

IMPORTANT NOTE

Submission of e-tenders

Tenders must be submitted by registered Economic Operators.

Electronic Public Procurement System (ePPS) users holding a sole trader account are kindly reminded that their account can only be used to submit tenders under their sole trader's name and not on behalf of any other organisation.

In case a tender needs to be submitted by any other type of Economic Operator (e.g. Company/Joint Venture/Consortium), an account needs to be created either through the ePPS or e-ID as per Terms of Use for Economic Operators and only this account must be used to submit the tender.

In the case where a person requires to submit a tender on behalf of an entity which may be an organisation or Joint Venture/Consortium, the submission must be performed through the account of the entity. The latter must assign the person an account to perform the submission on its behalf, if the person is not already assigned. The entity will be considered as the economic operator submitting the tender.

Economic Operators are reminded that **ONLY** in the case of **New Account Registrations**, irrespective of the type and form of the Economic Operators, they have a choice between registering either directly through the ePPS at www.etenders.gov.mt or through the e-ID Service via the MyGov website at www.mygov.mt. In the case of the latter, Economic Operators must qualify for e-ID as per the ePPS Terms of Use for Economic Operators.

Prospective Bidders are reminded that when submitting more than one option for a particular CfT, they should submit multiple tenders.

Prospective Bidders are reminded to follow the above instructions and other instructions in the Terms of Use of the ePPS and the Manual for Economic Operators available under the 'Help' tab of the epps homepage.

The Department of Contracts will disqualify Economic Operators who do not abide by these instructions.

Submission of Financial Offer

Tenderers must quote all components of the price inclusive of taxes/charges, customs and import duties and any discounts BUT excluding VAT. **VAT shall be paid in accordance with the current VAT regulations.**



REFERENCE NUMBER: MGOZ/MPU T 47/2018

**TENDER FOR THE CONSTRUCTION OF
STORMWATER CULVERTS AND THE
RECONSTRUCTION OF PART OF TRIQ SANNAT,
XEWKIJA, GOZO**


Date Published:	20th July 2018	
Deadline for Submission:	22nd August 2018	at 09:30am CEST
Tender Opening:	22nd August 2018	at 10:00am CEST

IMPORTANT:

- No Bid Bond is requested for this tender.

IMPORTANT

Clarifications shall be uploaded and will be available to view/download from www.etenders.gov.mt

 This e-tender does not require print-outs from this document. Please consider your environmental responsibility before printing.

Department of Contracts

Notre Dame Ravelin, Floriana FRN 1600, Malta.

Tel: (356) 21220212. Fax: (356) 21247681 Email: info.contracts@gov.mt

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# SECTION 1 - INSTRUCTIONS TO TENDERERS

## 1. General Instructions

- 1.1 In submitting a tender (unless otherwise indicated, a tender offer above 100MB will not be accepted by the system (ePPS), the tenderer accepts in full and in its entirety, the content of this tender document, including subsequent Clarifications issued by the Central Government Authority/Contracting Authority (CGA/CA), whatever the economic operator's own corresponding conditions may be, which through the submission of the tender is waived. Tenderers are expected to examine carefully and comply with all instructions, forms, contract provisions and specifications contained in this tender document. These Instructions to Tenderers complement the General Rules Governing Tenders, the Terms of Use and the Manual for Economic Operators applicable to Government's e-Procurement Platform (available from [www.etenders.gov.mt](http://www.etenders.gov.mt)).

No account can be taken of any reservation in the tender as regards the tender document; any disagreement, contradiction, alteration or deviation shall lead to the tender offer not being considered any further.

Prospective tenderers must submit their response to this tender online, at [www.etenders.gov.mt](http://www.etenders.gov.mt), by completing the prescribed tender response format using the Tender Preparation Tool (TPT) provided by the System. Please note that the TPT was recently updated. This means that anyone who has downloaded the TPT in the past will need to download this tool again. If this is not done, the tender package, created using the old version of the tool, will not be accepted by the etenders portal. Therefore, to avoid the inconvenience of having the tender package rejected, please make sure that you fill in the tender structure using the latest version which can be downloaded from the [www.etenders.gov.mt](http://www.etenders.gov.mt) portal. In case of any discrepancy between the requirements contained in this document and those in the tender response format (xml tender structure), the latter shall prevail.

Prospective tenderers take full responsibility to submit their electronic tender response (offer) well before the tender submission deadline in order to avoid last minute upload restrictions. Tender offers must be fully uploaded/accepted by the ePPS prior to the deadline for submission of offers, that is, tenders in transit upon tender submission deadline will be rejected.

**Note:**

Where in this tender document a standard, brand or label is quoted, it is to be understood that the Contracting Authority will accept equivalent standards, brands or labels. However, it will be the responsibility of the respective bidders to prove that the standards, brands or labels they quoted are equivalent to the standards, brands or labels requested by the Contracting Authority.

- 1.2 The subject of this tender is the Reconstruction of Triq Sannat, Xewkija, Gozo *including but not limited to* the following works:
- a. Scarifying oversite with mechanical equipment
  - b. Supply, transport and lay Type 1D Fill Material
  - c. Supplying, depositing and compacting Type 1: Granular base course

- material;
- d. Cutting existing road surface with rotary saw
- e. Construction of Stormwater Culvert;
- f. Modification of gratings, manhole covers and interception chambers;
- g. Levelling;
- h. Supplying, transporting and laying hot dense bituminous paving mixture;
- i. Construction of footpaths;
- j. Supply and lay precast concrete kerb;
- k. Cast in situ of concrete hard shoulder;
- l. Provide and lay BRC Fabric;
- m. bituminous asphalt laying and compaction and testing
- n. laying, compaction and finish of paving blocks
- o. construction of infrastructure including building of chambers and laying of pipes
- p. supply and lay/install traffic signs and road markings

- 1.3 The place of acceptance of the works shall be Triq Sannat, Xewkija, Ghawdex, the time-limits for the execution of the contract shall be 10 weeks, and the INCOTERM<sup>2010</sup> applicable shall be **Delivery Duty Paid (DDP)**.
- 1.4 This is a Bill of Quantities for works contracts
- 1.5 This call for tenders is being issued under an open procedure.
- 1.6 This call for tenders is not a reserved contract.
- 1.7 The Contracting Authority for this tender is the Projects and Development Directorate, Ministry for Gozo.

## 2. Timetable

2.

|                                                                                                                                                                                                                         | DATE                         | TIME  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------|
| Clarification Meeting/Site Visit (Refer to Clause 6.1)                                                                                                                                                                  | 3 <sup>rd</sup> August 2018  | 10:00 |
| Workshop (Refer to Clause 6.2)                                                                                                                                                                                          | Refer to 6.2                 | -     |
| Deadline for request for any additional information from the Contracting Authority.<br><b>Clarifications by registered users to be sent online through <a href="http://www.etenders.gov.mt">www.etenders.gov.mt</a></b> | 10 <sup>th</sup> August 2018 | 23:45 |
| Last date on which additional information can be issued by the Contracting Authority                                                                                                                                    | 14 <sup>th</sup> August 2018 | 23:45 |
| Deadline for Submission of Tenders (unless otherwise modified in terms of Clause 10.1 of the General Rules Governing Tendering)                                                                                         | 22 <sup>nd</sup> August 2018 | 09:30 |
| Tender Opening Session (unless otherwise modified in terms of Clause 10.1 of the General Rules Governing Tendering)                                                                                                     | 22 <sup>nd</sup> August 2018 | 10:00 |

\* All times Central European Summer Time (CEST)

## 3. Lots

- 3.1 This tender is not divided into lots, and tenders must be for the whole of quantities

indicated. Tenders will not be accepted for incomplete quantities. The tender cannot be divided into lots since all works are inter related and cannot be physically separated.

#### **4. Variant Solutions**

- 4.1 No variant solutions will be accepted. Tenderers must submit a tender in accordance with the requirements of the tender document.

#### **5. Financing**

- 5.1 The project is financed from local budget funds.

#### **6. Clarification Meeting/Site Visit/Workshop**

- 6.1 A clarification meeting/site visit will be held on the date and time indicated in Clause 2, at the Ministry for Gozo [Projects and Development Directorate Board Room] to answer any questions on the tender document which have been forwarded in writing, or are raised during the same meeting. Minutes will be taken during the meeting, and these (together with any clarifications in response to written requests which are not addressed during the meeting) shall be posted online as a clarification note as per Clause 6.1 of the General Rules Governing Tendering.

Meetings between economic operators and the Contracting Authority, other than that provided in this clause during the tendering period are not permitted.

- 6.2 Economic operators may register to attend a workshop that will be organised in collaboration with the Institute for Public Services (Ex-CDRT: Centre for Development, Research and Training) at San Salvatore Bastion, Sa Maison Road, Floriana FRN1610. During this workshop, economic operators will be given the opportunity to familiarise themselves with Government's e-Procurement platform.

Economic operators are to register to attend this workshop by sending an email on [etenders@gov.mt](mailto:etenders@gov.mt) with the name, surname, role within the organisation, and contact details (telephone and email address) of the nominated person.

#### **7. Selection and Award Requirements**

In order to be considered eligible for the award of the contract, economic operators must provide evidence that they meet or exceed certain minimum criteria described hereunder.

##### **(A) Eligibility Criteria**

- (i) No Bid Bond is required. <sup>(Note 1)</sup>
- (ii) Declare agreement, conformity and compliance with the General Rules Governing Tendering in the Tender Response Format (available from

[www.etenders.gov.mt](http://www.etenders.gov.mt)).

- (iii) Declare agreement, conformity and compliance with the provisions of the Tenderer's Declaration in Tender Response Format.
- (iv) Declare agreement, conformity and compliance with the provisions of the Statement on Conditions of Employment in Tender Response Format.
- (v) Power of Attorney (if applicable). <sup>(Note 2A)</sup>
- (vi) Declaration that following signature of contract by the successful bidder, evidence will be provided in respect of the requirements stipulated regarding Energy Efficiency through the Energy Efficiency Form (if applicable). <sup>(Note 2A)</sup> - **NOT APPLICABLE**

**(B) Exclusion (including Blacklisting) and Selection Criteria - information to be submitted through the European Single Procurement Document (ESPD)** <sup>(Note 2A)</sup>

- (i) Data Concerning the economic operator to be submitted by filling Part II of the European Single Procurement Document (ESPD). Part II (2A.1 till 2A.13.1) of the ESPD seeks background information about the economic operator.

If the information to be submitted has already been submitted when registering with the ePPS, the economic operator in question is to leave the relevant field blank. <sup>(Note 2A)</sup>

- (ii) Part II A Reference 2A.14 till 2A.16.6 need only be filled in if the procurement is Reserved. <sup>(Note 2A)</sup> - **NOT APPLICABLE**
  - (iii) Part II A Reference 2A.17 till 2A.17.3 need only be filled in when the economic operator is part of a group, consortium, joint venture or similar. Furthermore in the case of a Joint Venture/Consortium or group of economic operators the tender must include a preliminary agreement or letter of intent stating that all partners assume joint and several liability for the execution of the contract, that the lead partner is authorised to bind, and receive instructions for and on behalf of, all partners, individually and collectively. <sup>(Note 2A)</sup>
  - (iv) Part II A Reference 2A.18 need only be filled where the tender is divided into lots. <sup>(Note 2A)</sup> - **NOT APPLICABLE**
  - (v) Data concerning exclusion grounds to be submitted by filling Part III of the European Single Procurement Document (ESPD). <sup>(Note 2A)</sup>
  - (vi) Economic Operators must declare that they meet the minimum criteria established hereunder by filling Part IV of the European Single Procurement Document (ESPD). If no Selection Criteria is requested by the Contracting Authority, the relevant part of the ESPD is to be left blank. <sup>(Note 2A)</sup>
- (a) Suitability<sup>(Note 2A)</sup> - **NOT APPLICABLE**

(b) Economic and Financial Standing<sup>(Note 2A)</sup> - **NOT APPLICABLE**

(c) Technical and Professional Ability<sup>(Note 2A)</sup>

1. Provide data concerning subcontractors and the percentage of works to be subcontracted to be submitted online through the ESPD as per Question Reference number 4C.10.

Any subcontractor proposed and disclosed at this stage shall be evaluated in line with the Exclusion and Blacklisting Criteria as per section 7 (B) of these Instructions to Tenderers. Furthermore, if the sub-contractor is relied upon by the Contractor to meet the standards established in the selection criteria, apart from submitting the relevant commitments in writing, such reliance will be evaluated to verify its correctness and whether in effect these criteria are satisfied.

(d) Quality Assurance Schemes and Environmental Management Standards <sup>(Note 2A)</sup> - **NOT APPLICABLE**

(vii) Concluding Statements to be submitted by filling Part VI of the European Single Procurement Document (ESPD). <sup>(Note 2A)</sup>

### **(C) Technical Specifications**

(i) Tenderer's Technical Offer in response to specifications to be submitted online through the prescribed Tender Response Format and by using the Tender Preparation Tool provided. <sup>(Note 3)</sup>

The Technical Offer shall include:

(a) Technical Questionnaire in the Technical Offer form;

(b) An indicative Programme of Works in relation to this tender. This shall incorporate works, completion, commissioning and hand over of the works, and including details such as but not limited to:

- Traffic Management
- Phasing of works



- Projected Milestones for completion of each Phase
- Target Project Completion
- Testing Schedule
- Non Conformity Reports and Procedures

(c) A Graphic Work Schedule (Gantt Chart) in relation to the 10 week period allowed as Execution of the Contract under Article 32 of the Special Conditions as per Graphics Work Schedule Form provided. The Gantt Chart shall be in the form of a Bar Graph indicating the works week by week and incorporating the following activities;

- a. *Order of Material*
- b. *Mobilisation*
- c. *Preparatory works*
- d. *Works*
- e. *Snags*
- f. *Handover of Completed Project*

(d) A detailed Method Statement for construction of road including reference to:

- i) Type 1/Type 1D layers - method of laying, compaction and testing
- ii) bituminous asphalt layers - method of laying, compaction and testing
- iii) laying, compaction and finish of paving blocks including method of laying and compaction of sand bed

(e) A Detailed Traffic Management Plan including the provisions for the smooth running of vehicular traffic and public transport.

(f) A detailed Testing Schedule in line to the details in the terms of reference [Appendix 1/5] including the identification of an Independent Testing Company. Details to include:

- i. Overall Tests to be made
- ii. Frequency of Tests
- iii. Specific tests to be made on Type 1/Type 1D/ Base Course/ Binder Course/Wearing Course
- iv. Specific tests on strength of Paving Blocks
- v. Non-Conformity Procedures

(g) Tenderer's Technical Offer's Declaration using the "Technical Offer Declaration Form" declaring that tenderer will comply with all the terms and conditions of the tender document.

(ii) A list of Key experts, as per Key Experts Form to be duly filled in and submitted online through the prescribed Tender Response Format. <sup>(Note 2A)</sup> .

Further to the Key Experts Form, CVs and copies of qualifications/warrants claimed, signed Declarations of Exclusivity and Availability and signed Self-Declaration (relating to conflict of interest) of the proposed key staff is to be submitted with the bidder's Technical Offer.

Public employees may be recruited as experts as long as it is ascertained through the self-declaration form that they do not fall in any of the provisions laid down in the Public Administration act - Chapter 497 of the Laws of Malta -

First Schedule, Code of Ethics, Article 5. This self-declaration form must be endorsed by any of the Key Experts who is also an employee within the Public Administration.

**(D) Financial Offer**

- (i) A financial offer calculated on the basis of **Delivered Duty Paid (DDP)**<sup>2010</sup> **(Grand Total)** for the **works** tendered as per Tender Response Format <sup>(Note 3)</sup>
- (ii) A filled-in **Bill of Quantities** (as per document available to download online from [www.etenders.gov.mt](http://www.etenders.gov.mt)) as per Tender Response Format. <sup>(Note 3)</sup>

**Notes to Clause 7:**

1. *Tenderers will be requested to clarify/rectify, within five (5) working days from notification, the tender guarantee only in the following four circumstances: incorrect validity date, and/or incorrect value, and/or incorrect addressee and incorrect name of the bidder. Rectification in respect of the Tender Guarantee (Bid Bond) is free of charge.*

2. A) *Tenderers will be requested to either clarify/rectify any incorrect and/or incomplete documentation, and/or submit any missing documents within five (5) working days from notification.*

B) *Tenderers will be requested to rectify/submit only missing documents within five (5) working days from notification. No changes to the information provided in the Literature submitted will be allowed. Literature submitted shall be rectifiable only in respect of any missing information. All Rectifications are free of charge.*

3. *No rectification shall be allowed. Only clarifications on the submitted information may be requested.*

**8. Tender Guarantee (Bid Bond)**

- 8.1 *No tender guarantee (bid bond) is required.*

**9. Criteria for Award**

- 9.1 The sole award criterion will be the price. The contract will be awarded to the tenderer submitting the cheapest priced offer satisfying the administrative and technical criteria.

## SECTION 2 - EXTRACTS FROM THE PUBLIC PROCUREMENT REGULATIONS

### *Part IX of the Public Procurement Regulations*

#### Appeals from decisions taken after the closing date for the submissions of an offer

270. Where the estimated value of the public contract meets or exceeds five thousand euro (€5,000) any tenderer or candidate concerned, or any person, having or having had an interest or who has been harmed or risks being harmed by an alleged infringement or by any decision taken including a proposed award in obtaining a contract, a rejection of a tender or a cancellation of a call for tender after the lapse of the publication period, may file an appeal by means of an objection before the Public Contracts Review Board, which shall contain in a very clear manner the reasons for their complaints.

271. The objection shall be filed within ten (10) calendar days following the date on which the contracting authority or the authority responsible for the tendering process has by fax or other electronic means sent its proposed award decision or the rejection of a tender or the cancellation of the call for tenders after the lapse of the publication period.

272. The communication to each tenderer or candidate concerned of the proposed award or of the cancellation of the call for tenders shall be accompanied by a summary of the relevant reasons relating to the rejection of the tender as set out in regulation 242 or the reasons why the call for tenders is being cancelled after the lapse of the publication period, and by a precise statement of the exact standstill period.

273. The objection shall only be valid if accompanied by a deposit equivalent to 0.50 per cent of the estimated value set by the contracting authority of the whole tender or if the tender is divided into lots according to the estimated value of the tender set by the contracting authority for each lot submitted by the tenderer, provided that in no case shall the deposit be less than four hundred euro (€400) or more than fifty thousand euro (€50,000) which may be refunded as the Public Contracts Review Board may decide in its decision.

274. The Secretary of the Public Contracts Review Board shall immediately notify the Director, the Ministerial Procurement Unit and, or the contracting authority, as the case may be, that an objection had been filed with his authority thereby immediately suspending the award procedure.

275. The Department of Contracts, the Ministerial Procurement Unit or the contracting authority involved, as the case may be, shall be precluded from concluding the contract during the period of ten (10) calendar days allowed for the submission of appeals. The award process shall be completely suspended if an appeal is eventually submitted.

**276.** The procedure to be followed in submitting and determining appeals as well as the conditions under which such appeals may be filed shall be the following:

(a) any decision by the General Contracts Committee, the Ministerial Procurement Unit or the Special Contracts Committee or by the contracting authority, shall be made public by affixing it to the notice-board of the Department of Contracts, the Ministerial Procurement Unit or of the office of the contracting authority, as the case may be, or by uploading it on government's e-procurement platform prior to the award of the contract if the call for tenders is administered by the Department of Contracts;

(b) the appeal of the complainant shall also be affixed to the notice-board of the Public Contracts Review Board and shall be communicated by fax or by other electronic means to all participating tenderers;

(c) the contracting authority and any interested party may, within ten (10) calendar days from the day on which the appeal is affixed to the notice board of the Review Board and uploaded where applicable on the government's e-procurement platform, file a written reply to the appeal. These replies shall also be affixed to the notice board of the Review Board and where applicable they shall also be uploaded on the government's eProcurement platform;

(d) the authority responsible for the tendering process shall within ten (10) days forward to the chairman of the Public Contracts Review Board all documentation pertaining to the call for tenders in question including files and tenders submitted;

(e) the secretary of the Review Board shall inform all the participants of the call for tenders, the Department of Contracts, the Ministerial Procurement Unit and the contracting authority of the date or dates, as the case may be, when the appeal will be heard;

(f) when the oral hearing is concluded, the Public Contracts Review Board, if it does not deliver the decision on the same day, shall reserve decision for the earliest possible date to be fixed for the purpose, but not later than six (6) weeks from the day of the oral hearing:

Provided that for serious and justified reasons expressed in writing by means of an order notified to all the parties, the Public Contracts Review Board may postpone the judgment for a later period;

(g) the secretary of the Review Board shall keep a record of the grounds of each adjournment and of everything done in each sitting;

(h) after evaluating all the evidence and after considering all submissions put forward by the parties, the Public Contracts Review Board shall decide whether to accede or reject the appeal or even cancel the call if it appears to it that this is best in the circumstances of the case.

## SECTION 3 - SPECIAL CONDITIONS

These conditions amplify and supplement, if necessary, the General Conditions governing the contract. Unless the Special Conditions provide otherwise, those General Conditions remain fully applicable. The numbering of the Articles of the Special Conditions is not consecutive but follows the numbering of the Articles of the General Conditions. Other Special Conditions should be indicated afterwards

### Article 2: Law and language of the contract

- 2.1 The Laws of Malta shall apply in all matters not covered by the provisions of the contract.
- 2.2 The language used shall be English.

### Article 3: Order of precedence of contract documents

The contract is made up of the following documents, in order of precedence:

- (a) the Contract,
- (b) the Special Conditions,
- (c) the General Conditions,
- (d) the Contracting Authority's technical specifications and design documentation,
- (e) the Contractor's technical offer, and the design documentation (drawings),
- (f) the bill of quantities (after arithmetical corrections)/breakdown,
- (g) the tender declarations in the Tender Response Format,
- (h) any other documents forming part of the contract.

Addenda have the order of precedence of the document they are modifying.

### Article 4: Communications

Communications during the implementation of the contract will be made with the:

The Director  
Projects and Development Directorate  
Ministry for Gozo,  
St Francis Square,  
Victoria, Gozo, Malta.

Without prejudice to what is being stated in Article 4.1 of the General Conditions the Final Beneficiary is also making the following conditions:

All communication must be addressed in the English language as per clause 2.2 above.

Apart from methods described in the General Conditions, communication between the Contracting Authority and/or the Supervisor on one hand, and the Contractor on the other hand may also be sent by Electronic Mail. An official email address

will be communicated to the awarded contractor following endorsement of the contract.

#### Article 5: Supervisor and Supervisor's representative

- 5.8 Further to what is requested in the General Conditions, the Final Beneficiary is also requesting the following:
- (i) Monitoring conformity of the materials and works, including workmanship, to the specification and agreed method statements, appropriate standards and works' practices (as indicated in 'Technical Specifications') and good workmanship;
  - (ii) Agreeing the extent of the works by inspecting the works and reviewing test results and allow the Contractor to confirm the exact nature and extent of works required;
  - (iii) Monitoring the Contractor's performance and progress;
  - (iv) Reviewing the contractor's method statements, programme of works and CMP as applicable;
  - (v) Monitoring the contractor's quality control;
  - (vi) Agreeing the extent of work included in the valuations;
  - (vii) Reviewing contractor's contractual claims and reporting;
  - (viii) Preparing project reports, including projected completion date and financial projections of the works.

#### Article 10: Assistance with Local Regulations

- 10.1 Further to the General Conditions for Works Contracts, the Contractor is responsible to obtain permits, visas, authorizations and/or licenses.

#### Article 11: The Contractor's Obligations

- 11.19 Article 11.19 of the General Conditions shall not apply to this tender.
- 11.20 The Contractor is responsible to meet all obligations as set out in the contract document and as required by Law, Regulations and/ or relevant Authority.

The conditions laid down in the articles hereunder shall be read and construed in conjunction with and supplementary to Article 11 of the General Conditions.

The Contractor shall take full responsibility for the adequacy, stability and safety of all operations and methods of construction/works under the contract. If any loss or damage happens to the Works, or any part thereof, or materials or Plant for incorporation therein, for which the Contractor is responsible for the care thereof, from any cause whatsoever, including but not limited to loss and/or damage arising from weather or sea conditions, the Contractor shall, at his own cost, rectify such loss or damage so that the Works conform in every respect with the provisions of the contract to the satisfaction of the Supervisor. The Contractor shall also be liable for any loss or damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under Articles 58 (Maintenance Obligations) and 59 (Final Acceptance) of the General and Special Conditions.

#### Article 13: Performance Guarantee

- 13.1 Contractor shall, within 15 days of receipt of the contract for signature, furnish the Contracting Authority with the original guarantee (copy of which is to be submitted to the Central Government Authority on return of the signed contract) for the full and proper performance of the contract. The amount of the guarantee shall be 4%

where the amount of the total contract value is between €10,000 and €500,000 exclusive of VAT, and 10% where the amount of the total contract value is €500,000 or above.

- 13.3** The performance guarantee shall be in the format given in Section 5 and shall be provided in the form of a bank guarantee. It shall be issued by a bank in accordance with the eligibility criteria applicable for the award of the contract.

Economic operators have the possibility to provide the Contracting Authority with a Single Bond covering the performance guarantees for all the contracts with the same Contracting Authority. If an additional contract is awarded to a given contractor, which results in an economic operator's current Cumulative Contracts Value to go beyond the contract value range currently covered by the single bond, the contractor is to be requested to: either submit a separate Performance Guarantee for the additional contract; or else submit a new Single Bond to cover the new total contracts value or submit an amendment of the original Single Bond specifying the new amount. If the Economic Operator chooses to make use of the Single Bond, he must submit a letter from the respective Contracting Authority specifying that the amount of the Single Bond covers the new Contract; otherwise the Contract Agreement would not be signed.

- 13.8** Further to the General Conditions, the performance guarantee will be released within 30 days from the issue of the Provisional acceptance.

#### Article 14: Insurance

- 14.1** Further to the requirements under Article 14.1 of the General Conditions, the insurance policies referred to in Article 14 (Insurance) of the General Conditions shall be in the joint names of the Contractor and the Contracting Authority. This shall contain a Cross Liability Clause to the effect that it shall cover claims made by the Contracting Authority notwithstanding that the said policies are also in their names. The insured period for each and every policy should cover all stages from the commencement notice of the works up to and including final acceptance.

- 14.3** Further to the General Conditions, such liability shall be unlimited in the case of personal injuries.

The Insurance cover referred to in the General Conditions of contract shall be at least €1,000,000.00 per occurrence with the number of occurrences being unlimited. The Contractor shall also include a surrounding property cover.

#### Article 15: Performance Programme (Timetable)

- 15.1** Further to Article 15.1 of the General Conditions, the contractor shall provide a detailed programme of works in a form of a Gantt chart produced as a result of a 'critical path analyses within five days from when requested to do so. The period of performance shall be the period specified in Article 32.1 [Period of Execution of tasks (Performance)] of these conditions. Furthermore the contracting authority has a right to amend the said programme of works which amended plan shall be binding on both parties.

#### Article 17: Contractor's Drawings

- 17.8** Further to the General Conditions, any proposed change by the Contractor to the Contract drawings as issued by the Contracting Authority or the Supervisor shall be submitted to the Supervisor within 7 (seven) days from the date of receipt of the documents in Article 17. The Supervisor shall, after due

consultation with the Contracting Authority, approve the change or otherwise to the Contractor within 7 (seven) days from submission to the Supervisor. Once all documents have been submitted to Contractor and any proposed changes approved or otherwise, the Contractor shall prepare detailed construction drawings as per Article 17 (Contractor's drawings) for all the works or for phases of the works as agreed with the Supervisor. The construction drawings shall include all necessary details structural details to the Contract conditions and according to the instructions of the Supervisor.

The Contractor shall provide these drawings to the Supervisor as and when instructed by administrative orders of Supervisor. The Contractor must **allow for a period of seven (7) working days** in his programme of Works for the Supervisor to review the Contractor's drawings.

#### Article 18: Tender Prices

- 18.4 Further to the General Conditions the Contractor shall pay all taxes, duties, and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except of changes in the Laws of the Malta or in the judicial or official government interpretation of such Laws made after the base date.

#### Article 25: Demolished Materials

- 25.1 The contractor must carefully dismantle, load, transport, unload, store and protect items that the Contracting Authority retains ownership to onsite stores. The Contracting Authority retains ownership of all street furniture including signs, poles, safety barriers, manholes covers and any other street furniture resulting from the site clearance works that are to be incorporated in the works. Any surplus supplies that are not incorporated in the works shall be loaded, transported and unloaded to Contracting Authority stores.
- 25.4 Further to the General conditions, the Contractor shall dispose of materials not suitable for use in the constructed works, including embankments, sub-base, base, asphalt concrete, off site at facilities approved to accept this type of material.

#### Article 26: Discoveries

- 26.2 In addition to Article 26.1 the Contractor shall upon discovery, stop all the works in the vicinity and take reasonable precautions to prevent Contractor's personnel or other persons from removing or damaging any of the findings. The Contractor is to follow the methods devised by the Superintendence of Cultural Heritage in the specific Terms of Reference.

#### Article 28: Soil Studies

- 28.1 The Contractor is obliged to carry out the necessary soil tests so that the Contracting Authority is in a position to establish/alter the road formation as necessary. The Contractor is also expected to carry out any necessary soil studies/geological surveys in order to better plan his work



### Article 30: Patents and Licences

- 30.1 As per General Conditions

### Article 31: Commencement Date

- 31.1 Commencement date shall be the date of a written order to start works following signature of contract.

### Article 32: Period of Execution of Tasks

- 32.1 Works shall be carried within 10 weeks from the date of order to start works. Such order will be issued by not later than 4 weeks from contract signature.

### Article 34: Delays in Execution

- 34.1 The flat rate compensation per day of delay and the maximum aggregate amount of such compensation shall be 1/1000 of the contract price per day's delay up to a limit of 20% of the total contract price. As soon as this figure is reached, the Contracting Authority reserves the right to invoke Clause 34.2 (c) of the General Conditions.

### Article 35: Modification to the contract

- 35.8 Subject to what is stated in the Public Procurement Regulations, the repetition of works for the purpose of achieving the scope of the contract shall be capped at 30% of the contract value. Such repetition of works can be exercised in instances where it is necessary to amend the quantities in order to achieve the original scope of the contract and these inter alia may be requested due to the unknown bearing capacity of the road base, to unknown underground flow of run off water, archaeological findings, additional utilities and or changes to planned services and utilities and to other unforeseen circumstances.
- 35.9 Subject to what is stated in the Public Procurement Regulations the additional works (i.e. new works not included in the original contract) for the purpose of achieving the scope of the contract shall be capped at 30% of the contract value. Such additional works can be required in instances where it is necessary to amend the quantities in order to achieve the original scope of the contract and these inter alia may be requested due to the unknown bearing capacity of the road base, to unknown underground flow of run off water, archaeological findings, additional utilities and or changes to planned services and utilities and to other unforeseen circumstances. (Before ordering additional works the contracting authority shall obtain the approval of the Central Government Authority for the rates to be used.)
- 35.11 In the event of an increase or decrease in the total volume of work required by the Contracting Authority or resulting from circumstances which are caused neither by the Contractor's negligence nor by any action on his part, the Contractor may not claim compensation unless that increase or decrease, calculated on the basis of the original prices and without varying the object of the contract, exceeds 15% of the original contract price. In these circumstances, on making a reasoned request submitted to the Contracting Authority, the Contractor shall be entitled to have the contractual period of performance changed.
- 35.12 Where the increase or decrease, calculated in the manner described, exceeds the percentage laid down in article 35.11, the Contractor may, when the general

statement is drawn up, make a claim for compensation on the grounds of any damage he has suffered as a result of modifications to the original project. He shall also be entitled, on making a reasoned request submitted to the Contracting Authority, to a modification in the contractual period of performance. Where the modification, calculated in the manner described, exceeds 33%, the Contractor is entitled to refuse to carry out any work beyond that value. In that case, he shall inform the Contracting Authority of his decision by registered letter with acknowledgement of delivery within two months of the administrative order specifying that modification. The Supervisor shall, after consulting the Contracting Authority and the Contractor, and after obtaining written approval from the Central Government Authority, determine any addition/compensation and extension of period of performance.

- 35.13 Where the percentages mentioned in Article 35.11, are exceeded and the contract happens to contain a bill of quantities or a breakdown of the overall price giving an itemized list of the scale and prices of the various works, and if the modifications required by the Contracting Authority or resulting from circumstances which are caused neither by the Contractor's negligence nor by any action on his part, alter the scale of some of the works in such a manner that the quantity shown for any item is increased or decreased by 20% or more, the Contractor shall, on making a reasoned request to the Contracting Authority which will seek the approval of the Central Government Authority, be entitled to compensation for any damage he has suffered as a result of modifications to the original project, once all the quantities in the relevant item have been executed for the purposes of the contract.

#### Article 37: Work Register

- 37.1 As per General Conditions.

#### Article 38: Origin

- 38.1 As per General Conditions

#### Article 39: Quality of Works and Materials

- 39.2 Further to what is being stated in the General Conditions, Preliminary technical acceptance shall be effected after the provision of a Roadworks compliance Certificate. This to be signed by the contractor's warranted architect and related quality tests

#### Article 40: Inspection and Testing

- 40.2 Further to the Article 40.2 of the General Conditions, the Contractor shall give 5 (five) days notice to the Supervisor of all works whenever such works are ready before covering up or putting out of view. The Supervisor shall prior to covering up or putting out of view carry out any inspection, examination, measurement, testing as deemed fit without unreasonable delay, or notify the Contractor that such inspections, examinations and testing are considered unnecessary. If the Contractor fails to give such notice, he shall, when required by the Supervisor, uncover such works and thereafter reinstate and make good solely at the expense of the Contractor without any claims thereto.

(i) Without prejudice to Article 40.2 of the General Conditions, the Contractor shall allow the Supervisor to carry out independent testing of all materials and equipment used on site and elsewhere as part of the project. The Contractor shall provide the Supervisor with all the necessary access requirements for inspection and testing purposes as specified in Article of 40.2 of the General

Conditions of Contract.

- 40.6** Further to Article 40.6, the Contracting Authority may refuse to accept any testing certificates submitted to it if it has reason to believe that results are not being interpreted properly according to Specifications and established codes of practice and methods of testing or that such testing is not fully representative of the Work carried out on site. In such situations the Contracting Authority may carry out its own tests and assessments and shall subsequently abide by its findings. In addition to this, the acceptance by the Contracting Authority of positive certificates submitted to it shall not be construed as relieving Contractor of their responsibilities as guarantor of the Work carried out and of the materials used on the Work.

#### Article 42: Ownership of Plants and Materials

- 42.2** The equipment, temporary structures and plant provided by the Contractor on the site shall remain the property of the Contractor. The same applies to any materials and equipment until they are incorporated in the permanent works and subject to provisional acceptance.

#### Article 43: Payments: General Principles

- 43.1** Payments will be made in Euro.

Payments shall be authorized by the Contracting Authority, and paid by the Treasury Department.

- 43.3** As per General Conditions.

#### Article 44: Pre-financing

- 44.1** Not Applicable

#### Article 45: Retention Monies

- 45.2** A retention of 5% of the value of works carried out shall be retained and will be released in accordance with clause 45.3 of these Special Conditions and the General Conditions.

Further to what is being stated in the General Conditions, the Contracting Authority shall retain in total the amount of 5% of the Contract Price and shall be withheld from interim payments. The retention shall commence from the first payment.

The retention shall be in the form of a deduction of 5% of the value of works executed and certified for payment under each payment certificate.

The Contractor may choose to submit a retention guarantee. If such is the case, the 100% amount of retained monies will be released 30 days after the submission of a Retention Guarantee. The Contractor shall submit a Retention Guarantee (for which a specimen can be found in Section 5) for the amount of 5%.

- 45.3** Further to what is being stated in the General Conditions, 80% of the Retention Monies/Guarantee will be released 24 months after the Provisional Acceptance subject to the satisfaction of the Contracting Authority whilst the remaining 20% of the Retention Guarantee will be released on Final Acceptance of the works. Final Acceptance shall be issued after the expiry of

5 years from Provisional Acceptance subject to the complete certification of the works by the Contracting Authority.

#### Article 46: Price Revision

- 46.1 Further to the General Conditions, price revisions are not envisaged for this contract.
- 46.2 Prices contained in the Contractor's tender shall be deemed:
- a) to have been determined on the basis of the conditions in force up to the date fixed for submission of tenders, in the case of direct agreement contracts, on the date of the contract;
  - b) to have taken account of the legislation and the relevant tax arrangements applicable at the reference date fixed in sub-criteria(a).
- 46.3 In the event of changes to, or introduction of, any national or state statute, ordinance, decree or other law, or any regulation or bye-law of any local or other public authority, after the date fixed for the submission of tenders, which causes a change in the contractual relationship between the parties to the contract, the Contracting Authority and the Contractor shall consult on how best to proceed further under the contract, and may as a result of such consultation decide, with the prior approval of the Central Government Authority:
- a) to modify the contract; or
  - b) to provide for compensation for any imbalance caused by one Party to the other; or
  - c) to terminate the contract by mutual agreement.
- 46.5 At the end of the period of performance, revised as necessary in accordance with the contract, the Contractor cannot claim for further revision of prices within the submission of the final report.

#### Article 47: Measurement

- 47.2 Notwithstanding the provisions of Article 47.2 of the General Conditions, all items of work carried out shall be measured as highlighted in the preambles preceding the Bill of Quantities and as outlined in the relevant item description in the Bills of Quantity

#### Article 48: Interim Payments

- 48.1 Monthly Interim Payments will be made on the basis of measured works carried out to the satisfaction of the Contracting Authority and subject to the applicable retention money.

#### Article 50: Delayed Payments

- 50.1 The Contracting Authority shall pay the contractor sums due within 60 days of the date on which an admissible payment is registered, in accordance with Article 43 of these Special Conditions. This period shall begin to run from the approval of these documents by the competent department referred to in Article 43.1 of these Special Conditions. These documents shall be approved either expressly or tacitly, in the absence of any written reaction in the 30 days following their receipt accompanied by the requisite documents.
- 50.2 Once the deadline laid down in Article 50.1 has expired, the Contractor may, within two months of late payment, claim late-payment interest:
- i. at the rediscount rate applied by the issuing institution of the country of

the Contracting Authority;

- ii. on the first day of the month in which the deadline expired, plus two percentage points (2%). The late-payment interest shall apply to the time which elapses between the date of the payment deadline (exclusive) and the date on which the Contracting Authority's account is debited (inclusive).

#### Article 53: End Date

##### *Malta Funds*

Article 53 of the General Conditions is not applicable.

#### Article 56: Partial Acceptance

- 56.3 Further to the General Conditions the maintenance period shall commence from the date of provisional acceptance of the works.

#### Article 57: Provisional Acceptance

- 57.3 Provisional acceptance shall take place after compliance with clause 39.2, clause 56.3 and compliance with quality tests carried out by MCCA on behalf of the contracting authority.

#### Article 58: Maintenance Obligations

- 58.6 The Contractor shall guarantee the performance, materials, workmanship and make good for any defects for a period of five (5) years from the date of issue of the Provisional Acceptance Certificate and of opening the surfacing to traffic.

Throughout the Maintenance Period, the Contractor shall be obliged to replace any defective item or to make good any defect arising in the works, materials or items installed as part of the permanent works meeting the standards as per Technical Specification set by the Contracting Authority at the contractors own expense'

Any guarantees on works, materials, equipment or items installed as part of the permanent works and as specified in the Special Conditions and the Technical Specifications shall be over and above and without prejudice to the Contractor's obligations under the Maintenance Period and shall continue to run until the end of their respective terms after the Maintenance Period has expired.

#### Article 66: Dispute Settlement by Litigation

If no settlement is reached within 120 days of the start of the amicable dispute-settlement procedure, each Party may seek:

- a) either a ruling from a national court, or
- b) an arbitration ruling, in the case where the parties, i.e. the Contracting Authority and the Contractor, by agreement decide to refer the matter to arbitration.

## **SECTION 4 - TECHNICAL SPECIFICATIONS/TERMS OF REFERENCE**

# PART 1

## THE CONTRACTING AUTHORITY TENDER SPECIFICATIONS

### Note 1

Wherever in this Section 4 - Works Technical Specifications of the tender document a standard is quoted, it is to be understood that the Contracting Authority will accept alternative equivalent standards. However, it will be the responsibility of the respective bidders to prove that the alternative standards quoted are equivalent to the standards specified by the Contracting Authority.

### Note 2

Wherever in this Section 4 - Works Technical Specifications of the tender document the Contractor is required to submit a document, report, literature, information, drawings, method statements, calculations, designs, information, samples etc., it is to be understood that the time limit for the submission/s shall be strictly as indicated herein. In those instances where this time limit is not indicated, it shall be invariably understood as being of fifteen (15) calendar days.

**WORKS SHALL COMPLY WITH THE NEW ROADS AND ROAD WORKS REGULATIONS (CAP 499.57)  
AND THE REQUIREMENTS IN THE FOLLOWING APPENDICES.**

# TRANSPORT MALTA (TM) TECHNICAL SPECIFICATIONS

## GENERAL NOTES

The following Transport Malta (ex-ADT) technical specifications shall apply:

New Roads and Road Works Regulations, Subsidiary Legislation 499.57, Part II - Construction and Maintenance of Roads, Volumes 1 to 7:

- Volume 1: Specification for Road Works.
- Volume 2: Notes for Guidance on the Specification for Road Works.
- Volume 3: Road Construction Details.
- Volume 4: Method of Measurement for Road Works & Notes for Guidance of Measurement for Road Works.
- Volume 5: Design Manual for Roads & Bridges.
- Volume 6: Guidelines for the Standard Presentation of Design Documents for Road Construction.
- Volume 7: Directives for the Standardization of Pavements for Traffic Areas.

These Specifications are available at:

- <http://www.transport.gov.mt/roads-infrastructure/roads/regulations-and-policy>
- <http://www.transport.gov.mt/roads-infrastructure/technical-guidelines/manual-road-works>

## General Notes on the “Technical Specification for Works related to Utilities and Services Entities”

The “Technical Specification for Works related to Utilities & Services Entities” also cover the following:

- 1) Construction of Sewer Mains - Specifications provided by the Water Services Corporation (WSC).
- 2) Construction of Drinking Water Mains - Specifications provided by the Water Services Corporation (WSC).
- 3) Construction Works for GO Plc Works - Specifications provided by the GO plc.
- 4) Construction Works for Enemalta Corporation - Specifications provided by Enemalta Corporation.

In case of a conflict between the provisions of Subsidiary Legislation 499.57 and the provisions in 1 to 4 above, the provisions in Subsidiary Legislation 499.57 of 2010 shall prevail.



# KEY EXPERTS

| Position                            | Required No. | Minimum Qualifications                                  | Min Years of Professional Experience                                                                    | Min years of Experience in Similar Works                                                                                                                                                                                                                   | Main Deliverables and Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|--------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Architect and Civil Engineer</b> | 1            | Degree Qualification in Civil Engineering - MQF Level 6 | 7 years (without Masters in Road/Civil Engineering) or 5 years (with Masters in Road/Civil Engineering) | 5 years in a leading project management role of major Road and Infrastructural Engineering Projects. Leading project management role in at least 2 major Road and Infrastructural Road Engineering project worth over EUR 0.5 Million in the past 3 years. | <p>Project Manager</p> <p>Responsible for the overall works management and ensures that all Contract Conditions, Drawings and Specifications are adhered to during works.</p> <p>Shall be expected to visit the site frequently and coordinate the site operations as well as coordinate meetings with the project stakeholders including external stakeholders.</p> <p>Endorses all drawings and specifications supplied by Contractor before submitting to Supervisor.</p> <p>Endorses all requests for payment to Supervisor.</p>                                                           |
| <b>Quantity Surveyor</b>            | 1            | Diploma in Construction - MQF Level 4 or equivalent     | 5 years                                                                                                 | 3 years                                                                                                                                                                                                                                                    | Responsible for the quantity takeoffs, measurement, cash flow statements and preparation of Bills of Quantity for endorsement by Architect and Civil Engineer above.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Land Surveyor</b>                | 1            | Diploma in Construction - MQF Level 4 or equivalent     | 5 years                                                                                                 | 3 years                                                                                                                                                                                                                                                    | Responsible for all setting out, surveying and leveling works                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Quality Assurance Manager</b>    | 1            | Diploma in Construction - MQF Level 4 or equivalent     | 5 years                                                                                                 | 3 years                                                                                                                                                                                                                                                    | <p>Responsible to ensure that all Quality Assurance measures are taken to satisfy the Contract conditions and specifications.</p> <p>Approves deviations from the Contract conditions and obtain approval of Supervisor before changes are done.</p> <p>Endorses all method statements and test results of completed work before submitting to Supervisor.</p> <p>Endorses all test results before submitting to the Quality Control at every request for payment.</p> <p>Shall be required to visit the site regularly (and as instructed by the Contracting Authority and/or Supervisor)</p> |
| <b>Health and Safety Officer</b>    | 1            | Registered with the OHSA                                | 5 years                                                                                                 | 3 years                                                                                                                                                                                                                                                    | Responsible to ensure that all Health and Safety measures are taken in line to the contract conditions and specifications and in line to the local regulations. Officer is also responsible for the preparation of a Risk assessment                                                                                                                                                                                                                                                                                                                                                           |

**APPENDIX 1/5**  
**TESTING WORKS REQUIRED FROM THE CONTRACTOR**

| Clause No. | Work, Goods or Material                      | Test                                          | Frequency of Testing        | Test Certificate | Comments                                           |
|------------|----------------------------------------------|-----------------------------------------------|-----------------------------|------------------|----------------------------------------------------|
| 404        | VRS Post concrete foundations                | Cube compressive strength                     | 1 test every batch or daily | Required         |                                                    |
|            | VRS Anchorages in drilled holes              | Cube Compressive strength;<br>Pull-out trial. | 1 test every batch or daily | Required         | Where drilled sockets are used                     |
| 501        | uPVC, PP, PE Pipes and Chambers for drainage | Manufacturer FPC                              | Per Batch                   | Required         | Product certification scheme applies               |
| 501        | Concrete pipe for drainage                   | Manufacturer FPC                              | Per Batch                   | Required         | Product certification scheme applies               |
| 501        | ST Concrete                                  | Cube compressive strength                     | 1 test every batch or daily | Required         | Manufacturer's Mix Design Approval                 |
|            | Concrete Manholes                            | Manufacturer FPC (proprietary) or Mix Design  |                             |                  | Product certification scheme applies (Proprietary) |

|     |                                                              |                                                       |                                                                    |                                                                             |          |                                                                                                                                                                                                                                                                       |
|-----|--------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 501 |                                                              | Structure<br>d pipes                                  | Manufacturer<br>FPC                                                | Per Batch                                                                   | Required | Product certification<br>scheme applies                                                                                                                                                                                                                               |
| 518 |                                                              | ST<br>Concrete                                        | Cube<br>compressive<br>strength                                    | 1 test every<br>batch or daily                                              | Required | Approval of plant mix                                                                                                                                                                                                                                                 |
| 503 | uPVC,<br>PP, PE<br>Pipes<br>and<br>Chamb<br>ers for<br>Ducts | Granular<br>material                                  | Grading                                                            | 1 test every<br>batch or daily                                              |          |                                                                                                                                                                                                                                                                       |
|     |                                                              | Pipes                                                 | Air test                                                           | All joints<br>between<br>chambers                                           |          |                                                                                                                                                                                                                                                                       |
|     |                                                              | Pipe Joint<br>Integrity                               | Permeability<br>test                                               | 1 chamber<br>every 3 units                                                  |          |                                                                                                                                                                                                                                                                       |
| 509 |                                                              | Chamber<br>Integrity                                  | Mandrel test                                                       | All pipelines <<br>350mm                                                    |          |                                                                                                                                                                                                                                                                       |
|     |                                                              | Pipe<br>Linearity                                     |                                                                    |                                                                             | Required |                                                                                                                                                                                                                                                                       |
|     |                                                              | UPVC<br>pipes                                         |                                                                    |                                                                             |          |                                                                                                                                                                                                                                                                       |
| 507 | Chamber and<br>Covers                                        | and Gully                                             | Manufacturer<br>FPC                                                |                                                                             | Required | Product certification<br>scheme applies                                                                                                                                                                                                                               |
|     |                                                              | Quick Set<br>high-<br>strength<br>Bedding<br>Material | Manufacturer<br>FPC                                                |                                                                             | Required | Product certification<br>scheme applies                                                                                                                                                                                                                               |
|     |                                                              | Quick Set<br>high-<br>strength<br>Bedding<br>Material | Manufacturer<br>FPC                                                |                                                                             | Required | Product certification<br>scheme applies                                                                                                                                                                                                                               |
| 514 | Geotextile                                                   |                                                       | Manufacturer<br>FPC                                                |                                                                             | Required | Product certification<br>scheme applies                                                                                                                                                                                                                               |
| 601 | Type 1A                                                      |                                                       | Optimum<br>moisture<br>content and<br>maximum dry /<br>wet density | 1 test at start<br>of works;                                                |          | To comply with the<br>classification in Vol. 7, D,<br>Chart 1                                                                                                                                                                                                         |
|     | Type 1D<br>(Formation / Fill)                                |                                                       |                                                                    | Re-testing<br>with change<br>of source                                      |          |                                                                                                                                                                                                                                                                       |
|     | All other fill classes<br>- See Table 6/1<br>requirements.   |                                                       |                                                                    |                                                                             |          | END Type: Contractor to<br>submit a detailed "in<br>house test method" for<br>material having 30% of<br>particles larger than<br>20mm. The minimum in-<br>situ test hole diameter<br>shall be at least 4 times<br>that of the maximum fill<br>material particle size. |
|     |                                                              |                                                       | Atterberg                                                          | 1 test at start<br>of works;<br><br>Re-testing<br>with change<br>of source. | Required |                                                                                                                                                                                                                                                                       |

|     |                                    |                                                        |                                                               |          |                                                                                                                                                                                                                                      |
|-----|------------------------------------|--------------------------------------------------------|---------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                    | Grading                                                | 1 test every 200m per layer lift per lane width or daily.     |          |                                                                                                                                                                                                                                      |
|     |                                    | Uniformity Coefficient                                 |                                                               |          |                                                                                                                                                                                                                                      |
| 612 | Sub-Formation (Subgrade)           | Reaction Modulus: Ev <sub>2</sub>                      | 5 tests every 300m per lane                                   | Required | To comply with the classification in Vol. 7, D, Chart 1, Sub-Formation;                                                                                                                                                              |
|     |                                    | Dry Density                                            | 5 tests every 300m per lane width                             |          | END Type: Contractor to submit a detailed "in house test method" for material having 30% of particles larger than 20mm. The minimum in-situ test hole diameter shall be at least 4 times that of the maximum subgrade particle size. |
|     |                                    | Optimum Moisture Content                               | 1 test at start of works; Re-testing with change of soil type |          |                                                                                                                                                                                                                                      |
|     |                                    | Compaction Degree                                      | See Dry Density                                               |          |                                                                                                                                                                                                                                      |
|     |                                    | Reaction Modulus: Ev <sub>2</sub>                      | 5 tests every 300m per lane width                             |          | To include testing using 600mm plate as required.                                                                                                                                                                                    |
|     |                                    | Compaction Degree: Site Density                        | 5 tests every 300m per lane per layer lift                    | Required | Contractor to submit a detailed "in house test method" for material having 30% of particles larger than 20mm. The minimum in-situ test hole diameter shall be at least 4 times that of the maximum fill material particle size.      |
|     |                                    | Reaction Modulus: Ev <sub>2</sub>                      | 5 tests every 300m per lane width per layer lift.             | Required |                                                                                                                                                                                                                                      |
| 601 | Topsoil                            | Source approval                                        | At start of works                                             |          | Department of Agriculture approval applies                                                                                                                                                                                           |
|     |                                    | Certification and Analysis                             | Every 1000m <sup>3</sup>                                      | Required | MRAE approval applies                                                                                                                                                                                                                |
| 803 | Granular Material Type 1 (Subbase) | Grading                                                | Every 1000m <sup>3</sup>                                      | Required |                                                                                                                                                                                                                                      |
|     |                                    | Optimum moisture content and maximum dry / wet density | 1 test at start of works; Re-testing with change of source.   |          |                                                                                                                                                                                                                                      |
|     |                                    | Atterberg                                              | 1 test at start of works; Re-testing with change of source.   | Required |                                                                                                                                                                                                                                      |

of source.

|             |                         |                                                                   |                                                           |          |                                                                                          |               |
|-------------|-------------------------|-------------------------------------------------------------------|-----------------------------------------------------------|----------|------------------------------------------------------------------------------------------|---------------|
|             |                         | Grading                                                           | 1 test every 200m per layer lift per lane width or daily. | Required | Values shall comply with the classification in Vol. 7, D, Chart 1, Type 1 Subbase layer. |               |
|             |                         | 10% Fines (saturated)                                             |                                                           | Required |                                                                                          | Or equivalent |
|             |                         | Uniformity Coefficient                                            |                                                           | Required |                                                                                          |               |
|             |                         | Compaction Degree: Site Density                                   | 5 tests every 300m per lane width per layer lift          | Required |                                                                                          |               |
|             |                         | Reaction Modulus: Ev <sub>2</sub>                                 | 5 tests every 300m per lane width per layer lift          | Required |                                                                                          |               |
| 1035to 1040 | Cement Bound Mix Type 2 | Manufacturer's Mix Design                                         |                                                           | Required | Approval of plant mix                                                                    |               |
|             |                         | Laboratory wet density                                            | 1 per test cube / core                                    | Required |                                                                                          |               |
|             |                         | In situ wet density                                               | 1 test per 800m <sup>2</sup>                              | Required |                                                                                          |               |
|             |                         | Cube strength                                                     | diagonal.                                                 | Required |                                                                                          |               |
| 901to 911   | Asphaltic Concrete      | Manufacturer's Mix Design (including bitumen absorption quotient) |                                                           | Required | Approval of plant mix                                                                    |               |
|             |                         | Binder content                                                    | 1 test every 3000m <sup>2</sup> per layer lift or daily.  | Required |                                                                                          |               |
|             |                         | Grading                                                           | 1 test every 3000m <sup>2</sup> per layer lift or daily.  | Required |                                                                                          |               |
|             |                         | Marshall characteristics (inc. voids)                             | 1 test every 3000m <sup>2</sup> per layer lift or daily.  | Required |                                                                                          |               |
|             |                         | Mix Temperature                                                   | Each truckload                                            | Required |                                                                                          |               |
|             |                         | Layer Bond                                                        | 1 test every 3000m <sup>2</sup> per layer lift            |          |                                                                                          |               |
| 925         |                         | Compaction Degree: Site Density                                   | 1 test every 3000m <sup>2</sup> per layer lift or daily   |          |                                                                                          |               |
| 921         |                         | Surface Texture (Wearing Course)                                  | Long. Road length                                         |          | No. of 100m sections                                                                     |               |
|             |                         |                                                                   |                                                           |          |                                                                                          |               |

|      |                                                         |                            |                                                     |          |                                      |
|------|---------------------------------------------------------|----------------------------|-----------------------------------------------------|----------|--------------------------------------|
|      |                                                         |                            | 1 to 5km                                            | 2        |                                      |
|      |                                                         |                            | 6 to 10km                                           | 3        |                                      |
| 702  | All Pavement Courses                                    | Regularity                 | Each lane width                                     |          | See 702.5                            |
|      |                                                         | Levels                     | Each lane width per 4m transverse grid              |          | See 702.3, 702.4                     |
| 920  | Bituminous Emulsions and Sprays                         | Rate of Spread             | Trial at start of works; Re-approval every 2 weeks; |          |                                      |
|      |                                                         |                            |                                                     |          |                                      |
|      |                                                         | % Binder                   | 1 test every 3000m <sup>2</sup> per layer lift      |          |                                      |
| 921  | Aggregate for AC Wearing Course                         | Manufacturer's FPC         |                                                     | Required | Product certification scheme applies |
|      |                                                         | PSV (Wearing Course)       | Manufacturer's FPC                                  | Required | Specific to the Road Class           |
|      | Aggregate for All AC Course                             | Los Angeles                | 1 test every 3000m <sup>2</sup> per layer           | Required |                                      |
| 1101 | Precast Concrete Kerbs, Channels, Edgings and Quadrants | Transverse Strength        | 1 test per 600 units or per delivery                |          | For each product profile             |
| 1104 | Precast Concrete Flags                                  | Transverse Strength        | 1 test per 600 units or per delivery                |          | For each product profile             |
|      | Tactile Paving                                          | Transverse Strength        | 1 test per 600 units or per delivery                | Required |                                      |
| 1107 | Concrete Block Paving                                   | Tensile Splitting Strength | 1 test per 1000 units or per delivery               | Required |                                      |
|      | Anti-rooting Geotextile                                 | Manufacturer's FPC         |                                                     | Required | Product certification scheme applies |

|             |                                       |                           |                                      |                     |                                      |                                      |
|-------------|---------------------------------------|---------------------------|--------------------------------------|---------------------|--------------------------------------|--------------------------------------|
| 1212        | Permanent Road Markings               | Skid Resistance           |                                      |                     |                                      | Product certification scheme applies |
|             |                                       | Dry Film Thickness        |                                      |                     |                                      | See Appendices Series 1200           |
|             |                                       | Retroreflectivity         |                                      |                     |                                      | See Appendices Series 1200           |
|             |                                       | Luminance                 |                                      |                     |                                      | See Appendices Series 1200           |
|             |                                       | Softening Point           | Wilhelmi R & B                       | Manufacturer's Data | Required                             | Thermoplastic Only                   |
|             |                                       |                           |                                      |                     |                                      |                                      |
| 1213        | Permanent Retro-Reflective Road Studs |                           | Manufacturer's Data                  |                     | Required                             |                                      |
|             |                                       | Retroreflectivity         |                                      |                     |                                      | See Appendices Series 1200           |
| Series 1400 | Street Lighting Columns               | Manufacturer's Data Sheet | As per Street lighting Specification | Required            | Product certification scheme applies |                                      |
| Series 1400 | Lighting Column Luminaires            | Manufacturer's Data       |                                      | Required            | Product certification scheme applies |                                      |
| Series 1400 | Electrical Cables                     | Manufacturer's Data Sheet |                                      | Required            | Product certification scheme applies |                                      |
| Series 1400 | Belisha Traffic Light Unit            | Manufacturer's Data Sheet |                                      | Required            | Product certification scheme applies |                                      |
|             |                                       |                           |                                      |                     |                                      |                                      |

|              |                            |                             |                                |          |                                                                  |
|--------------|----------------------------|-----------------------------|--------------------------------|----------|------------------------------------------------------------------|
| Series 1400  | Pelican Traffic Light Unit | Manufacturer's Data Sheet   |                                | Required | Product certification scheme applies                             |
|              | Electrical Cabinet         | Manufacturer's Data Sheet   |                                | Required | Product certification scheme applies                             |
|              | Electrical Switchgear      | Manufacturer's Data Sheet   |                                | Required | Product certification scheme applies                             |
| 1004         | Pavement Concrete          | Manufacturer's Mix Design   |                                |          | For each grade                                                   |
| 1034         |                            | Compressive Strength        | 1 test every 600m <sup>2</sup> |          | As per Table 10/8                                                |
|              |                            | Workability (Slump)         | Each Truckload                 |          | Cement Content, Additive and W/C ratio required on delivery chit |
| 1702 to 1704 | Cement                     | Chloride Content            | Each consignment               | Required | Product certification scheme applies                             |
|              |                            | Compressive Strength        |                                |          |                                                                  |
|              |                            | Fineness                    |                                |          |                                                                  |
|              |                            | Initial set                 |                                |          |                                                                  |
| 1702 to 1704 | Aggregates                 | Grading and fines content   | Each batched stockpile         | Required | Product certification scheme applies for imported aggregate      |
|              |                            | Resistance to fragmentation |                                |          | FPC applies for local aggregate                                  |
| 1702 to 1704 | Admixtures                 | Manufacturer's Data Sheet   | Each batch                     | Required | Product certification scheme applies                             |
| Series 1700  | Concrete                   | Manufacturer's Mix Design;  |                                |          | For each grade;                                                  |



|             |                                       |                                 |                                                                                   |  |                                                                                            |
|-------------|---------------------------------------|---------------------------------|-----------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------|
| Series 1700 | All Steel Reinforcement Bars and Mesh | Tensile Strength and Elongation | 1 test per shipment                                                               |  |                                                                                            |
| Series 1700 | Concrete - Structural                 | Manufacturer's Mix Design       |                                                                                   |  | Structural Engineer's Certification applies;                                               |
|             |                                       | Compressive Strength            | Test from 10m <sup>3</sup> or 10 batches whichever represents the lesser volume   |  | See Appendix 17/4                                                                          |
| Series 1700 | Concrete - Mass                       | Manufacturer's Mix Design       |                                                                                   |  | For each grade                                                                             |
|             |                                       | Compressive Strength            | 1 test from 50m <sup>3</sup> or 50 batches whichever represents the lesser volume |  | FPC applies                                                                                |
| Series 1700 | Concrete - Fresh                      | Workability (Slump)             | Each Truckload                                                                    |  | Cement Content, Additive Type and dosage, W/C ratio required on delivery chit; FPC applies |
| Series 1700 | Concrete -                            | Manufacturer's Mix Design       |                                                                                   |  | For each grade                                                                             |

|             |                          |                           |                                                                       |                                    |                                  |                                      |
|-------------|--------------------------|---------------------------|-----------------------------------------------------------------------|------------------------------------|----------------------------------|--------------------------------------|
|             | Precast/Pre-stressed     | Compressive Strength      | 1 test from 20m3 or 20 batches whichever represents the lesser volume |                                    | FPC applies<br>See Appendix 17/4 |                                      |
| Series 1700 | Concrete - Reinforcement | Steel Bars                | Manufacturer's Data Sheet                                             |                                    | Required                         | Product certification scheme applies |
|             |                          | Steel Wire                | Manufacturer's Data Sheet                                             |                                    | Required                         | Product certification scheme applies |
|             |                          | Steel Fabric              | Manufacturer's Data Sheet                                             |                                    | Required                         | Product certification scheme applies |
| Series 1700 | Concrete - Prestressing  | Pre-stressing Steel       | Manufacturer's Data Sheet                                             |                                    | Required                         | Product certification scheme applies |
|             |                          | Manufacturer's Data Sheet | Proof Load                                                            | Every production batch             |                                  |                                      |
|             |                          | Compressive Strength      | Breaking load                                                         | Every production batch<br>Requirec |                                  |                                      |
|             |                          |                           | Elongation                                                            | Every production batch<br>Requirec |                                  |                                      |
|             |                          | Ductility                 | Every production                                                      | Product certification scheme       |                                  |                                      |
|             | Relaxation               |                           |                                                                       |                                    |                                  |                                      |

|                  |                                             |                                        |                         |                                      |         |
|------------------|---------------------------------------------|----------------------------------------|-------------------------|--------------------------------------|---------|
|                  |                                             |                                        | Modulus of Elasticity   | of batch; Required                   | applies |
|                  |                                             |                                        |                         |                                      |         |
|                  |                                             |                                        | 1 test every 1000 units |                                      |         |
|                  |                                             |                                        |                         |                                      |         |
| 180<br>118<br>03 | Structural steel                            |                                        | NOT USED                |                                      |         |
| 180<br>118<br>03 | Welding procedures and qualifications       |                                        | NOT USED                |                                      |         |
| Series 1900      | Steel Corrosion Protective Coatings         |                                        | NOT USED                |                                      |         |
|                  | Application thickness                       |                                        |                         |                                      |         |
| Series 2000      | Waterproofing of Concrete                   | As specified                           | Required                | Product certification scheme applies |         |
| Series 2000      | Proprietary Deck Waterproofing Systems      | Proprietary Deck Waterproofing Systems |                         |                                      |         |
| Series 2100      | Bridge Bearings                             | NOT USED                               |                         |                                      |         |
| 240<br>6         | Concrete Hollow Block: Compressive Strength | Every production batch                 | Required                | FPC applies                          |         |
| 250<br>4         | Acoustic barriers                           | NOT USED                               |                         |                                      |         |

|              |                                         |                                             |                                                |                             |                                      |
|--------------|-----------------------------------------|---------------------------------------------|------------------------------------------------|-----------------------------|--------------------------------------|
| 1202<br>1210 | Permanent Traffic and Directional Signs | Manufacturer's FPC                          |                                                | Required                    | Product certification scheme applies |
|              |                                         | Bond between sign face sheet and sign plate |                                                |                             | See appendices Series 1200           |
|              |                                         | Luminance                                   |                                                |                             | See appendices Series 1200           |
|              |                                         | Retroreflectivity                           |                                                |                             | See appendices Series 1200           |
|              |                                         | Foundations - SI Concrete                   | Cube compressive strength                      | 1 test every batch or daily |                                      |
|              |                                         | Posts                                       | Manufacturer's Bending moment and shear values | Required                    | See appendices Series 1200           |
|              | Permanent Transilluminated Bollards     |                                             |                                                |                             |                                      |
|              |                                         | Luminance factor                            | Manufacturer's Data                            | Required                    |                                      |
|              |                                         | Retroreflection                             | Manufacturer's Data                            |                             |                                      |
|              | Permanent Retroreflective Bollards      |                                             |                                                | Required                    | See appendices Series 1200           |
|              |                                         | Drying time                                 |                                                |                             |                                      |

#### Notes

- a) Unless otherwise stated, all sampling and testing in this Appendix shall be by the Contractor.
- b) Tests comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the Contractor.
- c) The above are minimum frequencies and may increase or decrease, subject to the approval by the Overseeing Organisation, in accordance with the Contractor's performance and the Quality Assurance System (Appendix 1/24).
- d) Unless otherwise shown in this Appendix test certificates for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.
- e) Test locations - Random selection criteria shall apply. Precise chainage and offset or co-ordinate reference and item descriptions are required.
- f) Test Certificates - Precise correlation with the BOQ item is required including for certificates attached to Interim / Final claims for payment.
- g) Manufacturer's Certificates - Interpretative information of lot / batch / production time etc. markings on delivered items is required.

- h) Manufacturer's Certificates - Precise traceability with lot / batch / production time of supplied items is required.
- i) A Contractor's Testing and Certification Schedule correlated to the quantities in the Contract BOQ is required. This shall be submitted within 14 days from the signing of the Contract.
- j) Statistical Process Control (SPC) provisions are to be included in the Contractor's Quality Plan/s.

## **APPENDIX 1/6**

### **SUPPLY AND DELIVERY OF SAMPLES TO THE OVERSEEING ORGANISATION**

#### **General**

- a) The basis for the supply and delivery of samples shall generally be the “Split Sample System”.
- b) The Overseeing Organisation may utilise independent sampling / testing resources without any prior notification to the Contractor.
- c) When so instructed the Contractor shall deliver to the Overseeing Organisation (and/or its representative), and at the frequency and quantities requested in Appendix 1/5, properly identified, marked and protected samples of all materials comprised in Appendix 1/5 throughout the duration of the Contract.
- d) The Contractor shall afford all assistance to the Overseeing Organisation staff to witness and assist during sampling and testing.
- e) The delivery shall be to any location in Malta as indicated from time to time by the Overseeing Organisation.
- f) The Overseeing Organisation’s representative must be afforded every facility to inspect and examine the Works being executed and the materials being used.
- g) The samples of the various materials to be used together with particulars as to the source of supply or manufacture of such materials shall be supplied free of cost.
- h) Any costs incurred by the Overseeing Organisation in undertaking the sampling or delivery of any materials as in (a) and (g) above will be recovered from the Contractor. In this regard the Contractor shall note his obligations as stated in Article 40 of the “General Conditions of Contracts”.

## **APPENDIX 1/24**

### **QUALITY MANAGEMENT SYSTEM**

#### **Important - Special Requirements**

The Overseeing Organisation will be applying “identity testing” to EN 206 for structural concrete works. See Appendix 17/4.

#### **General Requirement**

The Contractor shall institute and operate a quality management system based on MSA EN ISO 9001: 2000 and Series 100, Clause 104. The quality management system, in the form of a detailed Quality Plan, shall be developed on the basis of the outline document submitted with the Tender and must be submitted to the Overseeing Organisation for its acceptance.

#### **a) Contractor’s Quality Plan**

1. The Quality Plan shall cover the following items:
  - a) Contractor’s organisation and management;
  - b) Contractor’s method statements and construction procedures;
  - c) Contractor’s construction quality control;
  - d) Contractor’s Suppliers’ Quality Plans.

(Items (a) and (c) of the Quality Plan shall be submitted to the Overseeing Organisation for its acceptance not later than twenty one (21) days after the award of the Contract. The Contractor shall submit other parts of the Quality Plan prior to the commencement of any related work or activity and to a timetable included in item (a)).

Quality Plans shall conform to the following requirements:

#### **2. Contractor’s Organisation and Management**

This section of the Quality Plan shall include:

- i. Definition of the Contract and its documentation.
- ii. The organisation of the Contract, including the line of command and communication links between parties involved in the Contract.
- iii. Names, roles, responsibilities and authority of principals and key personnel.
- iv. Control of liaison and meetings with third parties.
- v. Identification of the Contractor’s own staff responsible for overseeing each major activity.
- vi. The main Contractor’s control of subcontractors (if any).

- vii. Document control.
- viii. Programme for submission of method statements and suppliers' Quality Plans.
- ix. (The Quality Plan shall identify procedures-which may be a part of the Contractor's general procedures that cover the topics listed below. Copies of these procedures shall be made available to the Overseeing Organisation on request).
- x. The quality plans for subcontractors and suppliers of work, goods and materials.
- xi. Procedure for the preparation, review and adjustment of programmes for the effective progression of the Works and the recording of this.
- xii. Control and approval of purchases of materials.
- xiii. Control of off-site activities (where appropriate).
- xiv. Procedures for the regular review and recording by the Contractor of the quality of the Works.
- xv. Control of personnel selection, based on their care, skill and experience.
- xvi. Management review/audits to monitor and exercise adequate control over the implementation of the quality plan.
- xvii. Any other item of relevance to quality.

### 3. Contractor's Method Statements and Construction Procedures

This section of the Quality Plan shall include:

- a) Detailed method statements for each major activity whether directly controlled or subcontracted.

The method statements shall identify hold points and invoke:

- i. work instructions;
- ii. quality control procedures;
- iii. definition of variance including process capability and standard deviation;
- iv. lot/batch sizing, frequency of sampling and testing;
- v. compliance testing/inspection arrangements;
- vi. work acceptance procedures.

For all activities that might affect the quality of the permanent and temporary works.

- i. Identify the relevant construction procedures in the Contractor's own Quality Management System (and provide copies on request).

### **b) Contractor's Construction Quality Manual**

This section of the Quality Plan shall include:

- 1. Statement of the Contractor's Organisation for quality control (The quality plan shall identify procedures - which may be a part of the Contractor's general procedures - that



cover the topics listed below. Copies of these procedures shall be made available to the Overseeing Organisation on request).

2. Arrangements for 'receiving' and 'in-process' testing.
3. Control of Contractor's test laboratories.
4. Control of Contractor's test, measuring and inspection equipment.
5. Document control.
6. Procedure for monitoring and recording the inspection, test and approval status of the constructed / installed work.
7. Procedures for tests and inspections for the purpose of the Contractor certifying that prior to covering up, each part of the Works is complete and conforms to the Contract.
8. Procedure for the review of work submitted for review but not accepted as conforming to the Contract.
9. Procedure for the collation of quality records as identified in MSA EN ISO 9001: 2000 and provision of copies when requested by the Overseeing Organisation.

### **c) Supplier's Quality Plans**

The Suppliers' Quality Plan shall include:

1. Definition of the product or service to be provided.
2. The organisation of the Supplier describing the line of command and stating the name of the senior manager responsible for the contracted Work and the name of the Supplier's on-site Management representative. Contact addresses, telephone numbers etc shall be provided.
3. Identification of the relevant parts of the Supplier's quality system relevant to the product or service being provided. (Copies to be provided to the Overseeing Organisation on request).
4. The control of personnel selection (at works and on site), including special requirements for skilled personnel e.g. certification of welders, training of operatives, experience requirements etc.
5. And,
6. Specific procedures are for the following:
7. Receipt and examination of certificates of conformity and test results for purchased products.
8. Product identification and traceability.
9. Random sampling and identification of sampling locations
10. Handling, storage, packaging and delivery to site and storage and handling on Site.
11. Quality records

#### **For Items marked \***

Where available and appropriate, copies of the supplier's quality system / QA/QC procedures may be acceptable.

# **SERIES 500: DRAINAGE AND SERVICE DUCTS**

## **APPENDIX 5/1 DRAINAGE REQUIREMENTS**

### **a) Public Foul Water (Sewer) Drainage**

The grade to be used without calculation shall be as indicated in Series 500, Table 5/1.

### **b) Surface Water Carrier and Filter Drains**

The grade to be used without calculation shall be as indicated in Series 500, Table 5/1.

### **c) Bedding / Pipe Combinations**

The bedding / pipe combination shall be as indicated in RCD 500/71.

### **d) Bedding / Pipe Combinations: Alternatives**

The basis for the selection of alternatives for bedding / pipe combinations shall be the UK DMRB, Volume 4, Section 2, Part 5, HA 40/01.

The three loading categories shall be the following:

1. HA 40/01 Appendix C, Figure A (Main Road Loading as in HA 40/1 clause 2.2a)
2. HA 40/01 Appendix C, Figure B (Field Loading as in HA 40/1 clause 2.2b)
3. HA 40/01 Appendix C, Figure C (Filter Drain Loading as in HA 40/1 clause 2.2c)

### **e) Group Numbers for Alternatives**

The group numbers for the permitted pipes shall be the HA 40/01 Appendix D, Figures D1, D2 and Figure E (Filter Drains);

The Contractor may assume the pipe class designation “H” (BS Standard) shown in Figure D1 for precast concrete pipes as equivalent to pipe class 120 kN/m.

### **f) Road Construction Details for Alternatives**

The trench and bedding details as shown in HA 40/01, Appendix B, HCD (UK) Drawings F1 and F2 shall supersede the Road Construction Details (RCD) 500/1, 500/2 and 500/3 in the TM Manual of Contract Documents for Road Works (MCRW), Volume 3.

### **g) Thermoplastics Structured Wall Pipes and Fittings**

The following shall apply in addition to series 500, Table 5/1:

|                                      |                                      |
|--------------------------------------|--------------------------------------|
| Ring stiffness:                      | $\geq 6 \text{ kN/m}^2$              |
| Creep ratio:                         | $< 4$                                |
| SDR equivalence:                     | $\leq 41$                            |
| Installation, bedding and infilling: | Details as indicated by the producer |

#### **h) Chambers (Manholes) and Gullies**

##### **i. Carriageway Gullies**

The carriageway gullies shall be constructed as indicated in RCD 500/69.

Additional to the detail in RCD 500/69, surface water gullies must include a removable silt bucket.

The gullies shall be untrapped.

The nominal size of the gullies shall be as follows:

| Gully Type | Size            |
|------------|-----------------|
| All        | See RCD 500/15. |

The gullies are required to collect stormwater run-off from both the carriageway and the hardshoulder / hardstrip.

##### **ii. Chambers Type and Size**

The type and size of the chambers shall be as indicated in the RCDs.

##### **iii. Chamber Tops and Gullies Tops**

Trafficked Units (Carriageway)

- a) The minimum loading class (EN 124) of chamber frame/cover or gully frame/grating to be installed within the carriageway limit that is accessible to traffic loading shall be Class D400.

UnTrafficked Units (Cycle Lane / Footpath)

- b) The minimum loading class (EN 124) of chamber frame/cover or gully frame/grating to be installed within the cycle lane / footpath shall be Class C250.

**iv. Chamber Frame and Gullies Frame Bedding, Infill and Surfacing**

Packing Not Permitted - THE USE OF PACKING MATERIALS (paving blocks, wood, wedges, spacers, shimmies etc) SHALL NOT BE PERMITTED below the ironworks frame.

Bedding Material

- i. The bedding material supporting the ironworks frame must be a proprietary product certified by the British Board of Agrément (HAPAS-BBA) or approved equivalent to the requirements of the UK DMRB HA 104/09 and/or DMRB HD 27/04.
- ii. The bedding material shall be “non-shrink” and be placed in layers ≤ 50mm thick. Layers thicker than 50mm must be laid in 2 stages. It shall have a minimum workable time before initial setting of 15 minutes at Malta ambient and pavement temperatures.
- iii. Approved Types

|               |                             |                                                          |                                    |
|---------------|-----------------------------|----------------------------------------------------------|------------------------------------|
| <b>Type A</b> | Fast Set:                   | compressive strength<br>≥ 20N/mm <sup>2</sup> in 2 hours | OR                                 |
| <b>Type B</b> | Fast Set (Polyester Resin): | compressive strength<br>≥ 30N/mm <sup>2</sup> in 3 hours | tensile strength ≥ 5N/mm in 3 hour |

- a) To be certified by the UK HAPAS (BBA) or approved equivalent.
- b) To be laid strictly in accordance with manufacturers’ recommendations including thickness and curing requirements.
- iv. Other Requirements
  - a) the cover and frame should not be exposed to any load or disturbance until the bedding material has attained sufficient strength;
  - b) care must be taken to avoid contact between any compaction device and the frame or cover in order to avoid damaging the frame or cover or the bedding layer;
- v. Infill Material
  - a) Infill material - if used to bring up the level of the ironworks surround - must be a fast- setting flowable concrete comply to the British Board of Agrément (HAPAS-BBA) or approved equivalent to the requirements of the UK DMRB HA 104/09 with a minimum compressive strength of 20 N/mm<sup>2</sup> after 2 hours. The infill must be brought up to a level that will permit the placement of the asphalt wearing course layer.
- vi. Raising or Lowering of Ironworks (where required).
- vii. On completion of the final surfacing layer (wearing course) the level of all ironwork for chamber frames (including manholes) and gully frames POSITIONED WITHIN THE

TRAFFICKED PART OF THE CARRIAGEWAY (INCLUDING A LATERAL OFFSET OF 0.5m) shall be checked for compliance with Series 700. If required, raising and lowering of ironworks shall be as follows:

- a) Saw cutting of the perimeter. These cuts must be located at a distance of 300mm away from the outside edges of the frame;
- b) Cutting through the full depth of any bound layers of pavement construction around the frame with a circular saw or similar apparatus. Removal of material between the position of the cut and the frame to reveal the frame and the manhole bedding material and manhole wall along all edges;
- c) Impact compaction to refusal of any disturbed surfacing (granular layers only).
- d) Placement of infill material (fast-setting flowable concrete as specified above) to a level below the carriageway surface required by the asphalt wearing course thickness;
- e) Application of a tack / sealing coat to all surfaces (including vertical and ironwork surfaces);
- f) Placement, spreading, levelling and compaction of the asphaltic concrete wearing course to Series 900 specifications or an approved proprietary equivalent. The Contractor shall ensure that the material is not placed below its specified compaction temperature range.

viii. Testing

- a) Testing by the Contractor shall be as indicated below

|   | Material         | Test                  | Frequency               | Remarks  |
|---|------------------|-----------------------|-------------------------|----------|
| 1 | Bedding material | 40 x 40 x 160mm prism | Every 5 in no. manholes | Or daily |
| 2 | Infill material  | 40 x 40 x 160mm prism | Every 5 in no. manholes | Or daily |

- b) Testing by the Authority shall be as indicated below:

|   | Material         | Test                        | Frequency | Remarks |
|---|------------------|-----------------------------|-----------|---------|
| 1 | Bedding material | Jointly with the Contractor |           |         |
| 2 | Infill material  |                             |           |         |

## **APPENDIX 5/2 SERVICE DUCTS REQUIREMENTS**

The services ducts shall be Class 450N to BS EN 61386-24.

# **SERIES 600: EARTHWORKS**



## APPENDIX 6/0 GENERAL PROVISIONS

1. In clause 601.5, delete “Chalk shall mean: and the text in (ii)”.
2. In clause 601.7, in addition to the definition of the term “Formation”, the “Formation” layer start shall be as detailed in Figure 2 below (See UK DMRB, HD23/99).
3. In clause 601.8, in addition to the definition of the term “Sub-Formation”, the “Sub-Formation” layer start shall be as detailed in Figure 2 below (See UK DMRB, HD23/99).
4. In clause 601.9, remove the text “In Malta the term cement stabilization is used for cement bound material, which is a constituent layer of the pavement”.

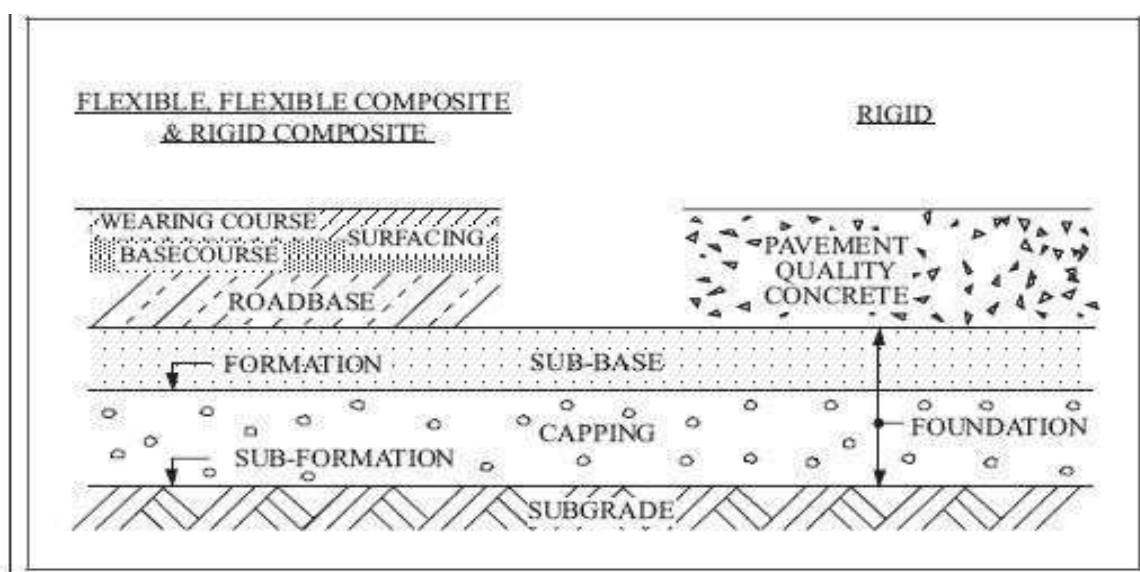


Figure 1: Typical Pavement

5. In the UK DMRB, HD23/99, Figure 2.1 - the following shall apply:
  - i. Basecourse shall mean Binder Course in relation to Series 700 and Series 900;
  - ii. Roadbase shall mean Base Course in relation to Series 700 and Series 900.
6. In clause 612.15 replace the text “In general ..... be achieved” and substitute with “In general the following requirements for the compaction degree based on the Standard Proctor Test (2.5kg - BS 1377 Part 4) shall be achieved:”
7. In clause 612.15a replace the text “Course” with the text “Coarse”.
8. In clause 612.15, replace the text “cause soils” with the text “coarse soils”. In Table 6.6, in title, replace the text “course” with the text “coarse”. Replace the text “Additionally ..... Table 6.7” with the text “Additionally the relations Ev2/EV1 of Table 6.7 may be used to evaluate the compaction condition of the soils of Table 6/1”.
9. In clause 612.15, Table 6.7, replace the text “relative” with the text “relation”.

10. Compaction of formation (including capping) as per Series 600 Table 6/4 (method compaction using the material's method number) must achieve an Ev2 value (limits apply to the Ev2/Ev1 ratio) up to the maximum indicated in Volume 7, Charts 1 and 2.
  
11. Compaction of sub-formation as per Series 600 Table 6/4 (method compaction using the material's method number) must achieve an Ev2 value (limits apply to the Ev2/Ev1 ratio) up to the maximum indicated in Volume 7, Charts 1 and 2.

**APPENDIX 6/1**  
**REQUIREMENTS FOR ACCEPTABILITY AND TESTING ETC. OF EARTHWORKS**  
**MATERIALS**

- a) Plate bearing testing (DIN 18124) in clause 612.15 shall not in any way relieve the Contractor from his obligations to certify the compaction degree of the material as per clause 612.15 and 612.16 by the Proctor and Sand Replacement tests or approved equivalent and for each and every compacted layer.
- b) Plate bearing testing (DIN 18124) in clause 612.15 shall be performed for each and every layer of the formation. The Overseeing Organisation may require the Contractor to use an equivalent test method with a larger diameter plate (eg. 600mm) for the larger sized fill included in Tables 6/1 and 6/2.
- c) The Overseeing Organisation may agree to limit plate bearing testing to the layers forming the top 0.5m of the formation, if density tests have been performed (and approved) for the underlying layers.
- d) For materials not included in Table 6/1 or whenever agreed by the Overseeing Organisation compaction shall be to refusal at the material's optimum moisture content  $\pm 2\%$ .
- e) In Clause 612.9 replace the text "Contractor or Overseeing Organisation may carry out" and replace with "the Contractor and the Overseeing Organisation shall carry out". The frequency shall be as defined in Appendix 1/5.
- f) In clause 612.15 delete the text "BS 5835" and insert the text "BS 1377: Part 4 and Part 9.
- g) In respect of clause 612.15 and 612.16 and subject to the approval of the Overseeing Organisation and where the standard field and laboratory testing methods are inappropriate due to the size or excess content of the larger rock / stones in the fill the Contractor may be required to:
  - a. Apply "correction factors" according to an acceptable standard (Eg. EN, BS, ASTM or equivalent);
  - b. Apply "modified" procedures used for large-scale "rockfill";
  - c. Apply a combination of the above
  - d. Execute and reinstate trial holes for inspection of densification.
- h) When agreed by the Overseeing Organisation the "Guidelines" in Table 6.6 and Table 6/7 can be used.

**APPENDIX 6/3**  
**REQUIREMENTS FOR EXCAVATION, DEPOSITION, COMPACTION (OTHER**  
**THAN DYNAMIC COMPACTION)**

1. The compaction degree of the material as per clause 612.15 and 612.16 shall be performed on each and every compacted layer. Where standard field and laboratory testing methods are inadequate due to the size or excess content of rock fragments in the fill material from Table 6/1 the Contractor shall use the **method type** of compaction as indicated in Table 6/4. The Contractor shall be required to demonstrate by **trials** that the proposed compaction plant and number of passes will effectively result in the specified densification. Alternatively, the Contractor may use the **end type** compaction and additionally propose:
  - a. The application of “correction factors” according to an acceptable standard (Eg. ASTM or equivalent);
  - b. The application of “modified” procedures for large-scale “rockfill” testing;
  - c. A combination of the above for the approval of the Overseeing Organisation.
2. Compaction of the materials shall be in accordance with the Method Compaction Number as described in Table 6/4 for the material’s class and its associated layer compacted thickness.
3. Multi-layered formations (including capping) shall be compacted using the material’s method compaction number for each and every compacted layer.
4. The Contractor shall ensure the proper and dedicated supervision of the number of roller passes and the layer thickness.

## **APPENDIX 6/6**

### **FILL TO STRUCTURES AND FILL ABOVE STRUCTURAL FOUNDATIONS**

- i. The attention of the Contractor is directed to the requirements of the TM Series 600 specification and Appendix 1/10 - Structures to be designed by the Contractor - concerning limitations in the compaction of fill in the vicinity of structures and foundations. This may involve changes to fill properties, thinner layers, and special plant.
  
- ii. The Overseeing Organisation shall not waive the requirement for compaction due to vicinity of structures. The contractor is therefore advised that provisions for compaction adjacent to structures shall be at no additional expenses.
  
- iii. Such structures may require additional design provisions or special processes during execution to offset limitations in the use of traditional compacting plant (i.e. Rollers). The guidance and provisions in the UK DMRB BD 30/87 is therefore applicable.

## APPENDIX 6/8 TOPSOILING

In accordance to GPP Criteria related to this Appendix ([http://msdec.gov.mt/en/decc/Documents/environment/gpp/Gardening\\_Products\\_and\\_Services\\_V\\_1.1.pdf](http://msdec.gov.mt/en/decc/Documents/environment/gpp/Gardening_Products_and_Services_V_1.1.pdf)), the soil improver shall not contain Peat / Sewage sludge.

Organic matter content must be derived from the processing and/or re-use of waste (as defined in Council Directive 2006/12 /EC of 5 April 2006 on waste and its Annex I).

Bidders must provide the detailed composition of the product, the origin of organic matter and a declaration of compliance with the above requirements. Products carrying the EU Ecolabel will be deemed to comply. Other appropriate means of proof, such as a technical dossier of the manufacturer or a test report of an independent body, will also be accepted.

Bidders must provide the relevant test reports (EN 13650, ISO 16772 or equivalent) demonstrating that the above criterion is met. Products carrying the EU Ecolabel will be deemed to comply. Other appropriate means of proof, such as a technical dossier of the manufacturer or a test report of an independent body, will also be accepted

- i. In addition to the requirements of Series 600 - Clause 618 the following shall apply in relation to soil supplied and deposited in the landscaping planters:
  - a. be of a uniform character;
  - b. be from a locally available source;
  - c. have a target pH-value of 7.5;
  - d. have a salt content < 50mg/litre;
  - e. have a bulk density between 1.3 to 1.5 mg/cm<sup>3</sup>;
  - f. be free from deleterious plant matter, contaminated matter and construction debris;
  - g. not contain material > 30mm.
- ii. minimum soil depth in the landscaping planters shall be as follows:
  - a. For planting trees: 1000mm min.
  - b. For planting large shrubs: 600mm min.
  - c. For planting plants: 450mm min.
  - d. For planting/seeding turf: 300mm min. inclusive of drainage layer.
- iii. In achieving the minimum depths indicated above the Contractor shall consider the existence of buried services and utilities. No services should pass from under soft areas. Roots of trees must not damage the services.
- iv. The subsoil layer must have good drainage and a depth of about 1000mm. It must be composed of material similar to a) above but may contain larger material.
- v. Soil should be at least 100mm lower from any kerb / footpath.
- vi. Soil should be free from any debris, large stones and any unwanted material. Sieved soil is recommended.

- vii. Two extra sleeves, with diameter 110mm and 40mm, should be included with each planter for future irrigation systems.
  
- viii. Should any of the requirements in i) to iv) above conflict with any of the provisions in Series 600 - Clause 618 the contents in i) to iv) of this Appendix shall prevail.

# **SERIES 700: ROAD PAVEMENTS - GENERAL**



## APPENDIX 7/1 PERMITTED PAVEMENT OPTIONS

1. The road classes shall be Class III Pavement Construction 3
  
2. When the number of surface irregularities exceeds the limits shown in Table 7/3 the area to be rectified shall be the 300m or 75m long stretch/es (depending on the length of the road to be tested) and the full width of the affected lanes (including the hard shoulder or hard strip). When the length to be tested is more than 300m it shall be divided into 300m stretches with the remaining considered as “pro rata”. If the length is less than 300m than it shall be sub-divided into 75m stretches with the remaining considered as “prorata”.
  
3. The thickness indicated for each layer corresponds to the minimum layer thickness.
  
4. The Contractor shall submit for the approval of the Overseeing Organisation levels using a “Grid” 10.0m longitudinal x 3 in number transverse points (lane axle and 2 in number 1/3rd points) for each compacted lift before proceeding with the placing and compaction of the subsequent layer lift. At junctions, slip roads and roundabouts the longitudinal spacing shall be 6.0m. The use of taut string-lines is permitted but lengths shall be limited to prevent sag. These submissions must commence from the formed sub-grade level, any formed level following excavation and each and every compacted layer of fill (Eg. Type 1A, 1D etc), Capping, CBM, Sub-base and Asphalt Courses (Base Course, Binder Course and Wearing Course).
  
5. The Pavement Construction Classes is indicated in *ADT MCRW Vol.7 Chart 1*. For Classes 1 to 3 the following shall also apply:

Table 1

| Layer          | Clause | Material           | Compacted Thickness | Requirements                                             |
|----------------|--------|--------------------|---------------------|----------------------------------------------------------|
| Wearing Course | 906    | Asphaltic concrete | 40mm                | For Main Carriageway - Clause 901 - Polishing: PSV ≥ 53. |
| Binder Course  | 904    | Asphaltic concrete | 50mm                |                                                          |
| Base Course    | 903    | Asphaltic concrete | 70mm                |                                                          |

6. Surface Texture of asphalt concrete wearing course: The skid resistance serviceability shall be of 5 years.

## APPENDIX 7/4 BITUMINOUS SPRAYS

### Tack coat

|                 |                            |
|-----------------|----------------------------|
| Type of Binder: | K1-40 / A1-40              |
| Rate of Spread: | 0.35 to 0.60 litres / sq.m |
| Blinding:       | Not used                   |

**SERIES 800: ROAD PAVEMENTS -  
GRANULAR, UNBOUND CEMENT  
AND OTHER HYDRAULICALLY  
BOUND MIXTURES**

**APPENDIX 8/1**  
**GENERAL REQUIREMENTS FOR UNBOUND MATERIAL S**

In clause 801.9 (i) the following text shall not be applicable:

“In residential areas where laying is hindered by manholes etc., a compaction degree of 100% may be required to be included in the tender documents” Dpr =

# **SERIES 900: BITUMINOUS BOUND MATERIAL**

## **APPENDIX 9/1**

### **SAMPLING AND TESTING OF BITUMINOUS BOUND MATERIAL**

The determination of the bulk density of the bituminous specimens for testing purposes shall be calculated in accordance with EN 12697 - 6 Procedure B.

**APPENDIX 9/2**  
**MIX AND PERFORMANCE CHARACTERISTICS OF BITUMINOUS BOUND**  
**MATERIALS**

Main Carriageway - The PSV for the Wearing Course shall be  $\geq 53$

The bitumen content of the Base Course Mix Design (by weight of the total mixture) shall be within the limits of 3.5% to 6.3%.

The Bitumen content of the Binder Course Mix Design (by weight of the total mixture) shall be within the limits of 3.5% to 6.9%.

The Bitumen content of the Wearing Course Mix Design (by weight of the total mixture) shall be within the limits of 4% to 7%.

**APPENDIX 9/3**  
**PRODUCTION, TRANSPORTATION, LAYING AND COMPACTION OF**  
**BITUMINOUS BOUND MATERIALS**

All the vertical faces and joints of asphalt layers adjoining kerbs, gutter channels, manholes and chambers must be entirely coated with hot penetration grade bitumen PEN 50/70 before the adjacent layer width is placed. A suitable proprietary bituminous joint tape as per Appendix 11/2 may be applied instead of hot bitumen. The use of bituminous emulsion will not be permitted.

Bituminous courses shall be placed using two or more pavers operating in echelon (unless the Contractor can demonstrate that it is not practicable to do so). The superimposition of joints will not be permitted.



# **SERIES 1100: KERBS, FOOTWAYS AND PAVED AREAS**

## **APPENDIX 11/1**

### **FOOTWAYS AND PAVED AREAS**

1. All footpaths shall conform to the requirements of Series 1100 and as shown on RCD 1100/01.
2. At entrances / vehicular accesses, where vehicles are predicted to ride over the footpaths, a reinforced footpath shall be provided.
3. Between the kerb / concrete channel, and the asphalt, a bituminous sealer shall be applied.
4. Kerbs to be smooth finished with no holes and honeycombing and has to be cured with the gutters channels and footways.
5. Use of tactile paving shall be regulated through RCDs Series 1100.
6. Dropper kerbs shall be installed at vehicular accesses and “dropper” sections of the kerbing as directed by the Overseeing Organisation. These shall comply with EN 1339. The dimensions shall be as indicated in EN 1339.

**APPENDIX 11/1.1**  
**KERBS, FOOTWAYS AND PAVED AREAS - PAVEMENT SLABS AND T ACTILE**  
**PAVING**

The precast concrete flags shall be manufactured in accordance with BS EN 1339 and installed in accordance with BS 7533-4.

The following performance requirements shall apply:

|                  |                                                    |
|------------------|----------------------------------------------------|
| Bending strength | Class 3 minimum (6.7 Mpa characteristic strength); |
|------------------|----------------------------------------------------|

## **APPENDIX 11/2 JOINTS**

### **Joints at Kerb/Gutter**

Joints at Kerb/Gutter -- Joints between the concrete kerb upstand (or the concrete kerb gutter run upstand) and the wearing course asphalt concrete layer must be sealed using an adequately heated penetration grade bitumen (Grade 50/70 to EN 12591). The sealing shall be applied onto the full depth of the wearing course.

Hot/Cold Joints -- Joint edges between a cold compacted wearing course paver run and an adjacent hot paver run must be cut back / trimmed and sealed using an adequately heated penetration grade bitumen (Grade 50/70 to EN 12591). The sealing shall be applied onto the full depth of the wearing course.

### **Hot joints: Echelon Paving**

This shall be the standard paving method unless otherwise instructed by the Overseeing Organisation. The joint must be straddled by the roller to achieve a seamless joint.

### **Hot joints: Non-Echelon Paving**

For short paving runs only the outer 100mm to 200 mm of the first paver run may be left uncompacted until the adjoining asphalt is placed and then straddled by the roller to achieve a seamless joint. There must be a minimum delay between the adjoining runs and edges shall be frequently checked for minimum temperature thresholds.

### **Cold joints**

The standard method requires rotary sawing or using a cutting wheel mounted onto the roller wheel. The trim shall remove a minimum of 50 mm of edge material. Cut edges must then be treated along their full depth using adequately heated penetration grade bitumen (Grade 50/70 to EN 12591) prior to placing the adjacent asphalt paving run.

Small paver lengths may have their edges trimmed by flat jack hammer blades.

### **Unsupported edges**

Unsupported edges shall not be permitted and must be trimmed back to the extent required by the specified density and properly sealed with adequately heated penetration grade bitumen (Grade 50/70 to EN 12591).

### **Alternative treatment of Joints: Joint Tape**

The use of a proprietary bituminous joint tape will be permitted.

Proprietary Bituminous Joint Tape (including Primer) shall comply with the German Technical Terms of Delivery TL bitFug 82 and Standard ZTV StB 01 or approved equivalents.

It shall be self-adhesive and permits application without the need of a torch-flame.

The performance characteristics shall comply with the following:

|                             |                                         |
|-----------------------------|-----------------------------------------|
| Type                        | Self-adhesive                           |
| Base                        | Modified polymer bitumen with additives |
| Density                     | To be declared                          |
| Softening point (R & B)     | 90 deg. C and 110 deg. C                |
| Falling-ball test           | Pass                                    |
| Sedimentation (DIN 1996/18) | to be declared                          |
| Cold bending                | Pass                                    |

# **SERIES 1700: STRUCTURAL CONCRETE**

## **APPENDIX 17/0**

### **STRUCTURAL CONCRETE GENERAL PROVISIONS**

1. In the Series 1700 - Structural Concrete, remove the text “Refer to Series 000 - Introduction”.
2. In the Series NG 1700 - Structural Concrete, remove the text “Refer to Series 000 - Introduction”.
3. The Structural Concrete shall comply with the UK Manual of Contract Documents for Highway Works (MCHW), Volume 1, Series 1700 and Volume 2, NG 1700 (Notes of Guidance) as amended by the Appendices in this Series.

#### **a) Precedence of Eurocode 2 (EN 1992)**

In cases where any specific clause/s in the Series 1700 and Series NG1700 are in conflict with any clauses in the Eurocodes, particularly with Eurocode 2 (EN 1992 Series) the provisions in the Eurocodes shall take precedence.

#### **b) Scope of the Series 1700 Appendices**

These Series 1700 Appendices cover all structural concrete works for this Contract.



## APPENDIX 17/1

### SCHEDULE FOR THE SPECIFICATION OF DESIGNED STRUCTURAL CONCRETE

#### Note

Unless otherwise stated the notation for compressive strength shown in this Appendix indicates the minimum required characteristic cube strength (See Note #<sup>3</sup>).

1. The provisions of the relevant Eurocodes shall apply.
2. The serviceability design life shall be 50 years (minimum).
3. All concrete mixes must be designed and shall comply with MSA EN 206-1.

#### Limiting Requirements for Concrete (#1)

| Requirement                                                                                                                                | Schedule                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intended working life of Structure (years):<br>a) Reservoir<br>b) Other structures                                                         | 100 years;<br>50 years;                                                                                                                                                                                                                                    |
| Exposure Classes (#4) - Reinforced Concrete (EN 206-1 and BS 8500-1; BS8500-2)                                                             | To be agreed by the Overseeing Organisation, as per Contractors Proposal, but not less than XC3.<br><br>Grade C25/30 min.<br>W/C ratio 0.55 max.<br>280kg cement min.                                                                                      |
| Concrete Mixes                                                                                                                             | Designed as per exposure classes to establish min. strength grade, min. cement content and max. W/C ratio.                                                                                                                                                 |
| Mix Design (#5) Limits to minimum cement content and maximum water cement ratio shall apply as indicated in EN206-1 and BS8500-1, BS8500-2 | Required                                                                                                                                                                                                                                                   |
| Mix Design Method                                                                                                                          | To be approved by the Overseeing Organisation; k-value to be 1.64                                                                                                                                                                                          |
| Cement Type                                                                                                                                | EN 197 To be stated and approved by the Overseeing Organisation                                                                                                                                                                                            |
| (#6)Aggregate Absorption                                                                                                                   | ≤ 2%; The Overseeing Organisation may permit the use of aggregates with a higher water absorption value in which case the Contractor shall incorporate proprietary admixtures to ensure the durability required. Proof of effectiveness shall be required. |
| Consistency Testing                                                                                                                        | By Slump Test or approved alternative                                                                                                                                                                                                                      |
| Fixing tolerance (mm)                                                                                                                      | 15 #2                                                                                                                                                                                                                                                      |
| Additions                                                                                                                                  | To be Approved by the Overseeing Organisation                                                                                                                                                                                                              |
| Admixtures                                                                                                                                 | To be Approved by the Overseeing Organisation                                                                                                                                                                                                              |

## General Note on limiting requirements for Concrete Structures:

### Notes

- a) (#<sup>1</sup>) Based on an Aggregate size  $D_{\max}$  of 20mm.
- b) (#<sup>2</sup>) E.g. Nominal Cover, 40mm + Fixing Tolerance, 15mm = Actual cover, 55mm.
- c) (#<sup>3</sup>) The equivalent notation for the cylinder characteristic strength shall be as indicated in MSA EN 206-1.
- d) (#<sup>4</sup>) The “recommended” exposure class must be verified by the Contractor on the basis of an evaluation of the prevalent atmospheric site conditions, geotechnical investigations as required and the specified design life of the structures.
- e) (#<sup>5</sup>) This is an important “Hold Point” that must be included in the Contractor’s quality system. No concrete placing shall be permitted prior to the approval in writing of the concrete mixes design by the Overseeing Organisation.
- f) (#<sup>6</sup>) Should contractors opt for using aggregates not extracted from local geological layers, they must submit a detailed chemical analysis of the proposed aggregate for the approval of the Overseeing Organisation. This analysis must invariably include the alkali reactivity potential of the aggregates;

### Relevant Tables from EN 206-1 and the Eurocodes

The following tables are of particular relevance to this Appendix. However, the Contractor shall be required to adhere to all the relevant clauses and conditions stipulated in the relevant Eurocodes and EN 206-1, BS 8500-1 and 2.

- a) Exposure classes related to environmental conditions in accordance with EN 206-1, Table 4.1 from EN1992-1:2004;
- b) Recommended structural classification, Table 4.3N reproduced from EN1992-1:2004;
- c) Values of minimum cover,  $C_{\min}$ ,  $d_{\text{dur}}$ , requirements with regard to durability for reinforcement steel in accordance with EN 10080 from Table 4.4N reproduced from EN1992-1:2004;
- d) Values of minimum cover,  $C_{\min}$ ,  $d_{\text{dur}}$ , requirements with regard to durability for prestressing steel from Table 4.5N reproduced from EN1992-1:2004;
- e) Annex E (Informative) from the Eurocode 2 (EN1992-1:2004) for information purposes only.

The Contractor’s design shall not be limited to refer to this Annex E but is to adhere to all the relevant clauses and conditions stipulated in the relevant Eurocodes for all the special structures.

## APPENDIX 17/3 CONCRETE - SURFACE FINISHES

The concrete surface finish class for the structures shall be as indicated in hereunder. The following shall apply in respect to the tables hereunder:

- i. Unformed finish - The finish of the concrete surface produced without formwork by working the surface before the concrete hardens.

### Required Finish of Concrete - Unformed Surfaces

| Class of Finish | Characteristic of Finish        |                                  |                       | Notes |
|-----------------|---------------------------------|----------------------------------|-----------------------|-------|
|                 | Abrupt Irregularities Permitted | Gradual Irregularities Permitted | Specific Requirements |       |
| U1              | Screed marks < 5mm              | < 10mm in 2m                     | Not Required          |       |

#### a) Normal Concrete to EN 206

|                                            |                   |                                                                                 |
|--------------------------------------------|-------------------|---------------------------------------------------------------------------------|
| Minimum Grade (Compressive Strength Class) | C25/C30 (Cube)    | 150 x 150mm cubes (28 -day)                                                     |
| Slump Class                                | S3 (100 to 150mm) |                                                                                 |
| Minimum cement content                     | 280 kg            |                                                                                 |
| Maximum water / cement ratio               | 0.55              |                                                                                 |
| Cover to reinforcement                     | 30mm + $\Delta_c$ | $\Delta_c = 10\text{mm}$                                                        |
| Target Mean Strength                       | 40 MPa            | $\sigma$ (SD) may be modified depending on evidence of production data variance |

#### b) Skid Resistant Concrete to EN 206: Ramps at crossings (as per drawing VXZ/PL/001)

#### Important: An 'Exposed Aggregate Concrete' finish is required

- i. Same as (A) above
- ii. Additional requirement:

Aggregate: PSV  $\geq$  53

Other: Surface retarder application with a non-staining dye (to assist proper coverage) - to allow exposure by manual brushing (or controlled water jetting when hardened).

## APPENDIX 17/4 STRUCTURAL CONCRETE - QUALITY ACCEPTANCE

For all concrete works and concrete structures - including any elements in Appendix 1/11 - the Contractor shall be required to submit - at least 20 days before the start of concrete production - a statistically-based "Structural Concrete Quality Control Acceptance Procedure".

The following shall be included:

- a) Lot size - Minimum sample size
- b) Random sampling method
- c) Standard deviation
- d) Specification limits
- e) Acceptance limits
- f) Conditional acceptance limit (If applicable)
- g) Thresholds beyond which works will be rejected
- h) Payment reduction factor/s (if applicable)
- i) Outliers procedure

**Note: The Overseeing Organisation will be applying "identity testing" to EN 206 for structural concrete works.**

A minimum of 35 in number cube results are required for each and every proposed concrete grade to assess the initial production. Alternatively, a sampling and testing regime shall be agreed with the Overseeing Organisation as part of the quality assurance procedure.

The quality acceptance of the works shall be based on the conformance criteria include in BS EN 206 including identity testing conformance.

The identity testing shall be in accordance with BS EN 206, Annex B.

The initial production shall be as determined in BS EN 206, clause 8.2.1.1(5). The sampling and testing regime shall be that for concrete without production control certification unless the Contractor submits documentation and/or evidence demonstrating that the supplier's production certified as being under a production control certification system.

In cases of dispute over the quality of concrete ONLY BS EN 13791 and BS 6089 shall be used to determine the quality of concrete in situ. Under no circumstance shall BS EN 13791 and/or BS 6089 be used as a substitute of EN 206. The Overseeing Organisation may permit the use of indirect methods of tests as described in BS EN 13791 and BS 6089.

# **SERIES 2000: WATERPROOFING FOR CONCRETE STRUCTURES**

## **APPENDIX 20/3**

### **WATERPROOFING OF RESERVOIRS**

1. The Contractor shall waterproof the water reservoirs as follows:
  - a) Preparation of surface (including deep pointing of all joints in blockwork)
  - b) Application of proprietary primer and/or bond coat
  - c) Application of proprietary render coat to form base layer
  - d) Application of proprietary render coat to form surface layer

# **SERIES 2400: BRICKWORK, BLOCKWORK AND STONEMWORK**

## **APPENDIX 24/1 BRICKWORK, BLOCKWORK AND STONEMWORK**

### **Building Stone (“Franka”)**

The Contractor shall submit the name, location and licence number of the stone supply quarry from where the stone blocks will be cut. The supply quarry cannot be changed without the approval of the Overseeing Organisation.

Building stone (Globigerina limestone blocks - “Franka”) shall be totally free of “soll” traces and blue markings (“swaba kohol”).

Stone that will remain exposed and “unrendered” shall have a uniform and consistent appearance. The stone has to be fine-grained and free from spits and clayey material. It shall not contain excessive quantities of red stains or hard shell fragments.

Stone from the lower levels of the quarry exhibiting a deep yellow hue may be utilised in the Works except for “unrendered” facades.

Blocks with excessively chipped edges and corners shall be rejected.

### **a) Compressive Strength**

The Contractor shall furnish test certification stating the compressive strength of 150mm x 150mm stone samples the material (when so required).

### **b) Stone Sizes**

All stone blocks shall be cut as smooth as possible before delivery to the site of the Works. All arrises shall be true, and all surfaces plane and truly perpendicular to each other and to a finished uniform height.

The stone blocks shall be delivered to the site on pallets.

All stone blocks shall be unloaded using lifters to prevent damage and wastage. Tipping shall not be permitted.

The finished size of stone blocks shall be in accordance with the Building Stone Order, Legal Notice 47 of 1976.

### **c) Limestone Dust**

Limestone dust for mortar shall be delivered separately and adequately packaged.

### **d) Workmanship**

Stone blocks shall be laid in a stretcher bond course pattern.

All stone blocks shall be dressed to accurate planes and shall be neatly fine-tooled on the face.

The “spika” and any arrises shall be dressed square.

Stone blocks above DPC level shall be rendered smooth either manually or mechanically.

Mechanical planers, band and rotary saws are permitted but dust control measures are required. The bedding plane and the stone must be wet before the mortar is applied.

Mortar shall normally comprise of a prescribed mix of OPC cement, limestone dust (xaħx) and clean water mixed to achieve a good workability. It must correspond to a strength Class M2 mortar as denoted in EN 998-2.

Proprietary bedding plane reinforcement mesh (or similar) will be permitted where required by specific additional bonding requirements subject to the approval of the Overseeing Organisation.



“Fuq il-fil” courses shall be placed to form a consistent pattern with perpends in strict alternate distributive vertical alignment including joints, curved and flat arches, jambs and ornaments.

The finished walls shall normally have a course height (including mortar) of 270mm.

Jointing of stone blocks in horizontal courses shall be by the “inkulmar” method.

Jointing shall only proceed at the end of full course placement. Vertical joints are to be broken at not less than 150mm.

Courses shall be laid true to lines and levels and with corners straight and plumb. Jambs shall be square and plumb. In double wall construction they shall extend the whole width in an alternate manner.

Double walls shall have adequate bond stones, properly damp proofed at the external face end. Proprietary bond fixtures may be used subject to the approval of the Overseeing Organisation.

Quoins of all openings shall be protected during construction.

Stone Block lintels shall not be centrally loaded.

Voussoirs shall be to the exact curvature as detailed in the drawings having all blocks of the same curved length including the key block.

Alternate corner lock blocks shall be interlocked the full width using a suitable tothing technique.

Any dressing, moulding and carving templates (mollijiet) shall be approved by the Overseeing Organisation and shall remain the property of the Employer after use.

Flat arches shall be as detailed in the drawings having all blocks of the same width including the key block. Flat arches shall be jointed with a mix of 1:1 cement/water grout placed in vertical insets cut along the vertical jointing plane.

Drip channels shall be provided or formed at exposed sills, projecting mouldings and edges.

#### Hollow Concrete Blocks

The performance characteristics shall comply with BS EN 771-3, Group 2.

The binder shall be Portland cement complying with BS EN 197-1.

Aggregate shall comply with BS EN 12620.

### **e) Dimensions - Hollow Concrete Blocks**

Sizes shall be as follows:

- |                        |                                   |
|------------------------|-----------------------------------|
| i. Length              | 460mm;                            |
| ii. Height             | 260mm;                            |
| iii. Nominal Thickness | 63mm, 115mm, 150mm, 180mm, 230mm; |

The dimensional tolerance shall be Class D1.

### **f) Density**

The gross dry density of the blocks must be declared by the manufacturer.

### **g) Compressive Strength**

The compressive strength will need to be declared air dry. The conditioning and surface preparation used need to be declared by the manufacturer as in EN 772-1.

The compressive strength of blocks shall be as follows:

|                       |                             |
|-----------------------|-----------------------------|
| 230mm (nom. Void 13%) | $\geq 7.3 \text{ N/mm}^2$ . |
| 230mm (nom. Void 18%) | $\geq 7.3 \text{ N/mm}^2$ . |
| 180mm                 | $\geq 7.3 \text{ N/mm}^2$ . |

#### **h) Curing**

Only fully-cured blocks shall be supplied for the Works.

#### **i) Surface Finish**

The surface finish shall be of two (2) types

- i. Standard for rendered facings (or non-façade facings);
- ii. Close-textured.

#### **j) Mortar**

Fresh mortar shall be distributed evenly over the whole bedding plane. Vertical joints shall be between 5mm to 8mm thick. Pointing of both the horizontal and vertical joints shall be flush.

Mortar shall normally comprise of a prescribed mix of OPC cement, sand, limestone dust (xañx) and clean water mixed to achieve a good workability. It shall normally correspond to strength class M2 mortar as denoted in EN 998-2.

# **SERIES 2600: MISCELLANEOUS**

## APPENDIX 26/4 CONCRETE FOR PIPE AREAS

1. The requirements of clause 2603.5 shall apply ONLY to those sections / sectors of the excavated trench which cannot be adequately backfilled and compacted and NOT for the whole length of the trench. These sections / sectors shall be at the discretion of the Overseeing Organisation.
2. Where approved by the Overseeing Organisation the granular material used in trenches as the pipe surround may be substituted using self-compacting, low-strength concrete, soil-binder mixture or a proprietary mixtures approved by the Overseeing Organisation. Additional provisions will be required as follows:
  - i. The installation of an approved compressible insert at all pipe joints
  - ii. The installation of an approved compressible insert at intervals along the trench indicated by the Overseeing Organisation.
3. The self-compacting concrete or soil-binder shall be designed in accordance with a mix design method approved by the Overseeing Organisation.
4. The curing regime shall be water-based and must start immediately on completion of placement. Surface curing shall depend on the duration of exposure. “Intensive” curing during the first three (3) days shall apply for all exposed surfaces with “Normal” curing can proceed for a further seven (7) days minimum.
5. Materials:
  - a. Cement shall comply with BS EN 197-1;
  - b. Additions shall comply with BS EN 206-1, type 1 (inert or semi-inert);
  - c. Admixtures shall comply with BS EN 934-2, Tables 3.1 and 3.2.
6. Mechanical Performance
  - a) Slump-Flow: Class SF2 (660-750mm, EFNARC Standard Annex B1)
  - b) Compressive Strength Class: Mix Type E (Excavatable) - 1.0 to 3.0 N/mm<sup>2</sup>
7. The above shall be qualified by any specific requirements for the pipe installed in the trench as indicated by the pipe manufacturer especially with regards to provisions for accommodating and compensating for pipe and joint thermal movement, bending and deflection.

# PART 1E - PART 1H

## SPECIFICATIONS FOR SERVICE UTILITIES

1. The Contractor shall be required to liaise and co-ordinate the Works with the stakeholders identified below and others as may be required:

### List of Stakeholders

- i. Enemalta, Water Services Corporation
  - ii. Local Councils adjoining the area of influence
  - iii. Go, Vodafone, Melita
  - iv. Malta Public Transport, PA/ERA, OHSA, Police and Health Department
  - v. Plant Health Directorate
  - vi. Others that may be identified in the course of the Works.
2. It is the SOLE responsibility of the Contractor to research, compile and co-ordinate the identification and mapping of buried services and apparatus with the relevant utilities, services providers and/or stakeholders and to verify the accuracy and completeness of this data.
  3. The Contractor is solely responsible for all costs incurred in seeking the information, advice and liaison with Utilities and Statutory Undertakers.

# **PART 1E**

## **SPECIFICATIONS FOR THE LAYING OF DRINKING WATER MAINS**

It is the Contractor's responsibility to liaise with the respective corporation to perform works as per corporation's requirements. In cases of conflict between these requirements and those stipulated by the Subsidiary Legislation 499.57; the latter shall prevail.

# **PART 1F**

## **SPECIFICATIONS FOR THE LAYING OF SEWER MAINS**

It is the Contractor's responsibility to liaise with the respective corporation to perform works as per corporation's requirements. In cases of conflict between these requirements and those stipulated by the Subsidiary Legislation 499.57; the latter shall prevail.

# **PART 1G**

## **SPECIFICATION FOR THE LAYING OF ENEMALTA CABLES**

It is the Contractor's responsibility to liaise with the respective authority to perform works as per authority's requirements. In cases of conflict between these requirements and those stipulated by the Subsidiary Legislation 499.57; the latter shall prevail.



# **PART 1H**

## **SPECIFICATION FOR MELITA PLC WORKS**

It is the Contractor's responsibility to liaise with the respective authority to perform works as per authority's requirements. In cases of conflict between these requirements and those stipulated by the Subsidiary Legislation 499.57; the latter shall prevail.

## SECTION 5 - SUPPLEMENTARY DOCUMENTATION

### ***5.1 - Draft Contract Form***

### ***5.2 - Glossary***

### ***5.3 - Specimen Performance Guarantee***

### ***5.4 - Specimen Tender Guarantee (Bid Bond) - where applicable***

### ***5.5 - Specimen Pre-Financing Guarantee - where applicable***

### ***5.6 - Specimen Retention Guarantee - where applicable***

These are available to view and download from the 'Resources Section' at: [www.etenders.gov.mt](http://www.etenders.gov.mt). In this same section, it is also possible to download a copy of the ***European Single Procurement Document (ESPD)***.

### ***5.7 - General Conditions of Contract***

The full set of General Conditions for Works Contracts (Version 2.2), for Supplies Contracts (Version 2.2) and for Services Contracts (Version 2.2) can be viewed/downloaded from the 'Resources Section' at: [www.etenders.gov.mt](http://www.etenders.gov.mt)

It is hereby construed that the tenderers have availed themselves of these general conditions, and have read and accepted in full and without reservation the conditions outlined therein, and are therefore waiving any standard terms and conditions which they may have.

These general conditions will form an integral part of the contract that will be signed with the successful tenderer/s.

## Drawings

| No | Name                            | Drawing No | Design No |
|----|---------------------------------|------------|-----------|
| 1. | SanTriqSannat Survey April 2018 | 1          | 1         |
|    |                                 |            |           |
|    |                                 |            |           |
|    |                                 |            |           |
|    |                                 |            |           |