INDIANA DEPARTMENT OF TRANSPORTATION

INTER-DEPARTMENT COMMUNICATION

Standards Section – Room N642

Writer's Direct Line
232-5353

April 8, 2005

MEMORANDUM

TO: Standards Committee

FROM: Dannie L. Smith, Secretary

RE: Agenda for the April 21, 2005 Standards Committee Meeting

A Standards Committee meeting is scheduled for 9:00 a.m. on April 21, 2005 in the N755 Bay Window Conference Room. Please enter the meeting through the double doors directly in front of the conference room. The following agenda items are listed for consideration.

Old Business

Item 1-1	Mr. Miller	4/21/05	3
106.01	Source of Supply and Quality Requirements	100-51	
Item 2-1	Mr. Miller	4/21/05	5
204	*GEOTECHNICAL INSTRUMENTATION*	200-44	

New Business

Item 4-1	Mr. Miller	4/21/05	11
501.03	Materials	500-1	
501.04	Concrete Mix Design	500-1	
501.04*(a)*	*Change in Materials*	500-1	
501.04*(b)*	*Change in Source*	500-1	
501.06	Trial Batch	500-3	
501.07	Lots and Sublots	500-3	
501.08	Acceptance	500-3	
501.14	Concrete Mixing and Transportation	500-4	
501.17	CMDT Adjustments	500-6	
501.25	Pavement Smoothness	500-7	
501.26	Pavement Thickness	500-8	
501.27(a)	Plastic Unit Weight	500-8	
501.27(b)	Water to Cementitious Ratio	500-9	
501.29(b)	Air Content	500-14	
501.30	Method of Measurement	500-14	
501.31	Basis of Payment	500-15	
Item 4-2	Mr. Miller	4/21/05	16
502.02	Materials	500-16	
502.03	Concrete Mix Design	500-16	
502.03*(a)*	*Change in Materials*	500-16	
502.03*(b)*	*Change in Source*	500-16	
502.03*(c)*	*Change in Mixture*	500-16	
502.04(a)	Portland Cement Concrete	500-16	
502.04(b)	High-Early Strength Concrete	500-17	
502.21	Pavement Thickness	500-23	

Item 4-3	Mr. Miller	4/21/05	19
503.03(a)	Type D-1 Contraction Joints	500-27	
Item 4-4	Mr. Miller	4/21/05	20
506.03	Concrete Mix Design	500-36	
506.03*(a)*	*Change in Material*	500-36	
506.03*(b)*	*Change in Source*	500-36	
506.03*(c)*	*Change in Mixture*	500-36	
506.05	Trial Batch	500-37	
506.08	Concrete Mixing and Transportation	500-38	
Item 4-5	Mr. Miller	4/21/05	23
Standard Drawing	506-CCPP-01		
Item 4-6	Mr. Miller	4/21/05	25
508.02	Proportioning System	500-46	
508.09(c)	Profilograph	500-52	
Item 4-7	Mr. Miller	4/21/05	26
Standard Drawing	602-CCMB-04		
Item 4-8	Mr. Miller	4/21/05	28
602.03(b)	Cast-in-Place Concrete Barrier and Concrete Glare Screen	600-8	
Item 4-9	Mr. Miller	4/21/05	29
602.06	Basis of Payment	600-9	

cc: Committee Members (7)
Districts (28)
FHWA (3)
ICI Representative (1)
IMAA Representative (1)
APAI Representative (1)
CE of I Representative (1)
ADS Representative (1)
Mirich Representative
ACPA Representative (1)
Contech Representative (1)
IKO Representative (1)
Bridgetek Representative (1)
INDOT Toll Road (3)
Traffic Design (3)
Estimators (3)
Specification Writers (4)

Item No. 1-1
Mr. Miller
Date: 4/21/05

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 106, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

106.01 Source of Supply and Quality Requirements

The Contractor ~~may be required to~~ *shall* furnish *the Engineer with* a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the work *at the Preconstruction Conference. If, during the course of the contract, changes or additions to the statement are required, the Contractor shall provide the information 7 calendar days prior to the source supplying materials to the site* ~~together with samples, which may be subjected to the tests provided for in these specifications to determine their quality and fitness for the work~~.

Other sections containing specific cross references: None	General Instructions to Field Employees Update Required? Y___ N___ By - Additional or Revision Frequency Manual Update Required? Y____ N____ By – Addition or Revision
Recurring Special Provisions potentially affected: 106-C-074	Standard Sheets potentially affected: None
Motion: Mr. Second: Mr. Ayes: Nays:	Action: Passed as submitted; revised Effective - _____ Letting _____ Supplementals Withdrawn. Resubmit? _____ Received FHWA Approval? ____

To facilitate the automation of contract sampling and testing requirements through SiteManager, this specification modification needs to be made. Although INDOT request this information from the contractor the specifications do not require the submittal presently. INDOT specifications allow contractors various options for many materials and to facilitate the automation process, settings must be made to reflect these options. The District Testing Engineers will be responsible for making these setting changes after being informed by the contractor.

Spec	Page	Section	Line	Remarks
106	107	106.01	1	Delete and Insert the following:

106.01 Source of Supply and Quality Requirements. The Contractor shall furnish the Engineer with a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the work at the Preconstruction Conference. If, during the course of the contract, changes or additions to the statement are required, the contractor shall provide the information ***7 calendar*** days prior to being incorporated into the work.

Deleted: may be required to

Deleted: together with samples, quality and fitness for the work

Note: delete the language from 106c074. We do not feel this special provision is needed.

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 204, DELETE LINES 1 THROUGH 100.

SECTION 204, AFTER LINE 101 INSERT AS FOLLOWS:

SECTION 204 – GEOTECHNICAL INSTRUMENTATION

204.01 Description

This work shall consist of providing, installing and maintaining of geotechnical instrumentation including settlement plates, settlement stakes, lateral stakes and standpipe piezometers as directed and in accordance with 105.03

MATERIALS

204.02 Materials

Materials shall be in accordance with the following.

B Borrow 211.02
Coarse Aggregate, Class D or Higher, Size No. 53.....904
Ottawa Sand ..... AASHTO T 252*
Structure Backfill, Size No. 30 904
** Ottawa Sand shall have a minimum permeability of 25.0 ft/day (8.3 m/day).*

Bentonite chips shall consist of commercially processed angular fragments of pure bentonite, without additives.

Bentonite-cement grout shall consist of a mixture with the ratio of 25 lb (11.36 kg) of bentonite with 94 lb (42.64 kg) of Portland Cement, Type I in accordance with 901.01(b) and a 30 gal. (113.4 L) of water.

CONSTRUCTION REQUIREMENTS

204.03 Settlement Plates

Settlement plates consist of 0.5 in. by 3 ft by 3 ft (13 mm by 1.0 m by 1.0 m) steel plates equipped with sections of 3/4 in. (19 mm) pipe and 2 in. (50 mm) galvanized threaded pipe and couplings to act as a cover or guard.

(a) Installation Requirements

Each settlement plate shall be placed on a horizontal plane consisting of a compacted leveling layer of B borrow, whose surface is not less than 1.0 ft (0.3 m) below the elevation of the adjacent area. The first section of pipe shall then be installed by welding to the settlement plate. The bottom elevation of the settlement plate will be recorded. The area is backfilled with B borrow and thoroughly compacted. The couplings shall be tack welded and the top elevation of the first pipe section will be recorded before starting the first lift of grading operations.

The pipe sections for the settlement plates shall be 3/4 in. (19 mm) steel pipe, 4.0 ft (1.2 m) long and threaded on both ends with proper fittings so that such pipe sections can be extended vertically from the center of the plates up through the new embankment as it increases in height during grading operations. A cover pipe 2 in.

(50 mm) shall be slipped over and centered on the standpipe, and not welded to plates. The 3/4 in. (19 mm) steel and cover pipes shall extend a minimum of 2.0 ft (0.6 m) or more above the grade of the new embankments at all times during grading operations and monitoring period.

Settlement stakes and lateral stakes, if required, shall be installed as shown on the plans or as directed by the Engineer. The stakes shall be 3/4 in. (19 mm) by 4.0 ft (1.2 m) steel rods and shall be driven at least 12 in. (300 mm) into the ground. These stakes shall be set firmly in a vertical position and initial readings will be taken.

B borrow shall be used as compaction material around the settlement plates and pipes and shall be placed in accordance with the applicable requirements of 211.

(b) Instrument Readings and Settlement Period

During the construction of the embankment, elevation readings will be taken on all settlement plate extension pipes and settlement stakes and at the end of each seven-day period, or more frequently if required. After the embankment is constructed to subgrade elevation, additional readings will be taken every seven days until the settlement rate per week is 1/4 in. (6 mm) or less for four consecutive weeks.

If the results of any readings indicate that the new embankment has settlement greater than 1/4 in. (6 mm), the monitoring period will be extended until the settlement requirements are met. If the results of the readings indicate that the new fill has settlement less than 1/4 in. (6 mm) the monitoring period may be reduced as directed.

Settlement stakes will be used to measure the vertical movement, in conjunction with settlement plates if specified. Settlement stakes and settlement plates will be monitored at the same time and interval. Measurements will be made to the nearest 1/4 in. (6mm). The acceptance criteria will be based on data obtained from settlement plates.

Lateral stakes will be used to monitor horizontal movement of the ground or new fill if lateral movement is noticed during the construction of the fill, the work will be suspended and corrective measures taken as directed. Measurements will be made to the nearest 1/4 in. (6mm).

Settlement plates, extension pipes, cover pipes, and stakes shall be protected during construction operations and during the monitoring the period.

204.04 Standpipe Piezometers

The standpipe piezometers shall be installed by a Department approved Geotechnical Consultant prior to placing the first lift of embankment. Piezometer consists of a 1/2 in. (13 mm) leak proof, flush-coupled Schedule 80 PVC pipe or ABS standpipe extending to the surface of the embankment with an attached polyethylene tip in accordance with AASHTO T 252.

(a) Installation Requirements

A separate water-monitoring borehole shall be installed outside the influence of the fill as shown on the plans. This shall be a minimum 2 in. (50 mm) diameter borehole, cased with slotted pipes, drilled to a recommended depth and location or as directed by the Engineer, to establish ground water elevation prior to piezometer installation.

The installation of the standpipe piezometer shall precede placement of any embankment by at least two weeks to allow time for testing of the installation. The piezometer shall be maintained and protected during the embankment construction. The hollow stem auger shall be advanced to an approximate depth of 6 in. (150 mm) below the recommended piezometer tip elevation. Augers shall be cleaned and washed inside for their full length, until the wash water runs clear.

The auger shall be withdrawn 6 in. (150 mm) by means of jacking or other steady pull operations. The hole shall be filled to the bottom with saturated Ottawa sand and tamped with an annular tamping hammer. The elevation shall be measured and provided to the Engineer.

The tip shall be attached to the standpipe and tested for free flow of water. The bottom end of the tip shall be plugged and soaked in water if a porous stone tip is used. The tip and standpipe shall be filled with clean water. The tip shall be lowered into the auger until it rests on the top of the sand placed and the elevation of the tip should be documented. Excess head shall be maintained in the standpipe during lowering to ensure that a small amount of water flows out of the tip.

The auger shall then be pulled or jacked a distance equal to the length of the tip in increments of 6 in. (150 mm). The hole shall be filled with water saturated Ottowa sand at each increment. This layer of sand shall not be tamped in order to avoid damage to the tip.

The auger shall be raised 12 in. (300 mm) and the hole filled with saturated Ottowa sand in 6 in. (150 mm) increments until the backfilling reaches a minimum of 6 in. (150 mm) below the elevation of the strata change or as directed by the Engineer. In locations where there is no strata change, the Ottowa sand shall be placed a minimum of 12 in. (300 mm) above the top of the tip.

The augers shall then be raised and the hole sealed with bentonite chips in accordance with AASHTO T 252 which shall be placed in 6 in. (150 mm) lifts. The top of the seal shall be a minimum of 6 in. (150 mm) above the strata break. A weighted line shall be used to ensure the bentonite seal is in place. The remainder of the hole shall then be backfilled with cement-bentonite grout as the augers are withdrawn. The riser pipe shall be centered in the auger while backfilling. Depths for various stages shall be recorded on the Engineers' logs.

If the piezometer location is not in an area of proposed fill, a protective metal cover, about 3 ft (1 m) long shall be installed at the top with about 2 ft (0.6 m) below the surface and 12 in. (300 mm) above the surface. A 6 in. (150 mm) circular pad of course aggregate; 6 in. (150 mm) thick shall be filled around the cover. A lockable cap shall be securely attached onto the protective metal cover.

If the piezometer location is in an area of proposed fill, a PVC casing shall be used around the piezometer standpipe in order to protect the pipes during embankment construction. B borrow shall be placed and compacted around the casing without disturbing the casing.

The casing and standpipe shall be extended as the fill is placed, by adding extra lengths not to exceed 5.0 ft (1.5 m). The top of the standpipe shall be at least 12 in. (300 mm) above the grade of the new fill. Each time the casing and standpipe are extended, the casing shall be filled with structure backfill. The last extension of pipe shall be of such length that it extends 12 in. (300 mm) above grade. It shall be filled with structure backfill to within 9 in. (225 mm) of the top of the casing. A 6 in. (150 mm) circular pad of coarse aggregate, 6 in. (150 mm) thick shall be filled around the pipes. A lockable cap shall be securely attached onto the protective cover.

When the standpipe is completed it shall be checked for obstructions by dropping a weighted line through the pipe. The standpipe shall then be filled with water and periodic readings made of the water level until the ground water level is stabilized. Hydrostatic time lag required for equalization will be provided by the Geotechnical report. If required, the standpipe shall be flushed and retested at the direction of the Engineer. Ground water readings shall be provided to the Engineer.

Standpipe piezometers, and cover pipes shall be protected during construction operations and during the monitoring of the fill. In the event of damage, fill construction shall be suspended in this area until the piezometer is restored.

(b) Readings and Maintenance of Piezometer

The Engineer will conduct and record all observations and measurements required to determine natural ground water elevations and pore pressures induced by embankment construction. Monitoring intervals will be once every day for the first seven days, once every other day for the next eight, and then, once every three days through the end of construction of the fill. The elevation of the natural ground water existing at the time of installation, prior to placement of any fill, will be used as a reference to determine baseline pore pressures. Ground water and pore pressure test results will be made available to the Contractor.

The pore pressure measurement in conjunction with settlement data will be sent electronically to the Department's Geotechnical Section within one day of the readings for approval. If it is determined that pore-water pressures have not sufficiently dissipated, fill placement shall be suspended, and the monitoring period extended as directed.

If monitoring is to be continued after paving in a traffic accessible area, then the pipe shall be cut off 6 in. (150 mm) below the finished grade and a handhole in accordance with 807.09, shall be installed for monitoring access. When the evaluation is completed, the water monitoring borehole and piezometers shall be backfilled with bentonite-cement grout.

204.05 Method of Measurement

Settlement plates, settlement stakes, lateral stakes, standpipe piezometers, and water monitoring boreholes will be measured by the number of units installed.

204.06 Basis of Payment

Settlement plates, settlement stakes, lateral stakes, standpipe piezometers, and water monitoring boreholes will be paid for at the contract unit price per each.

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 204, CONTINUED.

Payment will be made under:

Pay Item	***Pay Unit Symbol***
Settlement Plate	*EACH*
Settlement Stakes, Lateral Stake	*EACH*
Standpipe Piezometer	*EACH*
Water Monitoring Borehole	*EACH*

The cost of furnishing, installing, and maintaining settlement plates, extension pipes, cover pipes, settlement stakes, lateral stakes, B borrow, structure backfill, coarse aggregate and all necessary incidentals shall be included in the cost of settlement plates.

The cost of backfilling water monitoring boreholes will be included in cost of water monitoring boreholes.

The cost of handholes, protective covers, bentonite, Ottowa sand, tips, casing, drilling, tubing or PVC pipe, backfilling and measurements will be included in the cost of standpipe piezometers.

No additional compensation will be made for any costs incurred related to the repair of settlement plates, pipes, settlement stakes, lateral stakes or standpipe piezometers as the result of damage by the Contractor.

Other sections containing specific cross references:

None

Recurring Special Provisions potentially affected:

204-R-049

Motion: Mr.
Second: Mr.
Ayes:
Nays:

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Standard Sheets potentially affected:

None

Action: Passed as submitted: revised
Effective: - _____Letting
_____Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? _____

-----Original Message-----
From: MILLER, MARK
Sent: Wednesday, April 06, 2005 5:01 PM
To: SMITH, DAN
Subject: FW: Revised 204

Here is the attachment

-----Original Message-----
From: MILLER, MARK
Sent: Wednesday, April 06, 2005 5:00 PM
To: SMITH, DAN
Subject: Revised 204

Dan attached is a revised version for the April meeting. This replaces item 2-1 from the March meeting.

Mark A. Miller
Chief, Materials & Tests Division
Indiana Department of Transportation
120 S. Shortridge Road
Indianapolis, IN 46219-0389
Ph. 317-610-7251, ext 204
Fax 317-356-9351

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 501, AFTER LINE 31, INSERT AS FOLLOWS:

Rapid Set Patching Materials 901.07

SECTION 501, BEGIN LINE 35, DELETE AND INSERT AS FOLLOWS:

501.04 Concrete Mix Design

A concrete mix design *submittal*, CMD*S*, shall be in accordance with 501.05 ~~and shall be verified by a trial batch in accordance with 501.06~~. The CMD*S* shall be submitted ~~in a format acceptable~~ to *and approved by the DMTE*. ~~the Engineer~~ *The CMDS shall be submitted a minimum of one week prior to the trial batch utilizing the Department provided spreadsheet* and *shall* include the following:

(a) a list of all ingredients
(b) the source of all materials
(c) *the fine to total aggregate ratio*
~~(c)~~ *(d)* the gradation of the aggregates
~~(d)~~ *(e)* the absorption of the aggregates
~~(e)~~ *(f)* the SSD bulk specific gravity of the aggregates
~~(f)~~ *(g)* the specific gravity of pozzolan
~~(g)~~ *(h)* the batch weights (mass)
~~(h)~~ *(i)* the names of all admixtures
~~(i)~~ *(j)* the admixture dosage rates and the manufacturer's recommended range

~~A change to any source of material requires a new CMD. The CMD shall be verified on the first sublot of production in accordance with 501.06, except the Engineer will not perform the testing. Production may continue until tests are completed. If the flexural strength is not in accordance with 501.05, production shall stop and a new CMD shall be submitted.~~

~~A CMD in accordance with 502.03 may be used at gaps for public road approaches, driveways, or other permitted breaks. Concrete from commercial plants shall be accepted in accordance with 502.05.~~

The CMDS is used to conduct a trial batch in accordance with 501.06. Upon completion of the trial batch, the Contractor shall document the adjustments to the CMDS and submit the concrete mix design trial, CMDT, to the DMTE for approval. The CMDT shall be submitted a minimum of three work days prior to production to the DMTE utilizing the Department furnished spreadsheet. Production shall not commence without an approved CMDT. Both the Contractor's and the Engineer's tests will be included in the CMDT submittal.

The CMDT is used to start production. The CMDT can be adjusted in accordance with 501.17 and will be documented as a concrete mix design for production, CMDP. The CMDP shall be submitted by the end of the second lot to the DMTE utilizing the Department's spreadsheet. Production shall stop upon the end of the first sublot of the third lot if the CMDP is not received by the DMTE.

(a) Change in Materials

A change in a CMDP to any of the following requires a new CMDS.

1. *cement source, except for Type I*
2. *cement types for IA, IIIA, ISA, IP-A, IS, II, III, IP, ISM*
3. *admixture type*
4. *pozzolan source or type*
5. *aggregate material*

(b) Change in Source

A change in a CMDP to any of the following requires a new DMDT.

1. *cement source, Type I*
2. *admixture source utilizing the same Type*
3. *aggregate source*

When changes in the CMDP are in accordance with 501.04(b), the new CMDT shall be verified on the first sublot of production in accordance with 501.06, except the DMTE will use the acceptance test results for verification. The CMDT will be documented as a CMDP after verification. Production may continue until flexural strength tests are completed as long as all other properties are in accordance with 501.05. If the flexural strength is not in accordance with 501.05, production shall stop. All PCCP constructed with the new CMDT will be adjudicated as a failed material in accordance with normal Department practice in accordance with 105.03. No CMDT adjustments in accordance with 501.17 will be allowed. The CMDP shall be submitted to the DMTE utilizing the Department furnished spreadsheet by the end of the second lot. Production shall stop upon the end of the first sublot of the third lot if the CMDP is not received by the DMTE.

A CMDP from a previous contract may be submitted for use on additional contracts.

SECTION 501, BEGIN LINE 101, DELETE AND INSERT AS FOLLOWS:

501.06 Trial Batch

A trial batch shall be produced and tested by the Contractor's certified technician to verify that the CMDS *or CMDT* meets the concrete mix criteria. The concrete shall be batched within the proportioning tolerances of 508.02(b). The Engineer will test the trial batch and provide the Contractor with the results. The trial batch shall be of sufficient quantity to allow the Contractor and the Engineer to perform all required tests from the same batch. Trial batch concrete shall not be used for more than one test, except the concrete used for the unit weight (mass) may be used to conduct the air content test.

The target unit weight (mass) and water/cementitious ratio of the plastic concrete shall be determined by the trial batch. The flexural strength shall be determined by averaging a minimum of two beam breaks.

Test results shall be added to the CMDS *or CMDT* and submitted to the ~~Engineer~~ *DMTE in accordance with 501.04*. ~~Test results of trial batches for a CMD from previous contracts may be submitted in lieu of a demonstration.~~

SECTION 501, AFTER LINE 124, INSERT AS FOLLOWS:

Lots and sublots will be tested on the CMD's for a given pay item. Lots and sublots will be closed out at the end of the paving season.

SECTION 501 AFTER LINE 140, INSERT AS FOLLOWS:

In the event that an acceptance sample is not available to represent a sublot(s), all test results of the previous sublot will be used for acceptance. If the previous sublot is not available, the subsequent sublot will be used for acceptance.

SECTION 501, AFTER LINE 179, INSERT AS FOLLOWS:

The batch ticket for contract dedicated plants and delivery tickets for ready mix plants shall include the approved DMDT or CMDP number. The tickets shall be delivered to the Engineer.

SECTION 501, BEGIN LINE 236, INSERT AS FOLLOWS:

501.17 CMD*T* Adjustments

The target water/cementitious ratio and target unit weight may be adjusted during the first lot of each year's production or as a result of fluctuations in fine or coarse aggregate specific gravities.

Adjustments to the dosage amount of admixtures will be permitted; however, a new CMD*S* will be required for the addition or deletion of an admixture.

SECTION 501, LINE 304, INSERT AS FOLLOWS:

(b) the pavement lanes *excluding shoulders* are full width and 0.1 mi (0.16 km) or longer.

SECTION 501, BEGIN LINE 315, INSERT AS FOLLOWS:

The 16 ft (4.9 m) long straightedge shall be used on all full-width pavement lanes shorter that 0.1 mi (0.16 km), on tapers, within 50 ft (15 m) of a reinforced concrete bridge approach, and within 50 ft (15 m) of an existing pavement which is being joined, *and shoulders greater than 10 ft (3 m) wide*.

SECTION 501, LINE 359, DELETE AND INSERT AS FOLLOWS:

in accordance with ITM 404. ~~Core holes shall be filled in accordance with 506~~. *All core holes shall be filled with PCC or rapid setting patch material within 24 h of drilling.*

SECTION 501, BEGIN LINE 371, INSERT AS FOLLOWS:

(a) Plastic Unit Weight

Sublots shall not vary by more than ±3.0% from the target unit weight. A stop paving order will be issued if the plastic unit weight exceeds ±3.0% from the target plastic unit weight (mass). Paving operations shall not resume until satisfactory changes are made or an alternate CMD*T or CMDP* is used.

Calculations for the plastic unit in lbs/yd^3 will be made and reported to the nearest figure in the tenth (calculations in kg/m^3 will be made and reported to the nearest whole unit).

(b) Water to Cementitious Ratio

The weekly water to total cementitious materials ratio shall not vary more than ±0.030 of the target value or exceed 0.450. A stop paving order will be issued if the test results exceed these values. Paving operations shall not resume until satisfactory changes are made or an alternate CMD*T or CMDP* is used.

SECTION 501, BEGIN LINE 561, INSERT AS FOLLOWS:

(b) Air Content

Appeals will not be considered unless QC test results indicate greater than a 0.5% difference between the Department's and the Contractor's tests. Upon approval for the additional testing, the Contractor shall obtain core(s) as directed in the presence of the Engineer.

The Engineer will determine the location of the core(s) within the appealed sublot(s). The location of the core will be at the center of a lane at the acceptance sample location. A core shall not be taken over dowels or within 5 ft (1.5 m) of a header. One 4 in. (100 mm) diameter full depth core shall be taken from the pavement for each sublot appealed. All core holes shall be filled with PCC *or rapid setting patch material* within 24 h of drilling.

The air content for a sublot will be the hardened concrete air content determined from the core in accordance with ITM 401. *When ACBF aggregates are used, the hardened concrete air content will be determined in accordance with ASTM C 457.*

SECTION 501, BEGIN LINE 576, INSERT AS FOLLOWS:

501.30 Method of Measurement

QC/QA-PCCP will be measured by the square yard (square meter) of the thickness specified. The area of *QC/QA*-PCCP will be the planned width of the pavement multiplied by the length of the pavement, or as directed in writing. The width of the pavement will be as shown on the typical cross section of the plans. The length of the pavement will be measured parallel to the surface of the pavement along the centerline of the roadway or ramp, excluding paving exceptions as shown on the plans.

SECTION 501, BEGIN LINE 586, DELETE AND INSERT AS FOLLOWS:

501.31 Basis of Payment

The accepted quantities of PCCP will be paid for at the contract unit price per square yard (square meter) for the thickness specified, complete in place.

~~Furnishing, calibrating, and operating the profilograph, and furnishing profile information will be paid for at the contract lump sum price for profilograph, PCCP.~~

Payment for furnishing, calibrating, and operating the profilograph, and furnishing profile information will be made at the contract lump sum price for profilograph, PCCP.

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 501, CONTINUED.

501.03
None

501.04
None

501.06
501.04 Pg 500-1
501.08 Pg 500-3
502.03 Pg 500-16

501.07
None

501.08
None

501.14
None

501.17
None

501.25
501.20 Pg 500-23
507.06 Pg 500-44

501.26
501.08 Pg 500-3

501.27(a)
None

501.27(b)
None

501.29(b)
None

501.30
None

501.31
502.23 Pg 500-25

Other sections containing specific cross references:

SEE ABOVE

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Recurring Special Provisions potentially affected:

None

Standard Sheets potentially affected:

None

Motion: Mr.
Second: Mr.
Ayes:
Nays:

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? ____

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 502, AFTER LINE 16, INSERT AS FOLLOWS:

Rapid Set Patching Materials 901.07

SECTION 502, BEGIN LINE 20. DELETE AND INSERT AS FOLLOWS:

502.03 Concrete Mix Design

~~The~~ *A* concrete mix design *submittal*, CMD*S*, shall be in accordance with 502.04. The CMD*S* shall be submitted *one week* prior to ~~placement of the mixture, in a format acceptable to the Engineer~~ *production and approved by the DMTE. The CMDS shall be submitted utilizing the Department provided spreadsheet* and shall include the following:

(a) a list of all ingredients
(b) the source of all materials
(c) the fine to total aggregate ratio
(d) the absorption of the aggregates
(e) the SSD bulk specific gravity of the aggregates
(f) the specific gravity of pozzolan
(g) the batch weights (mass)
(h) the names of all admixtures
(i) the admixture dosage rates and the manufacturer's recommended range

~~A change to any source of material or proportions of aggregate will require a new CMD. A change to the dosage amount of an admixture will be permitted; however, a new CMD will be required for the addition or deletion of an admixture.~~

~~A CMD in accordance with 501.05 that has been verified in accordance with 501.06 may be substituted for use in the mix.~~

The DMTE will approve the submission as a CMDP, and production may commence.

(a) Change in Materials

A change in a CMDP to any of the following requires a new CMDS.

1. *cement type*
2. *admixture type*
3. *pozzolan type*
4. *aggregate material*

(b) Change in Source

1. *cement source*
2. *admixture source*
3. *pozzolan source*
4. *aggregate source*

(c) Change in Mixture

1. *proportions of aggregates by weight (mass) exceeding ± 2%*
2. *addition or deletion of an admixture*

A CMDP in accordance with 501.05 may be used upon the approval of the DMTE. A CMDP in accordance with 502.04 from a previous contract may be submitted for use upon the approval of the DMTE.

SECTION 502, BEGIN LINE 64, DELETE AND INSERT AS FOLLOWS:

Class C concrete in accordance with 702 *using Class AP coarse aggregate* may be substituted ~~for~~ *in* PCC*P*.

Chemical admixtures type A, type B, type C, type D, and type E may be permitted with prior written approval.

Fly ash or GGBFS used as an additive, or blended portland cements may only be incorporated in the concrete mix between April 1 and October 15 of the same calendar year. If type IP, type IP-A, type IS or type IS-A cements are to be used, the portland cement content shall be increased to 598 lbs/yd^3 (355 kg/m^3). The use of fly ash or GGBFS as an additive will not be permitted when blended portland cements are used.

~~When fly ash or GGBFS is used, the Contractor shall submit a CMD and all supporting test results for approval to the Engineer at least 15 days prior to placing concrete. The supporting test results from a trial batch shall include flexural strength data obtained at an age consistent with the contract work schedule.~~

(b) High-Early Strength Concrete

The Contractor shall submit, along with the CMD*S*, all supporting test results for approval to the ~~Engineer~~ *DMTE* prior to placing concrete. Testing shall be conducted by an American Concrete Institute, ACI, certified concrete field testing technician, grade 1. The supporting test results shall be signed by the technician and include air content, slump, relative yield, water cement ratio, and the flexural strengths at one day, two days, and seven days.

SECTION 502, LINE 353, DELETE AND INSERT AS FOLLOWS:

measured in accordance with ITM 404. ~~Core holes shall be filled in accordance with 506.~~ *All core holes shall be filled with PCC or rapid setting patch material within 24 h of drilling.*

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 502, CONTINUED.

Other sections containing specific cross references:

502.02
610.02 Pg 600-32

502.03
501.04 Pg 500-1

502.04(a)
None

502.04(b)
None

502.21
None

Recurring Special Provisions potentially affected:

None

Motion: Mr.
Second: Mr.
Ayes:
Nays:

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Standard Sheets potentially affected:

None

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? ____

Item No. 4-3
Mr. Mr. Miller
Date: 4/21/05

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 503, BEGIN LINE 46, INSERT AS FOLLOWS:

Sawed contraction joints shall be cut in two operations. The initial saw cut shall commence as soon as the concrete has hardened sufficiently to permit sawing without raveling, usually 2 to 12 h after placement. All joints shall be saw cut *through the edges of the pavement to the required depth* before uncontrolled shrinkage cracking takes place. The sawing operations shall be carried on during day and night, regardless of weather conditions. The sawing of a joint shall be omitted if a crack occurs at or near the joint location prior to the time of sawing. Sawing shall be discontinued if a crack develops ahead of the saw. Formed contraction joints may be used where conditions make sawing impractical.

Other sections containing specific cross references:

506.10(b) Pg 500-40
507.08 Pg 500-44

Recurring Special Provisions potentially affected:

None

Motion: Mr.
Second: Mr.
Ayes:
Nays:

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Standard Sheets potentially affected:

None

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? ____

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 506, BEGIN LINE 29, DELETE AND INSERT AS FOLLOWS:

506.03 Concrete Mix Design

A concrete mix design *submittal,* CMDS, shall be ~~prepared~~ in accordance with 506.04. ~~and~~ *The CMDS shall be* submitted ~~in a format acceptable~~ to *and approved by* the DMTE. *The CMDS shall be submitted a minimum of* one week prior to the trial batch *utilizing the Department provided spreadsheet and shall include the following.*. ~~A CMD number will be assigned by the DMTE. No concrete will be accepted until the CMD has been approved.~~

~~CMDs which were used on contracts in the current or previous calendar year, may be submitted to the DMTE for approval.~~

~~The CMD shall include the following.~~

(a) a list of all ingredients
(b) the source of all materials
(c) the fine to total aggregate ratio
(d) the absorption of the aggregates
(e) the SSD bulk specific gravity of the aggregates
(f) the batch weights (mass)
(g) the names of all admixtures
(h) the admixture dosage rates and the manufacturer's recommended range

~~A change to any source of material or proportions of aggregate requires a new CMD. A change to the dosage amount of an admixture will be permitted; however, a new CMD will be required for the addition or deletion of an admixture.~~

The CMDS is used to conduct a trial batch in accordance with 506.05. Upon completion of the trial batch, the Contractor shall submit results of the concrete mix design trial to the DMTE for approval a minimum of three work days prior to production utilizing the Department provided spreadsheet. The DMTE will approve the submission as a CMDP, and production may commence. Both the Contractor's and the Engineer's tests will be included in the CMDS submittal.

(a) Change in Material

A change in a CMDP to any of the following requires a new CMDS.

1. *cement type*
2. *admixture type*
3. *aggregate material*

(b) Change in Source

A change in a CMDP to any of the following requires a new CMDS.

1. *cement source*
2. *admixture source*
3. *aggregate source*

Verification of the new CMDS will be conducted during production including sampling and testing within the first 10 cyd (8 m^3), for the following.

1. *cement source, type I only*
2. *admixture source, air entraining admixtures only*

A new CMDP will be issued upon approval of test verification by the DTME.

(c) Change in Mixture

1. *proportions of aggregates by weight (mass) exceeding ± 2%*
2. *addition or deletion of an admixture*

A CMDP in accordance with 506.04 in the current or previous calendar year may be substituted for use upon the approval of the DMTE.

SECTION 506, BEGIN LINE 75, DELETE AND INSERT AS FOLLOWS:

506.05 Trial Batch

A trial batch shall be produced and tested to verify that the CMD is in accordance with the concrete mix criteria. *An American Concrete Institute certified concrete field testing technician, grade 1 shall be on site to direct all sampling and testing.* The trial batch shall be produced at the plant prior to ~~the first day of concrete~~ production. The Engineer will ~~verify the CMD,~~ test the concrete's air content and determine the water/cement ratio, and prepare and test flexural beams. The flexural strength will be determined by averaging a minimum of two beam breaks. The Engineer will provide the Contractor the results of the tests.

SECTION 506, BEGIN LINE 156, DELETE AND INSERT AS FOLLOWS:

Concrete shall be uniformly mixed when delivered to the job site. ~~Batch tickets~~ *Tickets* for each load of PCC shall indicate the weight (mass) of cement, and aggregates, volume of water, and the type and volume of admixtures. The weight (mass) of the cement shall be within 1% of the CMD and the saturated surface dry weight (mass) of the aggregates shall be within 2% of the CMD.

Wash water shall not be used as a portion of the mixing water.

When concrete is delivered in transit mixers, additional water to increase the workability of a load may be added within 45 min of initial mixing. Any addition of water shall be noted on the ~~batch~~ ticket and shall not occur as a continuing operation.

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 506, CONTINUED.

Other sections containing specific cross references:

506.03
None

506.05
None

506.08
None

Recurring Special Provisions potentially affected:

None

Motion: Mr.
Second: Mr.
Ayes:
Nays:

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Standard Sheets potentially affected:

None

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? ____

Item No. 4-5
Mr. Miller
Date: 4/21/05

REVISION TO STANDARD DRAWING

506-CCPP-01 Concrete Pavement Patch Details

Other sections containing specific cross references:

None

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Recurring Special Provisions potentially affected:

506-CCPP-491
506-CCPP-491d

Standard Sheets potentially affected:

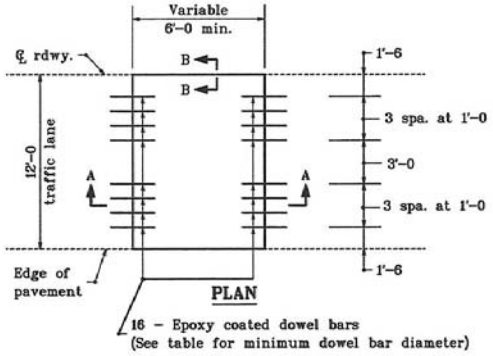
See Above

Motion: Mr.
Second: Mr.
Ayes:
Nays:

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? ____



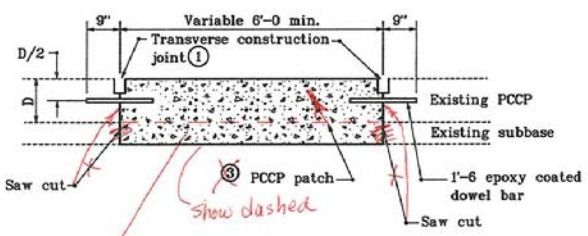
NOTES

(1) See Stanard Drawing E 503-CCPJ-06 for joint seal details.

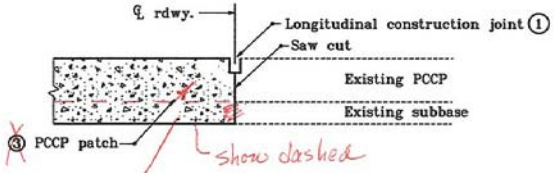
2. Saw cuts and joint seal shall be omitted if PCCP is to be overlaid.

(3) The bottom of the PCCP patch shall be located at the bottom of the existing PCCP subbase or 6" below the bottom of the existing PCCP, whichever is lower.

DOWEL BAR SIZES	
Pavement Thickness, D	**Minimum Dowel Bar Diameter**
Less than 9"	1"
9" through 12"	1 ¼"
Greater than 12"	1 ½"



SECTION A-A



SECTION B-B

Remove conc. Symbol

Remove conc. Symbol

All dimensions are in mm unless otherwise specified.

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT PATCH DETAILS

SEPTEMBER 1999

STANDARD DRAWING NO. E 506-CCPP-01

ANTHONY L. DREMOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ Anthony L. Dremovich 9-01-99
DESIGN STANDARDS ENGINEER DATE

/s/ Donald W. Lucas 9-01-99
CHIEF HIGHWAY ENGINEER DATE

Source Sheet: CCPJ6

DESIGN STANDARDS ENGINEER

Item No. 4-6
Mr. Mr. Miller
Date: 4/21/05

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 508, BEGIN LINE 33, DELETE AND INSERT AS FOLLOWS:

The plant shall be equipped with a recording device capable of *producing a ticket to* permanently record~~ing~~ the batch number, time of day, weight (mass) of all materials in the mix, volume or weight (mass) of mixing water added, and admixture quantities or equipped with a suitable non-resettable batch counter which will indicate correctly the number of batches produced. *The CMD number shall be included on the ticket.*

SECTION 508, BEGIN LINE 272, DELETE AND INSERT AS FOLLOWS:

(c) Profilograph

The profilograph shall be in accordance with ITM ~~901~~ *912*.

Other sections containing specific cross references:

508.02
None

508.09(c)
None

Recurring Special Provisions potentially affected:

None

Motion: Mr.
Second: Mr.
Ayes:
Nays:

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Standard Sheets potentially affected:

None

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? ____

Item No. 4-7
Mr. Miller
Date: 4/21/05

REVISION TO STANDARD DRAWING

602-CCMB-04 Concrete Barrier Details

Other sections containing specific cross references:

None

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Recurring Special Provisions potentially affected:

None

Standard Sheets potentially affected:

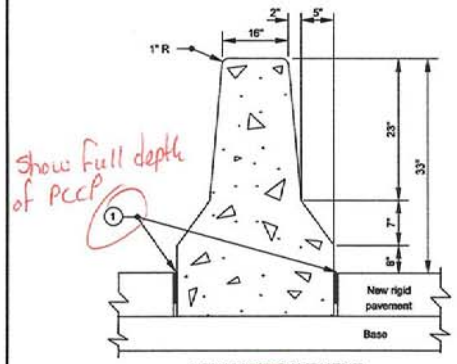
See Above

Motion: Mr.
Second: Mr.
Ayes:
Nays:

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

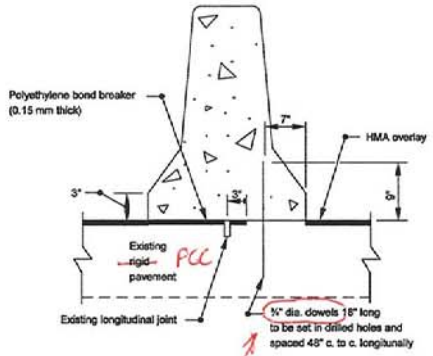
Received FHWA Approval? ____



show full depth of PCCP

NEW ~~RIGID~~ PAVEMENT

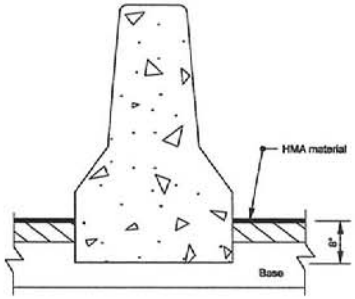
PCC



NEW HMA OVERLAY OVER EXISTING ~~RIGID~~ PAVEMENT

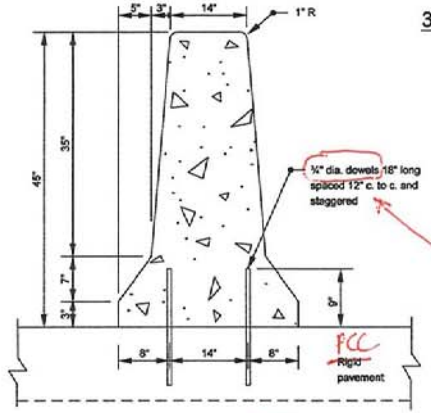
PCC

33" HEIGHT CONCRETE BARRIER WALL



NEW ~~FLEXIBLE~~ PAVEMENT

HMA



CONCRETE BARRIER WITH ~~RIGID~~ PAVEMENT

PCC

45" HEIGHT CONCRETE BARRIER WALL

NOTES:

① ½" Preformed Joint Filler.

change dowels to #6 Epoxy Coated reinforcing steel

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BARRIER DETAILS

MARCH 2005

STANDARD DRAWING NO. E 602-CCMB-04

REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER — RICHARD L. VanCLEAVE — DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave — DESIGN STANDARDS ENGINEER — 3-01-05 DATE

/s/ Richard K. Smutzer — CHIEF HIGHWAY ENGINEER — 3-01-05 DATE

Item No. 4-8
Mr. Miller
Date: 4/21/05

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 602, BEGIN LINE 48, DELETE AND INSERT AS FOLLOWS:

(b) Cast-in-Place Concrete Barrier and Concrete Glare Screen

Cast-in-place concrete barrier and concrete glare screen shall be constructed in accordance with applicable requirements of 706.03 or by the use of an approved slip-form machine. The surfaces of the concrete shall vary no more than 0.25 in. (6 mm) in 10 ft (3 m) from the specified cross section, as measured from a longitudinal straightedge. Where concrete pavement or concrete shoulder abuts the concrete barrier, ~~a double application of curing compound shall be placed between the barrier and the pavement or shoulder~~ *0.5 in. (12 mm) preformed joint filler shall be placed as shown on the plans.*

Where the concrete barrier is to be placed on PCCP, ~~dowel bars~~ *epoxy coated reinforcing steel* shall be placed as shown on the plans. The ~~dowel bar~~s *epoxy coated reinforcing steel* shall be installed in the PCCP by drilling and grouting.

Other sections containing specific cross references: None	General Instructions to Field Employees Update Required? Y___ N___ By - Additional or Revision Frequency Manual Update Required? Y____ N____ By – Addition or Revision
Recurring Special Provisions potentially affected: None	Standard Sheets potentially affected: None
Motion: Mr. Second: Mr. Ayes: Nays:	Action: Passed as submitted; revised Effective - _____ Letting _____ Supplementals Withdrawn. Resubmit? _____ Received FHWA Approval? ____

Item No. 4-9
Mr. Miller
Date: 4/21/05

REVISION TO 2006 STANDARD SPECIFICATIONS

SECTION 602, BEGIN LINE 114, INSERT AS FOLLOWS:

The cost of *polyethylene film*, surface seal or curing-sealing material for concrete barrier and curing material shall be included in the cost of concrete barrier.

Other sections containing specific cross references:

706.06 Pg 700-56

General Instructions to Field Employees
Update Required? Y___ N___
By - Additional or Revision
Frequency Manual
Update Required? Y____ N____
By – Addition or Revision

Recurring Special Provisions potentially affected:

None

Standard Sheets potentially affected:

None

Motion: Mr.
Second: Mr.
Ayes:
Nays:

Action: Passed as submitted; revised
Effective - _____ Letting
_____ Supplementals

Withdrawn. Resubmit? _____

Received FHWA Approval? ____