**Bill of Quantities**

The Rehabilitation of Elobeied International Airport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ITEM | Description | Unit | Quant. | Rate (SDG) | Amount  (SDG) |
| 1 | **Runway Regulating Coarse**  Provide and process asphaltic regulating coarse as per specifications | Ton | 8,000 |  |  |
| 2 | **Runway Shoulder**  Provide, and compact suitable selected natural gravel with CBR≥30% for sub base course as per Design. Each layer should be compacted separately and its thickness not exceeded 15cm. 2.5 % transverse slopes for the runway shoulders should be considered during the construction.  The degree of compaction should not be less than 98%. | m³ | 9,000 |  |  |
| 3 | **Runway extension**  **EARTHWORKS**  Excavation depth 0.75m and providing and placing non expansive material as r as specified per drawing | m³ | 27,673 |  |  |
| 4 | **Runway Extension**  **Subbase Layer**  Provide, and compact suitable selected natural gravel with CBR≥30% for sub base course as per Design. Each layer should be compacted separately and its thickness not exceeded 15cm. 1.5 % transverse slopes for the runway should be considered during the construction.  The degree of compaction should not be less than 98%. | m³ | 14,400 |  |  |
| 5 | **Runway Extension**  **Base Layer**  Supply, opt, moisten ,mix, and compact to 100% compaction degree a 20 cm blended base (stabilized) mixture that comprises suitable local natural gravely aggregate, natural wadi coarse sand, and different manufactured crushed stone sizes (19-12 ,12-9, and 5-0 mm) capping the sub base. The mechanical stabilization process can be estimated 60% natural gravel with 40% agents. The processed base blend should comply with .British Standards (B.S.) and its strength ≥ 80% (CBR).  The compaction process in one layer >100 | m³ | 5,400 |  |  |
| 6 | Spray hot prime coat with1.2 kg/m2 for the extension and the shoulder(4m) | m² | 60,000 |  |  |
| 7 | Supply and apply 7.5 cm compacted hot mix asphalt (HMA) as a binder concrete asphalt course that complying with B.S and SCAA specifications. | Ton | 6,750 |  |  |
| 8 | Supply and spray hot tack coat with 0.7 – 0.9 kg/ m² intensity for the runway extension. | m² | 36,000 |  |  |
| 9 | Supply and apply 7.5 cm Compacted hot mix asphalt (HMA) as an over lay concrete asphalt course that complying with B.S. and SCAA specifications. | Ton | 28,451.5 |  |  |

1. Blast pad: Total Area of & Blast pad = 2(120 m x 45) (0.25m thickness)

**e- Holding Bay:**

|  |  |  |  |  |  |
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| ITEM | Description | Unite | Quant. | Rate (SDG) | Amount  (SDG) |
| 1 | Site Cleaning | m2 | 9,200 |  |  |
| 2 | Excavation (depth = 0.4m) | m3 | 3,700 |  |  |
| 3 | EARTHWORKS  Providing and placing Sub-base Material of natural Aggregate is required to accommodate wide body aircraft (2lyers of total thickness 40cm) as specified in specification | m3 | 3,700 |  |  |
| 4 | Concrete Holding Bay  Providing and placing machine mixed structural Portland cement concrete mix (1:3:6 ) shall be proportioned to achieve a 28-day flexural strength that meets or exceeds the acceptance criteria contained in (with steel mesh of Ø6mm 150 mm C/C @The bottom of Concrete Slab 3cm cover). | m3 | 3,220 |  |  |
| 5 | Steel Dowel bar (shall be plain steel bars conforming to (ASTM A615))  of Ø16mm@150 mm C/C (at The Middle of Concrete Slab and 700mm length). | Ton | 10 |  |  |
| 6 | Steel mesh of Ø6mm@300 mm C/C (at The bottom of Concrete Slab and 3cm cover). | Ton | 8 |  |  |
| 7 | Joint seal.  Providing and filling The joint seal for the joints in the concrete pavement(25mm x 25mm) shall meet the requirements as specified in specification | m3 | 5 |  |  |
| 8 | Isolation joint filler  Providing and filling Remolded joint filler for isolation joints (320mm) shall conform to the requirements of (ASTM D1751) | m3 | 60 |  |  |

**Total Area = 115 m x 80 (0.35m thickness**)

E-Electrical civil works :

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| --- | --- | --- | --- | --- | --- |
| ITEM | Description | Unite | Quant. | Rate (SDG) | Amount  (SDG) |
| 1 | Excavation (for pipes crossing Runway & Taxiway) | m3 | 415 |  |  |
| 2 | Providing and placing High Pressure pipes of 6 in diameter (crossing the runway). Length =60m (Standard Specification for High-Density Polyethylene (PE) Standard ASTM F2619 / F2619M) | No. | 24 |  |  |
| 3 | Providing and placing High Pressure (HDPE) pipes of 6in diameter (crossing the Taxiway). Length = 51 m (Standard Specification for High-Density Polyethylene (PE) Standard ASTM F2619 / F2619M) | No. | 28 |  |  |
| 4 | Providing and placing Reinforced Concrete Manholes (with shear walls & cover), of Area 0.8m\*0.8 m & 1.0m height | No. | 6 |  |  |
| 5 | Providing and placing Reinforced Concrete Manholes with cover, of Area 0.5m\*0.5 m &0.75m height | No. | 14 |  |  |

**Surface Drainage**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ITEM | Description | Unite | Quant. | Rate (SDG) | Amount  (SDG) |
|  | Grading & leveling the area of the Airport that specify in specification & Drawings). | m³ | 194157.474 |  |  |
|  | Providing and Construct reinforced concrete Culverts as specify in specification crossing taxiways | No. | 2 |  |  |
|  | Excavation & removal of all deposited of open channel of length 3.5 km and cross-section that specify in specification & Drawings). | m³ | 8000 |  |  |

**Graded Portion:**

Should be applying for the:

* Runway strip.
* Taxiways strip**.**

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| --- | --- | --- | --- | --- | --- |
| Amount  SDG | Rate  SDG | Quant | Unit | Description | ITEM |
|  |  | 747,000 | m2 | Site Clearance | 1- |
|  |  | 194157,747 | m³ | Graded area compacted with selected non-expansive material | 2- |
|  |  |  |  | Sub Total | |

**f : Access Road & Service Roads :**

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| --- | --- | --- | --- | --- | --- |
| Amount  SDG | Rate  SDG | Quant | Unit | Description | ITEM |
|  |  | 270,000 | m2 | Site Clearing | 1. |
|  |  | 94,500 | m3 | Excavation Removal of top soil | 2. |
|  |  | 75,600 | m3 | Provide, and compact a suitable selected natural gravel with CBR≥30% for sub base course as per Design. Each layer should be compacted separately and its thickness not exceeded 15 cm . transverse slopes should be considered during the construction of access road and service roads sub base layers  The degree of compaction should not be less than 95% . | 3. |
|  |  | 12,000 | m3 | Supply, opt, moisten ,mix, and compact to 98% compaction degree a 20 cm suitable local natural gravely aggregate,. The processed base should comply with .British Standards (B.S.) and its strength ≥ 80% (CBR).  The compaction process in one layer > | 4. |
|  |  | 80,000 | m2 | Spray hot prime coat with1.2 kg/m2 for all roads area. | 5. |
|  |  | 9,600 | ton | Supply and apply 5 cm Compacted hot mix asphalt (HMA) as an over lay concrete asphalt course that complying with B.S. and SCAA specifications. | 6. |
|  |  |  |  | Sub Total | |

**Kenana Airport Project**

**Airfield Markings**

**White Paint(1liter/1**m2**)**

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| Amount  SDG | Rate  SDG | Quant | Unit | Description | ITEM |
|  |  | 3600 | m2 | Runway Edge Marking | **1** |
|  |  | 864 | m2 | Runway Threshold Strip | **2** |
|  |  | 71.28 | m2 | Designation Number | **3** |
|  |  | 513 | m2 | Runway Centre line | **4** |
|  |  | **5048.28** |  | Total | |

**Yellow Paint**

(0.025Galon/Meter length)

The thickness of the line = 15 cm

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| Amount  SDG | Rate  SDG | Quant | Unit | Description | ITEM |
|  |  | 2800 | m.l | Taxiway Edge Marking – | **1** |
|  |  | 1300 | m.l | Taxiway Centre line Markings | **2** |
|  |  | 1800 | m.l | Apron Edge Markings – | **3** |
|  |  | 276 | m.l | Holding Position Markings | **4** |
|  |  | 1500 | m.l | Apron Layout | **5** |
|  |  | **7676** |  | Total | |