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

Paul R. LePage
GOVERNOR

David Bernhardt
COMMISSIONER

April 12, 2013
Subject: **Skowhegan & Norridgewock**
Federal Project No: STP-1827(200)
State WIN: 018272.00 & 019153.00
Amendment No. 2

Dear Sir/Ms:

Make the following changes to the Bid Document:

In the Bid Book (pages 17 thru 22) **REMOVE** the "SCHEDULE OF ITEMS" 6 pages dated 130319 (replaced in Amendment #1) and **REPLACE** with the attached new "SCHEDULE OF ITEMS" 6 pages dated 130412.

In the Bid Book after page 133 **ADD** the attached "SPECIAL PROVISION, SECTION 635, PRECAST CONCRETE BLOCK GRAVITY WALL" 7 pages dated February 28, 2013.

The following questions have been received:

Question: On plan sheet 2 in the notes it states the retaining wall will meet the requirements of special provision 635, precast concrete block wall. There is no special provision 635 in the spec book to refer to. Will the MDOT provide special provision 635 for reference?

Response: Please see the attached Special Provision 635.

Consider this change and information prior to submitting your bid on April 17, 2013.

Sincerely,

George M. A. Macdougall P.E.
Contracts & Specifications Engineer

CONTRACT ID: 018272.00 PROJECT(S): STP-1827(200)
019153.00

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 HIGHWAY ITEMS					
0010	202.15 REMOVING MANHOLE OR CATCH BASIN	2.000 EA				
0020	202.202 REMOVING PAVEMENT SURFACE	13360.000 SY				
0030	202.203 PAVEMENT BUTT JOINTS	830.000 SY				
0040	203.242 DIRTY BORROW	200.000 CY				
0050	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	35.000 CY				
0060	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	230.000 T				
0070	403.210 HOT MIX ASPHALT 9.5 MM	7110.000 T				
0080	403.2101 9.5 MM POLYMER MODIFIED HMA	1065.000 T				
0090	403.211 HOT MIX ASPHALT (SHIMMING)	2400.000 T				
0100	403.213 HOT MIX ASPHALT 12.5 MM BASE	145.000 T				

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0110	409.15 BITUMINOUS TACK COAT - APPLIED	4735.000 G				
0120	411.10 UNTREATED AGGREGATE SURFACE COURSE (TRUCK MEASURE)	40.000 CY				
0130	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS	LUMP	LUMP			
0140	503.12 REINFORCING STEEL, FABRICATED AND DELIVERED	763.000 LB				
0150	503.13 REINFORCING STEEL, PLACING	763.000 LB				
0160	515.20 PROTECTIVE COATING FOR CONCRETE SURFACES	80.000 SY				
0170	527.303 ENERGY ABSORBING SYSTEM (ET-PLUS)	4.000 EA				
0180	603.17 18 INCH CULVERT PIPE OPTION I	12.000 LF				
0190	603.179 18 INCH CULVERT PIPE OPTION III	43.000 LF				
0200	603.19 24 INCH CULVERT PIPE OPTION I	40.000 LF				
0210	604.092 CATCH BASIN TYPE B1-C	3.000 EA				

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0220	604.161 ALTERING CATCH BASIN	1.000 EA				
0230	604.18 ADJUSTING MANHOLE OR CATCH BASIN TO GRADE	1.000 EA				
0240	605.09 6 INCH UNDERDRAIN TYPE B	525.000 LF				
0250	606.23 GUARDRAIL TYPE 3C - SINGLE RAIL	687.500 LF				
0260	606.231 GUARDRAIL TYPE 3C - 15 FOOT RADIUS AND LESS	25.000 LF				
0270	606.232 GUARDRAIL TYPE 3C - OVER 15 FOOT RADIUS	25.000 LF				
0280	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	2.000 EA				
0290	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	28.000 EA				
0300	606.754 WIDEN SHOULDER FOR GUARDRAIL 350 FLARED TERMINAL	10.000 EA				
0310	606.79 GUARDRAIL 350 FLARED TERMINAL	10.000 EA				
0320	607.201 CHAIN LINK FENCE 42 INCH PVC COATED	446.000 LF				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0330	608.26 CURB RAMP DETECTABLE WARNING FIELD	184.000 SF				
0340	608.45 CONSTRUCTION SIDEWALK	462.000 SY				
0350	608.46 REGRADING SIDEWALK	240.000 SY				
0360	609.237 TERMINAL CURB TYPE 1 - 7 FOOT	8.000 EA				
0370	609.31 CURB TYPE 3	869.000 LF				
0380	609.38 RESET CURB TYPE 1	5.000 LF				
0390	618.1401 SEEDING METHOD NUMBER 2 - PLAN QUANTITY	32.000 UN				
0400	619.1201 MULCH - PLAN QUANTITY	32.000 UN				
0410	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	5900.000 LF				
0420	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	2360.000 SF				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0430	627.76 TEMPORARY PAVEMENT MARKING LINE, WHITE OR YELLOW	LUMP	LUMP			
0440	627.77 REMOVING PAVEMENT MARKINGS	933.000 SF				
0450	629.05 HAND LABOR, STRAIGHT TIME	25.000 HR				
0460	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20.000 HR				
0470	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	10.000 HR				
0480	635.33 PRECAST CONCRETE BLOCK GRAVITY WALL - DEPARTMENT DESIGN	1138.500 SF				
0490	639.19 FIELD OFFICE TYPE B	1.000 EA				
0500	643.83 VIDEO DETECTION SYSTEM	LUMP	LUMP			
0510	652.33 DRUM	85.000 EA				
0520	652.34 CONE	180.000 EA				
0530	652.35 CONSTRUCTION SIGNS	1280.000 SF				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0540	652.36 MAINTENANCE OF TRAFFIC CONTROL DEVICES	62.000 CD				
0550	652.38 FLAGGER	2100.000 HR				
0560	652.381 TRAFFIC OFFICER	60.000 HR				
0570	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP	LUMP			
0580	659.10 MOBILIZATION	LUMP	LUMP			
	SECTION 0001 TOTAL					.

SECTION 0002 MUNICIPAL

0590	607.39 PEDESTRIAN FENCE	446.000 LF				
	SECTION 0002 TOTAL					
	TOTAL BID					

SPECIAL PROVISION
SECTION 635
PRECAST CONCRETE BLOCK GRAVITY WALL

The following replaces Section 635 in the Standard Specifications in its entirety:

635.01 Description The work under this item shall consist of fabrication, furnishing and construction of a Precast Concrete Block Gravity Wall in accordance with these specifications and in close conformance with the lines and grades shown on the Plans, or established by the Resident. The Precast Concrete Block Gravity Wall shall consist of facing blocks made of wet cast concrete made from Portland cement, water, chemical admixtures, and aggregates, supported on concrete leveling pads, and if required, geosynthetic-reinforced backfill.

Included in the scope of the Precast Concrete Block Gravity Wall construction are**:** all excavation and grading necessary for wall construction, compaction of the wall foundation soil, backfill, construction of leveling pads, and block wall installation. The top of the upper row of blocks shall be at or above the top of the face elevation shown on the Plans.

635.02 Quality Assurance The wall system shall be one of the approved combinations of facing block and soil reinforcement systems noted in the Plans or on the Department's Qualified Products List (QPL). Alternate wall systems will not be considered for this Item.

All design calculations and Shop Drawings shall be signed and sealed by a Professional Engineer licensed in the State of Maine.

635.03 Materials Materials for walls shall meet the requirements of the following sections of Division 700:

Gravel Borrow	703.20
Underdrain Backfill Type C	703.22
Reinforcing Steel	709.01
Structural Precast Concrete Units	712.061
Reinforcement Geotextile	722.01
Drainage Geotextile	722.02

The Contractor is cautioned that all of the materials listed are not required for every Precast Concrete Block Gravity Wall. The Contractor shall furnish the Resident a Materials Certification Letter certifying that the applicable materials comply with this section of the specifications. Materials shall meet the following additional requirements:

635.031 Concrete Units The Materials Certification Letter described above shall contain the date of concrete casting, a lot identification number, compressive strength results, and entrained air results. All prefabricated concrete units shall conform to the requirements of 712.061 with the following exceptions:

A. Materials Materials are modified as follows: the maximum water cement ratio shall be 0.42, use of calcium nitrite is not required, and the minimum 28 day compressive strength shall be 4600 psi.

B. Quality Control and Quality Assurance. Quality Control and Quality Assurance is modified as follows: delete the second paragraph.

C. Construction. Construction requirements are modified as follows:

Replace the first sentence in the paragraph which begins "Forms shall remain …" with the following:
The forms shall remain in place until the concrete has gained sufficient strength such that removal of the forms and subsequent handling will not damage the units.

Add the following paragraph at the end of the Construction section:
Face texture of the units shall be a formed finish on all exposed surfaces. Pigment shall be added during the casting process of the concrete unit to achieve a consistent shade of gray or other color as determined by the Resident.

D. Concrete Testing. Concrete testing requirements are modified as follows:
Replace the paragraph which begins "The Contractor shall cast a minimum of 8 …." With the following:
The Contractor shall make and test at least one set of cylinders for every 50 CY of production concrete used to cast the concrete units.

Replace the paragraph which begins "At least once …" with the following:
The Contractor shall make four cylinders for use by the Department to represent every 200 CY or fraction thereof.

E. Tolerances. Maximum dimensional deviation of formed unit dimensions shall be ½ - inch or 2 percent or the manufacturer's published tolerances, whichever is less. Units not meeting the specified tolerances will be rejected.

635.032 Geosynthetic Reinforcement Geosynthetic reinforcement shall be as required by the proprietary wall system manufacturer or wall designer. Geosynthetic reinforcement shall consist of a geotextile or geogrid approved by the Geotechnical Engineer. Substitution of a geosynthetic other than that required by the proprietary wall system manufacturer shall not be allowed unless approved by the Geotechnical Engineer after submittal of shop drawings and pullout and interface friction test data.

A. Geotextiles and Thread for Sewing. Woven or nonwoven geotextiles shall consist of long chain polymeric filaments or yarns formed into a stable network such that the filaments or yarns retain their position relative to each other during handling, placement, and design life. At least 95 percent by weight of the long chain polymer shall be polyolefin or polyester. The material shall be free of defects and tears. Geotextiles used

for reinforcement shall conform as a minimum to the properties indicated for 722.01, Stabilization/Reinforcement Geotextile and shall meet the requirements of part D and E below. Geotextiles shall have a minimum permeability greater or equal to that shown on the Shop Drawings and the reinforced soil permeability.

B. Geogrids. The geogrid shall be a regular network of integrally connected polymer tensile elements with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil or rock. The geogrid structure shall be dimensionally stable and able to retain its geometry under manufacture, transport and installation. Geogrids shall conform as a minimum to the criteria specified in part D and E below.

C. Required Properties. The specific geosynthetic materials shall be preapproved and shall the have the ultimate tensile strength (T_{ult}) shown on the approved Shop Drawings for the geosynthetic specified and for the fill type shown. T_{ult} shall be determined from wide width tests specified in ASTM D 4595 for geotextiles and ASTM D 6637 or GRI:GG1 for geogrids. The ultimate tensile strength value is based on the minimum average roll values (MARV) for the product.

D. The geosynthetic shall conform to the following criteria:
   1. PP and HDPE: Min. retained strength of 70 percent after 150 hours, per ASTM D-4355.
   2. HDPE: Grade = E-4, E-5, E-8, E-9, E-10, E-11, J-3, J-4, or J-5, per ASTM D-1248.
   3. PET: Molecular weight (Mn) > 25,000, per GRI:GG8 and ASTM D-4603.
   4. PET: Carboxyl end group (CEG) ≥ 15 mmol/kg, GRI:GG7.
   5. All polymers: Minimum Weight per Unit Area of 8 oz/yd^2, per ASTM D-5261.
   6. All Polymers: Maximum 0 percent post consumer recycled material by weight.
   7. A default total reduction factor for creep, durability, and installation damage of RF = 7 may be used in design, provided the criteria of 2 through 6 are satisfied and 1 is adjusted to 70 percent after 500 hours is satisfied.

E. Manufacturer Quality Control. The geosynthetic reinforcements shall be manufactured with a high degree of quality control. The Manufacturer is responsible for establishing and maintaining a quality control program to ensure compliance with the requirements of the specification. The purpose of the QC testing program is to verify that the reinforcement geosynthetic being supplied to the project is representative of the material used for performance testing and approval. Conformance testing shall be performed as part of the manufacturing process and may vary for each type of product. As a minimum the following index tests shall be considered as applicable for an acceptable QA/QC program:

Property	Test Procedure
1. Specific Gravity (HDPE only)	ASTM D-1505
2. Ultimate Tensile Strength	ASTM D-4595 GRI:GG1
3. Melt Flow (HDPE and PP only)	ASTM D-1238

4. Intrinsic Viscosity (PET only) ASTM D-4603
5. Carboxyl End Group (PET only) ASTM D-2455

F. Sampling Testing and Acceptance. Sampling and conformance testing shall be in accordance with ASTM D-4354. Conformance testing procedures are established above. Geosynthetic product acceptance shall be based on ASTM D-4759. The quality control certificate shall include:

1. Roll numbers and identification
2. Sampling procedures
3. Results of quality control tests, including a description of test methods used.

G. Certification. The Contractor shall submit a manufacturer's certification that the geosynthetics supplied meet the respective index criteria set when the geosynthetic was approved, measured in full accordance with all test methods and standards specified, or referenced, in this specification.

The manufacturer's certificate shall state that the furnished geosynthetic meets the requirements of these specifications as evaluated by the manufacturer's quality control program. The values submitted shall be certified by a person having legal authority to bond the manufacturer. In case of dispute over validity of values, the Resident can require the Contractor to supply test data from an agency approved laboratory to support the values submitted, at the Contractor's cost.

635.033 Geosynthetic Connection Reinforcing bar used in the geosynthetic connection shall be ½-inch diameter epoxy coated reinforcing bar, coated on the ends and meeting the requirements of Section 503, Reinforcing Steel, or as recommended by the manufacturer. Installation shall be in accordance with manufacturer's recommendations.

635.034 Concrete Leveling Pad Concrete for leveling pads shall be Fill Concrete conforming to the requirements of Section 502 Structural Concrete. Unless otherwise specified, concrete for leveling pads shall be accepted under Method "C" requirements.

635.035 Backfill Material Backfill material placed behind the concrete units shall meet the requirements of Section 703.20 Gravel Borrow, except that the backfill material shall only contain particles that will pass the 3-inch square mesh sieve. The contractor is required to submit a grain size distribution curve (ASTM D 422) and a moisture-density relationship curve (AASHTO T-180) for acceptance of the proposed backfill material and determination of the appropriate installation damage reduction factor (RF_{ID}).

Walls with reinforced backfill require that the backfill material be subjected to pH testing to determine the appropriate durability reduction factor (RF_D).

Material between blocks must be Gravel Borrow, or Underdrain Backfill Material meeting the requirements of Section 703.22, Type C.

635.036 Materials Certification Letter The Contractor, or the supplier as his agent, shall furnish the Resident a Materials Certification Letter for the above materials, including the backfill material, in accordance with Section 700 of the Standard Specifications. A copy of all test results performed by the Contractor or his supplier necessary to assure contract compliance shall also be furnished to the Resident. The Resident will base acceptance upon the materials Certificate Letter, accompanying test reports, and visual inspection.

635.05 Submittals The Contractor shall supply mix design information including aggregate source, current gradation, aggregate quality information and concrete unit weight. The contractor shall also submit backfill material test results as part of the wall submittal package. Backfill material test results shall include grain size distribution curve, moisture-density relationship curve, and pH test results required for reinforced backfill only. Prior to the beginning of construction, the contractor shall supply the Resident with two copies of the design-supplier's Installation Manual. In addition, the Contractor shall have two copies of the Installation Manual on the project site.

635.06 Construction Requirements The Precast Concrete Block Gravity Wall shall have the following construction requirements:

A. Excavation. The excavation and use as fill or disposal of all excavated material shall meet the requirements of Section 203 - Excavation and Embankment, except as modified herein. Care should be exercised in removal of the existing stone wall. Any damage to the lower portion of this wall will be repaired before construction of the leveling pad.

B. Foundation. The area upon which the prefabricated block gravity wall structure is to rest, and within the limits shown on the submitted plans, shall be graded for a width equal to, or exceeding, the length of the blocks. Prior to wall and leveling pad construction, this foundation material shall be compacted to at least 95 percent of maximum laboratory dry density (AASHTO T-180 Method C or D). Frozen and unsuitable soil shall be removed and replaced with gravel borrow compacted to 95 percent of AASHTO T-180.

   A concrete leveling pad shall be constructed as indicated on the plans. The front part of this pad will be on the lower portion of the existing wall. Dimensions may be modified per the wall supplier's recommendations, with written approval of the Geotechnical Engineer. The leveling pad shall be cast to the design elevations as shown on the plans, or as required by the wall supplier upon written approval of the Geotechnical Engineer. The allowable elevation tolerances from the design elevations are +0.01 feet and -0.02 feet. Leveling pads which do not meet this requirement shall be repaired or replaced as directed by the Resident at no additional cost to the Department. Placement of wall units may begin after the strength of the concrete leveling pad reaches 1000 psi or is adequate to support the proposed loads. Contractor may begin placement of concrete block units after 12 hours at his own risk.

C. Method and Equipment. Prior to erection of the prefabricated concrete block wall, the Contractor shall furnish the Resident with detailed information concerning the proposed construction method and equipment to be used. The erection procedure shall be in accordance with the manufacturer's instructions. Any units that are damaged due to handling will be replaced at the Contractor's expense.

D. Installation of Wall Units. A field representative from the wall system being used shall be available, as needed, during the erection of the wall. The services of the representative shall be at no additional cost to the project. Horizontal joint fillers shall be installed as needed.

The maximum offset in any unit horizontal joint shall be 1/4 inch. The prefabricated wall blocks shall be installed to a tolerance of plus or minus 3/4 inch in 10 feet in vertical alignment and horizontal alignment.

E. Backfill Placement. Backfill placement shall closely follow the erection of each row of prefabricated wall units. The Contractor shall decrease the lift thickness if necessary to obtain the specified density. The maximum lift thickness shall be 8 inches loose. Gravel borrow backfill shall be compacted in accordance with Section 203.12 except that the minimum required compaction shall be at least 92 percent of maximum density as determined by AASHTO T-180 Method C or D. Backfill compaction shall be accomplished without disturbance or displacement of the wall blocks. Sheepsfoot rollers will not be allowed. Whenever a compaction test fails, no additional backfill shall be placed over the area until the lift is recompacted and a passing test achieved.

The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with a placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with AASHTO T-180, Method C or D. At the end of the day's operations, the Contractor shall shape the last level of backfill so as to direct runoff of rain water away from the wall face.

Material between blocks must be Gravel Borrow or Underdrain Backfill Material meeting the requirements of Section 703.22, Type C. If Gravel Borrow is used between blocks, 722.02 drainage geotextile shall be placed behind vertical joints to prevent loss of granular material between blocks. Compliance with the gradation requirements shall be the responsibility of the Contractor, who shall furnish a copy of the backfill test results prior to construction. If Underdrain Backfill Material is used between blocks, no geotextile is required behind vertical joints.

635.07 Method of Measurement Precast Concrete Block Gravity Wall will be measured by the square foot of front surface not to exceed the dimensions shown on the Contract Plans unless authorized by the Resident. Vertical and horizontal dimensions will be from the edges of the

blocks. No field measurements for computations will be made unless the Resident specifies, in writing, a change in the limits indicated on the Plans.

635.08 Basis of Payment The accepted quantity of Precast Concrete Block Gravity Wall will be paid for at the contract unit price per square foot complete in place. Payment shall be full compensation for all labor, equipment and materials including all precast concrete units, hardware, joint fillers, geosynthetics, reinforcing steel, backfill materials and technical field representative.

Cost of cast-in-place concrete for leveling pad will not be paid for separately, but will be considered incidental to the Precast Concrete Block Gravity Wall. Excavation, foundation material and backfill material will all be incidental to the Precast Concrete Block Gravity Wall. Removal of the existing stone wall will be considered excavation of this wall, and any necessary repairs resulting from this excavation will be considered incidental to the Precast Concrete Block Gravity Wall.

There will be no allowance for excavating and backfilling for the Precast Concrete Block Gravity Wall beyond the limits shown on the approved submitted plans, except for excavation required to remove unsuitable subsoil in preparation for the foundation. Payment for excavating unsuitable subsoil shall be full compensation for all costs of pumping, drainage, sheeting, bracing and incidentals for proper execution of the work, and will be paid as Common Excavation in accordance with Section 203.

Payment will be made under:

Pay Item	Pay Unit
635.33 Precast Concrete Block Gravity Wall	square foot