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**SOLICITATION AMENDMENT  
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

**Comments - Commentaires**

**Vendor/Firm Name and Address**

Raison sociale et adresse du  
fournisseur/de l'entrepreneur

**Issuing Office - Bureau de distribution**

TPSGC-PWGSC  
601-1550, Avenue d'Estimauville  
Québec  
Québec  
G1J 0C7

<b>Title - Sujet</b> Agrandissement quai des traversiers	
<b>Solicitation No. - N° de l'invitation</b> EE519-220842/A	<b>Amendment No. - N° modif.</b> 009
<b>Client Reference No. - N° de référence du client</b> R.115132.100	<b>Date</b> 2021-11-05
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$QCM-032-18217	
<b>File No. - N° de dossier</b> QCM-1-44065 (032)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> Eastern Standard Time EST <b>on - le 2021-11-15</b> Heure Normale du l'Est HNE	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Girard, Isabelle	<b>Buyer Id - Id de l'acheteur</b> qcm032
<b>Telephone No. - N° de téléphone</b> (418) 580-3551 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
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<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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## **AMENDMENT-009**

### Wharf Extension, Reinforcement, and New fenders Cap-aux-Meules, Québec

Included in the present amendment:

1. Invitation to tender - Extension of closing date.
2. Clarifications and changes on answers 14, 17, 19, 20, 21, 26, 31, and 36
3. Addendum 1

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#### **INVITATION TO TENDER - EXTENSION OF CLOSING DATE:**

Please note that the solicitation date has been delayed to November 15, 2021 at 2:00 PM.

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#### **CLARIFICATIONS AND CHANGES TO ANSWERS 14, 17, 19, 20, 21, 26, 31, and 36:**

**Question 14 :** In Specifications, Section 01 11 01, 1.14, point 2, it is mentioned that: "Access to the existing wharf structure must be maintained throughout construction. Ferry vessels will continue to use the wharf structure for berthing and mooring. The existing transfer bridge will not be used throughout construction. Access for crew and emergency vehicles to vessel and wharf must be maintained at all times."

- As part of the work, we have to remove all the fenders and bollards. How do you plan to moor the ferry under these conditions?
- What is the transfer bridge?
- What space is required on the dock for crew and emergency vehicles?

**Answer 14 :** Point 2 of chapter 1.14 section 01 11 01 is now removed.

**Question 17 :** Can changes be made to the specifications in order to allow the only plant in the region to produce concrete?

**Answer 17 :** Use of a non-automated plant is considered acceptable as long as the concrete meets the final hard state performance criteria in the specification for strength, entrained air content, and shrinkage compensation (where required). Please note that only non-reactive aggregates will be accepted. L-bar laboratory tests will be required.

Section 03 33 00 is updated (see addendum).

**Question 19 :** In specification section 01 35 29.06 item 1.13.1, it is defined that " The worksite is occupied by employees and/or the public during the following times: once a day for two hours, although these persons will not have access to the Contractor Worksite. The Contractor shall leave a safe access to employees and / or the public during the boarding/unboarding operations. » Can you specify the access that need to be kept on the existing wharf?

**Answer 19 :** Point 1.13.1 of section 01 35 29.06 is now removed.

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**Question 20 :** In specification section 01 11 01 item 1.14.2, it is specified that “ Access to the existing wharf structure must be maintained throughout construction. Ferry vessels will continue to use the wharf structure for berthing and mooring. The existing transfer bridge will not be used throughout construction. Access for crew and emergency vehicles to vessel and wharf must be maintained at all times. » Can you specify the access that need to be kept on the existing wharf?

**Answer 20 :** Point 1.14.2 of section 01 11 01 is now removed.

**Question 21 :** In specification section 01 11 01 item 1.14.2, it is specified that “ [...] Ferry vessels will continue to use the wharf structure for berthing and mooring. [...] » Can you specify the removal and installation sequence of the new fenders and bollards?

**Answer 21 :** Point 1.14.2 of section 01 11 01 is now removed.

**Question 26 :** For items 1.2.4, 2.1.2 and 2.1.3m these elements include the clogging of the anchor heads. Is it possible to have some precisions on the required clogging product?

**Answer 26 :** It will have to be a flexible bicomponent sealant or a single component anchor sealant, elastomeric polyurethane based, of medium module and of high performance.

**Question 31 :** Given that the wharf stays functional for the berthing of the CTMA, is there a minimum number of fenders that need to stay functional during the works: for instance, do 7 of the 10 fenders have to be functional during the CTMA berthing? With the demolition and reconstruction delay of the fenders including the concrete cure duration it is impossible to change a fender between two ferries.

**Answer 31 :** Berthing of CTMA vessels is not to take into account anymore.  
The following items are now removed from the specs:

- item 1.14.2 of section 01 11 01.
- item 1.3.2 of section 01 14 00.
- item 1.13.1 of section 01 35 29.06.

**Question 36 :** During the bidders' conference, you mentioned that the ferry would not dock on the wharf under construction during the work, but rather on the neighboring wharf. In amendment 005, in the answers to questions 14, 19, 20 and 21, you mention that temporary defenses are needed to dock the ferry on the wharf under construction during the work. Please clarify and provide the ferry schedule if necessary.

**Answer 36 :** The ferry will not berth on the wharf under construction. No fender is required.

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#### **ADDENDUM 1:**

See Addendum 1 provided hereinafter.

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**\*\*\* ALL OTHER CLAUSES AND CONDITIONS REMAIN UNCHANGED \*\*\***

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**Appendix**

**Appendix 1 – Section 03 30 00**

# **1 MODIFICATIONS TO THE TECHNICAL SPECIFICATIONS**

The following modifications to the submission documents come into force immediately.  
This addendum will be part of the contractual documents.

## **1.1 Section 01 11 01 – Work general information**

Item 1.14.2 is REPLACED BY:

*The utilization of the wharf – CTMA berthing and structure access by the operator and the public  
– will resume on June 2<sup>nd</sup> 2022.*

## **1.2 Section 01 14 00 – Work restrictions**

Item 1.3.2 is CANCELED.

## **1.3 Section 01 35 29.06 – Health and safety**

Item 1.13.1 is CANCELED.

Item 1.13.2 is REPLACED by :

*the Contractor's site-specific safety plan must include the measures provided by the Contractor to  
protect the health and safety of employees and / or the public on the site.*

## **1.4 Section 03 30 00 – Cast in place concrete**

Section 03 30 00 is REPLACED by the section attached in appendix 1.

## **Appendix 1**

**Part 1 General**

**1.1 SUMMARY**

- .1 This section covers work requirements for cast-in-place concrete associated with the wharf upgrades and the new turning dolphin at Cap-Aux-Meules Wharf.

**1.2 RELATED REQUIREMENTS**

- .1 Section 01 29 00 – Payment Procedures.
- .2 Section 01 29 83 – Testing Laboratory Services.
- .3 Section 01 33 00 – Submittal Procedures.
- .4 Section 01 35 44 – Environmental Protection Procedures for Marine Works.
- .5 Section 01 45 00 – Quality Control.
- .6 Section 03 10 00 – Concrete Forming and Accessories.
- .7 Section 03 20 00 – Concrete Reinforcing.
- .8 Section 03 37 26 – Underwater Placed Concrete.

**1.3 REFERENCE STANDARDS**

- .1 Cahier des Charges et Devis Généraux du Québec (CCDG), Infrastructures routières – Construction et réparation
  - .1 CCDG, chapter 15.4 – Ouvrages en béton.
  - .2 Tome VII, Norme 3101 du MTMDET.
- .2 ASTM International
  - .1 ASTM C260/C260M-10a (2016), Standard Specification for Air-Entraining Admixtures for Concrete.
  - .2 ASTM C309-19, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
  - .3 ASTM C494/C494M-19, Standard Specification for Chemical Admixtures for Concrete.
  - .4 ASTM C 881/C881M-20a, Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
  - .5 ASTM C1017/C1017M-13e1, Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
  - .6 ASTM C C1059/C1059M-13, Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.
  - .7 ASTM D412-16, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
  - .8 ASTM D624-00 (2020), Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer.

- .9 ASTM D1751-18, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- .10 ASTM D1752-18, Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.
- .3 CSA International
  - .1 CSA A23.1/A23.2-19, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CSA A283-19, Qualification Code for Concrete Testing Laboratories.
  - .3 CSA A3000-18, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005),

#### **1.4 ABBREVIATIONS AND ACRONYMS**

- .1 Portland Cement: hydraulic cement, blended hydraulic cement (XXb - b denotes blended) and Portland-limestone cement types:
  - .1 GU, GUb and GUL - General use cement.
  - .2 MS and MSb - Moderate sulphate-resistant cement.
  - .3 MH, MHb and MHL - Moderate heat of hydration cement.
  - .4 HE, HEb and HEL - High early-strength cement.
  - .5 LH, LHb and LHL - Low heat of hydration cement.
  - .6 HS and HSb - High sulphate-resistant cement.
- .2 Fly ash types:
  - .1 F - with CaO content maximum 8%.
  - .2 CI - with CaO content 15 to 20%.
  - .3 CH - with CaO minimum 20%.
- .3 GGBFS - Ground, granulated blast-furnace slag.

#### **1.5 ADMINISTRATIVE REQUIREMENTS**

- .1 Meeting prior to the implementation: a week before the start of concrete work, hold a meeting for concrete work.
  - .1 Ensure that the Superintendent, the Departmental Representative and the personnel responsible for the production and finishing of concrete, as well as representatives of test laboratories are present.
  - .2 Check the requirements of works.

#### **1.6 DOCUMENTS/SAMPLES TO SUBMIT FOR APPROVAL/INFORMATION**

- .1 Submit documents and samples required in accordance with section 01 33 00 - Submittal Procedures.
- .2 Product Data:

- .1 Submit manufacturer's instructions, printed product literature and data sheets for proprietary materials used in Cast-In-Place Concrete and additives and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit 2 copies of WHMIS SDS in accordance with section 01 33 00 - Submittal Procedures.
- .3 Site Quality Control Submittals:
  - .1 Concrete pours: provide accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken.

## **1.7 QUALITY ASSURANCE**

- .1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.
- .2 Provide Departmental Representative, minimum 4 weeks prior to starting concrete work, with valid and recognized certificate from plant delivering concrete.
  - .1 Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture will meet specified requirements.
  - .2 Submit a test report carried out by a recognized laboratory, which certify that the aggregates used in the manufacture of concrete is not likely to cause a growth exceeding the values shown in table 1 of method standard CAN/CSA standard - A23.2-27A – Standard Practice to Identify degree of Alkali-reactivity of aggregates.
- .3 Minimum 4 weeks prior to starting concrete work, provide proposed quality control procedures for review by Departmental Representative on following items:
  - .1 Falsework erection.
  - .2 Hot weather concrete.
  - .3 Cold weather concrete.
  - .4 Curing.
  - .5 Finishes.
  - .6 Formwork removal.
  - .7 Joints.
  - .8 At least 4 weeks prior to beginning Work, inform Departmental Representative of source of fly ash.
    - .1 Changing source of fly ash without written approval of Departmental Representative is prohibited.
- .4 Environment: Ensure environmental aspects in accordance with Section 01 35 43 - Environmental Procedures.

## **1.8 SITE CONDITIONS**

- .1 Placing concrete during rain or weather events that could damage concrete is prohibited.
- .2 Protect newly placed concrete from rain or weather events in accordance with CSA A23.1/A23.2.
- .3 Cold weather protection:

- .1 Maintain protection equipment, in readiness on Site.
- .2 Use such equipment when ambient temperature below 5°C, or when temperature may fall below 5°C before concrete cured.
- .3 Placing concrete upon or against surface at temperature below 5°C is prohibited.
- .4 Hot weather protection:
  - .1 Protect concrete from direct sunlight when ambient temperature above 27°C.
  - .2 Prevent forms of getting too hot before concrete placed. Apply accepted methods of cooling not to affect concrete adversely.
- .5 Protect from drying.

## **1.9 DELIVERY, STORAGE AND HANDLING**

- .1 Delivery and Acceptance Requirements:
  - .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
    - .1 Do not modify maximum time limit without receipt of prior written agreement from Departmental Representative, Laboratory Representative and concrete producer as described in CSA A23.1/A23.2.
    - .2 Deviations to be submitted for review by Departmental Representative.
  - .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.
  - .3 Concrete pouring: Ensure that concrete plant is able to provide a continuous supply according to CSA A23.1/A23.2.
- .2 Management and waste disposal
  - .1 Sort the waste for re-use / re-use and recycling.
  - .2 Transport concrete and the unused components of concrete to an authorised recycling facility.
  - .3 Provide, on the site or elsewhere, adequate space for the washing of concrete trucks safely.
  - .4 Deliver additives (pigments, fibers, etc.) unused to an authorized hazardous materials collection authorized site.
  - .5 It is forbidden to dump unused adjuvants in the sewers, in the river, in the sea, on the floor or anywhere else where this could present a risk to health or the environment.
  - .6 Take steps to avoid that adjuvants used in the composition of the concrete contaminate water courses and sources of drinking water. As appropriate, to collect these liquid waste or solidify them with a non combustible inert material, taking all appropriate security measures. Eliminate waste in accordance with local, provincial/territorial and applicable national regulations and requirements according to Section 01 74 21 - Waste Management and Disposal.

**Part 2            Products**

**2.1                MATERIALS**

- .1 Concrete:
  - .1 Hydraulic Cement: Type GU-B/F/SF as per MTMDET 3101 Standard.
  - .2 Supplementary cementing materials: maximum ratio as required by MTMDET 3101 Standard. Fly ashes will be of Type F as per CAN/CSA A3001.
  - .3 Water, aggregates and admixtures: to MTMDET 3101 standards or CSA A23.1/A23.2 standards.
  - .4 Admixtures:
    - .1 Air entraining admixture: to ASTM C260.
    - .2 Chemical admixture: to ASTM C1017 and ASTM C494. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.
    - .3 Shrinkage-reducing admixture (SRA): to ASTM WK23938
  - .5 Curing compound: to CSA A23.1/A23.2 and ASTM C309.
- .2 Non-shrink grout: premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents to CSA A23.1/A23.2.
  - .1 Compressive strength at 28 days: 50 MPa.
  - .2 Volume change at 14 days of +0.01% to +0.03% when tested to ASTM C1090.
  - .3 Grout shall be qualified as non-shrink grout.
- .3 Epoxy adhesives for anchors and dowels:
  - .1 Epoxy resin based adhesive: high strength epoxy to ASTM C881 / C881M, type IV, grade 3. Epoxy adhesive must be a two component injectable hybrid adhesive. The two components must be separated by means of a double cylinder aluminum packaging attached to a manifold which keeps component A and component B separate. The containers should be designed to accept a static mixing nozzle which perfectly mixes component A and component B and allows injection of the mixed adhesive directly into the drilled hole. Only injection tools and static mixing nozzles supplied by the manufacturer may be used. The injection adhesive should be formulated to include resin and hardener to provide optimum cure speed, high strength and stiffness. The technical data of the Injection Adhesive Anchor System should be submitted to the Departmental Representative for review and approval, prior to installation.
  - .2 In addition to the above, the proposed product needs to conform to the following:
    - .1 Be acceptable for use in a marine environment.
    - .2 Be suitable for installation in cold weather, and perform well in cold-weather (freeze/thaw) conditions.
    - .3 Have longer working time, to allow for some flexibility during installation.
- .4 Anchor bolts: as per supplier specifications.

- .5 Sealing elastomer for slab joints: elastomer product made from polyurethane, several components, resistant to climatic and environmental conditions (rain, snow, temperature range of + 40 C to -40 C).
- .6 Weep hole tubes: PVC.

## 2.2 MIXES

- .1 **The contractor must perform adequacy tests for each type of concrete, of which results will be submitted to the approval of the Departmental Representative to validate the formulas. The formula of each mix must be provided to the Departmental Representative for comments before the start of the adequacy tests.**
  - .1 Ensure concrete supplier meets performance criteria as established below.
  - .2 Provide concrete mix to meet following requirements:
    - .1 Concrete Type: V-S (**concrete with superplasticizing admixture**).
    - .2 W/CM within the following range: 0.38 to 0.42.
    - .3 Compressive strength at 28 Days: 35 MPa minimum.
    - .4 Intended application: Piles extension blocks, new dolphin deck.
    - .5 Aggregate size: 5-20mm maximum.
    - .6 Air content: 6 to 9%.
    - .7 Slump (mm) : 130±30
    - .8 **Maximum air bubble network: 230 (µm) (L-bar testing during adequacy tests)**
  - .3 Provide concrete mix to meet following requirements:
    - .1 Concrete Type: XV (anti-washout **concrete**).
    - .2 W/CM Maximum: 0.42.
    - .3 Compressive strength at 28 Days: 35 MPa minimum.
    - .4 Intended application: Pile filling.
    - .5 Aggregate size: 2.5-10mm maximum.
    - .6 Air content category: 6 to 9%.
    - .7 Slump (mm) : 200±40
    - .8 **Maximum air bubble network: 230 (µm) (L-bar testing during adequacy tests)**
  - .4 Provide concrete mix to meet following requirements:
    - .1 Concrete Type: XIV-R (**self-consolidating concrete**).
    - .2 W/CM within the following range: 0.35 to 0.40.
    - .3 Compressive strength at 28 Days: 35 MPa minimum.
    - .4 Intended application: bollard bases and concrete repairs.
    - .5 Aggregate size: 2.5-10mm maximum.
    - .6 Air content: 6 to 9%.
    - .7 Table flow test (mm) : 675±50
    - .8 **Maximum air bubble network: 230 (µm) (L-bar testing during adequacy tests)**

- .2 Ensure that aggregate sources conform to the requirements of Clause 4.2.3.5, “Deleterious Reactions” of CSA A23.1/A23.2 and **provide a conformity certificate attesting that the aggregates are non-reactive.**

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Obtain Departmental Representative's written approval before placing concrete.
  - .1 Provide 24 hours minimum notice prior to placing of concrete.
- .2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.
- .3 During concreting operations:
  - .1 Development of cold joints not allowed.
  - .2 Ensure concrete delivery and handling facilitate placing with minimum of re-handling, and without damage to existing structure or Work.
  - .3 Provide a second pump on construction site in case of pump breakage.
  - .4 It is never allowed to add water during transportation to the site. It is also never allowed to add water to the concrete before dumping to the truck-mixer, unless the Department's representative has given permission. If necessary, the amount of water added must be listed on the delivery note and certified by the departmental representative who signs the statement.
- .4 Pumping of concrete is permitted only after approval of equipment and mix.
- .5 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .6 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .7 Protect previous Work from staining.
- .8 Clean and remove stains prior to application for concrete finishes.
- .9 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, workability, air content, temperature and test samples taken.
- .10 In locations where new concrete is doweled to existing structure, bush the surface to a minimum depth of 10 mm and drill holes as required for dowelling.
  - .1 Place steel dowels of deformed steel reinforcing bars and pack solidly with non-shrink grout to anchor and hold dowels in positions as indicated.
- .11 Do not place load upon new concrete until authorized by Departmental Representative.

### **3.2 INSTALLATION/APPLICATION**

- .1 The contractor must take into account that the schedule will involve work during the winter. He will have to provide for the construction of heated shelters to protect the new concrete elements. For sectors where the installation of shelters is not possible due to elements located in the marine environment, the contractor must carry out this work during a period during which the freeze risks for the grout or concrete are non-existent. All these measures must be included in the unit price of the various payment items.

- .2 Do cast-in-place concrete work to CSA A23.1/A23.2 and Section 15.4 of CCDG.
- .3 Dowelled interfaces: as per drawings.
- .4 Sleeves and inserts:
  - .1 Do not permit penetrations, sleeves, ducts, pipes or other openings to pass through joists, beams, column capitals or columns, except where indicated or approved by Departmental Representative.
  - .2 Where approved by Departmental Representative, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere.
  - .3 Sleeves and openings greater than 100 x 100 mm not indicated, must be reviewed by Departmental Representative.
  - .4 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain written approval of modifications from Departmental Representative before placing of concrete.
  - .5 Confirm locations and sizes of sleeves and openings shown on drawings.
  - .6 Set special inserts for strength testing as indicated and as required by non-destructive method of testing concrete.
- .5 Anchor bolts:
  - .1 Set anchor bolts to templates in co-ordination with appropriate trade prior to placing concrete.
  - .2 Grout anchor bolts in preformed holes or holes drilled after concrete has set only after receipt of written approval from Departmental Representative.
    - .1 The diameter of the holes drilled after the concrete has set must comply with the manufacturer's recommendations.
  - .3 Protect anchor bolt holes from water accumulations, snow and ice build-ups.
  - .4 Set bolts and fill holes with non-shrink grout.
  - .5 Locate anchor bolts used in connection with expansion shoes, rollers and rockers with due regard to ambient temperature at time of erection.
- .6 Drainage holes and weep holes:
  - .1 Form weep holes and drainage holes in accordance with Section 03 10 00 - Concrete Forming and Accessories. If wood forms used, remove them after concrete has set.
  - .2 Install weep hole tubes and drains as indicated.
- .7 Finishing and curing:
  - .1 Finish concrete to CCDG section 15.4 and CSA A23.1/A23.2.
  - .2 Use procedures as reviewed by or those noted in CSA A23.1/A23.2 to remove excess bleed water. Ensure surface is not damaged.
  - .3 Use curing according to CCDG section 15.4.3.5.9. a humid curing is required.
  - .4 Finish surfaces of concrete slabs as to meet the CSA A23.1/A23.2 standard for the class C. A vibrant rule or a self-propelled finisher should be used for the completion of structural slabs. Used finishing equipment must move on bearing rails. Refer to the CCDG (article 15.4.3.5.6) for details of installing the rails. A broom finish will be required for the rolling surface.

- .5 Unless otherwise stated, all exposed edges must be chamfered 25 mm x 25 mm.
- .8 Grout under bollards base plates using procedures in accordance with manufacturer s recommendations which result in 100 % contact over grouted area.
- .9 Joint fillers:
  - .1 Furnish filler for each joint in single piece for depth and width required for joint, unless otherwise authorized by Departmental Representative.
  - .2 When more than one piece is required for joint, fasten abutting ends and hold securely to shape by stapling or other positive fastening.
  - .3 Locate and form expansion and construction joints as indicated.
  - .4 Install joint filler.
  - .5 Use 12 mm thick joint filler to separate slabs-on-grade from vertical surfaces and extend joint filler from bottom of slab to within 25 mm of finished slab surface unless indicated otherwise. Fill with elastomer sealant up to the finished surface. Check for compatibility between joint and sealant.

### **3.3 SURFACE TOLERANCES**

- .1 Concrete surfaces tolerances shall conform to CSA A23.1/A23.2 standard, according to the method of the straight ruler.

### **3.4 SURFACE FINISH**

- .1 In General, horizontal surfaces must have a non-slip and in accordance with the table texture finish of "Classification of the areas of slab finishes and floor" of the standard CAN/CSA - A23.1. However, the vertical faces of structures must be smooth.

### **3.5 FIELD QUALITY CONTROL**

- .1 Site tests: conduct tests as follows in accordance with Section 01 45 00 - Quality Control and submit report as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.
  - .1 Concrete pours.
  - .2 Slump.
  - .3 Air content.
  - .4 Compressive strength at 7 and 28 days.
  - .5 Air and concrete temperature.
  - .6 Other as required.
- .2 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Departmental Representative for review to CSA A23.1/A23.2 and Section 01 45 00 - Quality Control.
  - .1 Ensure testing laboratory certified to CSA A283.
- .3 Ensure test results are distributed for discussion at pre-pouring concrete meeting between testing laboratory and Departmental Representative.
- .4 Departmental Representative will pay for costs of tests as specified in Section 01 29 83 - Payment Procedures for Testing Laboratory Services.

- .5 Departmental Representative will take additional test cylinders during cold weather concreting. Contractor to cure cylinders on job site under same conditions as concrete which they represent.
- .6 Non-Destructive Methods for Testing Concrete: to CSA A23.1/A23.2.
- .7 Inspection or testing by Departmental Representative not to augment or replace Contractor quality control nor relieve Contractor of contractual responsibility.

**END OF SECTION**