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7800.2 DESCRIPTION

7800.2.1 The work shall consist of the fabrication of prestressed precast concrete bridge stringers, precast concrete barriers, precast abutment or pier caps, and precast concrete wall panels in accordance with this Specification, the attached plans of the Saskatchewan Ministry of Highways, and the attached General Requirements.

7800.3 MATERIALS**7800.3.1 General**

7800.3.1.1 All materials required for the fabrication of these components shall be supplied by the Fabricator.

7800.3.2 Prestressing Steel

7800.3.2.1 Prestressing steel shall be seven-wire stress relieved strand with low relaxation property conforming to the requirements of ASTM Specification A416/416M, Grade 1860.

7800.3.2.2 A copy of the manufacturer's stress-strain curve for each lot of prestressing steel used and the location of each lot used shall be supplied to the Ministry.

7800.3.3 Reinforcing Steel

7800.3.3.1 Reinforcing steel shall be fabricated from deformed bars conforming to the requirements of CSA Standard G30.18-M, Grade 400.

7800.3.3.2 For Grade R bars, the minimum elongation at rupture in a 200 mm gauge length shall be 12 percent for No. 25 bars and smaller, and 10 percent for No. 30 bars and larger.

7800.3.3.3 The pin diameter for the 180 degree bent test shall be:

7800.3.3.3.1 4 bar diameters for No. 25 bars and smaller;

7800.3.3.3.2 6 bar diameters for No. 30 and No. 35 bars;

7800.3.3.3.3 8 bar diameters for No. 45 and No. 55 bars.

7800.3.4 Concrete Anchors

7800.3.4.1 Material for headed concrete anchors shall conform to the requirements given in Appendix H, CSA Standard W59.

7800.3.4.2 Deformed bar anchors shall be fabricated from cold drawn wire conforming to the requirements of ASTM Specification A496. The steel shall have a minimum tensile strength of 550 MPa and a minimum elongation of 8% in 200 mm.

7800.3.4.3 Concrete anchors shall have solid fluxed ends.

7800.3.5 Miscellaneous Steel

7800.3.5.1 Structural steel shall conform to the requirements of CSA Standard G40.21, Grade 300W.

7800.3.6 Cementitious Materials**7800.3.6.1 Portland Cement**

7800.3.6.1.1 The Contractor shall obtain a mill test report and a manufacturer's certificate of compliance from the Supplier for each delivered shipment of each type of cementitious material. The mill test reports shall be provided to the Ministry a minimum of two weeks before any concrete is placed.

7800.3.6.1.2 General use Portland cement shall conform to the requirements of Standard Specification 6300.3.2.

7800.3.6.2 Fly ash

7800.3.6.2.1 Fly ash shall conform to the requirements of Standard Specification 6300.3.2.8:

7800.3.6.2.2 If approved by the Ministry, Fly ash with a Na_2O total equivalent greater than 4% may be used provided the concrete mix design can be demonstrated to be effective in mitigating the effects of alkali aggregate reactivity in accordance with CSA Standard A23.2-27A. Expansion of concrete test prisms shall be less than 0.04% after two years in accordance with CSA Standard A23.2-14A. Maximum fly ash content shall be limited to 25% of total cementitious content, except for Type DC concrete, the maximum fly ash content is 15%.

7800.3.6.2.3 Type CH and Type CI fly ash shall not be used.

7800.3.6.3 Silica Fume

- 7800.3.6.3.1 Silica fume shall conform to the requirements of Standard Specification 6300.3.2.6. Silica fume shall be included in the concrete mix at a minimum rate of 20 kg per cubic metre, when its use is specified on a project order.
 - 7800.3.6.4 Metakaolin
 - 7800.3.6.4.1 Metakaolin shall conform to the requirements of Standard Specification 6300.3.2.7
- 7800.3.7 Aggregates
 - 7800.3.7.1 Fine Aggregates
 - 7800.3.7.1.1 Fine aggregates shall conform to the requirements of Standard Specification 6300.3.5.
 - 7800.3.7.2 Coarse Aggregates
 - 7800.3.7.2.1 Coarse aggregates shall conform to the requirements of Standard Specification 6300.3.6.
 - 7800.3.7.3 In addition to the preceding requirements, aggregates shall not contain more than 0.5 percent, by mass, particles which will float on a liquid having a relative density of 2.0.
- 7800.3.8 Admixtures
 - 7800.3.8.1 Admixtures shall conform to the requirements of Standard Specification 6300.3.4.
- 7800.3.9 Other Materials
 - 7800.3.9.1 All other materials shall conform to the requirements shown on the plans or approved by the Ministry.

7800.4 CONSTRUCTION

- 7800.4.1 General
 - 7800.4.1.1 The fabrication of precast concrete and precast prestressed concrete stringers shall be done in a sufficiently large environmentally-controlled permanent building capable of manufacturing products in a well-organized continuous operation. The building shall be capable of maintaining controllable temperature and humidity while preventing contamination and deterioration of materials.
- 7800.4.2 Shop Drawings
 - 7800.4.2.1 The Fabricator shall provide detailed shop fabrication drawings for all prestressed precast bridge stringers, abutment caps, pier caps, or wall panels being supplied a minimum of two weeks prior to casting.

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- 7800.4.2.2 The Fabricator shall submit two sets of fabrication drawings for review by the Ministry. One set containing suggestions for any revisions will be returned to the Fabricator. The review of the drawings by the Ministry is for the Fabricator's assistance, and is not to be construed as relieving the Fabricator of his responsibility for errors, omissions and accurate fabrication according to these drawings.
- 7800.4.2.3 The Fabricator shall provide the Ministry with two copies of the final approved shop fabrication drawings.
- 7800.4.3 Mix Design
- 7800.4.3.1 The Contractor shall submit a proposed mix design to the Ministry for review and approval at least 2 weeks in advance of when concrete production is scheduled to commence.
- 7800.4.4 Forms
- 7800.4.4.1 General
- 7800.4.4.1.1 Exterior forms shall be of steel and shall be mortar-tight and of sufficient rigidity to prevent distortion due to incidental loadings during construction. Forms for skewed ends may be of rigid steel-reinforced plywood.
- 7800.4.4.1.2 The faces of the forms shall be smooth so as to impart a good finish to the concrete. Care shall be taken to ensure rigidity of the forms so that the dimensional tolerances noted herein are met.
- 7800.4.4.1.3 The faces of the forms shall be treated with a release agent to ensure that stripping of the forms may be carried out without damage to the concrete. Care shall be taken to maintain all embedded material free of the release agent.
- 7800.4.4.1.4 Forms for prestressed precast bridge stringers shall be so constructed as to allow for the redistribution of the loading and the movement which will take place upon application of the prestressing force.
- 7800.4.5 Forms for Internal Voids
- 7800.4.5.1 Forms used for internal voids shall have sufficient strength to provide stability during handling and to withstand pressures during the placing and consolidation of the concrete. Void forms constructed of material other than cardboard shall only be used if approved by the Ministry. Adequate supports and tie-downs shall be used to prevent lateral movement or flotation of the voids.

7800.4.5.2 Precautions shall be taken to ensure that void forms are fully protected from the weather until they can be incorporated in the concrete. Void forms which have been weakened by moisture shall not be used.

7800.4.6 Prestressing Steel

7800.4.6.1 General

7800.4.6.1.1 Prestressing steel shall be kept clean, dry, and free from rust, oil, dirt, corrosion, scale and pitting, or other foreign material that may impede the bond between the steel and the concrete. A light oxide is permissible.

7800.4.6.1.2 Prestressing strand shall be protected at all times from manufacture through to encasing concrete or grouting. Prestressing strand that has sustained physical damage at any time shall be rejected.

7800.4.6.1.3 Prestressing strand splices shall not be placed within a prestressed precast concrete stringer.

7800.4.6.1.4 Stressing strands shall not be stressed more than 36 hours prior to being encased in concrete.

7800.4.6.2 Placing

7800.4.6.2.1 The maximum permissible tolerance for location of the prestressing steel shall be ± 5 mm of the location shown in the plans.

7800.4.6.3 Measurement of Prestressing Force

7800.4.6.3.1 The prestressing force shall be determined by measuring elongation and checking the jack pressure on a calibrated gauge. When there is a difference of over 5% between the steel stress determined from elongation and from the gauge reading, the cause of the discrepancy shall be ascertained and corrected. If several wires or strands are stretched simultaneously, provision must be made to induce the same initial load in each.

7800.4.6.4 Transfer of Prestressing Force

7800.4.6.4.1 If the force in the wires or strands is transferred individually, the sequence of release shall be such as to avoid subjecting the member to unanticipated stresses and cracking. The sequence of release shall be subject to the approval of the Ministry. The compressive strength of bed-

cured concrete cylinders shall be as designated on the plans before the transfer of prestressing force.

7800.4.6.5 Protection

7800.4.6.5.1 Exposed ends of prestressing steel shall be ground smooth with the member, and protected by coating with a minimum 3 mm thickness of waterproofing material. The waterproofing material shall be approved by the Ministry and shall be installed in accordance with the recommendations of the manufacturer.

7800.4.6.6 Debonding

7800.4.6.6.1 Debonding of strands shall be achieved by the use of plastic sheathing, either solid or split. When split sheathing is used, it shall have a minimum thickness of 0.6 mm, and shall be thoroughly sealed with tape prior to placing the concrete. The ends of solid sheathing shall be taped to prevent migration of the concrete mortar along the strand.

7800.4.7 Reinforcing Steel

7800.4.7.1 Reinforcing steel shall be cold bent to the shapes shown on the plans, and unless otherwise provided on the plans or by authorization, all hooks and bends shall be fabricated using the pin diameters and dimensions as recommended in the Reinforcing Steel Institute of Canada ("RSIC"), Manual of Standard Practice. Bars shall conform accurately to the dimensions shown on the drawings and be within the fabricating tolerances detailed in the RSIC, Manual of Standard Practice.

7800.4.7.2 All reinforcing steel shall be accurately placed in the positions shown on the plans, and shall be retained in such positions by means of bar accessories and wires so that the bars shall not be moved out of alignment during or after the depositing of concrete. When placed in the work, reinforcing steel shall be free from mud, oil or other non-metallic coatings that adversely affect bonding capacity. Reinforcing steel with rust, mill scale, or a combination of both, shall be considered acceptable provided the minimum dimensions, including height of deformations, and weight of a hand wire brushed test specimen meet the requirements of CSA Standard CAN/CSA G30.18-M.

7800.4.7.3 Welding will not be allowed as a means of fastening the bars together unless so detailed on the plans or authorized by the Ministry in writing.

7800.4.7.4 Distances from the forms shall be maintained by means of approved supports. Spacing of these supports shall be as recommended by the

manufacturer. Metal chairs which are in contact with the exterior surface of the concrete shall be galvanized. The use of concrete blocks, pebbles, pieces of broken stone or brick, metal pipe and wooden blocks shall not be permitted.

7800.4.7.5 Splicing of bars, except where shown on the plans, will not be permitted without the written approval of the Ministry.

7800.4.7.6 The maximum permissible tolerance for location of the reinforcing steel, except cover, shall be ± 12 mm of the location shown on the plans.

7800.4.8 Concrete

7800.4.8.1 General

7800.4.8.1.1 In order to obtain finished concrete members of high quality, the procedures as outlined in ACI Manual of Concrete Practice shall be followed.

7800.4.8.2 Air Entrainment

7800.4.8.2.1 All concrete shall contain $6\% \pm 1\%$ entrained air.

7800.4.8.3 Mix Temperature

7800.4.8.3.1 The temperature of the concrete, when placed, shall meet the requirements of Standard Specification 6300.4.12.4.

7800.4.8.4 Placing

7800.4.8.4.1 The Fabricator shall ensure that the mixer has a coating of mortar and sand before any of the components for the first concrete batch are introduced into the mixer.

7800.4.8.4.2 Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of materials and shall be deposited as close as practicable to its final position so as to avoid segregation due to rehandling or flowing.

7800.4.8.4.3 The concrete shall be placed in the shortest possible time after mixing so as to prevent loss of workability.

7800.4.8.4.4 Concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the spaces between the bars or strands. Concrete that has partially hardened or been contaminated by foreign material shall not be deposited in the structure nor shall re-tempered concrete be used. A bridge stringer which contains a cold joint shall be rejected.

7800.4.8.5 Vibration

- 7800.4.8.5.1 All concrete shall be thoroughly consolidated by suitable means of vibration during placement, and shall be thoroughly worked around the reinforcement and embedded fixtures and into the corners of the forms. Over-vibration shall be avoided.
- 7800.4.8.5.2 Vibrators shall not be used to move concrete longitudinally in the form.
- 7800.4.8.5.3 When internal vibration is used, vibrator heads shall be smaller than the minimum distance between forms and steel reinforcement. Care shall be exercised to avoid damage to or misalignment of void forms and steel reinforcement.

7800.4.8.6 Finishing

- 7800.4.8.6.1 The top surface of the stringers shall be brought to proper grade using straightedges equipped with vibrators to further consolidate the concrete. Manual straight-edges may be used on the top surface of barriers and caps.
- 7800.4.8.6.2 The concrete shall be floated to embed aggregate particles just beneath the surface and to remove imperfections, humps and voids.
- 7800.4.8.6.3 Edging tools shall be used to provide chamfered edges along the outer corners of precast components wherever preformed chamfer strips are not used.
- 7800.4.8.6.4 When the concrete has hardened sufficiently, the top surface of the precast prestressed bridge stringers shall be given a coarse broom finish transverse to the length of the stringer.

7800.4.8.7 Curing

- 7800.4.8.7.1 If moist curing only is to be used, the exposed concrete surfaces shall be moist cured for a minimum of five days from time of casting.
- 7800.4.8.7.2 Accelerated curing may be done by means of low pressure steam or radiant heat applied under a suitable enclosure. The start of accelerated curing shall be delayed for a period of four hours after the final placement of the concrete.

- 7800.4.8.7.3 During the waiting period, the temperature within the curing enclosure shall not be less than 10°C. Live steam or radiant heat may be used to maintain the curing enclosure at the proper minimum temperature, but shall not be used if the temperature within the curing enclosure exceeds 30°C.
- 7800.4.8.7.4 During the initial application of live steam or radiant heat, the ambient temperature within the curing enclosure shall increase at a rate not exceeding 20°C per hour until the curing temperature is reached. The curing temperature within the enclosure shall not exceed 70°C. The maximum temperature shall be held until the concrete has reached the strength specified for the application of the prestress force for prestressed precast stringers or 20 MPa for precast caps and walls. Maximum cooling rate shall be 15°C per hour until the temperature is no more than 20°C above the ambient temperature outside the enclosure. Detensioning shall be completed within 2 hours after the accelerated curing has been discontinued.
- 7800.4.8.7.5 Application of live steam shall not be directed on the concrete or forms so as to cause localized high temperatures.
- 7800.4.8.7.6 During radiant heat curing, moisture loss shall be minimized by covering all exposed concrete surfaces with a plastic sheeting.
- 7800.4.8.7.7 The precast components shall not be subjected to freezing temperatures until the design strength has been attained as determined by breaking concrete test cylinders cured under the same conditions as the components. For the purpose of this Specification, freezing temperature shall be defined as a period of six hours during which the air temperature in the vicinity of the components is continuously below 0°C.
- 7800.4.8.7.8 When exposure to freezing temperatures is considered a possibility, the precast components shall either be stored inside the fabrication plant or immediately placed inside a heated temporary enclosure until the design strength has been attained. This enclosure shall be reasonably tight and safe for wind and snow loading, and shall be arranged to permit heated air to freely circulate to all surfaces of the

components. The air temperature within the enclosure shall be a minimum of 10°C. Heating shall be by means of dry heat.

- 7800.4.8.7.9 Should precast components be subjected to freezing temperatures prior to the concrete attaining its design strength, the Fabricator shall return the components to a heated enclosure until the design strength has been attained.

7800.4.8.8 Final Surface Finishing

- 7800.4.8.8.1 All fins and irregular projections shall be removed from all concrete surfaces.
- 7800.4.8.8.2 Honeycomb spots, holes, broken corners and edges, and other concrete spalls shall be repaired by thoroughly cleaning the area, applying an approved bonding agent, and carefully filling with a grout comprised of cement and fine aggregate mixed in the proportions to obtain a strength equivalent to that of the concrete being repaired. The grout used shall not be more than one hour old. All patches shall be moist cured for not less than 24 hours. The resulting surfaces shall be true and uniform. The temperature of the member at the time of repair shall be a minimum of 10°C.
- 7800.4.8.8.3 Pre-blended commercial patching materials may be used for surface repairs if approved by the Ministry.
- 7800.4.8.8.4 The exterior face of the exterior prestressed precast bridge stringers and all surfaces of the barriers shall have a smooth surface uniform in colour. An approved bonded surface finish shall be used where necessary.
- 7800.4.8.8.5 All surfaces of the abutment caps, pier caps and wall panels shall have a smooth surface uniform in colour. An approved bonded surface finish shall be used where necessary.

7800.4.8.9 Venting of Voids

- 7800.4.8.9.1 The internal voids in the box may be vented to the exterior.
- 7800.4.8.9.2 Vent holes shall be located in the sides of the stringers at a frequency of one per void. The hole shall have a maximum diameter of 6 mm $\pm$ 1 mm and shall be orientated such that the external end is a minimum of 25 mm lower than the internal end.

7800.4.8.9.3 Forms for the vent hole shall be in place within 30 minutes after the concrete has been placed, and shall remain in place until the start of the period of accelerated curing.

7800.4.8.9.4 The temperature of the precast stringers shall be a maximum of 30°C before the vent holes are permanently plugged. Silkaflex-1A or approved equivalent shall be used to fill the total length of the vent hole, and a continuous cure obtained for 48 hours at a minimum temperature of 10°C.

7800.4.8.10 Concrete Anchors

7800.4.8.11 The welding of deformed bar and headed concrete anchors shall be done with automatic equipment of a type recommended by the anchor supplier. At the start of every production period, the proper equipment settings shall be determined by welding a minimum of two anchors. These anchors shall be tested and discarded. Prior to welding, the plate shall be clean, dry and free of paint, rust, oil or other contaminants. Weld failure shall not occur when the anchors are bent a minimum of 45° by striking the anchors with a hammer.

Concrete Quality Control

7800.4.8.11.1 The concrete quality will be monitored by certain standard tests carried out by the Ministry's inspector. In the main, these will be tests on aggregates, slump tests, tests for percentage of entrained air, and tests of concrete cylinders for compressive strengths. Compression tests of cylinders will, in general, be made at the rate of at least one test for each two stringers, with not less than two tests for each day's pouring. A test shall be defined as an average of the results from two concrete test cylinders made from the same batch of concrete. In addition, results of tests made by the Fabricator's inspector shall be supplied to the Ministry.

7800.4.8.11.2 All test cylinders made for acceptance purposes shall initially be cured under conditions similar to the curing of the actual components they represent. Test cylinders taken from a batch made within 30 minutes of the end of a pour will be used to determine the strength of girders prior to application of the prestress force, unless required otherwise by the Ministry's inspector. Test cylinders cured under lab conditions for the balance of the curing period will be used to determine the 28 day compressive strength

(f'c) of the stringers. The making and method of testing of compression cylinders shall be done in accordance with CSA Standard A23.2-M. The results of compression tests performed on the 28 day cylinders shall meet the following requirements:

- (a) Not more than ten percent of the compression tests shall fall below the specified value of f'c shown on the plans.
- (b) The average of any three consecutive compression tests shall not be less than the specified value of f'c.
- (c) An individual compression test shall not be more than 3.5 MPa below the specified value of f'c.

7800.4.8.11.3 Should compression test results fail to meet the above requirements, the Fabricator shall thoroughly check the girders in question by non-destructive tests, such as the impact hammer, to determine if in fact the girders actually contain low strength concrete. If further investigations are deemed necessary, the Fabricator may be required to have cores drilled from the areas in question and tested in accordance with ASTM Standard C42, Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete. When required, cores shall be drilled within the 14 day period immediately following the standard 28 day test date. A minimum of three cores will be taken. Concrete in the areas represented by the core tests will be considered to be structurally adequate if the average of the three cores is equal to at least 85 percent of f'c and if no single core is less than 75 percent of f'c. Costs for core tests will be the responsibility of the Fabricator.

7800.4.8.11.4 If the Fabricator does not have quality control experience for the mix to be used, then the following limitations shall be placed on the mix design.

- (a) f'c = 45 MPa Precast Prestressed Concrete Stringers
 - the water-cement ratio shall not exceed 0.35.
 - the amount of cement per cubic metre of concrete shall not be less than 460 kg
- (b) f'c = 35 MPa Precast Caps and Walls
 - the water-cement ratio shall not exceed 0.35.

- the amount of cement per cubic metre of concrete shall not be less than 400 kg

7800.4.8.11.5 At least ten consecutive compression tests shall be made for this mix design and meet the previously stated three requirements before the Fabricator shall be considered to have quality control experience for the particular mix to be used.

7800.4.8.12 Tolerances

- 7800.4.8.12.1 Forms for construction shall be true to shape, lines and dimensions shown on the plans and shall be constructed and protected from warping so that the finished product will be within the following limits:
- (a) Overall length of bridge stringers or caps, measured after stress transfer if applicable, ± 12 mm.
 - (b) Cross-sectional dimension, ± 5 mm.
 - (c) Maximum lateral deviation from the face of the stringer to a chord joining any two points on the face of the stringer shall not exceed 5 mm.
 - (d) Variations of squareness and vertical plumbness at ends, with the stringers supported similar to service conditions, shall not exceed 1 in 200.
 - (e) The maximum variation of the thickness of panels shall be 5 mm. The maximum variation for lengths or heights shall be $L/1000$ or 3 mm, whichever is greater.
 - (f) Maximum allowable warpage in the wall panels of one corner out of the plane of the other three shall be 1 mm per 400 mm of distance from the nearest adjacent corner or 5 mm, whichever is greater.
 - (g) No concrete shall project beyond a straight line joining successive steel plates located on the side of a prestressed precast bridge stringer.
 - (h) Deviation from the specified camber 24 hours after transfer of prestressing force, ± 3 mm per 3 m of span.
 - (i) Horizontal deviation from true, $(20 \text{ mm} \times \text{length (m)}) \div 50$.
 - (j) The bottom face of caps shall be constructed with a horizontal, smooth plane surface. The bottom of the

horizontal leg of the connection angles shall be flush with the bottom face of the cap.

- (k) The location of $\frac{3}{4}$ inch diameter x 600 mm long galvanized steel dowels shall be within ± 3 mm of the location as shown on the plan measured from any fixed point in either the longitudinal or transverse direction.

7800.4.8.13 Inspection

- 7800.4.8.13.1 The Fabricator shall furnish facilities for the inspection of material and workmanship in the plant, and the Ministry's inspector shall be allowed free access to all parts of the work.
- 7800.4.8.13.2 The Ministry's inspector shall be given a minimum of 24 hours notice prior to the placement of concrete.
- 7800.4.8.13.3 All precast components shall be inspected and accepted by the Ministry at least 12 hours prior to shipping.
- 7800.4.8.13.4 The Inspector shall have the authority to reject any material or work which does not meet the specified requirements. In case of dispute, the Fabricator may appeal to the Minister of Saskatchewan Highways whose decision shall be final.

7800.4.8.14 Handling and Storage

- 7800.4.8.14.1 The lifting devices shown on the drawings are considered minimum requirements. The Fabricator shall be responsible for the adequacy of the lifting devices installed in the stringer. The stringers shall be picked up only by the lifting devices.
- 7800.4.8.14.2 The precast components shall not be hauled to the site until the design concrete strength has been reached.
- 7800.4.8.14.3 The Fabricator shall ensure that the stringers are not damaged during the handling, storing and shipping operations. The stringers shall be handled in an upright position. During storage and shipping, the blocking shall be located outside of the lift points and be aligned in a vertical plane. The stored material shall be stacked in a neat and orderly manner with the different size stringers placed in separate groups.

7800.4.8.15 Rejection

7800.4.8.15.1 Failure to meet the requirements of these specifications shall be due cause for the rejection of the stringer.

7800.4.8.15.2 Major irregularities or damage to the stringers shall be inspected by the Ministry to determine whether or not the stringer will be rejected. If the stringer can be used, the method of repair shall be approved by the Ministry and the Ministry's Inspector shall witness the repair.

7800.4.8.15.3 Minor surface cavities or irregularities which are satisfactorily repaired will not constitute cause for rejection.

7800.5 MEASUREMENT

7800.5.1 For payment purposes, each prestressed precast concrete bridge stringer, pier cap, abutment cap, or wall panels shall be considered an individual unit.

7800.5.2 Precast concrete traffic barriers shall be measured in linear metres and shall be considered as the same length as the bridge stringer supporting it.

7800.6 PAYMENT

7800.6.1 Payment will be made at the bid prices per unit for SUPPLY of the concrete bridge stringers, and at the bid price per linear metre for SUPPLY of the concrete traffic barriers.

7800.6.2 Payment will be made at the bid prices per unit for SUPPLY OF PRECAST CONCRETE ABUTMENT CAPS FOB the destination shown on the tender and will be at the contract lump sum price and will be full compensation for supply of precast concrete abutment caps and all labour, equipment, tools and incidental materials necessary to complete the Work.

7800.6.3 Payment will be made at the bid prices per unit for SUPPLY OF PRECAST CONCRETE PIER CAPS FOB the destination shown on the tender and will be at the contract lump sum price and will be full compensation for supply of precast concrete abutment caps and all labour, equipment, tools and incidental materials necessary to complete the Work.

7800.6.4 Payment will be made at the bid prices per unit for SUPPLY OF PRECAST CONCRETE WALL PANELS FOB the destination shown on the tender and will be at the contract lump sum price and will be full compensation for supply of precast concrete abutment caps and all labour, equipment, tools and incidental materials necessary to complete the Work.