

LOT – 1: PARTICULAR SPECIFICATIONS**1. Location of the Sites**

The site is located in Derineia/Derinya Famagusta. It consists of the existing road situated in the UN Buffer Zone extending to the north.

The length of the road is approximately 200m.

2. Outline Description of the Works

The road footprint includes 7.0 m meters for the road pavement and 2.0 meters for road shoulders on both sides (1.0 m on each side). Ditches will be constructed where required on both sides of the road for rain water conveyance.

Pipe culvert will be constructed as indicated in the drawings in order to facilitate flow of rainwater.

Road signs and road markings will be placed for traffic management and safety.

Estimated construction period for the road is maximum 10 calendar weeks.

Works shall commence at the same time for LOT 1 and LOT 2, unless otherwise instructed by UNDP.

3. Traffic Safety Measures

The Contractor shall ensure the intermittent flow of traffic used by the UN military, both day and night throughout the construction period, with adequate safety and protection measures as approved by the Engineer.

The provisions set out here below for traffic safety measures applies especially – but not limited to – the construction of the road and related crossing roads further to the relocation / requalification of other minor roads shown in the contract drawings.

All the temporary and permanent works, including all cost and expenses of any kind, for traffic management and safety measures will not be measured for but will be paid on a lump sum basis according contract BOQ.

4. Contractor's Performance of Tests.

The contractor shall arrange his own quality control and quality assurances. As a part of QA/QC, the Contractor shall perform Laboratory tests for quality control of the works. Those tests shall be undertaken by an approved geotechnical laboratory.

5. Reference for General Specification Guideline

Particular specifications have been prepared by the guidelines given by the STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS.

6. Pipe Culverts

Drainage shall be made of HDPE pipes as per the stipulations of the STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS.

7. Demolition of Structures

A number of different structures and obstructions, underground and above ground, are located on the area involved by the works including but not limited to : masonry and concrete structures, ruins, fencing, pipes, pits and other drainage structures, lighting posts and related basements, vertical road signs, trees, bushes, dumped materials etc.

Prior to submit the tender, the Contractor shall inspect the site and get acquainted of the this work to be executed under the contract obligations according to SECTION 201 and SECTION 202 - DEMOLITION AND SITE CLEARANCE - STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS - 2013.

The Contractor shall demolish, break up, remove, excavate, backfill and dispose off all the structures and obstructions, underground and above ground, affecting the Site of Works; He shall clear each part of the Site up to the limit of land acquisition and/or up to the Right of Way limit, drainage channels and other site areas to the extend specified in the contract drawings or approved by the Engineer.

8. Excavations and Forming Embankments

Notwithstanding section 209-210-211 of STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS, the Contractor shall re-grade and compact all the embankment formation surfaces.

After excavating existing surface soil and/or any unsuitable material in particular, the Contractor shall level and compact – with at least 4 (four) passes of heavy static or vibrating roller - the natural formation level before placing the first embankment layer.

This work shall not be measured and paid for separately but shall be deemed as included in the Item "Form Embankment".

9. Sub-base material (Type B)

Notwithstanding section 401 of STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS – 2013, the following requirements must be satisfied.

Sub-base shall be stabilized material (quarry material) with property table given at the end of the related section. Sub-base thickness shall not be less than 30 cm unless otherwise stated on road section drawings. Sub-base shall be compacted till 98 percent Modified Proctor density is reached. Compacted sub-base shall have minimum CBR value of 50 Percent and liquid limit (LL) shall be less than 25.

Sieve size (mm)	Percentage Passing (%)
75	-
50	100
37.5	80-100
25	60-90
19	45-80
9.5	30-70
4.75	25-55
2	15-40
0.425	10-20
0.075	0-12

10. **Base material - Plant Mix Type I**

Notwithstanding section 402 of STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS – 2013, the following requirements must be satisfied.

Base material shall be Plant Mix – Type 1 with thickness no less than 20 cm unless otherwise stated on road section drawings. Base material shall be placed by finisher equipment. Base shall be compacted till 100 percent Modified Proctor density is reached. Compacted base shall have minimum CBR value of 120 percent.

Sieve size (mm)	Percentage Passing (%)
37.5	100
25	72-100
19	60-92
9.5	40-75
4.75	30-60
2	20-45
0.425	8-25 %
0.075	0-10

11. **Binder and Wearing courses**

Notwithstanding section 407 of STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS – 2013, the following requirements must be satisfied.

Binder course and wearing course thicknesses shall be no less than 7 cm and 5 cm respectively. Binder and wearing courses shall be produced using bitumen grade 50/70 (bitumen penetration grade of 50/70). Binder and wearing courses shall be placed by finisher equipment.

12. Prime and tack coating

Notwithstanding sections 403.03.02.01, 407.03.02.01 and 412 of STANDARD SPECIFICATIONS FOR ROAD AND CIVIL WORKS – 2013, the following requirements must be satisfied.

Prime coating shall be applied before the application of binder course over underlying base course. Tack coating shall be applied before the application of wearing course over underlying binder course. Prime and tack coating shall have minimum bitumen penetration grade of 50/70 complying with EN 12591.

13. Concrete for Structures to Blinding/Levelling

All concrete structures placed on ground shall be laid on a 75 mm minimum layer of Blinding & Levelling Concrete Class C10 having the purpose of forming a proper levelled plan according to the contract drawings and the instructions of the Engineer. The 75 mm layer of Blinding & Levelling Concrete shall conform to SECTION 308 of STANDARD SPECIFICATION FOR ROAD AND CIVIL WORKS - 2013.

14. Damp-proofing of structures

Notwithstanding section 318 of STANDARD SPECIFICATIONS, “Damp-proofing of structures” all surfaces of structures in contact with the soil shall be painted with one coat of primer (0.5 l/m²) and 3 coats of intermediate layers at the rate of 0.7 Kg/m² each coat. This work shall not be measured and paid for but shall be included in the rate of item 05 “Concrete for structures”.

15. Pipes and Ditches for Drainage

All pipes for piped culverts, storm-water and drainage system shall be corrugated HDPE pipes (class SN8) and shall have minimum inside diameter of 1000 mm. unless otherwise shown on the drawings or provided in the Contract.

All concrete ditches shall have thickness of 15 cm and concrete class of C30/37.

Pipes and ditches for drainage and culverts shall comply with SECTION 313 of STANDARD SPECIFICATION FOR ROAD AND CIVIL WORKS and with the requirement set out by Manufacturer’s installation specifications.

The minimum pipe cover above concrete surround to paving level shall be 50 cm.

16. Road Signs

Notwithstanding the following specification for all road signs, the Contractor shall follow all instructions given by the manufacturer installation guide.

The work under this Section comprises the supply and application of reflectorized tropical thermoplastic road marking paint in white and yellow for lines and traffic markings as follows:

Unless otherwise shown, lines shall be yellow for edge lines and white for all other lines to the width specified. The edge lines shall be solid and the lane lines shall be as shown on the drawings.

On completion, the material shall produce an adherent reflectorized line or marking of the specified thickness.

Materials

The material shall conform to British Standard BS3262:1987 Hot Applied Thermoplastic Road Marking Materials or manufacturer's installation guides.

The material when laid shall consist of light coloured aggregate, pigment and extender, bound together with hard wearing resins, plasticised with oil as necessary, in the following proportions:

Constituents	Percentage by Weight	
	White	Yellow
Binder	20 ± 2	20 ± 2
Glass Beads (Ballotini)	20 min.	20 min.
Titanium Dioxide (white pigment)	8 min.	-
Aggregate, Extender	54 max	62 max.
Yellow Pigment	-	-

The binder, aggregate, glass beads, pigments and extenders shall all conform to the requirements of BS3262.

The binder shall consist of synthetic resins, plasticised to meet the specification requirements. The resin shall comprise synthetic hydrocarbon resin or maleic modified glycerol ester resin (alkyd binder). Documentation describing the specific resin type shall be submitted with the tender.

The thermoplastic paint shall be formulated to have the following specific properties when tested in accordance with BS3262-1987:

1. Softening Point	95 Deg. C
2. Luminance (White)	75
(Yellow)	50
3. Heat Stability (White)	70
(Re-melted) (Yellow)	45
4. Skid Resistance	45

5. Abrasion Resistance

0.25g/100 revolutions

Delineators

The delineators shall be fabricated from a durable plastic material similar to high pressure polythene with aluminium incorporated into the plastic. The delineator shall be white on the exterior and capable of resisting local climatic conditions. The total weight of the delineator shall be in the range of 1,000-2,000 gr.

The delineators shall be one of the following types:

A circular post not less than 75mm in diameter and 950mm long, having a domed top and a bevelled or conical base with an anchoring device. The upper 150mm of the post shall have the sides flattened at about 15 degrees to provide for centering and fitting the reflectors. The red reflector shall be on the left face and the white reflector on the right face from a front view or as directed by the Engineer.

A rounded corner triangular post not less than 950mm long with a closed top and an anchoring device in the base. Two sides of the triangle shall not be less than 100mm and the short side not less than 70mm. The reflectors shall be centered and fitted in the upper 150mm of the 120mm sides. The red reflector shall be fitted on the left face and the white reflector on the right face from a front view or as directed by the Engineer.

Glass or plastic prismatic reflective elements shall be any geometric shape as long as the area of the unit is 30 cm².

Traffic signs, description

This work shall consist of furnishing and installing road signs and posts assemblies as shown on the Drawings and in accordance with the Specifications or as directed by the Engineer. All sign faces and lettering shall be in accordance with the Employer's sign standards as shown on the Drawings or as directed by the Engineer.

All foundations, framing and fixings for Information Signs shall be suitable for local conditions. The design calculations shall be submitted to the Engineer for approval. The design wind speed shall be taken as 120km/hr with gusts up to 160km/hr.

Requirements for road sign materials

Sign plates shall be manufactured either from sheet aluminium to BS 1470, SIC - 1/2H, NS3-3/4N, NS-1/2H or HS 30-WP with a minimum thickness of 3mm (11 swg) or from extruded aluminium plank sections to BS 1476, HE 9-WP, HE 9-P or HE 30-WP or extruded aluminium alloy plank sections to BS 1474, HE 9 TE and HE 30 TF. However information signs shall be constructed in extruded aluminium planks, which will either be self-locking or rear fixing, and the aluminium shall be BS 1470, BS 1474 or BS 1490 or other approved equivalent international standard.

All sign plates shall have clean, smooth edges cut to the required shape of the sign, and shall be etched and degreased to the sign sheeting manufacturer's specifications before application of the sheeting.

Illuminated sign shall be covered with "Engineering Grade" reflective sheeting. Reflective signs shall be covered over the whole front face with "High Intensity" reflective sheeting. The sheeting of the specified colours must have the manufacturer's guarantee of not less than 5 years has been obtained. The rear faces shall be non-reflective grey and should give a similar lifespan to the sign face.

The reflective sheeting shall be fixed to the sign-plate either with a heat activated adhesive using vacuum applicator or with a pressure sensitive adhesive using a pressure roller in accordance with the sheeting manufacturer's instructions.

Sign faces shall be formed from a single piece of reflective sheeting, but if for any reason the sign face must be fabricated from more than one piece of material all joints in the material shall be over-lapped by not less than 6mm and where sheeting is applied to extruded sections it shall extend over the top and bottom edges of the sections by not less than 3mm. No butt joints shall be permitted and in horizontal joints the overlap shall be from the top.

Construction requirements for road signs

All sign faces shall be of the type, colour and size shown on the Drawings or as specified by the Engineer.

All posts shall be of the type specified on the Drawings and all non-galvanized sections shall be protected against corrosion by painting in accordance with clause 1315

The distance between the lower edge of the signs and the road surface shall be in accordance with the Drawings.

Signs shall be fastened to sign supports in accordance with the requirements of the Drawings, Specifications and the Recommendations of the sign manufacturer to the satisfaction of the Engineer.

Paint and protective coatings

All paints forming any one painting system shall be obtained from one manufacturer and, unless otherwise agreed by the Engineer, the source of supply shall not be changed after the Engineer's approval has been given. Paint shall be supplied in sealed containers of not more than 5 litres capacity and these shall be used in strict order of delivery.

The system of protection for all non-galvanised steelwork shall be as follows:

- Primer Coat: Inter-zinc QHA 027/028 minimum dry film thickness 65 microns.

- Second Coat: Intergard EBA 070/EBA 100 JB natural M.I.O. minimum dry film thickness 100 microns.
 - Third Coat: Intergard EBA 070/EBA 100 JB silver grey M.I.O. minimum dry film thickness 50 microns.
 - Fourth Coat: Intergard EFK 724 epoxy finish grey minimum dry film thickness 50 microns.
- Total dry film thickness - 315 microns (minimum).