COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
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Andy Beshear
GOVERNOR

Jim Gray
SECRETARY

October 28, 2020

CALL NO. 100
CONTRACT ID NO. 201032
ADDENDUM # 1

Subject: PIKE COUNTY, NHPP 0806 (047)
Letting November 20, 2020

(1) Revised – Delete Special Note – Pages 24-32 of 172
(2) Added – Special Note for Structural Mass Concrete – Pages 33(a)-33(c) of 172
(3) Revised – Proposal Bid Items – Pages 169-172 of 172

Proposal revisions are available at http://transportation.ky.gov/Construction-Procurement/.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Rachel Mills

Rachel Mills, P.E.
Director
Division of Construction Procurement

RM:mr
Enclosures

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SPECIAL NOTE FOR STRUCTURAL MASS CONCRETE

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction applicable to this contract.

1.0 DESCRIPTION. This Special Note covers requirements for structural mass concrete placement. The Department considers mass concrete to be any concrete placement, excluding drilled shafts, with its least plan dimension being 6 feet or greater.

2.0 MATERIALS AND EQUIPMENT.

2.1 Cement. Conform to Section 801 or ASTM C595 for blended cements, Type IS or Type I(SM), except the slag constituent in Type IS is limited to 50 percent of the mass of the portland blast furnace slag.

2.2 Mineral Admixtures. Conform to Section 844 except the Department will permit fly ash Class F and Grade 100 ground granular blast furnace slag (GGBF) in addition to Grade 120.

2.3 Aggregate. Use coarse aggregate conforming to the freeze-thaw expansion requirements of Subsection 805.04.01 for use in all classes of structural mass concrete, excluding seal concrete.

2.4 Temperature Sensing Equipment. Use thermistor type temperature sensing devices, or an approved equal, capable of indicating temperatures over a range of 50 to 200 °F, with an accuracy of ± 1 °F and a precision of 1 °F. Connect the sensors to a device that continuously records and displays temperatures at intervals no greater than 4 hours, and produces a record that can be detached and filed.

3.0 CONSTRUCTION. When placing the mixture, do not allow its temperature to exceed 70 °F. Insulate the concrete until the thermal control is finished. Do not allow the concrete to exceed the maximum temperature of 160 °F at any time during the curing period.

3.1 Thermal Control Plan. Submit for approval a written Thermal Control Plan describing the procedures to be used to minimize temperature differentials within the concrete. Include all items required by this note, and other items deemed necessary or prudent.

Submit the Thermal Control Plan at least 30 calendar days before the first intended structural mass concrete placement. The Engineer will respond within 21 calendar days after receipt of the plan. Make any changes required by the Engineer and resubmit the plan. Continue this process until the Engineer approves the Thermal Control Plan.

Do not place structural mass concrete before receiving written approval of the Thermal Control Plan and having all equipment and materials necessary to facilitate the plan on the site and ready for use.

Approval of the Thermal Control Plan is independent of the submission of the trial mixtures.

The Department will allow the inclusion of the following items in the Thermal Control Plan.

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1) Reduction of the total cement content by the use of mineral admixtures. Mineral admixtures derived from blended cements, used as processing additions, or as ingredient materials will apply toward stated maximums.

    a. Substitution of Class F fly ash for cement at the rate of 25 to 30 percent, by mass, applying a substitution rate of 1.0 to 1.25 pounds of fly ash added.
    b. Substitution of GGBF for cement up to a maximum of 50 percent, by mass, applying a substitution rate of one pound of GGBF for each one pound of cement.
    c. Mixes with both GGBF and Class F fly ash, permit up to but no more than 20 percent of the 50 percent GGBF maximum as Class F fly ash.

2) Sprinkle the mixer trucks' drums for cooling.
3) Arrange with supplier to avoid delivery of hot cement.
4) Cooling of aggregate stockpiles.
5) Use of a nitrogen gas cooling system to cool the concrete mass before placement.
6) Use of shaved, flaked, or chipped ice as part of the mixing water.
7) Embedment in the structural mass concrete of a cooling system, approved by the Engineer, consisting of non-corrosive piping and circulating fresh water. Filling of the pipe with concrete or grout after its usefulness has ended is required.
8) Placing concrete during the coolest part of the day, or during cooler weather.
9) Use of special cements or additives that will reduce heat of hydration without affecting strength or durability.

3.2 Thermal Control.

3.2.1 Temperature Differential Restrictions. Ensure that the temperature differential between the geometric center of each placement and the geometric surface does not exceed 35 °F at any time. Maintain thermal control of each placement until the temperature at the center is within 35 °F of the average outside air temperature. Determine the average outside air temperature by averaging the daily high and low temperatures over the preceding 7 calendar days.

3.2.2 Temperature Sensing and Recording. For each placement of structural mass concrete, install 4 temperature sensors, 2 at separate locations near the geometric center of each concrete placement and 2 at the approximate center of the exterior face that has the least sun exposure with the longest distance to the interior sensors. Place the exterior side sensors two inches below the exterior surface. The Department requires 2 sensors at each location in order to have a primary and secondary backup.

3.2.3 Failure to Comply. If the temperature differential within any structural mass concrete placement exceeds 35 °F, take immediate corrective action, suspend future placement of structural mass concrete, and submit a revised Thermal Control Plan to the Engineer for approval. Do not resume placing mass concrete without written approval from the Engineer.

3.3 Trial Mixtures. At least 30 calendar days prior to concrete placement, for each class of concrete used in structural mass concrete, make trial batches according to Subsection 601.03.02 G).

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3.4 Seal Concrete. Conform to all requirements herein this note for underwater placement of concrete seals, with the following exceptions.

1) The Department will not require thermistor devices.
2) The Department will not require insulation.
3) The Department will not require monitoring of the differential between interior and exterior temperatures.
4) When placing the mixture, do not allow its temperature to exceed 60° F.
5) Ensure seal concrete has the following properties:

Cementitious Content	564 lbs/cy
Maximum Free Water	0.47 lb water/lb cement
Slump	4-8 inches
Air Content	0-5%
28-day Compressive Strength	3,500 psi

3.5 Acceptance Testing. Conform to the specified 28-day compressive strength requirements for each class of concrete. The Department will make extra cylinders at the rate of one set per 100 cubic yards, except seal concrete shall be one set per 200 cubic yards, and will test them at an age of 7 days. The Department will cure the extra cylinders, after the first 24 hours, at a temperature between 60 °F and 80 °F. The extra cylinders will be expected to achieve a minimum 7-day compressive strength of 2,600 psi. If the 2,600 psi is not consistently achieved, take corrective action on future pours.

4.0 MEASUREMENT. The Department will not measure the work required by this Special Note as a separate pay unit and will consider it incidental to the various concrete bid items.

5.0 PAYMENT. When the temperature differential exceeds 35 °F during the thermal control period, the Department will adjust payment for the concrete within the affected placement by multiplying the contract unit price by the appropriate factor in the following table:

Temperature Differential	Pay Factor
36 to 40 °F	0.96
41 to 45 °F	0.90
46 °F or higher	0.80

When the 35 °F differential is exceeded for more than one 24-hour period, the Department will apply the pay factor for the maximum differential that occurs. Begin measuring temperature differential 12 hours after the last concrete placement.

June 1, 2019

PROPOSAL BID ITEMS

Report Date 10/28/20

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	638.00	TON		$	
0020	00100		ASPHALT SEAL AGGREGATE	7.10	TON		$	
0030	00103		ASPHALT SEAL COAT	.90	TON		$	
0040	00214		CL3 ASPH BASE 1.00D PG64-22	767.00	TON		$	
0050	00356		ASPHALT MATERIAL FOR TACK	1.60	TON		$	
0060	00388		CL3 ASPH SURF 0.38B PG64-22	171.00	TON		$	
0070	00441		ENTRANCE PIPE-18 IN	178.00	LF		$	
0080	00445		ENTRANCE PIPE-30 IN	164.00	LF		$	
0090	01204		PIPE CULVERT HEADWALL-18 IN	2.00	EACH		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0100	00069		CRUSHED AGGREGATE SIZE NO 3	42.00	TON		$	
0110	00078		CRUSHED AGGREGATE SIZE NO 2	2.00	TON		$	
0120	01002		PERFORATED PIPE-8 IN	100.00	LF		$	
0130	01012		NON-PERFORATED PIPE-8 IN	100.00	LF		$	
0140	01022		PERF PIPE HEADWALL TY 1-8 IN	2.00	EACH		$	
0150	01310		REMOVE PIPE	75.00	LF		$	
0160	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	5.00	EACH		$	
0170	01984		DELINEATOR FOR BARRIER - WHITE	9.00	EACH		$	
0180	02091		REMOVE PAVEMENT	5,000.00	SQYD		$	
0190	02159		TEMP DITCH	1,500.00	LF		$	
0200	02160		CLEAN TEMP DITCH	750.00	LF		$	
0210	02200		ROADWAY EXCAVATION	685,481.00	CUYD		$	
0220	02242		WATER	60.00	MGAL		$	
0230	02262		FENCE-WOVEN WIRE TYPE 1	4,102.00	LF		$	
0240	02351		GUARDRAIL-STEEL W BEAM-S FACE	50.00	LF		$	
0250	02360		GUARDRAIL TERMINAL SECTION NO 1	1.00	EACH		$	
0260	02371		GUARDRAIL END TREATMENT TYPE 7	2.00	EACH		$	
0270	02381		REMOVE GUARDRAIL	244.00	LF		$	
0280	02391		GUARDRAIL END TREATMENT TYPE 4A	2.00	EACH		$	
0290	02397		TEMP GUARDRAIL	400.00	LF		$	
0300	02429		RIGHT-OF-WAY MONUMENT TYPE 1	5.00	EACH		$	
0310	02432		WITNESS POST	3.00	EACH		$	
0320	02488		CHANNEL LINING CLASS IV	6,434.00	CUYD		$	
0330	02542		CEMENT	4.00	TON		$	
0340	02545		CLEARING AND GRUBBING 25.6 ACRES	1.00	LS		$	
0350	02562		TEMPORARY SIGNS	159.00	SQFT		$	
0360	02585		EDGE KEY	100.00	LF		$	
0370	02610		RETAINING WALL-GABION	148.00	CUYD		$	
0380	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0390	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		$	
0400	02701		TEMP SILT FENCE	5,230.00	LF		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0410	02703		SILT TRAP TYPE A	26.00	EACH		$	
0420	02704		SILT TRAP TYPE B	26.00	EACH		$	
0430	02705		SILT TRAP TYPE C	26.00	EACH		$	
0440	02706		CLEAN SILT TRAP TYPE A	26.00	EACH		$	
0450	02707		CLEAN SILT TRAP TYPE B	26.00	EACH		$	
0460	02708		CLEAN SILT TRAP TYPE C	26.00	EACH		$	
0470	02711		SEDIMENTATION BASIN	1,640.00	CUYD		$	
0480	02712		CLEAN SEDIMENTATION BASIN	1,000.00	CUYD		$	
0490	02713		BOULDER	12.00	EACH		$	
0500	02726		STAKING	1.00	LS		$	
0510	02731		REMOVE STRUCTURE RAILROAD RETAINING WALL - 355LF	1.00	LS		$	
0520	03171		CONCRETE BARRIER WALL TYPE 9T	800.00	LF		$	
0530	05950		EROSION CONTROL BLANKET	5,000.00	SQYD		$	
0540	05952		TEMP MULCH	82,441.00	SQYD		$	
0550	05953		TEMP SEEDING AND PROTECTION	61,831.00	SQYD		$	
0560	05963		INITIAL FERTILIZER	2.41	TON		$	
0570	05964		MAINTENANCE FERTILIZER	4.02	TON		$	
0580	05985		SEEDING AND PROTECTION	72,644.00	SQYD		$	
0590	05992		AGRICULTURAL LIMESTONE	48.14	TON		$	
0600	08901		CRASH CUSHION TY VI CLASS BT TL2	2.00	EACH		$	
0610	10020NS		FUEL ADJUSTMENT	118,554.00	DOLL	$1.00	$	$118,554.00
0620	20050ES724		AMERICAN SYCAMORE	25.00	EACH		$	
0630	20482NC		DRIFT/SEDIMENT REMOVAL	1.00	LS		$	
0640	20512NS724		RED MAPLE	24.00	EACH		$	
0650	20537NS724		RIVER BIRCH	24.00	EACH		$	
0660	20667ED		PNEUMATIC BACKSTOWING	150.00	TON		$	
0670	20911ED		HIGH SLUMP 3000 PSI GROUT	351.00	CUYD		$	
0680	21662NS724		SWEET GUM	24.00	EACH		$	
0690	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	375.00	LF		$	
0700	22940ND		MODIFIED SILT TRAP	2.00	EACH		$	
0710	22941ND		CLEAN MODIFIED SILT TRAP	1.00	EACH		$	
0720	23788EC		TEMP STRAW BALE SILT FENCE	7,460.00	LF		$	
0730	23789EC		CLEAN TEMP STRAW BALE SILT FENCE	7,460.00	LF		$	
0740	24423EC		TEMPORARY SHORING FOR PIER CONSTRUCTION ALONG KY80	1.00	LS		$	
0750	24740EC		CONSTRUCTION ACCESS	1.00	LS		$	

Section: 0003 - BRIDGE -EASTBOUND RUSSELL FORK CREEK

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0760	02231		STRUCTURE GRANULAR BACKFILL	899.00	CUYD		$	
0770	02998		MASONRY COATING	7,865.00	SQYD		$	
0780	03299		ARMORED EDGE FOR CONCRETE	336.00	LF		$	
0790	08001		STRUCTURE EXCAVATION-COMMON	5,867.00	CUYD		$	
0800	08002		STRUCTURE EXCAV-SOLID ROCK	377.00	CUYD		$	
0810	08019		CYCLOPEAN STONE RIP RAP	1,566.00	TON		$	
0820	08033		TEST PILES	629.00	LF		$	
0830	08037		COFFERDAM	1.00	LS		$	

PROPOSAL BID ITEMS

Report Date 10/28/20

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0840	08051		PILES-STEEL HP14X89	6,808.00	LF		$	
0850	08095		PILE POINTS-14 IN	228.00	EACH		$	
0860	08100		CONCRETE-CLASS A	8,301.00	CUYD		$	
0870	08104		CONCRETE-CLASS AA	3,946.00	CUYD		$	
0880	08150		STEEL REINFORCEMENT	1,700,769.00	LB		$	
0890	08151		STEEL REINFORCEMENT-EPOXY COATED	1,373,446.00	LB		$	
0900	08160		STRUCTURAL STEEL 6,427,988 LB	1.00	LS		$	
0910	08170		SHEAR CONNECTORS 25,836 EA	1.00	LS		$	
0920	08500		APPROACH SLAB	234.00	SQYD		$	
0930	08711		BRIDGE CHAIN LINK FENCE-6 FT	740.00	LF		$	
0940	21679EN		FIBERGLASS DRAIN PIPE EB	170.00	LF		$	
0950	23859EC		FINGER EXPANSION JOINT	126.00	LF		$	
0960	25027ED		RAIL SYSTEM SINGLE SLOPE - 36 IN	5,870.00	LF		$	
0970	25029ED		STEEL HANDRAIL	5,870.00	LF		$	

Section: 0004 - BRIDGE -WESTBOUND RUSSELL FORK CREEK

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0980	02231		STRUCTURE GRANULAR BACKFILL	920.00	CUYD		$	
0990	02998		MASONRY COATING	7,766.00	SQYD		$	
1000	03299		ARMORED EDGE FOR CONCRETE	352.00	LF		$	
1010	08001		STRUCTURE EXCAVATION-COMMON	6,246.00	CUYD		$	
1020	08002		STRUCTURE EXCAV-SOLID ROCK	443.00	CUYD		$	
1030	08019		CYCLOPEAN STONE RIP RAP	1,566.00	TON		$	
1040	08033		TEST PILES	768.00	LF		$	
1050	08037		COFFERDAM	1.00	LS		$	
1060	08051		PILES-STEEL HP14X89	7,525.00	LF		$	
1070	08095		PILE POINTS-14 IN	225.00	EACH		$	
1080	08100		CONCRETE-CLASS A	8,683.00	CUYD		$	
1090	08104		CONCRETE-CLASS AA	4,035.00	CUYD		$	
1100	08150		STEEL REINFORCEMENT	1,768,797.00	LB		$	
1110	08151		STEEL REINFORCEMENT-EPOXY COATED	1,425,935.00	LB		$	
1120	08160		STRUCTURAL STEEL 6,126,023 LB	1.00	LS		$	
1130	08170		SHEAR CONNECTORS 26,964 EA	1.00	LS		$	
1140	08500		APPROACH SLAB	244.00	SQYD		$	
1150	08711		BRIDGE CHAIN LINK FENCE-6 FT	790.00	LF		$	
1160	21679EN		FIBERGLASS DRAIN PIPE WB	152.00	LF		$	
1170	23859EC		FINGER EXPANSION JOINT	132.00	LF		$	
1180	25027ED		RAIL SYSTEM SINGLE SLOPE - 36 IN	5,744.00	LF		$	
1190	25029ED		STEEL HANDRAIL	5,744.00	LF		$	

Section: 0005 - TRAINEES

PROPOSAL BID ITEMS

Report Date 10/28/20

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1200	02742		TRAINEE PAYMENT REIMBURSEMENT (1 IRONWORKER)	1,400.00	HOUR		$	
1210	02742		TRAINEE PAYMENT REIMBURSEMENT (1 IRONWORKER)	1,400.00	HOUR		$	
1220	02742		TRAINEE PAYMENT REIMBURSEMENT (1 GROUP 2, 3 OR 4 OPERATOR)	1,400.00	HOUR		$	

Section: 0006 - DEMOBILIZATION AND/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1230	02568		MOBILIZATION	1.00	LS		$	
1240	02569		DEMOBILIZATION	1.00	LS		$	