



Paul R. LePage  
GOVERNOR

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
16 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0016

David Bernhardt  
COMMISSIONER

June 24, 2011  
Subject: **Wells**  
Federal Project No: NH-7998(20)E  
State PIN: 007998.20  
**Amendment No. 1**

Dear Sir/Ms:

Make the following changes to the Bid Documents:

In the Bid Book (pages 4 thru 14) **REMOVE** the "SCHEDULE OF ITEMS" 11 pages dated 110603 and **REPLACE** with the attached new "SCHEDULE OF ITEMS" 11 pages dated 110623.

In the Bid Book, after page 62 **ADD** the attached "SPECIAL PROVISION, SECTION 310, PMRAP" 1 page dated November 29, 2010.

In the Bid Book, before page 63 **ADD** the attached "SPECIAL PROVISION, SECTION 310, PLANT MIXED RECYCLED ASPHALT PAVEMENT", 5 pages dated May 2, 2005.

In the Plans, Sheet Number 12 of 138, at station 24+880 Right **CHANGE** the note under "1 STORY GRADE" from "RAISE & REMOVE" to read "**REMOVE BUILDING PER SPEC. 202.08 AND SPECIAL PROVISION 202**". Make this change in pen and ink.

In the Plans, Sheet Number 17 of 138, at station 25+780 Left **CHANGE** the note above "2 STORY RES." from "RAISE & REMOVE" to read "**REMOVE BUILDING PER SPEC. 202.08 AND SPECIAL PROVISION 202**". Make this change in pen and ink.

The following questions have been received:

**Question:** Where is Building No. 1 that is to be removed, bid item 0040 – 202.08?

**Response:** Building No.1 is located at 25 +780 Left

**Question:** Regarding Lump Sum Items Nos. 0040, 0050 and 0060, Remove Buildings No 1, 2, and 3, it says in the plans that the buildings are to be "raised and removed." Is demolition of the buildings and then disposing of the waste an acceptable process for these items?



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**Response:** Please see the above change. There are two buildings to be removed, Building No.1 is located at 25+780 Left and Building No.2 is located at 24+880 Right. Both buildings are to be removed per Specification 202.08 and Special Provision 202..

**Question:** Items 0230 and 0240 are for the Precast Concrete Box Culvert Extensions. How are the new extensions suppose to connect to the existing box culvert?

**Response:** As per Special Provision 534.

**Question:** Alternate 2 has an item for PMRAP. What is the specification for the material?

**Response:** Please see the above change.

Consider this information prior to submitting your bid on June 29, 2011.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Bickford" followed by "FOR" in a separate, slightly larger and bolder script.

Scott Bickford  
Contracts & Specifications Engineer

SCHEDULE OF ITEMS

REVISED:

CONTRACT ID: 007998.20

PROJECT(S): NH-7998(20)E

CONTRACTOR : \_\_\_\_\_

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
SECTION 0001 PROJECT ITEMS						
0010	201.11 CLEARING	2.000 HA				
0020	201.23 REMOVING SINGLE TREE TOP ONLY	155.000 EA				
0030	201.24 REMOVING STUMP	170.000 EA				
0040	202.08 REMOVING BUILDING NO.: 1	LUMP	LUMP			
0050	202.08 REMOVING BUILDING NO.: 2	LUMP	LUMP			
0060	202.19 REMOVING EXISTING BRIDGE	LUMP	LUMP			
0070	203.21 ROCK EXCAVATION	300.000 M3				
0080	203.2318 DISPOSAL OF SPECIAL WASTE	76.000 MG				
0090	203.25 GRANULAR BORROW	1070.000 M3				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0100	206.061 STRUCTURAL EARTH EXCAVATION - DRAINAGE AND MINOR STRUCTURES, BELOW GRADE	100.000 M3				
0110	206.07 STRUCTURAL ROCK EXCAVATION - DRAINAGE AND MINOR STRUCTURES	125.000 M3				
0120	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	580.000 M3				
0130	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	16800.000 M3				
0140	403.208 HOT MIX ASPHALT 12.5 MM, SURFACE	3750.000 MG				
0150	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	430.000 MG				
0160	409.15 BITUMINOUS TACK COAT APPLIED	4350.000 L				
0170	411.12 CRUSHED STONE SURFACE	8.000 MG				
0180	508.13 MEMBRANE WATERPROOFING	LUMP	LUMP			
0190	510.10 SPECIAL DETOUR (M) ROADWAY WIDTH VEHICULAR & PEDESTRIAN TRAFFIC NOT SEPARATED	LUMP	LUMP			

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0200	512.081 FRENCH DRAINS	LUMP	LUMP			
0210	526.30 TEMPORARY CONCRETE BARRIER - TYPE 1	M 186.000				
0220	534.71 PRECAST CONCRETE BOX CULVERT	LUMP	LUMP			
0230	534.71 PRECAST CONCRETE BOX CULVERT - EXTENSION #1	LUMP	LUMP			
0240	534.71 PRECAST CONCRETE BOX CULVERT - EXTENSION #2	LUMP	LUMP			
0250	603.159 300 MM CULVERT PIPE OPTION III	M 69.000				
0260	603.16 375 MM CULVERT PIPE OPTION I	M 144.000				
0270	603.169 375 MM CULVERT PIPE OPTION III	M 11.000				
0280	603.17 450 MM CULVERT PIPE OPTION I	M 68.000				
0290	603.175 450 MM RCP CLASS III	M 175.000				
0300	603.179 450 MM CULVERT PIPE OPTION III	M 95.000				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0310	603.19 600 MM CULVERT PIPE OPTION I	19.000 M				
0320	603.195 600 MM RCP CLASS III	73.000 M				
0330	603.199 600 MM CULVERT PIPE OPTION III	57.000 M				
0340	603.205 750 MM REINFORCED CONCRETE PIPE CLASS III	41.000 M				
0350	603.255 1500 MM RCP CLASS III	28.000 M				
0360	604.092 CATCH BASIN TYPE B1-C	48.000 EA				
0370	604.096 1500 MM CATCH BASIN TYPE B1-C	2.000 EA				
0380	604.097 1800 MM CATCH BASIN TYPE B1-C	2.000 EA				
0390	604.247 CATCH BASIN TYPE F5-C	4.000 EA				
0400	604.248 CATCH BASIN TYPE F6	1.000 EA				
0410	604.249 CATCH BASIN TYPE F6-C	4.000 EA				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0420	605.09 150 MM UNDERDRAIN TYPE B	1081.000 M				
0430	605.10 150 MM UNDERDRAIN OUTLET	7.000 M				
0440	605.11 300 MM UNDERDRAIN TYPE C	1619.000 M				
0450	605.12 375 MM UNDERDRAIN TYPE C	148.000 M				
0460	605.13 450 MM UNDERDRAIN TYPE C	192.000 M				
0470	606.23 GUARDRAIL TYPE 3C - SINGLE RAIL	109.000 M				
0480	606.232 GUARDRAIL TYPE 3C - OVER 4.5 M RADIUS	38.000 M				
0490	606.233 GR TP 3C - SGL RAIL, 2.4M POSTS	128.000 M				
0500	606.258 CABLE RELEASING TERMINAL ANCHORAGE ASSEMBLY	3.000 EA				
0510	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	2.000 EA				
0520	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	16.000 EA				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0530	606.356 UNDERDRAIN DELINEATOR POST	23.000 EA				
0540	606.47 SINGLE WOOD POST	1.000 EA				
0550	606.51 MULTIPLE MAILBOX SUPPORT	1.000 EA				
0560	606.65 GUARDRAIL THRIE BEAM - SINGLE RAIL	42.000 M				
0570	606.70 TRANSITION SECTION THRIE BEAM	2.000 EA				
0580	606.79 GUARDRAIL 350 FLARED TERMINAL	3.000 EA				
0590	607.16 CHAIN LINK FENCE - 1.2 METER	20.000 M				
0600	609.11 VERTICAL CURB TYPE 1	3.000 M				
0610	609.31 CURB TYPE 3	1650.000 M				
0620	610.08 PLAIN RIPRAP	362.000 M3				
0630	610.18 STONE DITCH PROTECTION	45.000 M3				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0640	613.319 EROSION CONTROL BLANKET	M2 8140.000				
0650	615.07 LOAM	M3 1900.000				
0660	618.1301 SEEDING METHOD NUMBER 1 - PLAN QUANTITY	UN 59.000				
0670	618.1401 SEEDING METHOD NUMBER 2 - PLAN QUANTITY	UN 284.000				
0680	618.1411 SEEDING METHOD NUMBER 3 - PLAN QUANTITY	UN 19.000				
0690	619.12 MULCH	UN 375.000				
0700	620.54 STABILIZATION GEOTEXTILE	M2 100.000				
0710	620.58 EROSION CONTROL GEOTEXTILE	M2 340.000				
0720	627.18 300 MM SOLID WHITE PAVEMENT MARK LINE	M 55.000				
0730	627.733 100 MM WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	M 10700.000				
0740	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	M2 23.000				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT		
			DOLLARS	CTS	DOLLARS	CTS	
0750	627.76 TEMPORARY PAVEMENT MARKING LINE, WHITE OR YELLOW	LUMP	LUMP				
0760	629.05 HAND LABOR, STRAIGHT TIME	40.000 HR					
0770	631.10 AIR COMPRESSOR (INCLUDING OPERATOR)	20.000 HR					
0780	631.11 AIR TOOL (INCLUDING OPERATOR)	20.000 HR					
0790	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20.000 HR					
0800	631.132 SMALL BULLDOZER (INCLUDING OPERATOR)	20.000 HR					
0810	631.14 GRADER (INCLUDING OPERATOR)	20.000 HR					
0820	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	20.000 HR					
0830	631.18 CHAIN SAW RENTAL (INCLUDING OPERATOR)	20.000 HR					
0840	631.20 STUMP CHIPPER (INCLUDING OPERATOR)	20.000 HR					
0850	631.22 FRONT END LOADER (INCLUDING OPERATOR)	20.000 HR					

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0860	631.32 CULVERT CLEANER (INCLUDING OPERATOR)	20.000 HR				
0870	639.18 FIELD OFFICE TYPE A	1.000 EA				
0880	643.72 TEMPORARY TRAFFIC SIGNAL	LUMP	LUMP			
0890	643.86 TRAFFIC SIGNAL LOOP DETECTORS	6.000 EA				
0900	643.94 DUAL PURPOSE POLE	3.000 EA				
0910	645.113 REINSTALL GUIDE SIGN	8.000 EA				
0920	645.116 REINSTALL REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	20.000 EA				
0930	652.33 DRUM	26.000 EA				
0940	652.34 CONE	26.000 EA				
0950	652.35 CONSTRUCTION SIGNS	80.000 M2				
0960	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP	LUMP			

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0970	652.38 FLAGGER	10000.000 HR				
0980	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	2.000 EA				
0990	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP	LUMP			
1000	658.20 ACRYLIC LATEX COLOR FINISH, GREEN	2.000 M2				
1010	659.10 MOBILIZATION	LUMP	LUMP			
1020	660.21 ON-THE-JOB TRAINING (BID)	2000.000 HR				
SECTION 0001 TOTAL						.

SECTION 0002 ALTERNATE 1 - ALL HMA  
ALT GROUP AP1

1030	203.20 COMMON EXCAVATION	37081.000 M3				
1040	304.09 AGGREGATE BASE COURSE - CRUSHED	7550.000 M3				
1050	403.207 HOT MIX ASPHALT 19.0 MM NOMINAL MAX SIZE	4400.000 MG				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
1060	403.213 HOT MIX ASPHALT 12.5 MM, BASE	3750.000 MG				
SECTION 0002 TOTAL						.
SECTION 0003 ALTERNATE 2 - PMRAP ALT GROUP AP2						
1070	203.20 COMMON EXCAVATION	33495.000 M3				
1080	304.09 AGGREGATE BASE COURSE - CRUSHED	6050.000 M3				
1090	310.23 PLANT MIX RECYCLED ASPHALT PAVEMENT - 75 MM DEPTH	38350.000 M2				
1100	403.213 HOT MIX ASPHALT 12.5 MM, BASE	5600.000 MG				
SECTION 0003 TOTAL						
TOTAL BID						

SPECIAL PROVISION  
SECTION 310  
PMRAP

**Mix Design**

**The JMF targets represented in this Special Provision are intended to provide a basis for bidding purposes only. The Department will develop a job mix formula for the PMRAP using the bituminous material salvaged from the project.**

The Recycled Pavement on this project will be treated with the following material proportions:

Emulsion	3.0 %
Water needed to ensure proper blending	3.0 %
Portland cement (Type I or II)	1.0 %

The optimum moisture content for compaction shall be determined by the Department using samples obtained from the recycled stockpiled material prior to addition of the emulsion, by means of AASHTO T 180, Method D.

A contract modification will be executed if percentages change from the requirements above for added emulsion, Portland cement or lime changes by more than 0.10%. Positive and negative price adjustments will be made. The price adjustment will be based upon receipted bills for materials delivered the project site. If a price adjustment is warranted, the contractor will supply the Department with all receipted bills for emulsion, Portland cement or lime for the entire project. Adjustments in water content exceeding the initial targets shall not be paid for directly, but shall be incidental.

SPECIAL PROVISION  
SECTION 310  
PLANT MIXED RECYCLED ASPHALT PAVEMENT

310.01 Description This work shall consist of the removal of all bituminous pavement from the existing roadway, hauling the bituminous pavement to an approved location, and processing as per Section 310.020. The gravel base of the existing roadway shall be regraded and compacted to the tolerances shown on the typicals, or as directed by the Resident.

All plant mixed recycled asphalt pavement shall be placed in one or more courses on an approved base and in accordance with these specifications, and in reasonably close conformity with the lines, grades and thicknesses indicated on the plans, or as established by the Resident. Excess recycled material not used in the PMRAP process will become the property and responsibility of the contractor.

MATERIALS

310.020 Composition of Mixture The mixture shall be composed as directed in the job mix formula. The recycled asphalt pavement shall be processed by the Contractor so all material will be no larger than 37.5 mm [1.5 in] and stockpiled so as to minimize segregation. The stockpile shall be free of any materials not generally considered to be asphalt pavement. If additional material is required, the material will be supplied by the State or acquired from the Contractor through the Contract Modification process.

A job mix formula shall be furnished by the Department establishing the percentage of emulsified asphalt cement, Portland Cement, aggregate, and water to be used in the mixture. The JMF additive proportions will be verified by taking a second recycled material sample once the stockpiles have been constructed.

Emulsion, water, aggregate and Portland Cement shall be added in percentage by weight and verified by tank checks done in accordance with the minimum quality control frequencies. Cement additive may be done in dry form or introduced as a cement slurry.

310.021 Emulsified Asphalt The emulsified asphalt shall be grade MS-2, MS-4, CSS-1, or HFMS-2 meeting the requirements of Section 702.04 - Emulsified Asphalt.

310.022 Portland Cement Portland Cement shall be Type I or II meeting the requirements of AASHTO M85.

310.023 Water Water shall be clean and free from deleterious concentrations of acids, alkalis, salts or other organic or chemical substances.

310.024 New Aggregate New aggregate, if required by the contract or job mix, shall meet the requirements of Section 411.02 - Untreated Aggregate Surface Course.

EQUIPMENT

310.030 Mixing Plant The mixing plant shall be of sufficient capacity and coordinated to adequately handle the proposed construction. Either a continuous pugmill mixer or a continuous drum type mixing plant shall be used. If a drum mixing plant is used it shall meet the requirements of Section 401.07. The mixing plant shall be capable of producing a uniform mixture meeting the requirements of the job mix formula.

310.031 Hauling Equipment Trucks used for hauling the mixture shall meet the requirements of Section 401.08.

310.032 Bituminous Pavers Pavers shall meet the requirements of Section 401.09.

310.033 Rollers Rollers shall meet the requirements of Section 401.10.

## CONSTRUCTION REQUIREMENTS

310.040 Mixing The recycled asphalt pavement shall be delivered to the mixer at a temperature of not less than 10°C [50°F]. The emulsified asphalt shall meet the mixing temperature requirements listed in Section 702.05 - Application Temperatures. Recycled pavement and emulsified asphalt, and cement shall be proportioned and the mixing time set to produce a mixture in which uniform distribution of the emulsified asphalt and coating of the recycled pavement is obtained.

If a drum type mixing plant is used, the recycled asphalt pavement may be heated prior to being mixed with the emulsified asphalt to a temperature not to exceed 90°C [195°F].

Following mixing, the recycled asphalt pavement material shall be stockpiled and incorporated into the work. The material must be stockpiled, but not for longer than 48 hours.

310.041 Weather Limitations The plant mixed recycled asphalt pavement shall be performed when:

- a. PM-RAP operations will be allowed between May 15<sup>th</sup> and September 15<sup>th</sup> inclusive in Zone 1 - Areas north of US Route 2 from Gilead to Bangor and north of Route 9 from Bangor to Calais. PM-RAP will be allowed between May 1<sup>st</sup> and September 30<sup>th</sup> inclusive in Zone 2 - Areas south of Zone 1 including the US Route 2 and Route 9 boundaries.
- b. The atmospheric temperature, as determined by an approved thermometer placed in the shade at the recycling location, is 10°C [50°F] and rising.
- c. When there is no standing water on the surface.
- d. During generally dry conditions, or when weather conditions are such that proper pulverizing, adding, mixing, and curing can be obtained using proper procedures, and when compaction can be accomplished as determined by the Resident.
- e. When the surface is not frozen and when overnight temperatures are expected to be above 0°C [32°F].

310.042 Spreading and Finishing The mixture shall be spread and finished in accordance with Section 401.15. Total layer thickness greater than 100 mm [4 in] will be placed in 2 lifts.

310.043 Compaction Compaction of the mixture shall be in accordance with Section 401.16. Rolling may be delayed to avoid lateral displacement as directed by the Resident. See also Section 310.051.

310.044 Joints Joints shall be constructed in accordance with Section 401.17.

310.045 Surface Tolerances The surface tolerances shall be as specified in Section 401.101, except that the maximum allowable variation shall be 10 mm [ $\frac{3}{8}$  in]. The surface tolerance in existing gravel areas covered by PMRAP, with no additional gravel, shall be  $\pm$  10 mm [ $\frac{3}{8}$  in].

## TESTING REQUIREMENTS

310.050 Quality Control The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The QCP shall meet the requirements of Section 106.6 - Acceptance and this Section. The Contractor shall not begin recycling operations until the Department approves the QCP in writing.

Prior to performing any recycling process, the Department and the Contractor shall hold a Pre-recycle conference to discuss the recycling schedule, type and amount of equipment to be used, sequence of operations, and traffic control. A copy of the QC random numbers to be used on the project shall be provided to the Resident. All field and plant supervisors including the responsible onsite recycling process supervisor shall attend this meeting.

The QCP shall address any items that affect the quality of the Recycling Process including, but not limited to, the following:

- a. JMF(s).
- b. Mixing details, pugmill type, production rates, material processing.
- c. Make and type of paver(s).
- d. Make and type of rollers including weight, weight per inch of steel wheels, and average contact pressure for pneumatic tired rollers.
- e. Testing Plan.
- f. Transportation including process for ensuring that truck bodies are clean and free of debris or contamination that could adversely affect the finished product, type of release agent used (if required)
- g. Laydown operations including procedures for mix design modification, avoiding recycling and curing in inclement weather, material yield monitoring, methods to ensure that segregation is minimized, longitudinal joint construction, procedures to determine the maximum rolling and placing speeds based on field quality control, and achieving the best possible smoothness.
- h. Methods for protecting the finished product from damage and procedures for any necessary corrective action.
- i. Method of grade checks.
- j. Examples of Quality Control forms.
- k. Name, responsibilities, and qualifications of the Responsible onsite Recycling Supervisor experienced and knowledgeable with the process.
- l. Method for calibration/verification of density gauge.
- m. A note that all testing will be done in accordance with AASHTO and MDOT/ACM procedures.
- n. Stockpile procedures including method of moisture control.

The Project Superintendent shall be named in the QCP, and the responsibilities for successful implementation of the QCP shall be outlined.

The Contractor shall sample, test, and evaluate the PMRAP process in accordance with the following procedures and minimum frequencies:

### MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Density	1 per 300 m [1000 ft] / lane	ASTM D 2950
Air Temperature	4 per day at even intervals	
Surface Temperature	At the beginning and end of each days operation	
Yield of all materials (Both the daily yield and yield since last test)	4 per day at even intervals	

The Contractor shall submit all QC test reports and summaries in writing, signed by the appropriate technician, and present them to the Department's onsite representative by 1:00 P.M. on the next working day, except when otherwise noted in the QCP due to local restrictions. The Contractor shall make all test results, including randomly sampled densities, available to the Department onsite.

Penalties for QCP non-compliance will be in accordance with Standard Specification 106.4.6

The Contractor shall cease recycling operations whenever one of the following occurs:

- a. The computed yield differs from the approved Job Mix Formula by 10% or more.
- b. The Contractor fails to follow the approved QCP.
- c. The Contractor fails to achieve 98% density after corrective action has been taken.
- d. The finished product is visually defective, as determined by the Resident.

Recycling operations shall not resume until the Contractor and the Department agree on the corrective action to be taken.

310.051 Test strip The contractor shall assemble all items of equipment for the recycling operation on the first day of the recycling work. The Contractor shall construct a test strip for the project at a location approved by the Resident. The test strip section is required to:

- a. Demonstrate that the equipment and processes can produce recycled layers to meet the requirements specified in these special provisions;
- b. Determine the effect on the grading of the recycled material by varying the forward speed of the paving machine; and;
- c. Determine the sequence and manner of rolling necessary to obtain the compaction requirements and establish a target TMD. The Contractor and the Department will calibrate their respective gauges at this time.

The test strip shall be at least 100 m [300 ft] in length of a full lane-width (or a half-road width).

Full PMRAP production will not begin until an acceptable test strip has been constructed. If a test strip fails to meet the requirements of this specification, the Contractor will be required to repair or replace the test strip to the satisfaction of the Resident. Any repairs, replacement, or duplication of the test strip will be at the Contractor's expense.

Quality Assurance density testing of the recycled material will be performed by the Department using the nuclear method. After the test strip has been placed, it will be rolled as directed until the nuclear density readings show an increase in density of less than 16 kg/m<sup>3</sup> [1 pcf] for the final four roller passes. The test strip density will be used as the target density for the recycled material. The remaining PMRAP material shall be compacted to a minimum density of 98% of the target density as determined in the control section.

#### ACCEPTANCE TEST FREQUENCY

Property	Frequency	Test Method
In-place Density	1 per 600 m [2000 ft] / lane	ASTM D 2950

310.052 Repairs Repairs and maintenance for the PMRAP layers, during and after the curing period, resulting from damage caused by traffic, weather or environmental conditions, or caused by the Contractor's operations or equipment, shall be completed at no additional cost to the Department.

Low areas will be repaired using a hot mix asphalt shim course. Areas up to 25mm [1 in] high can be repaired by milling or shimming with hot mix asphalt. Areas higher than 25mm [1 in] will be repaired using a hot mix asphalt shim. All repair work will be done with the Resident's approval at the Contractor's expense.

310.06 Curing No new hot mix asphalt pavement or additional layers of PM-RAP shall be placed on the recycled asphalt pavement until a curing period of (4) four days has elapsed. The curing period starts once the PM-RAP has been placed in the roadway. When weather conditions are unfavorable, the curing period may be extended by the Resident.

310.07 Method of Measurement Plant Mixed Recycled Asphalt Pavement shall be measured by the square meter [square yard].

310.08 Basis of Payment The accepted quantity of Plant Mixed Recycled Asphalt Pavement will be paid for at the contract unit price per square meter [square yard], complete in-place which price will be full compensation for furnishing all equipment and labor for removing existing pavement, regrading and compacting existing gravel base, processing, mixing, testing, placing, and compacting, excess material relocation, and for all incidentals necessary to complete the work.

Payments will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
310.23 - 75mm [3 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd <sup>2</sup> ]
310.24 - 100mm [4 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd <sup>2</sup> ]
310.25 - 125mm [5 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd <sup>2</sup> ]
310.26 - 150mm [6 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd <sup>2</sup> ]