

GENERAL SPECIAL PROVISIONS FOR ALL PROJECTS  
2006 STANDARD SPECIFICATIONS

SECTION 101 - DEFINITIONS AND TERMS

1. 101.01 ABBREVIATIONS, is hereby corrected by deleting "American Railway Association" as the respective expression for ANSI and replacing it with "American National Standards Institute".
2. 101.01 ABBREVIATIONS, is hereby further corrected by deleting "American Wood-Preservers' Association" as the respective expression for ASTM and replacing it with "American International Standards Worldwide".
3. 101.01 ABBREVIATIONS, is hereby still further corrected by adding the abbreviation "AWPA" and its respective expression "American Wood-Preservers' Association" to the list of abbreviations immediately after "ASTM" and its respective expression.
4. 101.02 DEFINITIONS, is hereby modified by deleting the definition for ACTUAL COMPLETION DATE and replacing it with a new definition for ACTUAL COMPLETION DATE as follows:

ACTUAL COMPLETION DATE - Date noted in the Completion and Acceptance memorandum on which designated responsible Agency personnel have reviewed the project(s) and determined that all Contract work is complete and all Contract requirements have been met, generally considered to be the last day the Contractor performed physical work on any Contract item.

SECTION 105 - CONTROL OF THE WORK

5. 105.03 PLANS AND WORKING DRAWINGS, part (b) Working Drawings, subpart (3)b.4. Required Construction Drawings, is hereby modified by adding the following as the eleventh row in the table:

522 Lumber and Timber (erection plan)	Construction Engineer	Documentation Only
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SECTION 108 - PROSECUTION AND PROGRESS

6. 108.14 TERMINATION OF CONTRACT FOR CONVENIENCE, is hereby modified by being deleted in its entirety and replaced with the following:
7. 108.14 TERMINATION OF CONTRACT FOR CONVENIENCE.
  - (a) General. The Agency may, by written order to the Contractor, terminate the Contract or any portion thereof when such termination would be in the best interest of the Agency.

Any such termination shall be effected by delivery to the Contractor an Order of Termination specifying the termination is for the convenience of the Agency, the extent to which performance of work under the Contract is terminated, and the effective date of the termination.

In the event such termination occurs, without fault and for reasons beyond the control of the Contractor, all completed items of work as of the date of termination will be paid for at the Contract bid price. Payment for partially completed work will be made either at agreed prices or by force account methods provided elsewhere in the Contract.

Pursuant to Subsection 109.07, no compensation will be allowed for items eliminated from the Contract.

Upon request the Contractor shall make all Contract-related records available to the Agency.

(b) Contractor Obligations. After receipt of the Order of Termination and except as otherwise directed by the Engineer, the Contractor shall immediately proceed to:

- (1) To the extent specified in the Order of Termination, stop work under the Contract on the date specified.
- (2) Place no further orders or subcontracts for materials, services, and/or facilities except as may be necessary for completion of such portion(s) of the work under the Contract as is (are) not terminated.
- (3) Terminate and cancel all orders or subcontracts for materials, services, and/or facilities except as may be necessary for completion of such portion(s) of the work under the Contract as is (are) not terminated.
- (4) Submit to the Engineer a material inventory list, certified as to quantity and quality of materials in its possession or in transit to the project.
- (5) Transfer to the Agency all completed or partially completed plans, drawings, information, and other property which, if the Contract had been completed, would be required to be furnished to the Agency.
- (6) Take other action as may be necessary or as directed by the Engineer for the protection and preservation of the property related to the Contract which is in the possession of the Contractor and in which the Agency has or may acquire any interest.

(c) Claim by Contractor. After receipt of the Order of Termination from the Agency, the Contractor shall submit any claim for additional damages or costs not covered herein or elsewhere in the Contract within 60 days of the effective termination date, and not thereafter.

Should the Contractor fail to submit a claim within the 60 day period, the Agency may, at its sole discretion, based on information available to it, determine what, if any, compensation is due the Contractor and pay the Contractor the determined amount.

- (d) Materials. At the option of the Agency, acceptable materials included in the material inventory in subpart (b)(4) above that have been obtained by the Contractor for the work but which have not been incorporated into the work may be purchased from the Contractor at actual cost delivered to a location prescribed by the Engineer or otherwise disposed of as mutually agreed.

Payment for materials included in the material inventory chosen to be purchased by the Agency will be made at actual cost delivered to the project or storage site designated by the Engineer, including transportation charges, to which 10 percent overhead and profit will be added.

- (e) Idle Equipment. Idle equipment time claimed by the Contractor will be paid as follows:

(1) Contractor Owned Equipment. For the portion of any claim relating to idle equipment time for equipment owned by the Contractor, the Contractor will be entitled to recover equipment rates based on the Contractor's internal ownership costs. Recovery for idle equipment time shall not be based on published rental rates.

(2) Rented Or Leased Equipment. For the portion of any claim relating to idle equipment time for equipment rented or leased by the Contractor, the Contractor will be entitled to recover the lesser of the actual rental costs or fair market rental costs, and the amount shall not exceed 30 days rental.

(3) Limitations On Recovery For Idle Equipment. Claims for idle equipment time, whether for Contractor owned equipment or leased/rented equipment, following termination of the Contract pursuant to this Subsection are limited to a maximum of 30 days and may not include any operating expenses.

- (f) Negotiation; No Anticipated Profit. Negotiation to settle a timely claim shall be for the sole purpose of reaching a settlement equitable to both the Contractor and the Agency. Settlement shall be based on actual costs incurred by the Contractor plus overhead and profit as specified in Subsection 109.06. Consequential damages, loss of overhead, loss of overhead contribution of any kind, and/or loss of anticipated profits on work not performed shall not be included in the Contractor's claim and will not be considered, allowed, or included as part of any settlement.

- (g) Records. The Contractor shall make available to the Agency all cost records relevant to a determination of an equitable settlement.

- (h) Contractual Responsibilities Continue. Termination of the Contract, or portion thereof, shall not relieve the Contractor of its contractual responsibilities for work completed and shall not relieve the Contractor's Surety of its obligation for and concerning any just claim arising out of the work performed.

SECTION 109 - MEASUREMENT AND PAYMENT

8. 109.09 STATEMENT OF MATERIALS AND LABOR FORM FHWA-47, is hereby modified by being deleted in its entirety.

SECTION 208 - COFFERDAMS

9. 208.01 DESCRIPTION, is hereby modified by deleting the word "specifications" and replacing it with the phrase "Contract Documents" in the first paragraph.
10. 208.12 BASIS OF PAYMENT, is hereby modified by deleting the phrase "the Engineer (by written order) requires" and replacing it with the phrase "the Contract Documents or the Engineer (by written order) require" in the second sentence of the fifth paragraph.

SECTION 301 - SUBBASE

11. 301.02 MATERIALS, is hereby modified by adding the following paragraphs:

When specified for use on the project or as directed by the Engineer, Subbase, RAP shall include cold planed grindings which have been screened or crushed by the Contractor in order that 100% passes the 37.5 mm (1 ½ inch) sieve prior to blending.

The grindings shall be blended in equal proportions (50% by mass (weight)) with material meeting the requirements of Subbase of Crushed Gravel, Fine Graded as specified in Table 704.05A.

12. 301.07 METHOD OF MEASUREMENT, is hereby modified by adding the following as the fourth paragraph of the Subsection text:

The quantity of Subbase, RAP to be measured for payment will be the number of metric tons (tons) of material in place in the complete and accepted work, as determined from the load tickets.

13. 301.08 BASIS OF PAYMENT, first paragraph, is hereby modified by adding the phrase "blending," before the phrase "transporting," in the second sentence.

14. 301.08 BASIS OF PAYMENT, is hereby further modified by adding the following pay item:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
301.40 Subbase, RAP	Metric Ton (Ton)

SECTION 310 - RECLAIMED STABILIZED BASE

15. 310.07 SHAPING AND COMPACTING, is hereby modified by adding the following as the second paragraph of the Subsection text:

When additional aggregate material is added to the previously reclaimed roadway to correct geometric deficiencies, said material shall be subject to a second pass of the reclamation equipment to achieve a homogenous subbase and shall be shaped, graded, and compacted.

16. 310.10 BASIS OF PAYMENT, is hereby modified by adding the following as the second paragraph of the Subsection text:

No additional compensation will be provided for multiple passes of the reclamation equipment and additional shaping, grading, and compacting.

SECTION 406 - MARSHALL BITUMINOUS CONCRETE PAVEMENT

17. 406.03 COMPOSITION OF MIXTURE, part (b) Design Criteria, TABLE 406.03B - DESIGN CRITERIA is hereby modified by adding the phrase "%" after the phrase "Air Voids" in the first column, first row entry.
18. 406.03 COMPOSITION OF MIXTURE, part (b) Design Criteria, TABLE 406.03B - DESIGN CRITERIA is hereby further modified by deleting the sixth and seventh rows in their entirety and replacing them with the following:

Stability, Newtons (Pounds)	5340 (1200) min.	8010 (1800) min.
Flow, millimeters (0.01 inches)	2.0 - 4.5 (8.0 - 18.0)	2.0 - 4.0 (8.0 - 16.0)

SECTION 415 - COLD MIXED RECYCLED BITUMINOUS PAVEMENT

19. 415.02 MATERIALS, table in second paragraph, is hereby corrected by deleting the second row in its entirety and replacing it with the following:

37.5 mm (1 ½ inches)	100
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SECTION 490 - SUPERPAVE BITUMINOUS CONCRETE PAVEMENT

20. 490.03 COMPOSITION OF MIXTURE, part (e) Quality Acceptance, subpart (2) Lot Size, is hereby corrected by replacing the phrase "406.03E" with the phrase "490.03E" in the first sentence.
21. 490.14 COMPACTION, part (e) REJECTED MATERIAL, is hereby corrected by replacing the phrases "406.18" and "406.19" with the phrases "490.18" and "490.19", respectively, in the first sentence of the third (last) paragraph.

SECTION 501 - HPC STRUCTURAL CONCRETE

22. 501.02 MATERIALS, is hereby modified by adding the following paragraph:
- Precast concrete stay-in-place forms (prestressed deck panels) shall conform to the requirements of Section 510.
23. 501.19 METHOD OF MEASUREMENT, is hereby modified by inserting the word "superstructure" before the phrase "precast concrete stay-in-place forms" in the first sentence.

SECTION 502 - SHORING SUPERSTRUCTURES

24. 502.03 CONSTRUCTION REQUIREMENTS, is hereby modified by adding the following paragraphs:

When components and/or materials that are not otherwise specified for removal are removed from the structure during shoring operations and the components and/or materials are to be re-installed in the construction, the components and/or materials shall be carefully removed and salvaged by the Contractor.

Components and/or materials to be retained and re-installed shall be stored at the location specified in the Contract or as directed by the Engineer.

The Contractor shall take every precaution necessary to prevent damage to remaining components and/or materials and those to be retained for re-installation. Damage to remaining structure components and/or materials and to those to be re-installed shall be repaired or replaced by the Contractor both to the satisfaction of the Engineer and at no additional cost to the Agency.

25. 502.04 METHOD OF MEASUREMENT, is hereby modified by adding the following as the second paragraph of the Subsection text:

Unless otherwise specified in the Contract, all work for removing, salvaging, stockpiling, and re-installing existing structure components and/or materials during the Contractor's shoring operations will not be measured for payment, but will be considered incidental to Shoring Superstructure.

SECTION 503 - PREPARING SUBSURFACE FOR DRIVING PILING

26. 503.01A MATERIALS, is hereby made a new Subsection of this Section as follows:

27. 503.01A MATERIALS. Materials shall meet the requirements of the following Subsections:

Aggregate for Bituminous Surface Treatment.....	704.11
Corrugated Polyethylene Pipe.....	710.03
Polyvinyl Chloride (PVC) Plastic Pipe.....	710.06
Steel Tubing.....	714.11

28. 503.02A CONSTRUCTION REQUIREMENTS FOR PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, is hereby made a new Subsection of this Section as follows:

29. 503.02A CONSTRUCTION REQUIREMENTS FOR PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES. The pre-excavation of integral abutment piles shall consist of augering, pre-boring, or some other means of excavation to produce an excavation to the depth and diameter specified in the Contract Documents. The excavation shall be maintained during the pile driving operations by temporary casings. Unless otherwise specified in the Contract, the depth of pre-excavation shall be 2.4 meters (8 feet) from the top of the pile cut-off elevation.

Temporary casings may be either rigid or flexible. Rigid casings shall be smooth-walled unperforated pipes made of steel tubing or PVC plastic pipe. Rigid casings shall include all necessary lifting mechanisms for removal prior to placement. Flexible casings shall be corrugated polyethylene pipe. The inner diameter of the pipe shall be 100 mm (4 inches) larger than the diagonal width of the pile.

Following installation of the piles, the pre-excavation shall be backfilled with peastone meeting the requirements of Subsection 704.11. Rigid casings shall not be left in place without the written approval of the Structures Engineer. Flexible casings may be left in place.

30. 503.03 METHOD OF MEASUREMENT, is hereby modified by adding the following paragraph:

The quantity of Pre-Excavation of Integral Abutment Piles to be measured for payment will be the total number of meters (linear feet) of excavation to the depth specified in the Contract Documents or as ordered by the Engineer, measured to the nearest meter (linear foot) from the top of the ground at the time of excavation to the bottom of the excavation.

31. 503.04 BASIS OF PAYMENT, is hereby modified by adding the following paragraph and pay item:

The accepted quantity of Pre-Excavation of Integral Abutment Piles will be paid for at the Contract unit price per meter (linear foot). Payment shall be full compensation for all excavation as well as furnishing, transporting, storing, and installing the materials specified, including the temporary casing and peastone, and for removing the temporary casing. No additional compensation will be made for temporary casing left in place at the Contractor's request.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
503.20 Pre-Excavation of Integral Abutment Piles	Meter (Linear Foot)

SECTION 505 - PILING

32. 505.03 FURNISHING OF PILING, is hereby modified by adding the following new part (e):

- (e) Steel Piling for Integral Abutments. Steel piling up to and including 10 meters (35 feet) in length shall be furnished in one unwelded piece.

Steel piling over 10 meters (35 feet) in length shall be furnished with not more than the number of splices allowed by Table 505.05B.

Steel piling shall be of the size, type, and material specification indicated in the Plans. No substitutions for the number, size, and material specification of the pile will be allowed without the written authorization of the Project Manager.

33. 505.04 DRIVING OF PILING, is hereby modified by adding the following new part (f):

- (f) Steel Piling for Integral Abutments. In addition to meeting all of the requirements for steel piling in Subsections 505.04(a) and 505.04(e), Steel Piling for Integral Abutments shall be installed to the following tolerances:

Piling shall be installed such that no portion of the top 3 meters (10 feet) of the pile is out of plumb more than 20 mm in 1000 mm (1 inch in 4 feet). For piles that cannot be inspected internally after installation, the Contractor shall check the pile for plumb prior to installing the last 1.5 meters (5 feet) of pile, or after installation is completed provided that the exposed portion of the pile is a minimum of 1.5 meters (5 feet) in length. The Engineer may require that driving be stopped in order to check the pile for plumb. Pulling laterally on piles to correct out-of-plumb errors, or splicing a section that meets the tolerances for plumb in this section on an out-of-plumb section will not be permitted.

No pile shall be nearer than 150 mm (6 inches) to the face of the concrete stem.

If the location and/or out-of-plumb tolerances specified herein are exceeded, the extent of corrective measures will be evaluated by the Engineer. If in the judgment of the Engineer corrective measures are necessary, suitable measures shall be designed and constructed by the Contractor. The Contractor shall bear all costs, including delays, associated with the corrective action.

34. 505.05 SPLICES, is hereby modified by adding the following new part (c):

- (c) Splices for Steel Piling for Integral Abutments. Splices shall be made in accordance with the details shown in the Plans at locations approved by the Engineer.

Splices will be allowed as shown in the following table:

TABLE 505.05B  
ALLOWABLE SPLICES

Length of Steel Piling		Maximum Number of Splices Allowed
Meters	Feet	
Over 10 to and including 18	Over 35 to and including 60	1
Over 18 to and including 37	Over 60 to and including 120	3
Over 37 to and including 55	Over 120 to and including 180	5

The splicing sequence shall be arranged to exclude splices from the upper 6 meter (20 foot) section of the piles. The total number of splices in the upper 6 meter (20 foot) section of the piles shall be limited to one per abutment.



35. 505.08 METHOD OF MEASUREMENT, part (a) Piling, subpart (1) is hereby modified by adding the following paragraph:

Steel Piling for Integral Abutments will be the total number of meters (linear feet) for each pile driven, accepted, and left in place, measured to the nearest meter (linear foot).

36. 505.09 BASIS OF PAYMENT, is hereby modified by adding the following new part (c) immediately after part (b):

(c) Steel Piling for Integral Abutments of the size specified will be paid for at the Contract unit price per meter (linear foot).

37. 505.09 BASIS OF PAYMENT, is hereby further modified by adding the following pay items:

<u>Pay Item</u>	<u>Pay Unit</u>
505.10 Steel Piling, HP 250 X 62 (HP 10 X 42)	Meter (Linear Foot)
505.155 Steel Piling, HP 310 X 93 (HP 12 X 63)	Meter (Linear Foot)
505.165 Steel Piling, HP 310 X 125 (HP 12 X 84)	Meter (Linear Foot)
505.25 Steel Piling for Integral Abutments, HP 310 X 79 (HP 12 X 53)	Meter (Linear Foot)
505.255 Steel Piling for Integral Abutments, HP 310 X 93 (HP 12 X 63)	Meter (Linear Foot)
505.26 Steel Piling for Integral Abutments, HP 310 X 110 (HP 12 X 74)	Meter (Linear Foot)
505.265 Steel Piling for Integral Abutments, HP 310 X 125 (HP 12 X 84)	Meter (Linear Foot)
505.27 Steel Piling for Integral Abutments, HP 360 X 108 (HP 14 X 73)	Meter (Linear Foot)
505.28 Steel Piling for Integral Abutments, HP 360 X 132 (HP 14 X 89)	Meter (Linear Foot)
505.29 Steel Piling for Integral Abutments, HP 360 X 152 (HP 14 X 102)	Meter (Linear Foot)
505.30 Steel Piling for Integral Abutments, HP 360 X 174 (HP 14 X 117)	Meter (Linear Foot)

SECTION 506 - STRUCTURAL STEEL

38. 506.18 ERECTION, part (b) Bearings and Anchorages, subpart (3), is hereby modified by adding the following as the last sentence of the first paragraph:

Additional aggregates shall not be added to the material during field mixing.

39. 506.18 ERECTION, part (b) Bearings and Anchorages, subpart (3), is hereby further modified by adding the following as the second, third, fourth, and fifth paragraphs of the Subsection text:

Prior to ordering materials and starting the work, the Contractor shall submit a drilling and mortaring proposal to the Engineer for approval, including a premixed mortar material brand name.

The drilled holes to be mortared shall be thoroughly cleaned, wetted, and free of standing water.

The mortar shall be mixed in a mechanical mixer according to the manufacturer's recommendations and shall be readily pourable so that when poured it completely fills the remaining hole cavities. The placement of mortar for each bearing shall be continuous and complete at all hole locations.

All exposed mortar shall be cured for a period of not less than three (3) days by the wetted burlap method in accordance with Section 501. Curing shall commence as soon as practical after mortar placement. The Contractor shall not apply any forces to the anchor bolts during the curing period.

SECTION 522 - LUMBER AND TIMBER

40. 522.04 DRAWINGS, is hereby modified by adding the following paragraphs:

The Contractor shall prepare and submit Construction Drawings for structural timber erection in accordance with Section 105.

The erection plan shall include methods and sequence of structural timber erection, temporary bracing requirements, the equipment to be used for the erection, the necessary computations to indicate the magnitude of stress in the segments during erection and to demonstrate that all of the erection equipment has adequate capacity for the work to be performed, and provisions for all stages of construction, including temporary stoppages. The Contractor shall follow the erection plan as submitted.

41. 522.06 HANDLING, is hereby modified by adding the following paragraph:

Cranes, lifting devices, and other equipment for all structural timber erection shall be of adequate design and capacity to safely erect, align, and secure all members and components in their final positions without damage. The Contractor is solely responsible for the methods and equipment employed for the erection of the structural timber members.

42. 522.07 FRAMING, is hereby modified by adding the following as the last sentence of the first paragraph:

Except as directed by the Engineer, structure framing and boarding shall be constructed square, plumb, and straight.

43. 522.15 METHOD OF MEASUREMENT, is hereby modified by adding the following sentence at the end of the first paragraph:

For longitudinal nail-laminated decking, longitudinal plank decking, and runners, member length will be measured as the overall superstructure length of in place decking and runners, measured to the next 0.25 m (1 foot) increment.

44. 522.16 BASIS OF PAYMENT, is hereby modified by deleting the second sentence of the first paragraph in its entirety and replacing it with the following:

Payment for each quantity will be full compensation for detailing, fabricating, furnishing, transporting, handling, placing or erecting, and painting or treating the material specified, including all hardware and timber connectors; for providing all falsework, forms, bracing, sheeting, or other timber used for erection purposes; for furnishing and implementing the erection plan, when required; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

45. 522.16 BASIS OF PAYMENT, is hereby further modified by deleting the second paragraph of part 2. in its entirety and replacing it with the following:

Payments for the quantity of Structural Glued Laminated Timber will be full compensation for detailing, fabricating, furnishing, transporting, handling, placing or erecting, and painting or treating the material specified, including all hardware and timber connectors; for providing all falsework, forms, bracing, sheeting, or other timber used for erection purposes; for furnishing and implementing the erection plan, when required; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

SECTION 525 - METAL RAILINGS

46. 525.01 DESCRIPTION, is hereby modified by being deleted in its entirety and replaced with the following:

47. 525.01 DESCRIPTION. This work shall consist of furnishing and erecting hand railing or bridge railing, and performing repairs to existing bridge railing.

48. 525.03 FABRICATION DRAWINGS, is hereby modified by adding the following paragraph:

These requirements do not apply to work performed under part (e) of Subsection 525.05.

49. 525.05 INSTALLATION, is hereby modified by adding the following new part (e):

(e) Bridge Railing Repair. Bridge railing repair of the Type specified shall be performed at the locations indicated in the Plans and as directed by the Engineer.

(1) Bridge Railing Repair, Type I. Type I bridge railing repair shall consist of installing new heavy duty steel beam panels and offset blocks on existing fascia-mounted or curb-mounted posts spaced at 1.9 meters (6.25 feet) or less.

(2) Bridge Railing Repair, Type II. Type II bridge railing repair shall consist of installing new nested heavy duty steel beam panels and offset blocks on existing fascia-mounted or curb-mounted posts spaced greater than 1.9 meters (6.25 feet).

- (3) Bridge Railing Repair, Type III. Type III bridge railing repair shall consist of installing new heavy duty steel beam panels and offset blocks on new fascia-mounted or curb-mounted posts utilizing existing anchor bolts.

50. 525.06 METHOD OF MEASUREMENT, is hereby modified by adding the following paragraph:

The quantity of Bridge Railing Repair of the Type specified to be measured for payment will be the number of meters (feet) of railing repaired in the complete and accepted work, measured within the limits shown on the Plans or as directed by the Engineer. No additional measurement will be made for nested beam panels.

51. 525.07 BASIS OF PAYMENT, is hereby modified by adding the following paragraphs:

The accepted quantity of Bridge Railing Repair of the Type specified will be paid for at the Contract unit price per meter (linear foot). Payment will be full compensation for detailing, treating, furnishing, handling, and placing railing components; for bolts and hardware necessary for installing railing components; for all work necessary for verifying and adjusting post height and/or bolt spacing of existing posts; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Removal and disposal of existing railing components required for performing Bridge Railing Repair of the Type specified will be paid for under Contract item 525.10.

52. 525.07 BASIS OF PAYMENT, is hereby further modified by adding the following pay items:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
525.11 Resetting Railing	Meter (Linear Foot)
525.50 Bridge Railing Repair, Type I	Meter (Linear Foot)
525.55 Bridge Railing Repair, Type II	Meter (Linear Foot)
525.60 Bridge Railing Repair, Type III	Meter (Linear Foot)

SECTION 528 - TEMPORARY BRIDGE

53. 528.04 DESIGN AND CONSTRUCTION DETAILS, part (c) Railing, is hereby corrected by replacing the phrase "621.06" with the phrase "621.07" in the first paragraph.

SECTION 529 - REMOVAL OF STRUCTURES AND BRIDGE PAVEMENT

54. 529.06 BASIS OF PAYMENT, is hereby modified by deleting the fourth (last) sentence of the first paragraph in its entirety and replacing it with the following:

Payment will be full compensation for the removal and disposal of the specified items; for removal, salvage, and stockpiling of components and materials specified in the Contract; for excavating, backfilling, regrading, and performing site restoration incidental to the removal of specified items; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

SECTION 531 - BEARING DEVICES

55. 531.01 DESCRIPTION, is hereby modified by deleting the phrase "and pot bearing devices" and replacing it with the phrase "pot, and elastomeric pad bearing devices."
56. 531.04 FABRICATION, part (a) General, is hereby modified by deleting the fifth paragraph in its entirety and replacing it with the following:
- Steel bearings, expansion fabric bearing pads, and fixed and expansion pot bearings shall be designed and fabricated in accordance with Section 14 of the AASHTO *LRFD Bridge Design Specifications* and Section 18 of the AASHTO *LRFD Bridge Construction Specifications*.
57. 531.04 FABRICATION, part (c) Finish, is hereby modified by deleting the phrase "Division II of the AASHTO *Standard Specifications for Highway Bridges*" and replacing it with the phrase "the AASHTO *LRFD Bridge Construction Specifications*".
58. 531.04 FABRICATION, part (e) Sliding Surfaces, subpart (1) is hereby modified by being deleted in its entirety and replaced with the following:
- (1) The minimum thickness of TFE material shall be as follows:
- For all applications, the thickness of TFE shall be at least 1.6 mm (1/16 inch) after compression. The thickness of recessed sheet TFE shall be at least 4.8 mm (3/16 inch) when the maximum dimension of TFE is less than or equal to 610 mm (24 inches), and at least 6.4 mm (1/4 inch) when the maximum dimension of the TFE is greater than 610 mm (24 inches).
59. 531.04 FABRICATION, part (e) Sliding Surfaces, subpart (2)a. is hereby modified by being deleted in its entirety and replaced with the following:
- a. The thickness of the stainless steel sheet shall be at least 1.9 mm (14 gauge) when the maximum dimension of the surface is less than or equal to 305 mm (12 inches), and at least 3.0 mm (11 gauge) when the maximum dimension is larger than 305 mm (12 inches).
60. 531.04 FABRICATION, part (h) Confined Elastomer (Pot) Bearings, is hereby modified by deleting the phrase "*Standard Specifications for Highway Bridges*" and replacing it with the phrase "*LRFD Bridge Construction Specifications*" in the first paragraph.
61. 531.04 FABRICATION, part (h) Confined Elastomer (Pot) Bearings, subpart (7), is hereby modified by deleting the phrase "Division II of the AASHTO *Standard Specifications for Highway Bridges*" and replacing it with the phrase "the AASHTO *LRFD Bridge Construction Specifications*".

62. 531.04 FABRICATION, is hereby modified by adding the following new part (i):

(i) Elastomeric Pad Bearings. The following shall apply to the design and fabrication of elastomeric pad bearings:

- (1) Alternate configurations may be submitted for approval. Any alternate(s) shall be designed and certified to meet the design loads and criteria specified in the Contract Documents. The alternate(s) shall maintain the anchorage system shown in the Plans and shall be designed per Section 14 of the AASHTO LRFD Bridge Design Specifications. Bridge seat elevations may be revised to accommodate alternate configurations.
- (2) Except as modified within the Contract Documents, all fabrication shall meet the requirements of AASHTO M 251.
- (3) No fabric reinforcement shall be allowed in the fabrication of elastomeric pads for elastomeric bridge bearing devices.
- (4) All required fabrication of steel components of the bearings shall occur before the vulcanization process.
- (5) The steel surfaces to be bonded to elastomeric material during vulcanization shall not be metalized or galvanized.

63. 531.05 INSTALLATION, is hereby modified by adding the following paragraphs:

Elastomeric bridge bearing pads without external load plates may be placed on a concrete or steel surface provided that it is flat to within a tolerance of 0.005 of the nominal dimension for steel reinforced bearings and 0.01 of the nominal dimension for others. Bearings shall be placed on surfaces that are horizontal to within 0.01 radians (0.120 inch/12 inches). Any lack of parallelism between the top of the bearing and the underside of the girder that exceeds 0.01 radians shall be corrected by a method approved by the Engineer.

Exterior plates of the bearing shall not be welded unless at least 38 mm (1 ½ inches) of the steel exists between the weld and the elastomer. In no case shall the elastomer or the bond be subjected to temperature higher than 205°C (400°F).

64. 531.06 METHOD OF MEASUREMENT, is hereby modified by deleting the phrase "materials including bearing pads" and replacing it with the phrase "components" in the second sentence.

65. 531.07 BASIS OF PAYMENT, is hereby modified by deleting the second sentence of the first paragraph in its entirety and replacing it with the following:

Payment will be full compensation for detailing, furnishing, handling, transporting, and placing the material specified, including surface preparation, protective coating, testing, anchor bolt assemblies, drilling for anchor bolts, mortar, proprietary anchoring systems, bearing device components, welding, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

66. 531.07 BASIS OF PAYMENT, is hereby further modified by adding the following paragraph:

Payment for alternate bearing designs and submittals will be considered incidental to the appropriate Section 531 pay item in the Contract.

SECTION 541 - STRUCTURAL CONCRETE

67. 541.02 MATERIALS, is hereby modified by adding the following paragraph:

Precast concrete stay-in-place forms (prestressed deck panels) shall conform to the requirements of Section 510.

68. 541.19 METHOD OF MEASUREMENT, is hereby modified by deleting the period and adding the phrase ", including the volume of superstructure precast concrete stay-in-place forms, but excluding the volume of steel or other stay-in-place forms and form filling materials." after the word "Engineer" at the end of the first sentence of the first paragraph.

SECTION 604 - DROP INLETS, CATCH BASINS, AND MANHOLES

69. 604.03 GENERAL CONSTRUCTION REQUIREMENTS, is hereby modified by adding the following paragraphs:

Except for components cast using the dry cast process, precast concrete components shall not have the forms removed until a minimum compressive strength of 15 Mpa (2000 psi) has been achieved. Precast components shall not be moved until two hours after they have been cast and until a minimum compressive strength of 15 Mpa (2000 psi) has been achieved. Concrete cylinders shall be made, in accordance with AASHTO T 23, at the last placement of the day.

Reinforced precast sections shall not be shipped from the manufacturing facility until the eighth day from the date of manufacture, except when the supplier provides test results demonstrating that the design strength has been achieved.

70. 604.05 CURING AND PROTECTION, is hereby modified by adding the following paragraphs:

Precast concrete shall be cured using membrane curing compound. The curing compound shall be applied to the concrete surface after finishing, as soon as the free water on the surface has disappeared and no water sheen is visible, but not so late that the liquid curing compound will be absorbed into the concrete. When curing compound cannot be applied as specified herein, the manufacturer shall instead immediately begin wet curing the unit until curing compound can be applied. When this method is used in conjunction with the dry cast process, the curing room shall be kept at 100% humidity until a minimum compressive strength of 15 Mpa (2000 psi) has been obtained.

When the forms are removed prior to 7 days, the exposed concrete surfaces shall be wet with water within one half hour of form removal and shall be kept wet until the curing compound is applied. Before application, the concrete shall be allowed to reach a uniformly damp appearance with no free water on the surface, and then the compound shall be applied immediately.

Precast concrete drainage components shall not be subjected to freezing temperatures prior to attaining the specified 28 day compressive strength. Components which are exposed to freezing before reaching the required 28 day compressive strength shall be rejected without further cause. Any additional testing on the rejected components as determined by the Engineer to gain acceptance will be at the expense of the manufacturer.

SECTION 605 - UNDERDRAINS

71. 605.04 INSTALLATION, part (e) Backfill, is hereby corrected by replacing the phrase "Subsection 704.17" with the phrase "drainage aggregate" in the first sentence of the first paragraph.

SECTION 616 - CURBS AND GUTTERS

72. 616.14 METHOD OF MEASUREMENT, is hereby modified by adding the phrase "Bituminous Concrete Curb of the type specified (linear measure);" after the phrase "Cast-in-Place Concrete Curb of the type specified;" in the first paragraph.
73. 616.14 METHOD OF MEASUREMENT, is hereby further modified by adding the phrase "(volume measure)" after the phrase "Bituminous Concrete Curb of the type specified" in the second paragraph.
74. 616.15 BASIS OF PAYMENT, is hereby modified by adding the phrase "Bituminous Concrete Curb of the type specified (linear measure);" after the phrase "Cast-in-Place Concrete Curb of the type specified;" in the first paragraph.
75. 616.15 BASIS OF PAYMENT, is hereby further modified by adding the phrase "(volume measure)" after the phrase "Bituminous Concrete Curb of the type specified" in the second paragraph.
76. 616.15 BASIS OF PAYMENT, is hereby still further modified by adding the following pay items:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
616.305 Bituminous Concrete Curb, Type A	Meter (Linear Foot)
616.315 Bituminous Concrete Curb, Type B	Meter (Linear Foot)

SECTION 618 - SIDEWALKS

77. 618.07 BASIS OF PAYMENT, is hereby corrected by replacing the phrase "(square yard)" with the phrase "(square foot)" in the third sentence of the first paragraph.



SECTION 621 - TRAFFIC BARRIERS

78. 621.03 POSTS AND OFFSET BLOCKS, is hereby modified by adding the following as the second paragraph of the Subsection text:

Posts for Steel Backed Timber Guardrail shall be driven into pilot holes that have been punched or drilled. The dimensions of the pilot hole shall not exceed the dimensions of the post by more than 25 mm (1 inch). If impenetrable material is encountered while placing the post, the pilot shall be enlarged to provide not less than 150 mm (6 inches) of clearance on all sides and a minimum depth of 760 mm (2.5 feet). The post shall be set in concrete, the type as approved by the Engineer, to within 150 mm (6 inches) of the top of the hole. The remaining 150 mm (6 inches) shall be backfilled with a suitable material and compacted to the satisfaction of the Engineer.

79. 621.04 RAIL ELEMENTS, is hereby modified by adding the following new part (d):

(d) Steel Backed Timber Rail. Timber rails shall be cut to produce a close fit at all joints. Field cuts shall be treated with an approved material as determined by the Engineer.

80. 621.06 ENERGY ABSORPTION ATTENUATOR, is hereby modified by adding the following paragraph:

Should an attenuator, or component thereof, in service on the project become damaged and require replacement, as determined by the Engineer, the damaged attenuator, or component thereof, shall be replaced immediately with a backup attenuator, or component thereof, stored on the project in order that there is minimal disruption to incorporating a fully functional attenuator as required by the project traffic control plan.

81. 621.14 METHOD OF MEASUREMENT, is hereby modified by adding the following as the fourth paragraph of the Subsection text:

The quantity of Steel Backed Timber Guardrail to be measured for payment will be the number of meters (linear feet) installed in the complete and accepted work, measured from end to end along the face of rail, including terminal sections. The measured length will be multiplied by a pay factor of 1.4 for a post spacing of 1.5 m (5 feet).

82. 621.14 METHOD OF MEASUREMENT, is hereby further modified by deleting the phrase "Steel Backed Timber Guardrail," from the first sentence of the fifth paragraph of the Subsection text.

83. 621.14 METHOD OF MEASUREMENT, is hereby still further modified by adding the following as the eleventh paragraph of the Subsection text:

The Contract quantity for Energy Absorption Attenuator includes one backup attenuator to be provided by the Contractor and stored on the project in the event an attenuator, or component thereof, in service is damaged and needs replacement.

84. 621.14 BASIS OF PAYMENT, is hereby modified by re-designating the Subsection number from "621.14" to "621.15".

85. 621.15 BASIS OF PAYMENT, is hereby modified by deleting the eighth paragraph in its entirety and replacing it with the following paragraph:

Payment will be full compensation for furnishing, transporting, handling, and placing the materials specified, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. For Steel Backed Timber Guardrail, enlarging holes as necessary for placement of posts, furnishing and placing concrete fill and backfill material, and compacting backfill to the satisfaction of the Engineer will not be paid for separately, but will be considered incidental to the unit price bid for Contract item 621.18.

86. 621.15 BASIS OF PAYMENT, is hereby modified by deleting the twelfth paragraph in its entirety and replacing it with the following paragraph:

Payment for the backup attenuator will be made as follows:

- (a) 50 percent of the Contract unit price will be paid when the backup attenuator is delivered to and placed in storage at the project site to the satisfaction of the Engineer.
- (b) The remaining 50 percent of the Contract unit price will be paid when the stored attenuator, or component thereof, is installed on the project and/or removed from the project site, when no longer required, as determined by the Engineer.

87. 621.15 BASIS OF PAYMENT, is hereby further modified by adding the following pay items:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
621.206 Steel Beam Guardrail, Galvanized/Nested	Meter (Linear Foot)
621.207 Steel Beam Guardrail, Galvanized/Nested w/2.4 m (8 feet) Posts	Meter (Linear Foot)
621.216 HD Steel Beam Guardrail, Galvanized/Nested	Meter (Linear Foot)
621.217 HD Steel Beam Guardrail, Galvanized/Nested w/2.4 m (8 feet) Posts	Meter (Linear Foot)

SECTION 649 - GEOTEXTILE FABRIC

88. 649.02 MATERIALS, is hereby modified by adding the following new part (c):

- (c) Where woven wire reinforcement is used, the woven wire shall be 14 gauge minimum with a 150 mm (6 inch) maximum mesh opening.

89. 649.04 INSTALLATION, part (a) General, subpart (6) Silt Fence, is hereby modified by adding the phrase ", and when required woven wire reinforcement," after the word "geotextile" in the first sentence of the first paragraph.

90. 649.04 INSTALLATION, part (a) General, subpart (6) Silt Fence, is hereby further modified by deleting the second paragraph in its entirety and replacing it with the following paragraph:

Either wood or steel posts shall be used. The posts shall have a minimum length of 910 mm (3 feet) and shall be embedded a minimum of 405 mm (16 inches) below the ground surface. The spacing of the posts shall be as shown in the Plans, or as determined by the silt fence manufacturer or the Engineer.

91. 649.06 BASIS OF PAYMENT, is hereby modified by adding the following pay item:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
649.515 Geotextile for Silt Fence, Woven Wire Reinforced	Square Meter (Square Yard)

SECTION 653 - EROSION PREVENTION AND SEDIMENT CONTROL MEASURES

92. 653.05 EROSION MATTING, is hereby modified by deleting the first two paragraphs of the Subsection text in their entirety and replacing them with the following:

Temporary erosion matting shall be used to anchor loose mulch and provide temporary erosion control while vegetation is established in those areas where vegetation will provide permanent erosion protection.

Permanent erosion matting shall be used where vegetation will not sustain expected flow conditions or provide sufficient long-term erosion protection. Permanent erosion matting shall provide sufficient thickness and void space to permit soil filling and/or retention to allow for the development of vegetation.

SECTION 701 - HYDRAULIC CEMENT

93. 701.02 PORTLAND CEMENT, is hereby modified by adding the following:

Portland cements that fail to meet all parts of AASHTO M 85 due to the dilution of the original cement with added limestone will be acceptable, provided the original portland cement used in the product met AASHTO M 85 requirements prior to the addition of limestone.

SECTION 704 - AGGREGATES

94. 704.16 DRAINAGE AGGREGATE, part (a), TABLE 704.16A - DRAINAGE AGGREGATE text is hereby corrected by deleting the phrase "0 to 10" from the Percent By Mass (Weight) Passing the Square Mesh Sieves requirement for the 2.36 mm (No. 8) Sieve Designation and replacing it with the phrase "0 to 5".

SECTION 707 - JOINT MATERIALS

95. 707.301 MORTAR, TYPE I, Subsection heading, is hereby corrected by re-designating the Subsection number from "707.301" to "707.01".

SECTION 708 - PAINTS, STAINS, AND TRAFFIC MARKING MATERIALS

96. 708.08 PAINT FOR PAVEMENT MARKINGS, part (d) Waterborne Traffic Paint, subpart (2) Composition, chart text is hereby corrected by deleting the phrase "25% min." from the Total Volatile Content requirement for both WHITE and YELLOW/GREEN/BLUE paints and replacing it with the phrase "25% max."
97. 708.08 PAINT FOR PAVEMENT MARKINGS, part (d) Methyl-methacrylate Paint, is hereby corrected by being re-designated from part "(d)" to part "(e)".

SECTION 714 - STRUCTURAL STEEL

98. 714.05 HIGH-STRENGTH BOLTS, NUTS, AND WASHERS, is hereby modified by deleting the second and third paragraphs in their entirety and replacing them with the following:

Bolts installed in painted structural components shall be Type 1, shall be provided with appropriate nuts and washers, as required, and the combination of bolt, nut, and washer shall be mechanically galvanized in accordance with AASHTO M 298, Class 50, Type I.

Bolts installed in unpainted weathering steel structural components shall be Type 3 and shall be provided with appropriate nuts and washers, as required.

SECTION 719 - EPOXY RESIN MATERIALS

99. SECTION 719 - EPOXY RESIN MATERIALS, is hereby made a new Section of the Specifications.
100. 719.01 THIS SUBSECTION RESERVED
101. 719.02 EPOXY BONDING COMPOUND, is hereby made a new Subsection of the Specifications as follows:
102. 719.02 EPOXY BONDING COMPOUND. Epoxy bonding compound shall meet the requirements of ASTM C 881 for the application and temperature range for which it is to be used.

Certification. A Type A Certification will be furnished in accordance with Subsection 700.02(c).

SECTION 720 - GEOTEXTILES

103. 720.04 SAMPLING, TESTING, AND ACCEPTANCE REQUIREMENTS, part (d) Minimum Average Roll Value, TABLE 720.04A - VAOT MINIMUM AVERAGE ROLL VALUES FOR GEOTEXTILES (METRIC) and TABLE 720.04A - VAOT MINIMUM AVERAGE ROLL VALUES FOR GEOTEXTILES (ENGLISH) are hereby modified by changing the column heading "Pay Item 649.51 For Silt Fence" to "Pay Items 649.51 and 649.515 For Silt Fence".

104. 720.04 SAMPLING, TESTING, AND ACCEPTANCE REQUIREMENTS, part (d) Minimum Average Roll Value, TABLE 720.04A - VAOT MINIMUM AVERAGE ROLL VALUES FOR GEOTEXTILES (ENGLISH), Pay Item 649.31 Under Stone Fill, ≥50%, is hereby corrected by deleting the entries for 1. Grab Tensile Strength (lbs.), 2. Burst Strength (psi), 3. Puncture (lbs.), and 4. Trapezoidal Tear Strength (lbs.) of "315", "510", "110", and "110", respectively, and replacing them with entries of "200", "250", "80", and "80", respectively, and by correcting the description of Geotextile Property 7. by deleting the phrase "(% Strength)" and replacing it with the phrase "(% Strength Retained)".

SECTION 728 - GUARDRAIL, GUIDE POSTS, AND BARRIERS

105. 728.02 RAIL ELEMENTS, part (f) Certification, is hereby modified by being re-designated from part "(f)" to part "(g)".
106. 728.02 RAIL ELEMENTS, is hereby modified by adding the following new part (f):
- (f) Steel Backed Timber Guardrail. Timber for rail shall have a minimum allowable bending stress of 10 Mpa (1450 psi). Steel rails and splice plates shall conform to AASHTO M 270M/M 270 Grade 345 (Grade 50) steel and shall be galvanized in accordance with AASHTO M 111M/M 111.
107. 728.02 RAIL ELEMENTS, part (g) Certification, is hereby modified by adding the phrase "and steel backed timber guardrail" after the phrase "plank rail" in the second sentence.
108. 728.02 RAIL ELEMENTS, part (g) Certification, is hereby further modified by deleting the phrase "For cable, beam, and box beam rail," in the third (last) sentence and replacing it with the phrase "For beam and box beam rail,".
109. 728.03 HARDWARE, part (e) Certification, is hereby modified by being re-designated from part "(e)" to part "(f)".
110. 728.03 HARDWARE, is hereby modified by adding the following new part (e):
- (e) Hardware for Steel Backed Timber Guardrail. Bolts and lag screws shall conform to ASTM F 568M, Class 4.6 (ASTM A 307 Grade A). Washers shall conform to ASTM F 844. Nuts shall conform to AASHTO M 291M (AASHTO M 291). All fastener hardware shall be galvanized in accordance with AASHTO M 232M/M 232.

SECTION 729 - CURB MATERIALS

111. 729.01 VERTICAL GRANITE CURB, part (b) Finish and Surface Dimensions, fourth paragraph, is hereby modified by deleting the first sentence in its entirety and replacing it with the following:

The top front arris line shall be rounded to a 13 mm (1/2 inch) radius as shown in the Contract Documents.

112. 729.02 GRANITE BRIDGE CURB, part (b) Finish and Surface Dimensions, third paragraph, is hereby modified by deleting the first sentence in its entirety and replacing it with the following:

The top front arris line shall be rounded to a 13 mm (1/2 inch) radius as shown in the Contract Documents.

113. 729.06 TREATED TIMBER CURB, part (a) Miscellaneous Hardware, is hereby modified by adding the phrase "fasteners," after the phrase "spikes," in the first sentence.

SECTION 731 - BEARING PADS FOR STRUCTURES

114. 731.02 BEARING PADS, is hereby made a new Subsection of the Specifications as follows:

115. 731.02 BEARING PADS. Bearing pads shall be manufactured from all new materials comprised of high quality elastomer with a random distribution of synthetic fibers in proper proportion to maintain strength and stability. The finished product shall withstand a compressive load perpendicular to the plane of laminations of 48.2 MPa (7000 psi). The surface hardness shall have a Shore A Durometer of 80 ± 10 in accordance with ASTM D 2240.

Certification. A Type A Certification shall be furnished in accordance with Subsection 700.02.

116. 731.03 ELASTOMERIC MATERIAL, is hereby modified by deleting the first paragraph in its entirety and replacing it with the following:

Unless otherwise shown in the Plans or specified in the Contract Documents, the elastomeric compound for pot bearings shall be neoprene conforming to AASHTO *LRFD Bridge Design Specifications* Subsection 14.7.4.2.

SECTION 732 - RAILING MATERIALS

117. 732.02 ALUMINUM BRIDGE RAILING, part (b) Stainless Steel Bolts, Nuts, Washers, and Set Screws, is hereby corrected by deleting the phrase "ASTM A 593" and replacing it with the phrase "ASTM F 593" in the first and fourth paragraphs, and by deleting the phrase "ASTM A 594" and replacing it with the phrase "ASTM F 594" in the fourth paragraph.

SECTION 752 - TRAFFIC CONTROL SIGNALS

118. 752.06 TRAFFIC SIGNAL CONTROLLERS, part (a) General, subpart (1) Controller/Auxiliary Equipment, is hereby modified by deleting the phrase "(April: first Sunday; October: last Sunday)" in the last sentence of the first paragraph.

SECTION 755 - LANDSCAPING MATERIALS

119. 755.11 EROSION MATTING, is hereby modified by being deleted in its entirety and replaced with the following:

755.11 EROSION MATTING.

- (a) Temporary Erosion Matting. Temporary erosion matting shall conform to one of the following specifications and corresponding properties found in Table 755.11A.

- (1) Mulch Control Netting. A temporary biodegradable rolled erosion control product (RECP) composed of planar woven natural fiber.
- (2) Erosion Control Blanket. A temporary all natural biodegradable rolled erosion control product composed of processed fibers mechanically bound together to form a continuous matrix.
- (b) Permanent Erosion Matting. Permanent erosion matting shall be a long-term non-degradable rolled erosion control product composed of ultraviolet stabilized, non-degradable, synthetic fibers, filaments, nettings, and/or wire mesh processed into three dimensional reinforcement matrices conforming to one of the specifications and corresponding properties found in Table 755.11B.
- (c) Certification. A Type A Certification shall be furnished in accordance with Subsection 700.02 for both temporary and permanent erosion matting.

TABLE 755.11A - STANDARD SPECIFICATION FOR TEMPORARY  
 ROLLED EROSION CONTROL PRODUCTS  
 (For use where natural vegetation will provide  
 permanent erosion protection)

Product Description	Material Composition	Longevity (months)	Slope Applications*		Channel Applications*	Minimum Tensile Strength <sup>1</sup> kN/m (lbs/ft)
			Maximum Gradient (h:v)	C Factor <sup>2,5</sup>	Maximum Shear Stress <sup>3,4,6</sup> Pa (lbs/ft <sup>2</sup> )	
Mulch Control Nets	All natural biodegradable mesh or woven netting.	3	5:1	≤ 0.10	12 (0.25)	0.073 (5)
		12	5:1	≤ 0.10	12 (0.25)	0.073 (5)
		24	5:1	≤ 0.10	12 (0.25)	0.36 (25)
Netless Rolled Erosion Control Blankets	All natural biodegradable fibers mechanically interlocked together to form a continuous matrix.	3	4:1	≤ 0.10	24 (0.5)	0.073 (5)
		12	4:1	≤ 0.10	24 (0.5)	0.073 (5)
Single-net Erosion Control Blankets	All natural processed, biodegradable fibers mechanically bound together by a single net of yarn or twine woven into a continuous matrix.	3	3:1	≤ 0.15	72 (1.5)	0.73 (50)
		12	3:1	≤ 0.15	72 (1.5)	0.73 (50)
Double-net Erosion Control Blankets	All natural processed, biodegradable fibers mechanically bound together between two nets of yarn or twine woven into a continuous matrix.	3	2:1	≤ 0.20	84 (1.75)	1.09 (75)
		12	2:1	≤ 0.20	84 (1.75)	1.09 (75)
		24	1.5:1	≤ 0.25	96 (2.00)	1.45 (100)
		36	1:1	≤ 0.25	108 (2.25)	1.82 (125)

Notes:

- \* "C" factor and shear stress for mulch control nettings must be obtained with netting used in conjunction with pre-applied mulch material.
- 1 Minimum Average Roll Values, Machine direction using Erosion Control Technology Council (ECTC) Mod. ASTM D 5035.
- 2 "C" Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, h:v) to ratio of soil loss from unprotected (control) plot in large-scale testing. These performance test values should be supported by periodic bench scale testing under similar test conditions using ECTC Test Method # 2.
- 3 Required minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large-scale testing. These performance test values should be supported by periodic bench scale testing under similar test conditions and failure criteria using ECTC Test Method #3.
- 4 The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coefficients in the range of 0.01 - 0.05.
- 5 Acceptable large-scale test methods may include ASTM D 6459, ECTC Test Method # 2, or other independent testing deemed acceptable by the Engineer.
- 6 Per the Engineer's discretion. Recommended acceptable large-scale testing protocol may include ASTM D 6460, ECTC Test Method #3 or other independent testing deemed acceptable by the Engineer.

TABLE 755.11B - STANDARD SPECIFICATION FOR PERMANENT ROLLED EROSION CONTROL PRODUCTS

(For applications where vegetation alone will not provide sufficient long-term erosion protection)

PERMANENT <sup>1</sup> - All categories of Turf Reinforcement Mat (TRM) must have a minimum thickness of 6.35 mm(0.25 inches) per ASTM D 6525 and ultraviolet stability of 80% per ASTM D 4355 (500 hours exposure).					
Type	Product Description	Material Composition	Slope Applications	Channel Applications	Minimum Tensile Strength <sup>2,3</sup> kN/m(lbs/ft)
			Maximum Gradient (h:v)	Maximum Shear Stress <sup>4,5</sup> Pa (lbs/ft <sup>2</sup> )	
A	Turf Reinforcement Mat	Non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a permanent, three-dimensional matrix of sufficient thickness.*	0.5:1	288 (6.0)	1.82 (125)
B	Turf Reinforcement Mat		0.5:1	384 (8.0)	2.19 (150)
C	Turf Reinforcement Mat		0.5:1	480 (10.0)	2.55 (175)

Notes:

- \* TRMs, which may be supplemented with degradable components, are designed to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation. Note: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forces may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.
- 1 For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.
- 2 Minimum Average Roll Values, machine direction only for tensile strength determination using ASTM D 6818 (Supersedes Mod. ASTM D 5035 for RECPs).
- 3 Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m(3,000 lb/ft) or greater.
- 4 Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion [>12.7 mm (0.5 in.) soil loss] during a 30-minute flow event in large scale testing. These performance test values should be supported by periodic bench scale testing under similar test conditions and failure criteria using ECTC Test Method #3.
- 5 Acceptable large-scale testing protocol may include ASTM D 6460, ECTC Test Method #3, or other independent testing deemed acceptable by the Engineer.



SECTION 780 - CONCRETE REPAIR MATERIALS

120. 780.03 RAPID SETTING CONCRETE REPAIR MATERIAL, part (b) Time of Setting, is hereby corrected by deleting the second sentence in its entirety.