

EXTERNAL ELECTRICAL WORKS FOR BUKIT NANAS WTP.

SCOPE OF WORKS

A. PERIMETER LIGHTING

1. The Contractor shall carry out full inspection of the existing street lighting and floodlight lighting.
2. The Contractor shall submit HIRARC and Method of Statement on dismantling of existing lighting for Engineer's approval.
3. The Contractor shall liaise with local authorities such as CGSO, Jabatan Perhutanan and DBKL etc and obtain their approval before start work.
4. The contractor shall submit material catalogue and sample for Engineer's approval.
5. The Contractor shall liaise with operation & maintenance team and obtain approval for permit to work before start work.
6. The Contractor shall provide the coordination discussion, drawings, etc for all services
7. The Contractor shall submit HIRARC and Method of Statement for installation of new street lighting, underground cable, feeder pillar, etc.
8. The Contractor shall provide temporary support during dismantling and installation.
9. The Contractor shall protect the existing structure or services from damage during dismantling and installation works.
10. The Contractor shall deliver the dismantling items to the approved storage by C.A.
11. The Contractor shall check on the existing pole footing conditions.
12. The Contractor shall supply and Installation of perimeter lighting complete with 100W/200W LED floodlight mounted on 6m and 8m high foldable pole flange type and other associated works at steep and sloping area.
13. The Contractor shall provide lux report simulation based on the proposed lantern by them
14. The Contractor shall to indicate and peg the location of pole for the C.A approval before construction.
15. The Contractor shall perform the testing and commissioning.
16. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer (PEPC)
17. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).
18. The contract period for this project as stated in Tender Form.

B. INSTALLATION OF FEEDER PILLAR

1. The Contractor shall liaison with operation team and carry out full inspection of existing Main Switchboard/Sub Switch Board for the incoming power supply to feeder pillar
2. The contractor shall submit material catalogue and sample for Engineer's approval.
3. Contractor shall submit HIRARC for installation of new Feeder Pillars.

4. The Contractor shall supply & install of new feeder pillars and including tapping power from existing switchboard.
5. The new feeder pillar for perimeter lighting shall be designed as 400V 3phase supply 63A feeder pillars i.e. (FP/1) and FP/2 c/w accessories and plinth.
6. The Contractor shall provide surge protection device (SPD) at the feeder pillar FP/1, FP/2 and service box for each pole
7. The Contractor shall upgrading of the existing SSB i.e installing one no of 63A MCCB for outgoing feeder to the new feeder pillar.
8. The Contractor shall perform the testing and commissioning.
9. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer
10. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).

C. STAIRCASE

1. The contractor shall carry out full survey and measurement of the existing slope and levelling for each of the new staircase location at site.
2. The contractor shall submit Method of Statement on concrete works for Engineer's approval
3. The contractor to carry out JKR Probes Test or Mackintosh Probes Test to a depth not exceeding 15m; inclusive testing equipment, mobilisation and demobilisation and all in accordance to specification; and submit 4 sets of test result to Client/consultant for Engineer's approval.
4. The contractor to clear out new staircase area of all vegetation and unwanted structures, rubbish and debris including grubbing of roots, disposal of all unsuitable material to contractor's dump site as approved by Client.
5. The contractor to provide temporary slope protection during construction by using the plastic sheet or canvas to prevent soil erosion by rainwater.
6. The contractor to provide temporary platform/scaffolding during construction.
7. The contractor to allow of grouting for localised ground treatment to be specified by engineer representative.
8. The contractor shall provide earth surface preparation with well compacted crusher run and soil (Compacted to 95% maximum dry density)
9. The contractor to supply, deliver and fix 1000mm high 50mm dia hot dipped galvanised mild steel handrailing to stairs walkway
10. The contractor shall submit material catalogue and sample for Engineer's approval.
11. Contractor shall prepare 4 copies of as-built structure drawing and being endorse by qualified / competent Engineer (PEPC) for authorities submission and approval.

EXTERNAL ELECTRICAL WORKS FOR AMPANG INTAKE WTP

SCOPE OF WORKS

A. STREET LIGHTING

1. The Contractor shall carry out full inspection of the existing street lighting and floodlight lighting.
2. The Contractor shall submit HIRARC and Method of Statement on dismantling of existing lighting for Engineer's approval.
3. The Contractor shall liaise with local authorities such as Jabatan Perhutanan, LUAS, etc and obtain their approval before start work.
4. The contractor shall submit material catalogue and sample for Engineer's approval.
5. The Contractor shall liaise with operation & maintenance team for the power supply and obtain approval for permit to work before start work.
6. The Contractor shall provide the coordination discussion, drawings, etc for all services
7. The Contractor shall submit HIRARC and Method of Statement for installation of new street lighting, underground cable, feeder pillar, etc.
8. The Contractor shall provide temporary support during dismantling and installation.
9. The Contractor shall protect the existing structure or services from damage during dismantling and installation works.
10. The Contractor shall deliver the dismantling items to the approved storage by C.A.
11. The Contractor shall check on the existing pole footing conditions.
12. To provide lux report simulation based the proposed lantern by contractor.
13. The Contractor shall supply and install of new 150W LED street lighting using 6m high foldable pole flange type and other associated works as per drawing.
14. The Contractor shall supply and install of 1 x 200W LED flood lights at filter area as per drawing.
15. The Contractor shall perform the testing and commissioning.
16. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer (PEPC)
17. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).
18. The contract period for this project as stated in Tender Form

B. INSTALLATION OF NEW FEEDER PILLAR & DB

1. The Contractor shall liaise with operation & maintenance team for the power supply and obtain approval for permit to work before start work.
2. The Contractor shall carry out full inspection of existing Feeder Pillar and Main Switch Board
3. The contractor shall submit material catalogue and sample for Engineer's approval.
4. Contractor shall submit HIRARC for installation of new Feeder Pillar & Distribution

boards complete with plinth and support.

5. The Contractor shall supply & install of new Feeder Pillar, Distribution Boards and including tapping from the existing SSB and MCC.
6. The Contractor shall protect existing boards from damage during installation work.
7. The Contractor shall perform the testing and commissioning.
8. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer
9. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).

EXTERNAL ELECTRICAL WORKS FOR CHERAS MILE 11 WTP.

SCOPE OF WORKS

A. STREET LIGHTING

1. The Contractor shall carry out full inspection of the existing street lighting and floodlight lighting.
2. The Contractor shall submit HIRARC and Method of Statement on dismantling of existing lighting for Engineer's approval.
3. The Contractor shall liaise with local authorities such as LUAS, etc and obtain their approval before start work.
4. The contractor shall submit material catalogue and sample for Engineer's approval.
5. The Contractor shall liaise with operation & maintenance team for power supply and obtain approval for permit to work before start work.
6. The Contractor shall provide the coordination discussion, drawings, etc for all services
7. The Contractor shall submit HIRARC and Method of Statement for installation of new street lighting, underground cable, feeder pillar, etc.
8. The Contractor shall provide temporary support during dismantling and installation.
9. The Contractor shall protect the existing structure or services from damage during dismantling and installation works.
10. The Contractor to dismantle the existing street lighting and shall deliver the dismantle items to the approved storage by C.A.
11. The Contractor to check on the existing pole footing conditions.
12. The Contractor shall provide lux report simulation based on the proposed lantern wattage.
13. The Contractor shall made replacement and upgrading of existing street lighting from the main gate to Intake Water area, quarters area, Raw Water area & Treated Water area with new LED lighting mounted on concrete pole using overhead cables
14. The Contractor shall refurbish and make good the existing decorative poles with new LED lantern and cabling works.
15. The Contractor shall dismantle the unused existing power/street lighting poles
16. The Contractor shall replace existing street lighting at Intake area with 50W LED lantern mounted on existing pole and laying new three phase cables direct buried underground.
17. The Contractor shall replace and upgrading of existing streetlight along the main road from Raw Water area to Treated Water area with 100W LED street light lantern to be fixed at 6m high from ground level on the existing 8m high concrete pole. All cabling works shall be installed by overhead method.
18. The Contractor shall perform the testing and commissioning.
19. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer (PEPC)
20. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).

21. The contract period for this project as stated in Tender Form.

B. INSTALLATION OF MAIN SWITCHBOARD/SUBSWITCHBOARD AND FEEDER PILLAR

1. Contractor to liaise with the operation maintenance team and shall carry out full inspection of existing Main Switchboard (MSB) / Sub Switch Board (SSB) and Distribution boards (DBs)
2. Contractor shall submit HIRARC on dismantling of existing MSB/SSB/DB for Engineer's approval.
3. The contractor shall submit material catalogue, shop drawing and sample for Engineer's approval.
4. Contractor shall submit HIRARC for installation of new MSB/SSB/DBs and feeder pillars.
5. The Contractor shall provide temporary supply during dismantling and installation of new MSB/SSB/DBs/Panels.
6. The Contractor shall provide Genset or/and temporary feeder pillar complete with temporary cabling for temporary power supply during replacement of new MSB/SSB and termination of main incoming cabling. The temporary supply shall run maximum 2 weeks during the replacement of new MSB/SSB and termination of main incoming cabling.
7. The Contractor shall do the termination for new SSB and new overhead power ABC twisted LV cable from existing MSB at Raw Water to existing MSB/SSB at Treated water together to prevent repeated shutdown.
8. The dismantling, installation and termination works should not exceed 8 hours of power shutdown.
9. The Contractor to liaise with the Operation and Maintenance team before doing the termination of the new SSB.
10. Contractor shall supply & install of new MSB/SSB & Feeder Pillar and including tapping power.
11. The Contractor shall protect existing boards MSB/SSB from damage during dismantling and installation.
12. The Contractor shall deliver the dismantling items to the approved storage by C.A.
13. The Contractor shall perform the testing and commissioning.
14. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer
15. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).

C. MAIN INCOMING POWER SUPPLY CABLING WORKS

1. The Contractor to liaise with the Operation and Maintenance team.
2. The Contractor shall supply and install new overhead power ABC twisted LV cable from existing MSB at Raw Water to existing MSB/SSB at Treated water c/w accessories and termination.
3. The Contractor shall supply and install new overhead ABC twisted cable from Feeder Pillar to all street lighting pole c/w accessories.

4. The Contractor shall supply and install new sub main cabling from SSB at all respective DBs including termination as shown in single line diagram drawing.
5. The Contractor shall perform the testing and commissioning.
6. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer
7. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).

EXTERNAL ELECTRICAL WORKS FOR SG SERAI WTP.

SCOPE OF WORKS

A. LIGHTNING PROTECTION SYSTEM

1. The Contractor shall carry out full inspection and provide report of the existing lightning protection.
2. The Contractor shall submit HIRARC and Method of Statement on dismantling of existing lightning protection system for Engineer's approval.
3. The contractor shall submit material catalogue and sample for Engineer's approval.
4. Contractor shall submit HIRARC and Method of Statement for installation of new lightning protection system.
5. The Contractor shall provide temporary support during dismantling and installation.
6. The Contractor shall protect existing structure from damage during dismantling and installation.
7. The Contractor shall deliver the dismantling items to the approved storage by C.A.
8. The Contractor shall perform the testing and commissioning and must obtain the result less than 100ohm (10Ω) as per MS IEC62305:2010 standard. Contractor to perform the rectification work, If the contractor cannot achieve the test result as per standard and specification.
9. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Service Engineer
10. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).
11. The contract period for this project as stated in Tender Form.

B. SURGE PROTECTION DEVICE (SPD)

1. The Contractor shall carry out full inspection of the existing surge protection device (SPD) being installed at existing Main Switchboard, Sub-switchboard, distribution board, MCC panel, flow meter panel and level meter panel.
2. The Contractor shall submit HIRARC and Method of Statement on dismantling of existing SPD for Engineer's approval.
3. The contractor shall submit material catalogue and sample for Engineer's approval.
4. Contractor shall submit HIRARC and Method of Statement for installation of new SPD.
5. The Contractor shall protect existing boards (MSB, SSB, DBs, MCC) from damage during dismantling and installation.
6. The Contractor shall deliver the dismantling items to the approved storage by C.A.
7. The Contractor shall provide all safety signages, labelling, colour coding to the new installation as per instruction by Pengurusan Air Selangor Sdn. Bhd. personnel.
8. The Contractor shall perform the testing and commissioning.
9. The Contractor shall prepare Operation & Manual and As-built drawing and being

endorse by qualified / competent Engineer

10. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).

C. REWIRING OF CABLING WORKS AND NEW FITTING

1. The Contractor shall rewiring of existing buildings complete with replacement of lighting and others associated work at Guard House, Admin building, Chemical store, Pendosan Room & Pendosan Store
2. The Contractor shall replace to new LED lighting for surface light, downlight round with glass diffuser for all buildings as per drawing..
3. The Contractor shall replace to new lighting for surface downlight & LED flood light for guard house
4. The Contractor shall to supply & install new cablings to MSB and submain cablings to all DBs and panels and dismantle existing cabling.
5. The Contractor shall provide round downlights with glass diffuser for all buildings and surface downlights & LED flood light for guard house.
6. The Contractor shall to replace existing compound lighting with LED light and foldable pole.
7. The Contractor shall replace 250W HPSV floodlight to intake area with 100W LED Street Lighting including new 6m high foldable pole flange type.
8. The Contractor shall replace 1 no of 250W HPSV street lighting to 100W LED Street Lighting including new 6m high foldable pole flange type..
9. The Contractor shall to replace all the switch socket outlet (13A), air cond point, fan exhaust point and wall fan for all buildings.
10. The Contractor shall provide new LED light fitting for office room and general areas.
11. To provide lux report simulation based the proposed lantern by contractor.
12. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).

D. INSTALLATION OF NEW MAIN SWITCHBOARD & DISTRIBUTION BOARD

1. The Contractor shall carry out full inspection of existing Main Switchboard and Distribution boards..
2. The Contractor shall submit HIRARC on dismantling of existing MSB & Distribution boards for Engineer's approval.
3. The contractor shall submit material catalogue and sample for Engineer's approval.
4. Contractor shall submit HIRARC for installation of new MSB & Distribution boards.
5. The Contractor shall provide temporary supply during dismantling and installation of new MSB/SSB/DBs/Panels.
6. The Contractor shall provide Genset or/and temporary feeder pillar complete with temporary cabling for temporary power supply during replacement of new MSB/SSB and termination of main incoming cabling. The temporary supply shall run maximum 2 weeks during the replacement of new MSB/SSB and termination of main incoming cabling.

7. The dismantling, installation and termination works should not exceed 8 hours of power shutdown.
8. The Contractor shall supply & install of new MSB and including tapping to the existing 40kva capacitor bank for this plant.
9. The Contractor shall supply & install of new DBs.
10. The Contractor shall protect existing boards MSB/ Distribution boards from damage during dismantling and installation.
11. The Contractor shall deliver the dismantling items to the approved storage by C.A.
12. The Contractor shall perform the testing and commissioning.
13. The Contractor shall prepare Operation & Manual and As-built drawing and being endorse by qualified / competent Engineer
14. The Contractor shall perform routine inspection for every six (6) months and replace the defect item during the defect liability period (24 months).