

SP00758 QA (1-23-97)

SECTION 00758 QA - CONTINUOUSLY REINFORCED CONCRETE
PAVEMENT REPAIRS

Description

00758.00 Scope - This work consists of constructing continuously reinforced concrete pavement with metal reinforcement, and associated reinforced concrete pavement as shown and specified. This work also consists of sawing, removing existing concrete, and furnishing and placing new materials required to construct the continuously reinforced concrete pavement repair areas and reinforced bar lap areas as shown on the plans and as specified herein. The concrete required for this work is classified as high-early strength achieving 27.5 MPa.

Provide certified technicians in the following fields:

- CAGT - Certified Aggregate Technician
- CCT - Concrete Control Technician
- QCT - Quality Control Technician

Provide quality control per 00165.10.

Materials

00758.10 General - Materials shall meet the following requirements:

Bar Reinforcement.....	02510
Blended Hydraulic Cement.....	02010.20
Chemical Admixtures.....	02040
Coarse Aggregate.....	02690
Epoxy and Nonepoxy Bonding Agents.....	02070
Epoxy and Nonepoxy Grouts.....	02080
Fine Aggregate.....	02690
Fly Ash.....	02030.10
Portland Cement.....	02010.10
Poured Joint Fillers.....	02440.30
Performed Expansion Joint Filler.....	02440.10
Water.....	02020

00758.11 Materials:

Revise 02690.20 Coarse Aggregate for PCC as follows:

02690.20 (b) Harmful Substances - Delete the test for Friable Particles.

Also revise 02690.30 Fine Aggregates for PCC as follows:

02690.30 (b) Harmful Substances - Delete the test for Friable Particles.

00758.12 Reinforcement - The reinforcement and lapping or splicing of reinforcement shall conform to the requirements of Section 00530 and the plans for this project. The Contractor has the option of tied laps, mechanical splice, or crimped sleeve coupler of reinforcing steel as the Contractor elects.

00758.13 Concrete Mix Designs - Prepare and submit either new mix designs according to 00758.13(b) and (c), or current mix designs for each class of concrete required. The Engineer will review the mix design for compliance with specifications.

(a) Proportioning Of Concrete Mix - The proportions for each mix design shall be determined by a CCT (see 00758.15(b)). Design each mix by the volumetric method outlined in ACI 211.1 or OSHD TM 718 and according to 00758.14.

In addition to the required 7-day strength, the mix must achieve a compressive strength of 20.7 MPa before the repaired section is opened to traffic. Refer to Sections 00220 and 00225 of the special provisions for time and lane closure restrictions.

(1) Fly Ash - Fly ash may be used in concrete to replace a portion of the cement subject to 00758.14 and 02030.10.

(2) Blended Hydraulic Cement - Blended hydraulic cement may be used instead of fly ash and cement subject to 00758.14 and 02010.20.

(3) Chemical Admixtures:

- Use an air-entraining admixture to obtain the entrained air in mixture.
- Use only admixtures from the Department's QPL.
- Use admixtures according to the instructions and at the rates recommended by the manufacturer.

(b) New Mix Designs - New mix designs are those which have not been used previously or do not meet the requirements of (c) for current mix designs. Make at least one trial batch for each proposed new mix design using the same materials including admixtures that will be used in the project. Prepare and test the trial batch. Cast, cure, and test the compressive strength of cylinders and the flexural strength of beams. The Engineer will witness the preparation and testing.

(1) Plastic Concrete - Test the slump, unit weight, and air content. Compute the water-cement ratio and yield for each trial batch. Slump, air content, and water-cement ratio must be within specification limits and be representative of what will actually be used on the job for the trial batch to be valid.

(2) Strength Tests:

- Cast at least three 150 mm x 300 mm cylinders and two flexural beams and test at 7 days. In addition cast at least two 150 mm x 300 mm cylinders to test for early compressive strength.
- Cast the cylinders in single-use plastic molds.

- Cast and cure all strength specimens according to AASHTO T 23 or T 126.
- Test cylinders according to AASHTO T 22.
- Test beams according to AASHTO T 97.

(3) Required Strength - The average 7-day compressive strength of the trial batch cylinders must exceed the following:

Specified Strength times 1.20

The average 7-day strength of the flexural beams shall be at least 4.1 MPa.

(c) Required Submittals For New Mix Designs - Submit the following information:

- Contractor's Unique Number - To identify the mix design.
- Mix Design Proportions - The mass per m³ and absolute volume of cement, fly ash, aggregates (SSD), and mix water. Indicate dosage rates for chemical admixtures.
- Materials - Identify the source of the aggregates by OSHD source number and report specific gravities, absorptions, unit mass of coarse aggregate, and fineness modulus of sand used in mix calculations. Identify type and brand of cement, fly ash, admixtures, and water sources to be used.
- Reports On Plastic Concrete - Report slump, unit mass, air content, yield, water-cement ratio of the trial batch or batches representing this mix design.
- Strength Test Results - Report 7-day compressive strength and flexural strength test results from the trial batch.
- Strength Analysis - Analyze 7-day strengths according to 00758.13(b).

(d) Review Of Mix Designs - Submit each mix design proposed for use for review with the documents required in 00758.13(c). Do not proceed with concrete placement using the mix design until the Engineer has determined that it complies with the mix design specifications. Review of concrete mix designs will not relieve the Contractor of the responsibility to provide concrete conforming to specifications.

(e) Adjusting Mix Proportions - After a mix design has been reviewed and accepted, submit any proposed adjustments to mix proportions for review. Significant changes including any changes in cement or fly ash content may require new trial batches at the discretion of the Engineer.

(f) Contractor Costs - Furnish all materials, equipment, and work required for designing the mixes, testing materials, and making trial batches to verify the design for final use at the Contractor's expense. Costs of Department personnel monitoring or performing check tests will be paid by the Department.

00758.14 Concrete Mix Tolerance and Limits - The concrete shall be a workable mixture uniform in composition and consistency, and having the following tolerances or limits:

<u>Material or Property</u>	<u>Condition When</u>	<u>Tolerances Limits</u>	<u>Specification or Test Method</u>
Entrained Air	All concrete	4.0%-7.0%	AASHTO T 152
Fly Ash	Substitution Proposed by the Contractor	Max. 20% by mass of cement plus fly ash	00758.13(a-1)
Concrete Temperature	Time of placing	10°C min. 32°C max.	ASTM C 1064
Slump	All concrete	125 mm max.	AASHTO T 119
Compressive Strength	At 7 days	27.5 MPa min.	AASHTO T 22
Compressive Strength	Before Opening to Traffic	20.7 MPa min.	AASHTO T 22

Cement Content and Water-Cement Ratio:

<u>Class</u>	<u>Minimum Portland Cement Content* (kg/m³.)</u>	<u>Max. Water-Cement Ratio** (kg/kg.)</u>
30	350	0.48

*Includes fly ash when used.

**If fly ash is used, water/(cement + fly ash) ratio.

00758.15 Quality Control:

(a) The CCT shall:

- Develop concrete mix designs.
- Instruct the plant control personnel how to adjust the batch masses of the ingredients required to maintain the proper water-cement ratio, cement content, air content, and aggregate proportions to produce the specified concrete.
- Be present at the plant, or at the jobsite if radio contact is maintained with the plant, to supervise control or adjustment of the mix when concrete is placed.

(b) The QCT shall:

- Make air, slump, and yield tests of the concrete, prepare test cylinders for mix design compressive strengths, and prepare test beams for flexural strengths.
- Be assigned at the location where concrete is being sampled any time placement is in progress.
- Be responsible for insuring all concrete complies with specifications, reject concrete not complying with specifications, and notify the CCT of such rejection and the cause for rejection.

(c) Aggregates:

(1) General - Stockpile aggregate of different gradings and different sources separately. Take samples and perform tests on each size aggregate as listed in (2) below:

(2) Required Tests:

<u>Test</u>	<u>Specification or Test Method</u>	<u>Aggregates</u>	<u>Minimum Frequency Schedule</u>		
			<u>Start of Production</u>	<u>One per 5 shifts*</u>	<u>One per Shift*</u>
Dry Rodded Unit Weight	AASHTO T 19	Coarse	X		
Bulk Specific Gravity and Absorption	AASHTO T 85	Coarse	X		
	AASHTO T 84	Fine	X		
Wood Particles	OSHD TM 225	Coarse	X	X	
Elongated Pieces	OSHD TM 229	Coarse	X	X	
Fracture (Aggregate from Gravel)	OSHD TM 213	Coarse	X	X	
Fineness Modulus**	OSHD TM 771	Fine	X		X
Sand Equivalent**	AASHTO T 176	Fine	X		X
Sieve Analysis** (with 75 μm from AASHTO T 11)	AASHTO T 27 All		X		X

*Shift: A production shift or 750 Mg whichever results in the greatest sampling frequency.

**Perform at least three tests per project.

(3) Preproduced Aggregate - Compliance of aggregates produced and stockpiled before the award date of this contract will be determined by the following:

- Continuing production records meeting the requirements of 00758.15(c-1) through (c-5), or
- Sample according to AASHTO T 2 and furnish records of testing for the entire stockpile for the tests required in 00758.15(c-2) except change the sampling frequency schedule to:
 - "Start of Production", means "One Set of Tests Per Stockpile".
 - "One Per 5 Shifts", means "One Set of Tests Per 2,500 m³".
 - "One Per shift", means "One Set of Tests Per 500 m³", with a minimum of three sets of tests per project.

One stockpile sample shall be required for each set of tests required above.

(d) Plastic Concrete:

(1) Sampling And Testing - Perform sampling and testing of the plastic concrete according to the following test methods:

<u>Test</u>	<u>Test Method</u>	
	<u>AASHTO</u>	<u>Other</u>
Molding Concrete Specimens in the Field	T 23*	
Sampling Fresh Concrete	T 141**	
Slump	T 119	
Cement Content/Unit Mass	T 121	
Air Content	T 152	
Water-cement Ratio		OSHD TM 729
Yield	T 121	
Concrete Temperature		ASTM C 1064

*Except cylinders will be cast in single-use plastic molds.

**Samples will be obtained from the delivery vehicles.

(2) Mix Control And Documentation - Mix control and documentation shall be done by the CCT and QCT as follows:

- Before batching is started and at any time there is a visibly detectable change in the moisture content of the aggregate, the CCT shall:

- Test fine aggregate for total moisture content, initially according to AASHTO T 255. Subsequent testing may be by an alternate method approved by the Engineer.
- Visually inspect the coarse aggregate for moisture content.
- Calculate the amount of free water present in the aggregate and adjust the batch masses accordingly.

As a minimum the QCT shall:

- Check the batch ticket on arrival at the jobsite for the correct mix design for the placement.
- Reject loads which arrive at the jobsite without a batch ticket.
- Compute the water-cement ratio, perform and record mix temperature, air content, slump, and yield tests as required for process control on the first load of each placement, any time there is a change in batch proportions, and whenever a set of cylinders is obtained by the Engineer.

If the results of any tests are outside of the specification limits, stop placement of the load. The load shall be corrected and approved or it will be rejected. Subsequent loads shall be tested. Testing of subsequent loads may return to specified frequency when the test results from two successive loads meet the specification limits.

- Cast cylinders used to determine if concrete has achieved strength required to open to traffic.
- Cast sufficient test cylinders for Contractor's use to determine early opening to traffic according to 00758.60.

(e) Records - Deliver all batch tickets, water-cement ratio calculations, and all other records required by 00758.15(d) to the Engineer upon availability but no later than the morning of the next day.

00758.16 Acceptance of Concrete:

(a) General - Acceptance sampling and testing will be performed by the Engineer according to the following (b) through (d) and:

- Acceptance of concrete will be according to 00165.10(c). The Engineer may observe any of the sampling or testing performed by the Contractor or his qualified representative.

(b) Aggregate:

(1) General - Compliance of aggregate material will be based on testing as required in 00165.10, 00758.15(c), and 00758.16(b-4).

(2) Aggregate Gradation And Sand Equivalent - A stockpile contains specification aggregate gradation and sand equivalent when the Quality Level (QL) for each sieve size and sand equivalent calculated according to 00165.30 is equal to or greater than the QL indicated in Table 00165-2 for a Pay Factor of 1.00. Each required sample represents a subplot. When the QL indicated in Table 00165-2 yields a Pay Factor of less than 1.00 for any constituent, the material is nonspecification.

(3) Nonspecification Aggregate Gradation And Sand Equivalent - Stockpiled aggregates that contain nonspecification aggregate gradation and sand equivalent will be rejected by the Engineer unless nonspecification material is removed from the stockpile. Do not add additional material to such a stockpile until enough nonspecification material is removed so that the QL for each constituent is equal to or greater than the QL in Table 00165-2 for a 1.00 Pay Factor.

(4) Verification Testing - Compliance will be verified by check tests and other tests performed by the Engineer. If the difference between the Engineer's check tests of the Contractor's tests are not within the allowable tolerances according to the Department's standard procedures, the Contractor shall immediately work with the Engineer to resolve the difference to avoid having this material rejected as nonspecification. Material not meeting specifications based on other tests performed by the Engineer will be rejected.

(5) Materials On Hand - Payment for stockpiled materials on hand may be allowed according to 00195.60.

Payment for nonspecification materials will not be allowed.

(c) Plastic Concrete - Acceptance of the plastic concrete will be based on 00165.10(d).

(d) Hardened Concrete - Acceptance will be based on the 7 day compressive strength tests of cylinders cast by the Engineer.

(1) Sampling and Testing - All samples will be obtained from the discharge of the delivery vehicles. A minimum of one set of three cylinders will be cast each day of placement and one set per 100 m³ placed when placement exceeds 100 m³. All three cylinders will be tested at seven days.

Test the cylinders cast by the Contractor's QCT at an accredited lab. Provide test results to the Engineer in a timely manner.

(2) Actual 7 Day Strength Test Value - The average of the three 7-day compressive strength tests will constitute the actual 7 day strength test value.

If any cylinder in a set shows definite evidence, other than low strength, of improper sampling, molding, curing or testing, it will be discarded. The average strength of the remaining cylinders will constitute the actual 7 day strength test value.

If the compressive strength of any cylinder in a set is lower than the average strength of the remaining cylinders in the set by more than 10 percent of the average strength of the remaining cylinders, that cylinder strength will be discarded and the average of the remaining cylinders will constitute the actual 7 day strength test value.

(3) Low Strength Procedures - Any set of cylinders that has an actual 7 day strength test value less than the specified design strength will be:

- Reviewed by the Engineer to determine if the concrete it represents must be removed. In any case, remove concrete that has an actual 7 day strength test value less than 85 percent of the specified design strength unless otherwise authorized in writing by the Engineer. The cost of removal, replacement and all related work shall be the Contractor's responsibility.
- Subject, if allowed to remain in place, to a price adjustment according to 00150.25.

Equipment

00758.20 Batch Plant - Provide batch plants according to 00540.20.

00758.21 Mixers - Provide mixers according to 00540.21.

00758.23 Paving Equipment - The paving machine shall conform to the following:

- Able to vibrate, consolidate, and finish the slab to proper grade and cross section for the full width and depth of the concrete being placed.
- Capable of meeting smoothness requirements.
- Approved by the Engineer.
- Self-propelled (Manual screeds may be allowed by the Engineer in areas where self-propelled is impractical.)

00758.24 Concrete Saws - Provide power driven concrete saws for sawing joints, adequate in number of units and power to complete the sawing at the required rates and depths. Also provide a standby saw on the jobsite.

00758.25 Smoothness Testing - Provide one 3.6 m straightedge for determining smoothness according to 00758.55.

Construction

00758.39 Weather Limitations - Concrete placement shall not:

- Begin until the air temperature in the shade is 2°C and rising and is forecast to remain above 2°C.
- Begin when the subgrade is frozen.
- Be done during periods of rain.
- Continue when the air temperature falls below 4°C.

Protect the concrete pavement from weather damage during the required curing period or until open to traffic by covering it with suitable protective material during periods of rain or when the air temperature drops, or is forecast to drop, below 2°C.

Remove and replace any weather damaged concrete at the Contractor's expense.

00758.40 Removal of Existing Pavement - The existing continuously reinforced concrete (CRC) pavement shall be removed to full depth as shown on the plans or as directed by the Engineer. The limits of the area of CRC to be removed shall be cut full depth with a concrete saw prior to removal. The removal shall be done in such a manner that the existing pavement which is to remain is not damaged.

00758.41 Preparation of Base - If the existing base requires removal, it shall be replaced with plain concrete conforming to the applicable sections of these special provisions. Place a 150 mm polyethylene bond breaker between the replaced base and the new slab as shown on the plans or as directed.

00758.42 Preparation of Existing Concrete - After pavement in repair area is removed, the vertical surfaces of adjoining concrete shall be sandblasted. Just prior to the placing of concrete, the area shall be blown clean with compressed air and a coat of epoxy grout or bonding agent applied to all vertical surfaces of the excavated area. If any grouted surfaces become dry before new concrete is placed, they shall be sandblasted clean and shall have a new coat of grout applied.

00758.44 Placing Reinforcement:

(a) General - Place reinforcement as shown and specified. The Contractor's equipment hauling reinforcement to the site will not be permitted on the concrete subgrade or base.

The reinforcement shall be straight, clean, and free of scale or other matter which would interfere with its bonding to the concrete.

Place the reinforcement on support devices that maintain it in specified position during concrete placement. The use of tube feeding to place rebar in plastic concrete mix will not be allowed.

On areas where traffic is operating adjacent to concrete paving operations, reinforcement shall not be lifted from the surface and placed on supporting devices more than two hours before placing the concrete, unless otherwise approved by the Engineer.

(b) Deformed Bar Reinforcement - Tie or clip at every other transverse bar intersection, as a minimum, in a manner that doesn't allow for displacement. Tie or clip every lap splice as shown.

(c) Support Devices - Support devices used to hold reinforcement in proper position in the concrete shall:

- Hold the reinforcement within 13 mm of the vertical position shown, and
- Not displace more than 32 mL of concrete when embedded in the slab. Obtain approval of the proposed support devices before use.

(d) Tie Bars - Place tie bars required for contact-type longitudinal joints by drilling the hardened concrete section and then inserting and grouting the tie bars into place. Drill the holes large and deep enough to insert the tie bars with adequate Epoxy or Nonepoxy Grout. Take care not to damage the reinforcement when drilling the holes. Drill after the concrete attains enough strength so no damage to the concrete is caused by the drilling. Replace any loose tie bars at the Contractor's expense.

00758.45 Handling, Measuring and Batching Materials - The plant site, layout, equipment, and provisions for transporting material shall be adequate to assure a continuous supply of material to the worksite.

(a) Aggregates - Stockpile and remove the aggregate from stockpiles in a manner that holds segregation to a minimum.

Do not use aggregates that become segregated, mixed with earth or foreign material, or contain lumps of hardened material. Thaw frozen aggregates or aggregates containing frozen lumps before use.

(b) Batching - Separately weigh into the hoppers the fine aggregate, each separated size of coarse aggregate, cement, and fly ash in the respective proportions set by the mix design. Provide a device to indicate positively that the full amount of cement and fly ash was discharged into the batch box or container. Measure water and admixtures either by volume or by mass.

Conduct batching so that the individual masses of each material required are within the following tolerances:

Admixtures	± 3%
Aggregates	± 2%
Cement	± 1%
Fly Ash	± 1%

00758.46 Mixing and Transporting Concrete - Mix and transport concrete according to 00540.46.

00758.47 Placing Concrete - Place concrete according to the applicable portions of 00755.46 of the Standard Specifications as modified herein.

00758.48 Joints:

(a) General - Construct joints of the kinds shown and where shown or directed. Joint types in the concrete pavement will be contraction, or expansion. They shall be transverse or longitudinal, as shown or directed. Extend all joints and joint filler to pavement edges or to each other.

Construct all joints at right angles to the surface of the pavement. Joints shall not vary from specified or indicated line by more than 6 mm. The tops of joint filler, when required, shall be slightly, but not more than 3 mm, below and paralleling finished pavement grade and cross section. Protect top edges of filler from damage by paving operations.

All joints which contain performed filler are to be constructed before the final floating and surface finishing of the concrete, unless otherwise directed.

(b) Longitudinal Joints - Longitudinal joints shall be the contact type or weakened plane type as shown:

(1) Longitudinal Contact Joints - Construct longitudinal contact joints when concrete is placed against hardened concrete, between strips of pavement or between a strip of pavement and a concrete gutter.

(2) Longitudinal Weakened Plane Joints - Construct weakened plane joints by sawing to the depths and maximum width shown. Perform sawing as soon as the concrete has set enough to permit sawing without tearing or ravelling. Saws may be single or tandem, as the Contractor elects, and shall be controlled by guides to true line. Restore curing agents broken or damaged by the sawing operations.

If the top width of sawed joints exceeds 6 mm, fill the joint with a poured joint filler.

(c) Construction Joints - No construction joints will be allowed in pavement repair areas. If there is an interruption of 30 minutes in the concrete placing operations all concrete placed previously is to be removed at that Contractor's expense.

00758.49 Surface Finishing - After the concrete has been given a preliminary finish, check the surface of the fresh concrete in the longitudinal and transverse direction with a 3.6 mm straightedge. Deviations more than allowed by 00758.55 (a) shall be corrected. Lap each successive check with the previous check path by at least half the length of the straightedge. This longitudinal checking and correction on areas to be graphically profiled will be waived if it is successfully demonstrated that a pavement surface is otherwise produced which conforms to 00758.55(b-1a).

(a) Textured Finish - Upon completion of the machine floating, straightedge testing, edge tooling, and, if necessary, hand floating, and before initial set of the surface concrete, the surface of the concrete shall be given a textured finish.

Accomplish the textured finish with a steel-tine tool with 3 mm tines that will mark the finished concrete to a depth of 3 mm to 5 mm. Randomly space the markings from 13 to 32 mm as approved. Avoid overlaps of the texturing. Markings shall be transverse to the roadway centerline and full roadway width.

(b) Transverse Profile - The surface of the fresh concrete in the transverse direction shall match the surface of the existing concrete at the ends of the patch. Any ruts shall be tapered out in the first (and last) 3 to 6 m to provide a transverse surface finish for the remainder of the patch meeting the requirements of this section.

00758.51 Strike-off, Consolidation, Final Floating and Surface Finishing Requirements - Perform strike-off, final floating and surface finishing according to the applicable portions of 00755.51.

00758.52 Edge Tooling and Filling - Tooling and filling shall be performed according to the applicable portions of 00755.52.

00758.53 Curing Concrete - Immediately after the final floating, surface finishing and edging has been completed, and while the concrete surface is still moist, cover and cure the entire exposed surface of the newly placed concrete with insulated curing blankets as a waterproof and moistureproof covering. Place the blankets beyond the edge of the repaired areas and weight to hold in position. Curing compound will not be allowed.

00758.54 Pavement Cracks - Any patches that do not bond or that show longitudinal cracking shall be removed and replaced at the Contractor's expense.

00758.55 Surface Tolerance, Testing, and Correction - The surface of finished pavement shall not deviate from longitudinal and transverse smoothness more than the prescribed limits. Perform straightedge testing under the supervision of the Engineer with equipment furnished and operated by the Contractor at the Contractor's expense as soon as the hardness of the concrete permits.

(a) Straightedge Testing And Tolerance - Longitudinal and transverse smoothness testing of the pavement surface shall be done with a 3.6 m straight-edge. The extent of the testing will be as the Engineer determines necessary or expedient. The pavement surface shall not deviate from the straightedge at any point by more than 3 mm for all areas that are constructed by the prescribed machine methods and for all traffic lanes and ramps. Other areas shall not deviate by more than 6 mm, except that the transverse surface at the patch ends may vary as required in 00758.49.

(b) Correction - Correct any segment that exceeds the requirements of 00758.55(a) as required by the Engineer by one of the methods listed below:

(1) Remove concrete pavement as determined by the Engineer and replace with specification concrete pavement.

(2) Profile with abrasive grinder equipped with a cutting head comprised of multiple diamond blades. The Engineer will determine and mark the areas to be profiled. All areas corrected by grinding shall have the required surface texture as specified in 00758.49(a), restored by transverse sawing with diamond blade saws.

00758.59 Reinforced Bar Lap Area - Saw cut the existing continuously reinforced concrete pavement to a depth of 50 mm, being extremely careful to not damage the existing reinforcing steel or concrete pavement and base to remain in place. The existing concrete material to be removed shall then be removed by equipment and hand tools conforming to the following requirements:

- Jackhammers heavier than nominal 14 kg class shall not be used.
- Jackhammers or mechanical chipping tools shall not be operated at an angle in excess of 45 degrees measured from the surface of the slab.
- Chipping hammers heavier than a nominal 7 kg class shall not be used to remove concrete within 19 mm of reinforcing steel.

Hand tools such as hammers and chisels shall be used to remove final particles of unsound concrete or to achieve the required depth.

Equipment for concrete removal shall not be used until it has been approved by the Engineer.

If the existing base requires removal, it shall be replaced with plain concrete pavement conforming to the applicable requirements of these special provisions.

The reinforcing steel and splice shall be protected and kept clean of grease, oil, dirt, grout, or other contaminants at all times. Bending of reinforcing steel to remain, shall not be permitted.

Grout shall be coated on existing concrete pavement surface connecting to new concrete pavement placement as follows:

After the existing pavement is removed, the edges of the remaining pavement shall be sandblasted and, approximately one hour prior to placement of the new concrete, the area to be paved shall be wetted with water. Just prior to placing the concrete, the area shall be blown clean with compressed air and a coat of grout applied to the edges of existing pavement. If any grouted surfaces dry before new concrete is placed, they shall be sandblasted clean and shall have a new coat of grout applied.

Opening to Traffic

00758.60 Opening to Traffic - Prior to allowing traffic on the repaired areas test at least two concrete cylinders for compressive strength. The average strength of the cylinders must be at least 20.7 MPa when tested according to AASHTO T 22 before traffic is permitted.

Allow traffic on repaired areas once the following has been met:

- Test at least two concrete cylinders for compressive strength. The average strength of the cylinders must be at least 20.7 MPa when tested according to AASHTO T 22 before traffic is permitted.
- Submit all test data to the Engineer. Approval must be given by the Engineer before opening to traffic.

Measurement

00758.80 Pavement - The area of concrete pavement to be paid for will be the number of m² complete, in place as specified, and accepted. The pay area will be determined by measuring the width and length of each separately constructed panel of pavement. The width is the measured edge-to-edge width on the surface of the pavement, to the nearest 0.01 meter, and the length is horizontal measurement from end to end of pavement along the center line of the strip. Measurements will be computed to the nearest m².

Extra thickness of pavement, as shown or as ordered by the Engineer, will be measured by conversion on a proportionate volume basis to an equivalent number of m² of specified thickness pavement.

00758.81 Bar Lap Areas - The reinforced bar lap areas will be measured for payment on a unit basis per each by actual count completed and accepted. The reinforced bar lap area consists of an area of one lane width (3.6 m ±) and from 300 mm to 550 mm long

depending on whether a mechanical splice or crimped sleeve coupler, or a tie lap was used.

The concrete in the reinforced bar lap areas shall be measured and placed in conjunction with the continuously reinforced concrete pavement placement and receive the same cure and finish texture.

Removed material shall become the property of the Contractor at the point of removal and shall be disposed of in a manner satisfactory to the Engineer.

00758.82 QC - There will be no measurement for QC testing performed under this Section.

Payment

00758.90 Pavement - The pay yardage of pavement will be paid for at the contract unit price per m² for "Continuously Reinforced Concrete Pavement Repair". Payment will be payment in full for sawing, removing existing concrete, and furnishing and placing all materials including the plain concrete base, and performing all work specified including all equipment, tools, labor and incidentals necessary to complete the item excluding work and materials paid for under 00758.91.

00758.91 Bar Lap Areas - The accepted quantities of reinforced bar lap areas will be paid for at the contract unit price per each for the item "Extra for Reinforced Bar Lap Areas", which payment will be full compensation for all extra or additional costs involved in providing bar lap areas as specified.

00758.92 QC - No separate or additional payment will be made for QC testing as it will be paid for as part of the work under this Section.