DSAT, Employer and other relevant stakeholders;
* Coordinate with the Road work contractors and provide the material specification, method statement , risk assessments and Job Hazard Analysis (JHA) for all Road Works to the Employer for comment and approval, at least 3 days before commencement of Road Works;
* Coordinate with the Road work contractors and agree on the sampling and testing schedule for the materials to be used for the Road Works. The Service Provider shall refer to the Employer’s specification for the sampling and testing requirements;
* Coordinate with the Road work contractors and provide the particulars of the Temporary Works for all required Road Works to the Employer for comment and approval, at least 7 days before commencement of Temporary Works;
* Address Employer’s comments (if any) on the material specification, method statement, risk assessments, Job Hazard Analysis (JHA)and Temporary Works and re-submit these documents accordingly;
* Arrange joint site inspection with Road work contractors at least 3 days before commencement of Road Works to ensure the requirements stipulated on IAM license and DSAT aviso can be timely implemented before and after the commencement of Road Works;
* Arrange site briefing with Road work contractors at least 3 days before commencement of Road Works to ensure the Road work contractors fully understood the Employer’s design and construction requirements;
* Record the conditions of the Sites at least 3 days before commencement of Road Works. The Service Provider shall record the conditions of existing site features, including but not limited to road surface, trees, vegetation, road signs, traffic lines and buildings, in the form of record photos with description. The Service Provider shall refer to Section 7 for the recording requirements;
* Based on the actual conditions of the Sites, validate the design and buildability of the proposed Road Works, and notify the Employer any necessary design review, design modifications and specification of preventive / mitigation / remedial measures to ensure that the Road Works meet the objectives;
* Coordinate with the Road work contractors and provide tool box talk or equivalent safety training to all persons working on Sites
* Validate and administrative control on the documents prepared by the Road work contractors aims for the construction work commencement:
* Identify the placement of existing CEM cables by using cable locator before the excavations works conducted by Road work contractors, inclusive of contractors appointed by 3rd parties, and mark alignment of the cables to confirm the vicinity of CEM cables in accordance with the CEM guidelines.

* 1. **construction PHASE**

The Employer shall notify the Service Provider and Road work contractors on the official

commencement dates after receiving the formal approvals from DSAT and IAM to commence the Road Works. Upon receiving the aforementioned approvals, Service Provider shall allocate sufficient technical staffs to perform the following tasks to the satisfaction of Employer during the construction phase of the Road Works: -

* Before any excavation works, supervise the Road work contractors to establish the Sites, TTA schemes, temporary and permanent traffic management in accordance with the requirements stipulated on IAM license and DSAT aviso. The Service Provider shall ensure the TTA schemes, temporary and permanent traffic management measures for the Sites are adequately enforced at all time during the period specified on IAM license and DSAT aviso;
* Upon completion of the aforementioned task, carry out joint inspection with DSAT Representative to verify the TTA schemes, temporary and permanent traffic management measures are correctly implemented and make good any deficiency identified by DSAT Representative. The Service Provider is required to submit the inspection records with photos showing the successful implementation of TTA schemes, temporary and permanent traffic management measures within 1 days after the commencement of Road Works;
* Closely monitor the effectiveness of the TTA schemes and coordinate with the Road work contractors to modify the TTA schemes to suit the Road Works progress. The Service Provider should notify the Employer on all DSAT’s request / comment to adjust the TTA schemes. All modifications to the TTA schemes should be duly recorded in the site diary;
* Closely monitor onsite TTA measure to ensure the Road work contractors provided appropriate and safe pedestrian routes around and across the Road Works during the construction period. If the Site Supervisor identified any deficiency on Sites, he shall immediately notify the Road work contractors’ Site Agent and warrant immediate rectification. All deficiencies identified on Sites should be duly recorded in the site diary;
* Conduct rigor checking on the fencing, site hoarding, temporary traffic signs, temporary diversion and sufficient flashing light is warranted for all Sites. If the Site supervisor identified any deficiency on Sites, he shall immediately notify the Road work contractors’ Site Agent and warrant immediate rectification. If the traffic deficiency still persists after repeated notifications by the Site Inspectors, he shall report to the Employer for his action(s). All traffic deficiencies identified on Sites should be duly recorded in the site diary;
* Conduct routine inspection of the Sites, submit daily site inspection records through employer mobile application, system and weekly report in formats approved by the employer.
* Supervise the Road Works executed by the Road work contractors and check for compliance with the health & safety regulation, environmental protection regulation, method statement, risk assessment, Job Hazard Analysis (JHA), design standard and construction requirement. The Service Provider shall mandate the Road work contractors to rectify the non-compliances identified and attach the relevant records in the weekly report;
* Assist the Employer in managing the non-compliances and changes related to the Road Works. The Service Provider shall advise the Employer on whether the non-compliances and changes would affect the progress of the Road Works;
* Coordinate with the Road work contractors and ensure sufficient samples were collected for laboratory testing. The Service Provider shall enclose the material testing summary in the weekly report for Employer’s review;
* Report all site accident to the Employer, regardless of its severely, in accordance with the accident reporting procedure described under Section 8.5 of this document. The Service Provider shall also provide an accident investigation report within 3 days, with record photos and description of the accident, detailing the cause and improvement measures implemented on site to prevent the re-occurrence of similar accident;
* Monitor and track the progress of the Road Works against the approved DWP. The Service Provider shall report to the Employer all delays to the progress of the Road Works and periodically update the DWP to reflect the latest development. The Service shall include all updated DWP for the on-going Road Works in the weekly report;
* If and when it is found that the Road Works are not keeping abreast with the approved DWP, and the delays are not related to inclement weather conditions or the hoisting of storm signals. The Service Provider shall coordinate with the Road work contractors and propose measures to mitigate the delay;
* Monitor and ensure the Road works executed by Road work contractor are consistent with the IAM license, and report any non-compliance to the Employer instantly.
* Monitor all CEM facilities potentially affected by excavations works performed by Road work contractors, inclusive of contractors appointed by 3rd parties. The Service Provider shall coordinate with the Road work contractors prior and during the excavation works to prevent damages to CEM facilities. In the event of accidental damages to CEM facilities, the Service Provider shall immediate inform the Employer and assist the Employer to identify the cause of damages. The Service Provider shall also provide an incidence report within 3 days, with record photos and description, detailing the cause, damage, responsibility and recommended measures to prevent the re-occurrence of similar incidence;
* Carry out regular inspection of structures, utilities, drainage, seawalls and slopes that may be affected by the Road Works. The Service Provider shall submit relevant inspection record within 3 days, including but limited to record photos, when requested by the Employer. In the event of significant movement and suspected damages to nearby structures, utilities, drainage, seawalls and slopes, the Service Provider shall submit an incidence report together with the inspection records, detailing the cause, damage, responsibility and recommended measures to prevent the re-occurrence of similar incidence;
* Employer might from time to time instruct Road work contractors or engage 3rd parties to carry out monitoring of structures, utilities, drainage, seawalls and slopes that may be affected by the construction work including monitoring natural slopes, groundwater level, ground movement and vibration and taking readings of the all monitoring equipment. The Service Provider shall submit monitoring summary to the Employer on the results of the monitoring work. The Service Provider shall provide further weekly interval reports to the Employer;
* Assist the Employer or Road work contractors to renew or extend the IAM license and DSAT aviso for the Road Works;
* Assist the Employer to review and resolve all complaints and enquiries by members of the public, IAM, DSAT and other relevant stakeholders regarding the Road Works. The Service Provider shall prepare and supply replies and responses promptly to all complaints and enquiries by members of the public local organizations and Government regarding on Road Works and prepare information papers for submission and presentation to the related parties;
* Attend all meetings convened by the Employer and assist the Employer on all matters relating to the Road Works;
* Attend and chair the weekly coordination meeting with the Road work contractors, follow up on agreed items and prepare meeting minutes; and
* Promote, enhance and streamline the communication channels among Road work contractors, Employer, IAM, DSAT and other relevant stakeholders to facilitate smooth progress of the Road Works;
* Validate and administrative control on the documents prepared by the Road work contractors aims for the construction work execution:
  1. **POST-construction PHASE**

After the substantial completion of the Road Works, the Service Provider shall perform the following tasks to the satisfaction of the Employer: -

* Act as Employer’s Representative to inspect and verify the Sites are essentially restored to their pre-construction condition by the Road work contractors to the satisfaction of Employer, IAM, DSAT and other relevant stakeholders;
* Follow up unresolved non-compliances with Road work contractors during the defect liability period to the satisfaction of Employer, IAM, DSAT and other relevant stakeholders;
* Review and validate the as-built information supplied by the Road work contractors are accurate and correct;
* Follow up the outstanding test records and ensure the Road work contractors timely submit the records; and
* Based on the information supplied by the Road work contractors, prepare and submit the commissioning report in a format approved by the Employer;
* Validate and administrative control on the documents prepared by the Road work contractors as the following :

|  |  |
| --- | --- |
| **Documents** | **Validation Time** |
| Declaration for the commissioning of the works | Within the road work completion day |
| Commissioning of the works in civil aspect | Within the commissioning report submission day |

1. **RECORDS and REPORTING requirement**
   1. **General**

The Service Provider shall keep good and comprehensive records to serve 3 basic purposes: -

1. Provide information for the administration of the Road Works, and in particular, for the evaluation of work done for payment;
2. Provide the Employer with necessary information on progress, the level of resources and the condition of the Works, on which engineering and management decisions may be based; and
3. Provide information on the history of the Road Works, so that facts are available for the evaluation of claims or resolution of disputes should these arise.

The Service Provider, in consultation with the Employer where necessary, should establish a set procedure for record keeping at the commencement of the Road Works such that adequate records will be produced efficiently. During the progress of work, should events occur or be about to occur, the Service Provider should consider and implement as soon as possible a system for keeping additional records. It is important that such a system will provide detailed and comprehensive information. Where possible, the Contractor’s agreement to the records should be obtained.

Records submitted by the Road work contractors must be carefully checked and verified as soon as they are received. Discrepancies should be resolved early while memories and evidence are still fresh; but where agreement cannot be reached, the differences must be recorded in the site diary.

All the information shall be uploaded onto the E-platform by time to time as provided and tutored by the Employer.

* 1. **RECORD DRAWINGS**

On completion of the Road Works, the set of record drawings should be prepared by the Road work contractors and checked and endorsed by the Service Provider and then passed to the Employer for the preparation of faired copies of the as-constructed drawings. The Service Provider shall complete his checking and endorsement of the record drawings within the time agreed by the Employer.

* 1. **SITE DIARY**

Site diary is one of the most important records for the Road Works, the Service Provider shall keep accurate and concise record of the progress of works, plant and labor employed, weather, site condition, non-compliances, site instructions, material testing, health & safety deficiency and any occurrences which affect the progress and/or quality of the work, including the extent to which they are affected. In addition, comments on cases of delays and disruption to normal progress should be noted where appropriate. The post and name of Site Supervisor(s) who carries out the inspection and the works inspected shall be recorded.

The Service Provider shall propose the format and particulars required in the site diary for Employer’s approval and subject to review from time to time.

* 1. **inclement weather**

General weather conditions are recorded in the site diary (Section 7.3). The inclement weather report should also denote the extent to which Road Works were affected by weather. Observations on the Road work contractors’ failure to mitigate the effects of inclement weather, such as inadequate protection of Road Works, should also be included in the site diary.

* 1. **SITE INSTRUCTIONS**

Instructions given to the Road work contractors on Sites should be issued in a written memo and recorded in the site diary and weekly report. One copy of the instructions should be handed to the Contractor’s representative, one copy should remain in the instruction book kept in the Service Provider’s office and one copy should be sent to the Employer for his record.

* 1. **Minutes of meetings**

Minutes of meetings with the Employer, the Road work contractors, IAM, DSAT and other relevant stakeholder, shall be prepared by the Service Provider and submitted to the Employer for his approval.

* 1. **record PHOTOGRAPHS**

The Service Provider shall take site record photographs to serve the following purposes: -

* To provide a visual record of the conditions of the Sites and surroundings before, during and after the Road Works; and
* To record particular features of the work, especially which will later be covered.

To fulfil the purpose of (a) above, one set of photographs of the Sites and surroundings should be taken before commencement of the Road Works. Particular attention should be paid to existing structures, installations or properties which may be damaged by the Road Works. Attention should also be paid to any area of potential disputes e.g. adjoining land used by private parties. For purpose of (b) above, photographs and aerial photographs should be taken regularly during the course of the Road Works from the same vantage points on various Sections of the Road Works The location of the vantage points should be agreed with the Employer.

All record photos submitted to the Employer should contain the following information: -

* Date on which the photograph was taken,
* Exact location and description of the subject photographed, and
* Purpose of the photograph.

Selected photographs taken to record the conditions of the Sites and surroundings before the Works commence might be sent to IAM, DSAT and other relevant stakeholders for record and acceptance of the as-photo conditions of the Site.

* 1. **daily reporting**

The Service Provider shall provide a daily status report to the Employer summarizing the Road Works progress and special site activities in the previous day. The daily status should be reported to the Employer via verbal or email containing but not limited to the followings: -

* Works carried out in the previous day for all Sites;
* Sites record photos;
* Any matters related to health & safety of the Sites;
* Any deficiency identified in the TTA schemes;
* Any interaction with Government Departments;
* Any critical issues affecting the progress of the Road Works;
* Any design deviation required to suit the site condition;
* Any urgent connection or isolation request for the Road Works;
* Any need to renew or extend the IAM license and DSAT aviso due to unexpected conditions; and
* Any accidental damage of CEM facilities by 3rd parties;
* Updated DWP with completion status and key milestone of road works
* Work progress Drawing Inspection record and reports for the CEM facilities potentially affected by excavations works performed by Road work contractors, inclusive of contractors appointed by 3rd parties
  1. **WEEKLY REPORTING**

The Service Provider shall submit the weekly report containing but not limited to the followings: -

* An overall summary of Road Works during the reporting week;
* Status of the IAM license and DSAT aviso for all on-going Sites;
* Site Diary;
* Site record Photos;
* List of site incidence and accident;
* List of non-compliances;
* List of material testing;
* Updated DWP; with completion status and key milestone of road works.
* Forecast of upcoming Road Works.
* An overall summary of accidental damage of CEM facilities by 3rd parties;
* Work progress Drawing
* Inspection summary for the CEM facilities potentially affected by excavations works performed by Road work contractors, inclusive of contractors appointed by 3rd parties

The format of the weekly report will be reviewed and updated from time to time to suit the Employer’s requirement and actual circumstances.

* 1. **COMMISSIONING REPORT**

The Service Provider shall submit the commissioning report within 1 week after substantial completion of the Road Works, containing but limited to the followings: -

*Record Photos showing*

* Conditions of the Sites and surroundings before, during and after the Road Works;
* Conditions of the road marking and traffic signs before, during and after the Road Works;
* Removal of the temporary traffic signs,
* Removal of traffic sign blocking cover (if applicable);
* Conditions of reopened parking meters and vehicle parks (if applicable);
* Condition of the blinding concrete (if applicable);
* Laying of cables;
* Condition of cable duct occupation;
* Condition of uPVC pipes, spacers and manholes installation;
* Condition of concrete surrounding pipes and manholes; and
* Condition of backfilling and pavement re-surfacing.

*As-built records*

* Coordinate with Road work contractors and provide as-built records of the newly installed cable routes, including record drawing showing the plans, sections, information of the cables, etc;
* Coordinate with Road work contractors and provide underground cable markers records (if required);
* List and quantity of works carried out by the Road work contractors for the evaluation of work done for payment;
* Relevant site diary;
* Material test results;
* Details of non-compliances and sub-standard works (if any);
* Labor and plant chart for the execution of Road Works;
* Traffic condition resumed record
  1. **MISCELLANEOUS RECORDs**

The Service Provider shall further agree with the Employer on particulars required for the following records:-

* Record for soil and rock conditions;
* Concrete casting records;
* Bar bending schedules;
* Record of bituminous materials;
* Bearing and expansion joint records; and
* Record of materials on Sites;

1. **OTHER REQUIREMENTs**
   1. **action checklist at commencement**

The Service Provider shall submit a comprehensive list of actions to be taken at the commencement of every trench job for the Employer’s approval. The Site Supervisors should use the approved checklist to verify all actions required are satisfactory and expand it if necessary to include site or job specific actions. The action checklist shall include but not limited to the following actions from the Employer, Service Provider, Road work contractors, IAM, DSAT and other relevant stakeholders:-

1. Notify IAM and DSAT of the date for commencement of Road Works;
2. Joint inspection of the TTA and confirm the TTA is satisfactory;
3. Joint inspection of the Sites, agree the inspection results and ensure the requirements stipulated on IAM license and DSAT aviso are strictly adhered;
4. Take photos of the Site and surroundings before commencement of the Road Works;
5. Decide locations where settlement / movement of the Sites or structure should be monitored (if any);
6. Agree the types and format of site records to be kept; and
7. Provision of key contact personnel for all related organizations and Government Departments;
   1. **action checklist at COMPLETION**

The Service Provider shall submit a comprehensive list of actions to be taken at the completion of every trench job for the Employer’s approval. The Site Supervisors should use the approved checklist to verify all actions required are satisfactory and expand it if necessary to include site or job specific actions. The action checklist shall include but not limited to the following actions from the Employer, Service Provider, Road work contractors, IAM, DSAT and other relevant stakeholders:-

1. Notify IAM and DSAT of the date for completion of Road Works;
2. Joint inspection of the Sites, agree the inspection results and ensure the requirements stipulated on IAM license and DSAT aviso are strictly adhered;
3. Take photos of the Site and surroundings after completion of the Road Works;
4. Hand back the Site to IAM or other relevant stakeholders;
5. Hand over completed Road Works to the Employer;
6. Prepare list of outstanding works;
7. Prepare as-constructed drawings and survey plans (if any), and forward to appropriate Government Departments; and
8. Prepare commissioning report;
   1. **quality site Supervision plan**

The Service Provider shall submit the QSSP to the Employer, clearly indicating the detailed site supervision methodologies, arrangements, work flows, procedures, check lists, roles and duties of individual supervising personnel, list of critical construction activities requiring special attention and site records requirements etc. The QSSP will be reviewed and updated from time to time to suit the Employer’s requirement and actual circumstances. The Service Provider shall report the status of implementing the QSSP and any major modifications to it as a result of a review. The Service Provider shall submit the revised QSSP to the Employer if there is a major revision and as requested by the Employer.

* 1. **ENVIRONMENTAL requirement**

The Service Provider shall supervise the Road Works and ensure their compliance to the followings:-

1. To fulfil the requirements stipulated under the environmental protection Law(s) and other relevant legislations or administrative requirements in Macau in connection with the implementation of the Road Works;
2. To review the environmental impact of the Road Works executed by CEM appointed Road work contractors and recommend suitable environmental monitoring and mitigation measures;
3. To resolve environmental problems such as noise, waste, water, air, ecology, visual and landscaping arising from the Road Works to avoid causing delay; and
4. To assist Employer to resolve complains related to environmental issues.
   1. **SAFETY requirement**
      1. **responsibility**

It is the Service Provider and Road work contractors’ responsibility to ensure the safety of all persons on Sites and the general public during execution of the Road Works. Site Supervisor should encourage the Road work contractors and his workers to use safe methods of working and remind them of the provisions of Construction Health and Safety Law no. 2/2023 Administrative Regulation no. 32/2023, other relevant Safety Laws, Government’s safety guidelines and CEM SHEQ policy but should avoid giving specific advise or instruction on working methods to avoid claims or disputes form the Road work contractors. Where it is considered that the outcome of any unsafe working practice could result in injury, being detrimental to the permanent works, or violate the CEM SHEQ policy, the matter should be reported to the Employer.

* + 1. **Monitoring**

When the Site Inspector have identified that an unsafe situation or believed that the Road work contractors or his workers are using unsafe working methods, the matter should be drawn to the attention of the Road work contractors’ Site Agent or Safety Inspector and warrant immediate rectification of the unsafe situation. The matter should then be duly recorded in the site diary which must be countersigned by the Contractor’s Site Agent. If the unsafe situation or the unsafe working methods still persist after repeated notifications by the Site Supervisor, the unsafe situation must be reported to the Employer.

* + 1. **reporting of site incidents and accidents**

All accidents causing personal injury or fatality, affecting the Works or adjacent property shall be reported to DSAL in accordance with the provisions of Construction Health and Safety Law no. 40/95/M.

1. **Penalty**

9.1 If any items is missed to check/record or any delay of submission of required reports, delay one day will be deducted MOP5,000, until the penalty amount reach the maximum of ten missed check/record or delay reaches ten days, i.e., MOP50,000.00, for the corresponding month.

|  |  |
| --- | --- |
| Missed to check/record | MOP5,000 / item |
| Delay submissiuon | MOP5,000 / day |

9.2 If Road work contractors, who is working for CEM works or non CEM works, damage CEM facilities when carrying out works without permission from CEM, the **Services Provider or its dedicated** cannot report to CEM immediately, and this damages are detected by CEM. The following penalties (compensations) shall be applied to **Services Provider** as well:

|  |  |  |
| --- | --- | --- |
| **Network** | **With Force Interruption** | **No Force Interruption** |
| CEM underground facilities per case | **MOP20,000** | **MOP10,000** |

9.3 if the Service provider breaches the CEM SHEQ policy, the penalties shall be applied according to the latest version of “SHE Non-Compliance in Contracts Managed by CEM” 10. CONSTITUTION OF BID DOCUMENTS

1. **CONSTITUTION OF BID DOCUMENTS**

## 10.1 The bid shall include the following documents:

1. Organization Chart for the service provider team with list of individual curriculum and relevant experience (Annex I).
2. Equipment List for providing the service (Section 4).
3. A list of road work supervision experience (2019 –2024) completed by the Bidder in Macao, (Annex II) Project scale length over 50m
4. Valid management and quality certifications including ISO9001, ISO14001 and ISO45001 (if any).
5. Other information considered relevant (if any).
6. Submit proposal for site inspection patrol method and document of record

## 10.2 The Bidder can submit documents specifying the special conditions of his manpower and documents of any additional obligations he will bear as long as they do not contravene with the terms and conditions set in Specifications in order to monitor and guarantee the progress of works.

## 10.3 The above documents shall be written in one of the official languages of Macao SAR or in English language.

## ANNEX I Service Provider Organization Chart

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Position\*\* | Name | ID Card Number\* | OHS Card Number | Expiry Date | Working years in related industry |
| Project Manager |  |  |  |  |  |
| Site Supervisor 1 |  |  |  |  |  |
| Site Supervisor 2 |  |  |  |  |  |
| Site Supervisor 3 |  |  |  |  |  |
| Site Supervisor 4 |  |  |  |  |  |
| Site Supervisor 5 |  |  |  |  |  |
| Site Supervisor 6 |  |  |  |  |  |
| Site Supervisor 7 |  |  |  |  |  |
| Site Supervisor 8 |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

\* First 6 digits

\*\* Not limited to 1 Project Manager and 8 Site Supervisor.

*\*\*\* All team members shall consist of minimum 2 years of related experience and CV are required to be enclosed in the submission of this organization chart.*

## ANNEX II Road Work Supervision Experience within 5 years

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Project description | Road Work Scale (m) | Start Date | End Date |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |
| 11 |  |  |  |  |
| 12 |  |  |  |  |

* Not limited to 12
* Please provide job references for the listed works (including patrol method)