OHIO DEPARTMENT OF TRANSPORTATION

CENTRAL OFFICE • 1980 WEST BROAD STREET • COLUMBUS, OH 43223

JOHN R. KASICH, GOVERNOR • JERRY WRAY, DIRECTOR

6/24/2015

Project 150395 **Addendum No. 1**
PID No. 84868
FRA – IR 71 – 5.29
Major Reconstruction
Letting: July 16, 2015

Notice to all Bidders and Suppliers to please be advised of the attached Proposal Addendum.

> For internet access to information referenced in this addendum, please see the ODOT web site at -> ftp://ftp.dot.state.oh.us/pub/Contracts/Attach/FRA-84868/

The Department utilizes Bid Express (http://www.bidx.com) as the official medium for electronic bid submittal. All bidders must prepare bids and submit them online via Bid Express.

Addenda amendments must be acknowledged in the miscellaneous section of the Expedite (EBS) file and all amendments loaded in order for your bid to be considered for award of this project. Bid express will not accept bids that do not have amendments incorporated. Failure to incorporate changed quantities or items in your Expedite (EBS) submissions will result in the rejection of your bid.

Proposal Addendum
For
FRA-71-5.29; PID 84868
Project 150395

Completion Date Change: No

Bid Item Changes, Additions or Deletions: Yes

Funding Splits Required: Yes

Revised Bid Items:

Ref. No.	Item No.	Total Quantity	Unit	Description	Section
0021	203E10000	12184	CY	EXCAVATION	0001
0052	203E10000	127170	CY	EXCAVATION	0002
0053	203E20000	38179	CY	EMBANKMENT	0002
0055	203E10000	115318	CY	EXCAVATION	0003
0056	203E20000	38667	CY	EMBANKMENT	0003
0025	206E10500	10240	TON	CEMENT	0001
0026	206E11000	344699	SY	CURING COAT	0001
0027	206E15010	344699	SY	CEMENT STABILIZED SUBGRADE, 12 INCHES DEEP	0001
0030	606E15050	10818.75	FT	GUARDRAIL, TYPE MGS	0001
0042	622E10160	1363	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	0001
0043	622E25000	1	EACH	CONCRETE BARRIER END SECTION, TYPE D	0001
0044	622E25050	1	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED , TYPE D	0001
0058	601E11000	68	SY	RIPRAP USING 6” REINFORCED CONCRETE SLAB	0004
0059	601E21050	201	SY	TIED CONCRETE BLCOK MAT, TYPE 1	0004
0061	601E32100	115	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	0004
0064	659E00300	23696	CY	TOPSOIL	0004
0065	659E10000	213476	SY	SEEDING AND MULCHING	0004
0066	659E14000	10674	SY	REPAIR SEEDING AND MULCHING	0004
0067	659E15000	10674	SY	INTER-SEEDING	0004
0068	659E20000	29.77	TON	COMMERCIAL FERTILIZER	0004
0069	659E31000	44.11	ACRE	LIME	0004
0070	659E35000	1182	MGAL	WATER	0004

0071	659E40000	481	MSF	MOWING	0004
0077	509E10000	5468	LB	EPOXY COATED REINFORCING STEEL	0005
0084	602E20000	55.81	CY	CONCRETE MASONRY	0005
0085	605E11100	94142	FT	6” SHALLOW PIPE UNDERDRAINS, 707.31	0005
0088	605E14000	91134	FT	6” BASE PIPE UNDERDRAINS, 707.31	0005
0091	611E00510	2270	FT	6” CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	0005
0094	611E01500	3543	FT	6” CONDUIT, TYPE F	0005
0095	611E05900	432	FT	15” CONDUIT, TYPE B	0005
0096	611E06100	267	FT	15” CONDUIT, TYPE C	0005
0116	611E99114	1	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE D	0005
0117	611E99574	6	EACH	MANHOLE, NO. 3	0005
0118	611E99710	59	EACH	PRECAST REINFORCED CONCRETE OUTLET	0005
0120	304E20000	551	CY	AGGREGATE BASE	0006
0121	452E17020	2130	SY	14” NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1 WITH QC/QA	0006
0122	302E46000	110436	CY	ASPHALT CONCRETE BASE, PG64-22	0007
0123	304E20000	57069	CY	AGGREGATE BASE	0007
0124	407E10000	24371	GAL	TACK COAT	0007
0125	407E14000	12999	GAL	TACK COAT FOR INTERMEDIATE COURSE	0007
0126	806E00100	13541	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5mm, TYPE A	0007
0127	442E10100	15796	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)	0007
0128	609E24510	56	FT	CURB, TYPE 4-C	0007
0130	304E20000	57013	CY	AGGREGATE BASE	0008
0132	452E17020	323794	SY	14” NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1 WITH QC/QA	0008
0133	609E24000	56	FT	CURB, TYPE 4-A	0008
0184	644E00104	18.33	MILE	EDGE LINE, 6”	0011
0190	646E10010	0.46	MILE	EDGE LINE, 6”	0011
0285	606E10200	984	SF	SPECIAL – NOISE BARRIER (REFLECTIVE), 10’ HEIGHT AND UNDER	0017
0286	606E10210	18416	SF	SPECIAL – NOISE BARRIER (REFLECTIVE), OVER 10’ TO 14” HEIGHT	0017
0287	606E10220	88540	SF	SPECIAL – NOISE BARRIER (REFLECTIVE), OVER 14’ TO 20’ HEIGHT	0017
0248	516E13600	17	SF	1” PREFORMED EXPANSION JOINT FILLER	0015
0256	526E30011	502	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17”), AS PER PLAN	0015
0206	614E11120	200	HOURS	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ENFORCEMENT	0014

Added Bid Items:

Ref. No.	Item No.	Total Quantity	Unit	Description	Section
300	614E11110	900	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	0014
301	203E02000	1798	CY	SPECIAL - ENGINEERED FILL – CELLULAR CONCRETE FILL CLASS II	0001
302	611E06700	23	FT	15" CONDUIT, TYPE F	0005
303	611E98180	1	EACH	CATCH BASIN, NO. 3A	0005

Please be advised of the following:

1) Increased disincentive. Note 4 under Item 614 Maintaining Traffic on Sht. 17 has been revised to read: "All existing lanes shall be open to traffic between November 2, 2015 and April 4, 2016, and between November 2, 2016 and April 4, 2017. November 2, 2015 and November 2, 2016 shall be considered to constitute interim completion dates. A disincentive of $2,500/day shall be implemented for each calendar day that all lanes are not open and available to traffic between the above dates."

2) MOT and shoulder pavement changes. Plans and quantities have been revised to require a 1" mill on the entire 4' inside shoulder.

3) Ramps at Stringtown Rd. Interchange. Ramp A construction materials shall match the mainline pavement optional bid; quantities have been revised. Ramp D construction materials from Mainline I-71 to Sta. 499+39 on the ramp shall match the mainline pavement optional bid; quantities have been revised. Ramp D construction materials from Sta. 499+39 to Stringtown Rd. shall remain concrete pavement, as currently designed. All ramp alignments shall remain unchanged.

4) Noise Walls 6 & 7. Noise Wall 7 has been deleted from this construction project. Barrier wall along west side of I-71 in this vicinity will be changed to guardrail; quantities have been revised. Noise Wall 6 has been relocated as shown in revised plans.

5) The 3D Model files are available for download at: ftp://ftp.dot.state.oh.us/pub/Contracts/Attach/FRA-84868/Reference%20Files/

6) The plan note on Sht. 16 titled "Waterway Permit Conditions" has been revised.

7) The plan notes on Sht. 16 for noise barrier panel colors and textures have been revised.

Add the following Notes:

(1) Add ODOT Supplemental Specification 806, "Asphalt Concrete with Joint Density for Multi-Lane Highways" (copy attached), to the project bid documents. LEO notes have been modified to address the use of LEO during joint coring operations and pay item has been added for Law Enforcement Officer with Patrol Car for Assistance.

(2) Add the following plan note on Sht. 16: "No excavation will be allowed in the vicinity of the main leachate line belonging to the Solid Waste Authority of Central Ohio (SWACO) Franklin County Sanitary Landfill, Site 52." Delete the "Hazardous Waste Document" paragraph on Sht. 16.

(3) Add Special Provision for "Engineered Fill – Cellular Concrete" (copy attached).

Replace/Add Plan sheets: Yes

Replace the following with revised sheets: 1, 4, 9, 11, 15, 16, 17, 18, 116-121, 123-126, 128, 131, 133-135, 149, 150, 352-358, 364-371, 398-407, 410-418, 450, 452, 453, 457, 459, 462, 464, 473, 474, 481, 482, 484-488, 490, 522, 535, 543, 547, 548, 561, 562, 585, 586, 588, 591, 598, 601, 618, 620, 623, 28/32, 29/32, 2/8, 16/41, 17/41, 18/41.

Add the following sheet: 13A, 18A

Delete the following sheets: 529-534

Answers to Prebid Questions: No

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
ENGINEERED FILL – CELLULAR CONCRETE
FRA-71-5.29 (PID 84868)

May 2015

§01 Description. This work consists of furnishing and placing cellular concrete fill (CCF) which consists of a low density, lightweight, flowable, low absorbtion, cementitious fill material.

§02 Qualifications. Before beginning work, submit documentation verifying that the proposed supplier/producer and CCF material meet the qualifications described below. Allow 30 days for the review of the documentation. Obtain approval before beginning placement of the CCF.

A. Supplier/Producer. Provide CCF from a Supplier/Producer regularly engaged in the placement of CCF material, who has in the past three years completed mass fills having a combined quantity of at least 10,000 total cubic yards.

B. CCF Material. Provide CCF material which has been successfully placed on at least five projects that have performed satisfactorily for at least five years.

§03 Materials. Furnish materials conforming to:

Foaming Agent .....ASTM C796
Portland cement .....701.04 or 701.05

Furnish water conforming to 499.02. Potable water is satisfactory for use in CCF.

Furnish chemical admixtures for concrete conforming to 705.12 for water reducing, retarding, accelerating, improving the bond, or for other specific properties, when specifically approved by the Supplier/Producer of the CCF.

§04 Mix Design. At least 30 days before placing CCF, submit the proposed mix design, with certified test data from the Supplier/Producer, to the Laboratory for approval, with a copy to the Engineer. The proposed mix design must meet the properties of Table 1 for the Class of CCF specified in the contract documents.

TABLE 1. CELLULAR CONCRETE FILL PROPERTIES

Property	Class II	Class III	Class IV
Maximum Cast Density	30 lb/ft^3	36 lb/ft^3	42 lb/ft^3
Minimum Compressive Strength @ 28 days	40 psi	80 psi	120 psi
Maximum Percent Water Absorption, ASTM C796 (expressed as a percent of cast density)	20 percent	16 percent	14 percent

§05 Quality Control. Ensure the CCF meets the requirements for maximum cast density and minimum compressive strength using samples collected at the point of placement. Failure to meet the requirements may require removal and replacement of the unacceptable material represented by the sample, according to C&MS 106.07.

A. Cast Density. During intial placement, measure the cast density of the CCF at the point of placement and adjust the mix as required to obtain the specified cast density. Check the density at the point of placement at one-hour intervals during placement. Adjust operations or the mix as necessary to maintain the specified maximum cast density. Maintain a log of all cast density measurements.

Follow the procedure below for measuring the cast density of the CCF.

1. Weigh a container of known volume and record the weight. A standard concrete cylinder mold may be used as the container.
2. Fill the container with CCF, tapping the container sides with a rubber hammer during filling. DO NOT ROD THE SAMPLE.
3. Overfill the container, striking off the excess CCF. Wipe off the outside surface of the container.
4. Weigh the full container.
5. Subtract the weight of the empty container from the full container.
6. Calculate the cast density and compare it to the maximum cast density for the Class of CCF.

If the CCF material exceeds the maximum density for the Class of CCF, adjust the mix and recheck the cast density.

B. Compressive Strength. Take at least four representative test samples at the point of placement for each 300 cubic yards of CCF placed or for each day's production. Prepare, cure, and test the samples according to ASTM C796 except as follows:

1. Fill a 3-inch by 6-inch cylinder mold according to ASTM C796, except strike off the excess CCF with a trowel. Tap the sides of the mold with a rubber hammer while filling the mold. DO NOT ROD THE SAMPLE. Cover the sample with a plastic bag as soon as possible to prevent evaporation, but do not mar the surface.
2. Cure the molds in a Concrete Cylinder Curing Box (CCCB) conforming to C&MS 511.04.
3. After curing, do not oven dry the specimens that are to be tested. Air dry the specimens for 1 to 3 days before testing.
4. While samples may be tested at any age to monitor the compressive strength of the CCF, test a minimum of two samples at 28 days for acceptance.
5. Provide the 28 day test results to the Engineer.

§06 Construction. Place CCF according to the Supplier/Producer's recommended procedures and as described below.

A. Preparation. The Engineer will examine the exposed subgrade conditions in the placement areas. Correct unsuitable soil conditions as directed by the Engineer before placing the CCF. Properly fix in plan position items to be encased in the CCF. Coat any aluminum to prevent oxidation from the fresh concrete.

B. Weather. Do not place CCF if the subsoil is frozen. When the ambient temperature is less than 32 ºF (0 ºC), follow the Supplier/Producer's recommendations, which may include using heated mix water

or Type III cement. Take precautions to avoid damage to the CCF from freezing temperatures according to the Supplier/Producer's recommendations.

C. Mixing and Conveying. Use job-site mixing and conveying equipment for proportioning, mixing and placing the CCF approved by the Supplier/Producer. Mix the materials according to the Supplier/Producer mix design procedures and convey the CCF to its final position promptly after mixing. Avoid excessive handling of the CCF.

D. Placement. Place in lifts not exceeding 2.0 feet unless approved by the Engineer. Place subsequent lifts after waiting at least 12 hours. Place the CCF with the final surface finish within 0.1-foot of plan elevation. Do not place CCF in an area with standing water.

E. Loading. Do not apply any load on the CCF until it has attained a compressive strength of at least 20 psi.

§07 Method of Measurement. The Department will measure each class of Engineered Fill – Cellular Concrete Fill by the number of cubic yards of material in the final position, acceptably placed, as determined according to C&MS 203.09.

§08 Basis of Payment. The Department will pay for accepted quantities at the contract price as follows:

Item	Unit	Description
Special	Cubic Yard	Engineered Fill – Cellular Concrete Fill, Class __

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION 806
ASPHALT CONCRETE WITH JOINT DENSITY
FOR MULTI-LANE HIGHWAYS

March 2, 2015

806.01 Description. This work consists of constructing a surface course of aggregate and asphalt binder mixed in a central plant and spread and compacted on a prepared surface. The Department will base acceptance of the compacted mixture in place on the level of density attained as sampled by the Contractor and analyzed by the Department.

The requirements of Item 442 apply, except as modified by this specification.

806.02 JMF Field Adjustments. Determine the need for any JMF gradation adjustments, provided for in 441.05, in the first 3 days or first 3000 tons (3000 metric tons) of production, whichever comes last. Give the DET written notice of JMF adjustments no later than the end of the following day's production.

For projects smaller than the above JMF field adjustment period give the DET written notice of any JMF gradation adjustments within 1 workday following the last day of production.

806.03 Monitoring. If there is poor comparison between the Department's comparison samples and the Contractor's quality control tests, the Monitoring Team may at any time disallow production to continue under 806 acceptance. The Department will notify the Contractor in writing to stop production.

806.04 Reports. Submit the Quality Control Report according to 441.11 on the workday following the production day of the material represented by the report.

806.05 Mat Density Acceptance. The requirements of 401.13 do not apply. However, rollers must fully and satisfactorily provide the required compaction, be mechanically sound, and meet Hot Mix Asphalt industry standards. The Department retains the right to reject the use of rollers

which are not in good repair, or are not designed to do the work required. A three-wheel roller according to 401.17 is not required.

Obtain ten, 4-inch cores for the Department to test to determine the in-place density of the compacted mixture as a percentage of the average QC Maximum Specific Gravity (MSG) for the production day the material was placed. If Department MSG VA tests show poor comparison to the average QC MSG according to 403.06 use Department determined MSG results in the density calculation for each production day. Compact shoulders using the same equipment and procedures as used on the mainline pavement. The requirements of 401.16, except for the last four paragraphs, are waived.

Payment for compaction of the completed mainline pavement and ramps is by Lot, based upon the degree to which density is attained. Payment for shoulders depends on the degree to which the density is obtained on the adjacent mainline pavement lane or ramp. However, when a cold longitudinal joint is made between a mainline pavement lane and an adjoining shoulder, payment for the shoulder will be based on the degree to which the density is obtained on the shoulder.

A Mat Density Lot consists of an area of pavement placed during a production day, including the shoulders. If less than 400 tons (400 metric tons) is produced in a production day, then that production day is combined with the next production day into a single lot. If greater than 250 tons (250 metric tons) and less than 400 tons (400 metric tons) are produced on the last day of production for the project, then the day's production is a separate lot. If less than 250 tons (250 metric tons) is produced on the last production day for the project, it is part of the previous lot for acceptance, provided the previous lot was placed within 3 days; otherwise, it is a separate lot.

Within 48 hours after the pavement is placed, obtain ten cores for each Mat Density Lot at random locations the Engineer determines. Only obtain core samples in the presence of the Engineer and immediately surrender each core sample to the Engineer for testing. The Engineer will divide a Lot into five equal sublots and calculate two random core locations in each sublot as described below using an acceptable random number selection method. Both mainline pavement and ramps will be included in Lot determinations. The Engineer will not give the Contractor random core locations early in the Lot placement. The Engineer will tell the Contractor the method used to determine random locations as noted below before project start and will use the same method for all Lots.

For each lot ten cores will be taken from the mat not including the joint density cores. If locations not according to this specification are given, immediately inform the Engineer. Take the ten random mat cores that are not for the joint coring such that the core's closest edge is at least twelve inches (300 mm) from the cold longitudinal joint, wedge joint upper notch, or vertical face edge. If taken, locate cores for the Contractor's quality control (QC sister core) longitudinally from and within four inches (100 mm) of the random core. In addition to the QC sister cores, three extra cores may be taken from the first lot of a JMF for testing to correlate density gauges. Do not take additional cores beyond what is noted above unless clearly identified in the approved Contractor's QCP. Clearly label all cores with mat locations so that they may be readily identified. Any unlabeled cores may be destroyed by the Department. Notify the Laboratory if any questions arise. Do not store additional cores anywhere (project, in vehicles or at the plant) beyond what is required to be taken for testing. Test all Contractor QC cores and maintain records of all tests (core tests and correlated gauge tests) according to the QCP. Destroy all cores immediately after testing is complete.

The Department will determine the pay factor for each Mat Density Lot cored by the pay schedule in Table 806.05-1. The Department will verify the MTD if the MSG determination has a deviation from the MTD of less than or equal to 0.020. If the MTD is not verified, establish a new MTD according to the procedures established in 441.09. If less than 10 cores are available for determining the mean, the Laboratory will determine disposition of the Lot.

Fill core holes by the next workday with asphalt concrete. Before filling, ensure the holes are dry and tack them with asphalt material conforming to 407.02. Properly compact the asphalt concrete used for filling the hole and leave it flush with the pavement.

TABLE 806.05-1 MAT DENSITY LOTS

Mean of Cores [1]	Pay Factor
	Surface Course
98.0% or greater	[2]
97.0 to 97.9%	0.94
96.0 to 96.9%	1.00
94.0 to 95.9%	1.02
93.0 to 93.9%	1.00
92.0 to 92.9%	0.98
91.0 to 91.9%	0.90
90.0 to 90.9%	0.80
89.0 to 89.9%	[3]
Less than 89.0%	[2]

[1] Mean of cores as percent of average MSG for the production day.

[2] Remove and replace.

[3] The District will determine whether the material may remain in place. If the District determines the course should be removed and replaced, the Contractor will remove and replace this course. The pay factor for such material allowed to remain in place is 0.70.

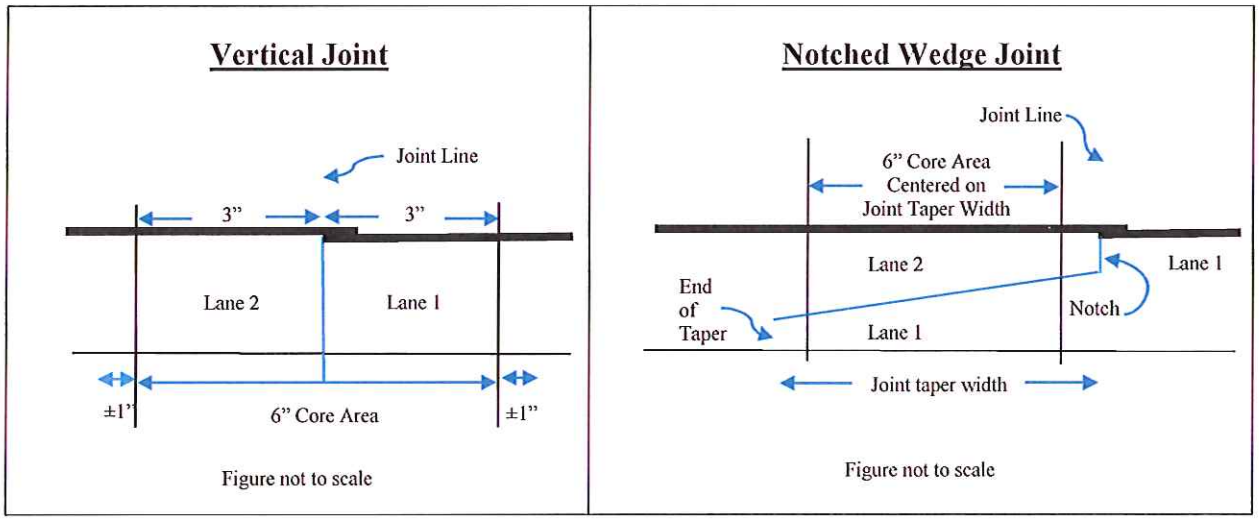
806.06 Joint Density Acceptance. A Joint Density Lot will consist of the entire length of eligible cold longitudinal joint on the project. Divide each lot into 2,500 foot (760 m) sublots, if the remaining sublot is less than 500 feet (152 m) in length, include that length of longitudinal joint in the previous sublot.

A. Excluded Areas. Exclude the following areas from Joint Density Lots. Do not obtain samples from excluded areas to determine lot incentive/disincentive payment.

1. Joints where one side of the joint is formed by existing pavement not constructed on the project.
2. Areas within 15 feet longitudinally of an obstruction during construction of the wearing course (manholes, inlet grates, utilities, bridge structures, etc.)
3. Joints where plan material type or thickness varies from one side of the joint to the other.

4. Joints on ramps.
5. Small areas, such as intersections, gore areas or transitions, or anywhere the Engineer determines paving and phasing methods do not allow for consistent longitudinal joint construction. Prior to paving, submit requests in writing to the Engineer for consideration of any areas to be excluded on this basis. The Engineer will make the final determination.

B. Sampling. Obtain one 6-inch joint density core for each sublot, at the random longitudinal locations as determined by the Engineer. For vertical joints, center joint density cores on the line where the two adjacent mats abut at the surface. For notched wedge joints, center joint density cores one half the joint taper width, away from the joint line in the direction of the wedge. Obtain joint density cores within 48 hours after the longitudinal joint for each sublot is closed. Clearly label all cores so that locations may be readily identified. Identify the samples by Joint Density Lot and Sublot number. Only obtain core samples in the presence of the Engineer and immediately surrender each core sample to the Engineer for testing. If taken, locate cores for the Contractor's quality control (QC sister core) longitudinally from and within four inches (100 mm) of the random core. Fill all core holes according to 806.05. The contractor may take cores near the joint edge for QC purposes in accordance with 806.05.



C. Percent Within Tolerance (PWT). The Department will average the verified daily MSG average for the mix on each side of the longitudinal joint at each joint density core location according to 806.05. The average of the two values will be used for the density calculation of each sublot sample per S1036. Once all test results for the Joint Density Lot have been received, the Department will compute the PWT and average in place density for each lot as follows:

The lower specification limit (L) will be 90 percent (0.90). No upper specification limit (U) for density will be factored into the PWT determination.

1. The number of sublots (n) will be determined by the entire length of eligible cold longitudinal joint. The sampling positions of each sublot will be located by use of a table of random numbers.

2. The lot (X) measurements are averaged to find $\bar{X}$.

$$\bar{X} = \sum_{i=1}^{n} \frac{X_i}{n}$$

3. The Standard Deviation (s)of the lot measurements will be determined as follows:

$$s = \sqrt{\sum_{i-1}^{n} \frac{(X_i - \bar{X})^2}{n-1}}$$

4. The Quality Index (QL) is found by subtracting the lower specification limit (L) from the average and dividing the result by the standard deviation (s).

$$Q_L = \frac{(\bar{X} - L)}{s}$$

5. The percentage of material that will fall within the lower specification limit (L) is estimated by entering Table 806.06-1 with QL, using the column appropriate to the total number of sublots (n). For negative QL values, use the absolute value of the QL and subtract the PWT from 100 to determine the correct PWT.

TABLE 806.06-1

Estimating Percent of Lot Within Tolerance (PWT)

	Q_L Values for Number (n) of Sublots							
PWT	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 +
100	1.1600	1.5000	1.7900	2.0300	2.2300	2.3900	2.5300	2.6500
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

For negative Q_L values – Use the absolute value of the Q_L and subtract the PWL from 100 to determine the correct PWL.
Ex: n=5; Q_I = - 0.34 → PWL = 100-62 = 38

Joint Density Lot with a PWT $\geq$ 90 receive a prorated positive incentive payment up to a maximum of two percent of the unit bid price calculated according to Table 806.06-2. Lots with all joint cores having a density greater than or equal to 92.0 percent will receive the two percent maximum Joint Density Lot incentive regardless of PWT.

Joint Density Lot with a PWT $\leq$ 60 receive a prorated negative adjustment (disincentive) of the unit price bid calculated according to Table 806.06-2.

TABLE 806.06-2 JOINT DENSITY LOTS

LOT PWT	Pay Factor Surface Course
PWT $\geq$ 90	$\left[\frac{(PWT-90)}{10}\times 0.02\right]+1$
PWT = 61 to 89	1.00
PWT = 50 to 60	$1-\left[\frac{(60-PWT)}{10}\times 0.05\right]$
PWT $\leq$ 49	0.95

806.07 Joints. Construct joints according to 401.17. Make a hot longitudinal joint between the mainline pavement lane and the adjoining shoulder and all ramps and the adjoining shoulders. If a hot longitudinal joint is specified between the mainline pavement lanes, the Contractor may construct a cold longitudinal joint between the mainline pavement lanes and the adjoining shoulders. Cold longitudinal joints will be tested according to 806.06.

In addition to the requirements of 401.17, wedge joints may be constructed as follows. Do not place a wedge joint at ramps and other tight areas of slow production as designated by the Engineer. Instead provide a vertical face joint. Do not use a wedge joint for any course thickness less than 1.25 inch (32 mm). Provide a 0.5 to 0.7 inch (12 to 18 mm) vertical face notch at the upper portion of the wedge after compaction. Allow a notch at the lower wedge toe of height equal to the nominal maximum aggregate size of the asphalt concrete mixture. Provide a sloped wedge with a width of no more than 6.0 inches (152mm) and an angle of no more than 10 degrees from horizontal for surface courses up to 1.75 inches (45 mm) lift thickness. Provide a sloped wedge with a width of no more than 10.0 inches (250 mm) and an angle of no more than 15 degrees from horizontal for courses over 1.75 inches (45 mm) lift thickness. The lane width is determined from the upper notch of the wedge. When constructing the wedge joint maintain the asphalt material head the same as or greater than the head of asphalt material in front of the spreading equipment screed. Remove any loose asphalt material at the lower wedge toe or any material that is not part of the wedge slope face before overlaying. When the adjacent lane top portion of the wedge joint is placed over the bottom portion of the first lane wedge joint use the same equipment required for constructing wedge joints at 0 degrees wedge taper to achieve precompaction of the top portion of the wedge joint.

Construct the wedge joint using equipment meeting the following requirements. The wedge joint device will be attached to the spreading equipment in all wedge joint operations. The wedge joint device will pre-compact, rather than strike off, the asphalt concrete by means of a longitudinal,

uniformly decreasing material height of the asphalt concrete forced under the wedge joint device as the spreading equipment moves forward. The angle of pre-compaction thru the device will be 25 to 35 degrees. The length of travel of material under the device will be a minimum of 10 inches (250 mm). Provide additional compaction on the wedge and after the wedge joint device as desired but do not distort the wedge and notch configuration. The wedge joint device will have a variable angle adjustment from 0 degrees (horizontal) to the taper angle necessary to complete the wedge height required as well as creating the required notch. The wedge joint device will be constructed to allow at least the same head of asphalt material in front of the device as is in front of the spreading equipment screed. The wedge joint device will be constructed to not allow any asphalt material to bypass wedge joint precompaction. Do not use wedge joint equipment unless it has been approved by the Laboratory and meets the above requirements.

Seal all cold longitudinal construction joints by coating the entire face of the cold joint with a certified Supplemental Specification 875.02 Hot Applied Asphaltic Joint Adhesive to provide 100 percent coverage of the joint. Overlap the joint edges by at least 1/2 inch (13 mm).

806.08 Basis of Payment. The Department will pay for accepted quantities, completed in place, at the contract prices, as modified by 806.05 and 806.06, as follows:

Item	Unit	Description
806	Cubic Yard (Cubic Meter)	Asphalt Concrete Surface Course, 12.5mm, Type A
806	Cubic Yard (Cubic Meter)	Asphalt Concrete Surface Course, 12.5mm, Type B
806	Cubic Yard (Cubic Meter)	Asphalt Concrete Surface Course, 9.5mm, Type A
806	Cubic Yard (Cubic Meter)	Asphalt Concrete Surface Course, 9.5mm, Type B

Designer Note:
(Contact the Office of Construction Administration prior to specifying this note.)

This specification is intended for use on limited access, multi-lane facilities, with controlled grades and cross slopes. The functional classifications of interstates, other freeways, and expressways are the targeted facilities. This specification should not be used on two lane facilities or facilities with driveways, extensive intersections, or where MOT will not allow the contractor to pave in a continuous fashion.

Designers with questions on the application of this specification should contact:
Dave Miller, Office of Pavement Engineering – (614) 995-5991
Craig Landefeld, Office of Construction Administration – (614) 644-6622