Asphalt Paving Project No. 17-1
Freeport, Maine
Addendum No. 1
April 25, 2017

1. Bid proposals are now due on May 2 at 1:00 p.m.
2. What are the reclaim limits on South Freeport Road?
    - The beginning and end points are from Smelt Brook Drive to Porter's Landing, including the intersections.
3. How thick are the binder lifts on South Freeport Road?
    - Place (2) lifts of 12.5 mm HMA at 1.5" thick, each lift. Note: the binder mix has been modified from 19mm to 12.5 mm.
4. Who is responsible for paving driveway aprons?
    - When the road adjoins a gravel driveway, the contractor shall increase the wing width by 1 foot to place a driveway apron during paving operations.
    - When the road adjoins a paved driveway, there will be no need to increase the wing width.
5. Can the Town provide a soil cement mix design?
    - See attached design.
6. Who will take care of adjusting structures?
    - The Town and utility companies will be responsible for adjusting their respective structures.
7. Clarify removing pavement surface versus butt joints
    - Butt joints apply to intersections with adjoining paved roads. Butt joints do not apply to paved driveway aprons.
    - Removing pavement surface applies to grinding of pavement around utility structures.
8. Who is responsible for curb?
    - Curb is considered handwork which will be replaced by the Town's subcontractor.
9. Who is responsible for matching into existing driveways?
    - Driveways are considered handwork which will be taken care of by the Town's subcontractor.

Replace Paragraph 3 on Page 1 with: The currently anticipated paving projects are summarized as follows.

- South Freeport Road, South Freeport - approximately 10,100 linear feet. Full depth reclaim approximately 28 feet wide; 3 inches of 12.5 mm HMA for length of reclaim by 28 feet wide, joints as directed; and, 1.5 inches of 9.5 mm HMA (in 2018) over total length.
- Curtis Road - approximately 7,800 linear feet. Full depth reclaim approximately 21 feet wide; 3.0 inches of 12.5 mm HMA, joints as directed; and, 1.5 inches of 9.5 mm HMA (in 2018) over total length.

Replace Paragraph 6 on Page 1 with: The HMA binder material shall be 12.5 mm HMA pavement, placed in two (2) lifts, at 1.5" thick, each lift.

Asphalt Paving Project No. 17-1
Freeport, Maine
Addendum No. 1
April 25, 2017

Replace Bid Quantity Table (Form) with page 2 of this Addendum.

Freeport Asphalt Paving Project No. 17-01
Bid Quantity Tables

Road Reconstruction Projects				
Item	**Unit**	**Quantity**	**Bid Unit Price**	**Extended Item Price**
Full depth reclaim, two passes, with soil cement	SY	31,500		
Full depth reclaim, two passes, no soil cement	SY	18,200		
Pavement surface, 9.5 mm HMA	Ton	4,100		
Pavement binder, 12.5 mm HMA	Ton	8,200		
Butt joints	SY	200		
Removing pavement surface around utility structures	SY	400		
Tack coat	Gallon	2,500		
	Total extended price			

Asphalt Paving Project No. 17-1
Freeport, Maine
Addendum No. 1
April 25, 2017

SECTION 308
FULL DEPTH RECYCLING WITH CEMENT

308.01 Description: This work shall consist of pulverizing a portion of the existing roadway structure into a homogenous mass, stabilizing the material with cement and placing and compacting this material to the lines, grades, and dimensions established by the Engineer.

MATERIALS

308.02 Pulverized Material: Pulverized material shall consist of the existing asphalt pavement and one inch or more as specified of the underlying gravel, pulverized, and blended into a homogenous mass. Pulverized material will be processed to 100 percent passing a 50 mm [2 in] square mesh sieve.

308.021 New Aggregate and Additional Recycled Material: New aggregate, if required and as directed, shall meet the requirements of Subsection 703.06 - Aggregate Subbase Course Gravel Type D processed to 100 percent passing a 2 inch square mesh sieve. New aggregate will be measured and paid for under the appropriate item.

Recycled material, if required, shall consist of salvaged asphalt material from the project or from off-site stockpiles that has been processed before use to 100 percent passing a 2 in square mesh sieve. Recycled material shall be conditionally accepted at the source by the Engineer. It shall be free of winter sand, granular fill, construction debris, or other materials not generally considered asphalt pavement.

Recycled material generated and salvaged from the project shall be used within the roadway limits to the extent it is available as described in 308.09. No additional payment will be made for material salvaged from the project.

Recycled material supplied from off-site stockpiles shall be paid for as described in the contract, or by contract modification.

308.022 Portland Cement: The Portland cement shall be Type I or II meeting the requirements of AASHTO M85.

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

EQUIPMENT

308.03 Pulverizer: The pulverizer shall be a self-propelled machine, specifically manufactured for full-depth recycling work and capable of reducing the required existing materials to a size that will pass a 2 in square mesh sieve. The machine shall be equipped with standard automatic depth controls and must maintain a consistent cutting depth and width. The machine also shall be equipped with a gauge to show depth of material being processed.

Asphalt Paving Project No. 17-1
Freeport, Maine
Addendum No. 1
April 25, 2017

308.031 Cement Spreader Spreading of the Portland cement shall be done with a spreader truck designed to spread dry particulate (such as Portland Cement or Lime) or other approved means to insure a uniform distribution across the roadway and minimize fugitive dust (See also the *Health and Safety/Right to-Know* section of this Special Provision). **Pneumatic application, including through a slotted pipe, will not be permitted.** Other systems that have been developed include fog systems, vacuum systems, etc. Slurry applications could also be accepted. The Town reserves the right to accept or reject the method of spreading cement based on the concerns specified herein. The Contractor shall provide a method for verifying that the correct amount of cement is being applied.

Health and Safety/Right-to-Know: Portland cement is considered a hazardous chemical under US OSHA Hazard Communication Rule 29 CFR 1910.120, therefore, all Contractors and Subcontractors are required to notify their workers of the potential health hazards associated with working with Portland cement.

In no area of the work site, where cement or cement-pavement-gravel combination is being applied, re-worked with reclaimer, rolled or graded, shall respirable dust be allowed to exceed the NIOSH [1974] established respirable dust standard (RDS) recommended exposure limit (REL) of 0.05 mg/m3 (for up to a 10 hour workday during a 40 hour work week).

The Contractor shall notify the Engineer before commencing any work that involves Portland cement application, reclaiming, rolling, or grading.

The Contractor shall designate a Hazardous Waste Operations “Competent Person” to provide direct on-site supervision plus health and safety monitoring for work in the Portland cement impacted sections of the project. The Competent Person shall have certified training and experience in field implementation of the aforementioned regulations.

Submittals: The Contractor shall submit a site specific Health and Safety Plan (HASP) to the Engineer at least two weeks in advance of any Portland cement related work on the project.

Health and Safety Monitoring: In any area of the project where Portland cement is being worked, the Contractor’s designated Competent Person shall monitor the worker breathing zone for respirable dust. In the event the OSHA respirable dust REL is exceeded, the Contractor’s Competent Person shall direct operations to cease. Operations will not recommence until the situation is corrected and respirable air returns to acceptable levels. The Contractor shall provide all required health and safety monitoring equipment.

308.04 Placement Equipment: Placement of the Full Depth recycled material to the required slope and grade shall be done with an approved highway grader or by another method approved by the Engineer.

Asphalt Paving Project No. 17-1
Freeport, Maine
Addendum No. 1
April 25, 2017

308.05 Rollers: The full depth recycled material shall be rolled with a vibratory pad foot roller, a vibratory steel drum soil compactor and a pneumatic tire roller. The pad foot roller drum shall have a minimum of 112 tamping feet 3 inches in height, a minimum contact area per foot of 17 in^2, and a minimum width of 84 inches. The vibratory steel drum roller shall have a minimum 84 inches width single drum. The pneumatic tire roller shall meet the requirements of Section 401.10 and the minimum allowable tire pressure shall be 85 psi.

MIX DESIGN

The Town has identified the following mix design for the recycling work to provide a basis for bidding purposes only. The Recycled Pavement on this project shall be treated with the following material proportions:

Water	3.0 – 6.0 %
Portland Cement	3.5 %

The optimum moisture content for compaction shall be determined by the Town using samples obtained from the recycled material by means of AASHTO T 180, Method D. A contract modification will be executed for cement content if percentages change from the requirements above by more than 0.25 %. Positive and negative price adjustments will be made. The price adjustment will be based upon receipted bills for materials delivered to the project site. Adjustments in water content exceeding the initial targets will not be paid for directly, but shall be incidental to the FDR item.

After a test strip has been completed or as the work progresses, it may be necessary for the Engineer to make necessary adjustments to the mix design. The Town will supply a mix design for the recycling work based on test results from pavement and soil analysis taken to the design depth. The following information will be provided prior to construction:

1. Percent of Portland cement to be used.
2. Optimum moisture content for proper compaction.
3. Additional aggregate (if required and directed).

CONSTRUCTION

308.06 Pulverizing: The entire depth of existing pavement shall be pulverized together with approximately 1 inch or more of the underlying gravel into a homogenous mass. All pulverizing shall be done with equipment that will provide a homogenous mass of pulverized material, processed in-place, which will pass a 2 in square mesh sieve.

308.07 Weather Limitations: When Portland cement is used, full depth recycled work shall be performed when:

A. Cement stabilizing operations will be allowed between May 1st and October 15th.
B. The atmospheric temperature, as determined by an approved thermometer placed in the shade at the recycling location, is 45°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 32°F.
F. Wind conditions as such that the spreading of cement on the roadway ahead of the recycling machine will not adversely affect the operation (cement will not be blown away).

308.08 Surface Tolerance: The complete surface of the Full Depth Reclamation course shall be shaped and maintained to a tolerance, above or below the required cross sectional shape, of ⅜ inch.

308.09 Full Depth Recycling Procedure: New aggregate or recycled material meeting the requirements of Section 308.021 - New Aggregate and Additional Recycled Material shall be added as necessary to restore cross-slope and/or grade before pulverizing. Locations will be described in the construction notes; or may be added at other locations while construction of the project is in progress, as directed by the Engineer. The Contractor will use recycled material to the extent it is available, in lieu of new aggregate. The material shall then be pulverized, processed, and blended into a homogeneous mass passing a 2 in square mesh sieve. Material found not pulverized down to a 2 in size will be required to be reprocessed by the recycler with successive passes until approved by the Engineer.

Should the Contractor be required to add new aggregate or recycled material to restore cross-slope and/or grade after the initial pulverizing process, those areas will require re-processing to blend into a homogenous mass passing a 2 in square mesh sieve.

The resultant material shall be graded and compacted to the cross-slope and profile shown on the plans or as directed by the Engineer. The Contractor will also be responsible for re-establishing the existing profile grade. The completed surface of the full depth recycled course shall be shaped and maintained to a tolerance, above or below the required cross sectional shape, of ⅜ inch. The initial reclaiming process density requirements will be the same as Section 308.101unless otherwise directed by the Engineer.

Following completion of the initial reclaiming process cement shall be spread uniformly over the full width of roadway to be recycled just prior to each pass of the stabilizing operation, in a continuous process by means of a mechanical spreader. Dry stabilizing agents shall be spread at the prescribed rate in the mix design as provided by the Town. These additives shall then be uniformly blended into a homogeneous mass until an apparent uniform distribution has occurred. The Engineer may adjust the rate of application as necessary.

Sufficient water shall be added through the recycler head during the recycling process to ensure thorough blending to meet the optimum moisture for compaction as specified. Water shall be added only by means of a controlled system on the recycling machine. Care shall be taken to

prevent excessive wetting. A second water truck may be required during recycling operations to assist in the compaction and water control efforts. The rate of water supplied shall be kept constant unless changed due to project material changes.

The resultant material shall be graded and compacted to the cross-slope and profile shown on the plans or as directed by the Engineer. The Contractor will also be responsible for re-establishing the intended profile grade. The completed surface of the full depth recycled course shall be shaped and maintained to a tolerance, above or below the required cross sectional shape, of ⅜ in. Areas not meeting this tolerance will be repaired as described in Section 308.091.

After compaction, the roadway surface shall be treated with a light application of water, and rolled with pneumatic-tired rollers to create a close-knit texture. The finished layer shall be free from:

A. Surface laminations.
B. Segregation of fine and coarse aggregate.
C. Corrugations, centerline differential, potholes, or any other defects that may adversely affect the performance of the layer.

The Contractor shall protect and maintain the recycled layer until a lift of pavement is applied. Frequent light watering shall be performed to keep the finished cement stabilized material moist for at least 48 hours. Watering will continue from 48 hours to 1 week if the equipment is available on-site. Any damage or defects in the layer shall be repaired immediately. An even and uniform surface shall be maintained. The recycled surface shall be swept prior to hot mix asphalt placement.

308.091 Repairs: Repairs and maintenance of the recycled layers, during and after the curing period, resulting from damage caused by traffic, weather or environmental conditions, or resulting from damage caused by the Contractor's operations or equipment, shall be completed at no additional cost to the Town.

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

TESTING REQUIREMENTS

Asphalt Paving Project No. 17-1
Freeport, Maine
Addendum No. 1
April 25, 2017

308.10 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 106.4 - Quality Control and this Section. The Contractor shall not begin recycling operations until the Town approves the QCP in writing.

Prior to performing any recycling process, the Town 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 Engineer. All field 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. Sources for all materials, including New Aggregate and Additional Recycled Material.
B. Make and type of rollers including weight, weight per inch of steel wheels, and average contact pressure for pneumatic tired rollers.
C. Testing Plan.
D. Recycling operations including recycling speed, yield monitoring, procedures for avoiding recycling and curing in inclement weather, methods to ensure that segregation is minimized, procedures for mix design modification, grading and compacting operations, methods to introduce water throughout the cement treated layer, and cement application procedure.
E. Methods for protecting the finished product from damage and procedures for any necessary corrective action.
F. Method of grade checks.
G. Examples of Quality Control forms.
H. Name, responsibilities, and qualifications of the Responsible onsite Recycling Supervisor experienced and knowledgeable with the process.
I. A note that all testing will be done in accordance with AASHTO and MDOT/ACM procedures.

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 full depth reclamation process in accordance with the following minimum frequencies:

MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Density	1 per 2,000 ft / lane	AASHTO T 310
Air Temperature	4 per day at even intervals	
Surface Temperature	At the beginning and end of each days operation	
Yield of all materials (The daily yield, yield since last test, and total project yield.)	1 per 2,000 ft / lane	

The Town may view any QC test and request a QC test at any time.

The Contractor shall submit all QC test reports and summaries in writing, signed by the appropriate technician, 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 Engineer onsite.

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

A. The computed yield differs from the mix design by 10 percent or more.
B. The Contractor fails to follow the approved QCP.
C. The Contractor fails to achieve 98 percent density after corrective action has been taken.
D. The finished product is visually defective, as determined by the Engineer.

Recycling operations shall not resume until the Town approves the corrective action to be taken.

308.101 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 Engineer. The Responsible onsite Recycling Supervisor will work with Town personnel to determine the suitability of the mixed material, cement dispersion within the mixed material, moisture control within the mixed material, and compaction and surface finish. 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 gradation of the recycled material by varying the forward speed of the recycling machine and the rotation rate of the milling drum.
C. Determine the optimum moisture necessary to achieve proper compaction of the recycled layer.
D. Determine the sequence and manner of rolling necessary to obtain the compaction requirements and establish a target TMD. The Contractor and the Town will both

conduct testing with their respective gauges at this time.

The test strip shall be at least 300 ft in length of a full lane-width (or a half-road width). Full recycling production will not start until a passing test strip has been accomplished. 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 Engineer. Any repairs, replacement, or duplication of the test strip will be at the Contractor's expense.

After the test strip has been pulverized, and the roadway brought to proper shape, the Contractor shall add water until it is determined that optimum moisture has been obtained. The test strip shall then be rolled using the specified compaction equipment as directed until the density readings show an increase in dry density of less than 1 pcf for the final four roller passes of each roller. The Contractor and Town will each determine a target density using their respective gauges by performing several additional density tests and averaging them. The average of these tests will be used as the target density of the recycled material for QC and Acceptance purposes.

Following completion of the test strip, compaction of the material shall continue until a density of not less than 98 percent of the test strip target density has been achieved for the full width and depth of the layer. During the construction and compaction of the Full Depth Recycled base, should three consecutive Acceptance test results for density fail to meet a minimum of 95 percent of the target density, or exceed 102 percent of target density, a new test strip shall be constructed.

ACCEPTANCE TEST FREQUENCY

Property	Frequency	Test Method
In-place Density	1 per 2000 ft / lane	AASHTO T 310

308.11 Miscellaneous: No new pavement shall be placed on the full depth recycled pavement until a curing period of 48 hours has elapsed. If inclement weather occurs, the Department reserves the right to extend the curing period. **Between 24 and 48 hours after compaction, the finished course shall be vibrated with between 2 and 4 passes of a 12 ton minimum weight steel-wheel vibratory roller, traveling at a speed of approximately 2 mph and vibrating at maximum amplitude (or as directed by Engineer). The section shall have 100 percent coverage exclusive of the outside 1 ft to induce minute cracks in the treated base course. Additional passes may be required to achieve the desired crack pattern or section modulus as directed by the Engineer.**

Asphalt Paving Project No. 17-1
Freeport, Maine
Addendum No. 1
April 25, 2017

308.12 Method of Measurement: Full Depth Recycled Pavement with Cement will be measured by the square yard.

308.13 Basis of Payment: The accepted quantity of Full Depth Recycled Asphalt Pavement with Cement will be paid for at the contract unit price per square yard, complete in-place which price will be full compensation for furnishing all equipment, materials and labor for pulverizing, blending, placing, grading, compacting, and for all incidentals necessary to complete the work.

The addition of materials to restore profile grade and/or cross-slope in areas shown on the plans or described in the construction notes will be paid separately under designated pay items within the contract. No additional payment will be made for materials salvaged from the project.

Payments will be made under:

Pay Item	Pay Unit
308.36 Full Depth Recycling With Cement	Square Yard