

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS  
REVISION TO STANDARD SPECIFICATIONS

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The Department sees a need to have fine milling criteria to accommodate our thinner asphalt surface treatments, i.e. UBWC, micro-surfacing, 4.75 mm HMA and chip-seals. The finer texture is appropriate for achieving good bond and smoothness in the thin overlays and can provide short-term corrective measures for rutting or loss of surface friction.

Sand-patch testing was conducted on the fine milled SR-58 surface thru Odon and the macrotexture ratio was determined to be  $> 5.00$  in accordance with ITM 812; the November 2012 milling on SR-58 was in response to removing a bleeding chip-seal constructed just months prior.

PROPOSED SOLUTION: Revise section 306 to address the need for fine milling criteria. The revision will include a macrotexture ratio  $\geq 5.00$  in accordance with ITM 812 for a single course overlay with a lay rate as shown on the plans  $< 165$  lb/sys. ITM 812 has already been edited to accommodate a larger range of macrotexture ratio values.

APPLICABLE STANDARD SPECIFICATIONS: 306

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: 304

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: Milling, PCCP and Milling, Scarification/Profile

Submitted By: Michael Prather

Title: Area Pavement Engineer

Phone Number: 234-8250

Date: October 2013

APPLICABLE SUB-COMMITTEE ENDORSEMENT: INDOT milling committee comprised of five industry representatives as well as INDOT and FHWA personnel. ICA was also provided final review.

REVISION TO STANDARD SPECIFICATIONS  
SECTION 306 – MILLING

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(Proposed changes shown highlighted in gray)

## SECTION 306 – MILLING

### 306.01 Description

This work shall consist of the milling of asphalt and concrete pavements and the disposal of milled materials in accordance with 105.03.

### CONSTRUCTION REQUIREMENTS

#### 306.02 General

Milling operations shall be described in the QCP in accordance with ITM 803. Where the milling operation in a partial-day closure results in a longitudinal vertical or near vertical face exceeding 2 in. in height, the adjacent lane shall be milled during the same day, the milled lane resurfaced during the same day, or the vertical face tapered at a 45° angle or flatter. Where located within 3 in. of a curb, surface material that cannot be removed by the cold-milling machine shall be removed by other approved methods.

Transverse milled vertical faces greater than 1 in. that are exposed to traffic shall be transitioned in an approved manner.

Castings located in milling areas that are not to be adjusted may remain in place during the milling, or may be removed and replaced at the Contractor's option.

Localized weak areas uncovered by the milling process shall be patched in accordance with 304 or 305.

The milled material shall become the property of the Contractor, unless otherwise specified.

The roadway shall be cleaned before opening to traffic.

#### 306.03 Equipment

Equipment for milling shall be in accordance with the following.

##### (a) Roadway Milling Machine

A milling machine shall be a power operated cold-milling machine, equipped with automatic control devices to establish profile grades by referencing from either the existing pavement or from independent grade control. The equipment shall have a positive means of controlling cross slope elevations, have an effective means for removing excess material from the surface, preventing airborne dust escaping from the operation, and producing a finished surface that provides a good bond to the new overlay.

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Sufficient cutting teeth shall be on the *coarse milling or fine milling* cutting drum to produce cuttings such that 90% of the conglomerate particles pass a 2 in. sieve. *A coarse milling cutting drum shall have 5/8 in. spacing between the cutting teeth and be capable of producing a surface macrotexture ratio in accordance with ITM 812 equal to or greater than 1.8. A fine milling cutting drum shall have 5/16 in. or 3/8 in. spacing between the cutting teeth and be capable of producing a surface macrotexture ratio in accordance with ITM 812 equal to or greater than 5.0.*

**(b) Power Saw**

Sawing equipment shall be capable of maintaining the specified alignment and depth of cut without damaging the pavement.

**(c) Rotary Power Broom**

A motorized, pneumatic tired unit with rotary bristle broom head.

**(d) Straightedge**

**1. Straightedge – 16 ft**

A 16 ft straightedge shall be a rigid beam mounted on two solid wheels on axles 16 ft apart. The straightedge has a mounted push bar to facilitate propelling the device along or across the pavement. Tolerance points are located at the 1/4, 1/2, and 3/4 points and may be composed of threaded bolts capable of being adjusted to the tolerance required.

**2. Straightedge – 10 ft**

A 10 ft straightedge is the same as a 16 ft straightedge except that the wheels are mounted 10 ft apart. A handheld rigid beam may be substituted.

**306.04 Asphalt or PCCP Scarification Milling and Profile Preparation**

~~Asphalt scarification and profile preparation shall consist of preparing a base for resurfacing by removing existing asphalt material. The entire existing asphalt surface shall be roughened by the operations. The existing pavement shall be milled to the cross-slope as shown on the plans, and shall have a surface finish that does not vary longitudinally more than 1/4 in. from a 16 ft straightedge or as described in the QCP in accordance with 401.02. The milled surface shall have macrotexture equal to or greater than 2.2 for single course overlays and 1.8 for multiple course overlays in accordance with ITM 812. Frequency of macrotexture testing shall be a minimum of once per day and shall be described in the QCP. The cross-slope shall not vary more than 1/8 in. when measured with a 10 ft straightedge.~~

~~Milled mainline areas left open to traffic for longer than five work days will be assessed \$1,600.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.~~

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SECTION 306 - MILLING

~~Milled non-mainline areas such as auxiliary lanes left open to traffic for longer than 10 work days will be assessed \$800.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.~~

*Scarification milling shall consist of preparing a base for resurfacing by roughening the entire existing asphalt or PCCP surface. The milled pavement profile shall have a surface finish that does not vary longitudinally more than 1/4 in. from a 16 ft straightedge or as described in the QCP in accordance with 401.02.*

*A fine milling cutting drum in accordance with 306.03(a) shall be used when a single course overlay is specified with a lay rate as shown on the plans less than 165 lb/sys and the maximum scarification mill cut depth is expected to be less than 3/4 in. for asphalt or PCCP, otherwise, a coarse milling cutting drum in accordance with 306.03(a) shall be used.*

*The scarified milled surface shall have a macrotexture ratio in accordance with ITM 812 as follows:*

- (a) equal to or greater than 5.0 when using a fine milling cutting drum for a single course overlay, or;*
- (b) equal to or greater than 2.2 for a single course overlay, or;*
- (c) equal to or greater than 1.8 for multiple course overlays.*

*Frequency of macrotexture testing shall be a minimum of once per day and shall be described in the QCP. The cross-slope shall not vary more than 1/8 in. when measured with a 10 ft straightedge.*

~~Milled traveled way areas left open to traffic for longer than five work days will be assessed \$1,600.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.~~

~~Milled non-traveled way areas such as auxiliary lanes and shoulders left open to traffic for longer than 10 work days will be assessed \$800.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.~~

**306.05 Asphalt or PCCP Profile Milling to Correct Cross-Slope**

*Profile milling shall consist of preparing a base for resurfacing by removing the existing asphalt or PCCP material to the specified cross-slope as shown on the plans. The milled pavement profile shall have a surface finish that does not vary longitudinally*

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*more than 1/4 in. from a 16 ft straightedge or as described in the QCP in accordance with 401.02.*

*A fine milling cutting drum in accordance with 306.03(a) shall be used when a single course overlay is specified with a lay rate as shown on the plans less than 165 lb/sys and the maximum profile mill cut depth is expected to be less than or equal to 1 1/2 in. for asphalt or 3/4 in. for PCCP, otherwise, a coarse milling cutting drum in accordance with 306.03(a) shall be used.*

*The profile milled surface shall have a macrotexture ratio in accordance with ITM 812 as follows:*

- (a) equal to or greater than 5.0 when using a fine milling cutting drum for a single course overlay, or;*
- (b) equal to or greater than 2.2 for a single course overlay, or;*
- (c) equal to or greater than 1.8 for multiple course overlays.*

*Frequency of macrotexture testing shall be a minimum of once per day and shall be described in the QCP. The cross-slope shall not vary more than 1/8 in. when measured with a 10 ft straightedge.*

*Milled traveled way areas left open to traffic for longer than five work days will be assessed \$1,600.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.*

*Milled non-traveled way areas such as auxiliary lanes and shoulders left open to traffic for longer than 10 work days will be assessed \$800.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.*

**306.04.106 Approach Milling**

Approach milling shall consist of milling the surface and cutting a wedge at the driveways, commercial or public road approaches. The existing approach shall be milled a minimum depth of no less than 1/4 in. to accommodate the approach pavement. The approach milling shall be completed to provide a smooth transition from the mainline traveled way pavement to the termini of the approach. The existing approach pavement shall be cut to provide a vertical face of 1 1/2 in. for the termini of surface.

Mailbox approaches to be resurfaced shall be milled to maintain the mainline traveled way profile and cross-slope.

Automatic control devices will not be required on surface milling equipment used for approach milling. Milling shall not damage any pavement that is to remain in place.

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Approach milling shall not be performed at driveways unless it is required to meet a paved surface that continues beyond the construction limit. If the driveway is other than HMA or PCC beyond the construction limits, the approach milling is not required.

The transverse vertical cut face for commercial or public road approaches shall be transitioned at a rate of 24:1 or as approved.

**306.0507 Asphalt or PCCP Milling to a Specified Average Depth**

~~Asphalt m~~Milling shall consist of preparing a base for resurfacing by removing the existing asphalt material ~~or PCCP at~~ *to the* specified average depth *as shown on the plans*. The ~~existing milled~~ pavement shall ~~be milled to the cross-slope as shown on the plans, and shall~~ have a surface finish that does not vary longitudinally more than 1/4 in. from a 16 ft straightedge or as described in the QCP in accordance with 401.02. ~~The milled surface shall have macrotexture equal to or greater than 2.2 for single course overlays and 1.8 for multiple course overlays in accordance with ITM 812.~~

*A fine milling cutting drum in accordance with 306.03(a) shall be used when a single course overlay is specified with a lay rate as shown on the plans less than 165 lb/sys and the average mill cut depth is less than or equal to 1 1/2 in. for asphalt or 3/4 in. for PCCP, otherwise, a coarse milling cutting drum in accordance with 306.03(a) shall be used.*

*The milled surface shall have a macrotexture ratio in accordance with ITM 812 as follows:*

- (a) equal to or greater than 5.0 when using a fine milling cutting drum for a single course overlay, or;*
- (b) equal to or greater than 2.2 for a single course overlay, or;*
- (c) equal to or greater than 1.8 for multiple course overlays.*

Frequency of macrotexture testing shall be a minimum of once per day and shall be described in the QCP. The cross-slope shall not vary more than 1/8 in. when measured with a 10 ft straightedge.

If shoulders or turn lanes are not milled and the overlay material is not placed in the milled areas within the same day, drainage slots shall be provided to eliminate ponding of water.

Milled ~~mainline~~*traveled way* areas left open to traffic for longer than five work days will be assessed \$1,600.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.

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Milled non-mainline traveled way areas such as auxiliary lanes and shoulders left open to traffic for longer than 10 work days will be assessed \$800.00 per day per lane mile, or portion thereof, as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.

The transverse vertical cut face shall be transitioned by HMA, CMA or prefabricated materials at a rate of 24:1 or as approved.

**306.0608 Asphalt Overlay Removal**

Asphalt removal shall consist of complete removal of an asphalt overlay by milling from a portland cement concrete or brick base and the satisfactory disposal of the milled materials. Minor amounts of asphalt pavement material bonded to a concrete base at joints or cracks may remain in place. If this material becomes displaced during subsequent operations it shall be removed. Minor amounts of asphalt pavement material bonded to a brick base may remain in place. Removal of minor areas of portland cement concrete or brick base during the milling operations is acceptable.

Milled areas shall be cleaned prior to reopening to traffic or before continuing construction operations.

The transverse vertical cut face shall be transitioned by HMA, CMA or prefabricated materials at a rate of 24:1 or as approved.

**306.07 PCCP Milling**

PCCP milling shall consist of preparing a base for resurfacing by removing the existing PCCP material at a specified average depth. The existing pavement shall be milled to the cross-slope as specified in the plans, and shall have a surface finish that does not vary longitudinally more than 1/4 in. from a 16 ft straightedge or as described in the QCP in accordance with 401.02. The milled surface shall have macrotexture equal to or greater than 1.8 in accordance with ITM 812. Frequency of macrotexture testing shall be a minimum of once per day and shall be described in the QCP. The cross-slope shall not vary more than 1/8 in. when measured with a 10 ft straightedge or as directed by the Engineer.

A milled surface shall not be left open to traffic for longer than 14 calendar days. If the milled surface is not overlaid after 14 calendar days, \$1,600.00 per day per lane mile, or portion thereof, will be assessed as liquidated damages, not as a penalty, but as damages sustained for each calendar day that the milled area remains left open to traffic.

Milled non-mainline areas such as auxiliary lanes left open to traffic for longer than 10 work days will be assessed \$100.00 per day per transition as liquidated damages, not as a penalty, but as damages sustained for each work day that the milled area remains open to traffic.



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Any portion of the pavement that is damaged or removed outside the milling limits shall be replaced with no additional payment.

The cost of tapering of vertical faces and removal of milled material from the project site shall be included in the cost of milling.

The cost of cutting of the surface course shall be included in the milling.

ADDENDUM 01

REVISION TO STANDARD SPECIFICATIONS

SECTION 306 - MILLING

|   |  |
|---|--|
| <p>Motion:<br/>         Second:<br/>         Ayes:<br/>         Nays:</p>   | <p>Action:<br/> <input type="checkbox"/> Passed as Submitted<br/> <input type="checkbox"/> Passed as Revised<br/> <input type="checkbox"/> Withdrawn</p>   |
| <p>Standard Specifications Sections affected:<br/><br/>         305.04 pg 229; 305.06 and .07 pg 232; SECTION 306 pg 233 thru 238; 410.11 pg 293.</p> | <p><input type="checkbox"/> 2016 Standard Specifications Book<br/> <input type="checkbox"/> Revise Pay Items List<br/><br/> <input type="checkbox"/> Create RSP (No. _____)<br/>         Effective _____ Letting<br/>         RSP Sunset Date: _____</p> |
| <p>Recurring Special Provision affected:<br/><br/>         NONE</p>   | <p><input type="checkbox"/> Revise RSP (No. _____)<br/>         Effective _____ Letting<br/>         RSP Sunset Date: _____</p>  |
| <p>Standard Sheets affected:<br/><br/>         NONE</p>   | <p>Standard Drawing Effective _____<br/> <input type="checkbox"/> Create RPD (No. _____)<br/>         Effective _____ Letting</p>  |
| <p>Design Manual Sections affected:<br/><br/>         SECTION 304.</p>  | <p><input type="checkbox"/> Technical Advisory</p>   |
| <p>GIFE Sections cross-references:<br/><br/>         NONE</p>   | <p>GIFE Update Req'd.? Y ___ N ___<br/>         By ___ Addition or ___ Revision</p>  |
|   | <p>Frequency Manual Update Req'd? Y ___ N ___<br/>         By ___ Addition or ___ Revision</p>   |
|   | <p>Received FHWA Approval? _____</p>   |

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS  
REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The need has arisen for more clarity to the frequency of payment for particular temporary construction signs.

PROPOSED SOLUTION: Add Road Closure Sign Assemblies and Detour Route Marker Assemblies to the language stating which temporary construction signs will only be paid for once regardless of how many times they are moved or replaced during the contract, and reinstate previously removed language about "how many times each is altered to change the sign message" for temporary construction signs paid for once.

APPLICABLE STANDARD SPECIFICATIONS: 801.18

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: Detour Route Marker Assemblies..... EACH  
Road Closure Sign Assembly..... EACH

Submitted By: James W. Keefer

Title: Ft Wayne District Construction Engineer

Organization: INDOT

Phone Number: 260-969-8245

Date: September 19, 2013

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad Hoc: Jim Keefer, Tom Keefer

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS  

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PROPOSED NEW RSP 801-R-XXX TEMPORARY CONSTRUCTION SIGNS

801-C-XXX TEMPORARY CONSTRUCTION SIGNS

(Adopted XX-XX-13)

The Standard Specifications are revised as follows:

SECTION 801, BEGIN LINE 1126, INSERT AS FOLLOWS:

Each construction sign, barricade, temporary worksite speed limit sign assembly, *detour route marker assembly, road closure sign assembly, portable changeable message sign,* or flashing arrow sign will be paid for only once regardless of how many times each is moved, ~~or~~ replaced, *or how many times each is altered to change the sign message.* Payment will not be made for signs or barricades used for the convenience of the Contractor.

Additional materials necessary to place the ~~PCMS~~ *portable changeable message sign* in a secure and level manner for site conditions shall be included in the cost of the pay item. All costs to furnish, install, program, activate, deactivate, change messages, *move, replace,* and maintain the PCMS shall be included in the cost of the pay item. The cost of IP cellular phone service shall be included in the cost of the pay item.

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COMMENTS AND ACTION

NEW RSP 801-R-XXX TEMPORARY CONSTRUCTION SIGNS

|   |   |
|---|---|
| Motion:<br>Second:<br>Ayes:<br>Nays:                                | Action:<br><input type="checkbox"/> Passed as Submitted<br><input type="checkbox"/> Passed as Revised<br><input type="checkbox"/> Withdrawn |
| Standard Specifications Sections affected:                          | <input type="checkbox"/> 2016 Standard Specifications Book<br><input type="checkbox"/> Revise Pay Items List                                |
| SECTION 801.18 pg 742.<br><br>Recurring Special Provision affected: | <input type="checkbox"/> Create RSP (No. ____)<br>Effective ____ Letting<br>RSP Sunset Date: ____   |
| NONE<br><br>Standard Sheets affected:                               | <input type="checkbox"/> Revise RSP (No. ____)<br>Effective ____ Letting<br>RSP Sunset Date: ____   |
| NONE<br><br>Design Manual Sections affected:                        | Standard Drawing Effective ____<br><input type="checkbox"/> Create RPD (No. ____)<br>Effective ____ Letting                                 |
| NONE<br><br>GIFE Sections cross-references:                         | <input type="checkbox"/> Technical Advisory   |
| NONE  | GIFE Update Req'd.? Y ___ N ___<br>By ___ Addition or ___ Revision  |
|   | Frequency Manual Update Req'd? Y ___ N ___<br>By ___ Addition or ___ Revision   |
|   | Received FHWA Approval? ____  |

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS  
REVISION TO SPECIAL PROVISION

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Recurring Special Provision 628-C-586 currently does not specify wireless printing capabilities associated with the Department provided iPads, which require the AirPrint system.

PROPOSED SOLUTION: As the Department will be providing field personnel with iPads for use in the field, it will be necessary to be able to print from those iPads using the AirPrint™ wireless technology. Therefore the Recurring Special Provision 628-C-586 for Department supplied Field Office Computer Equipment is in need of revision to include language requiring the Contractor to provide printers which contain this AirPrint™ technology. The revision also give the option for both Contractor supplied and Department supplied computers.

APPLICABLE STANDARD SPECIFICATIONS: 628

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: 628-C-586

PAY ITEMS AFFECTED:

Submitted By: **Greg Pankow**

Title: **State Construction Engineer**

Organization: **INDOT**

Phone Number: **317-232-5502**

Date: **11-14-13**

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad hoc: Ellis Holder, Joshua Kiilu, Shelly Gottschalk, Scott Trammell, Derrick Hauser, Greg Pankow.

REVISION TO SPECIAL PROVISION

RSP 628-C-586 FIELD OFFICE COMPUTER EQUIPMENT

Proposed changes shown as highlighted in gray.  
Statements that are proposed to be reinstated shown as underlined.  
Proposed Draft of this revised RSP shown on pages 22 thru 24.  
Current Basis for Use: "As determined necessary by District Construction".  
Proposed Basis for Use: "Required for all contracts with 628 pay items, except LPA projects.

628-C-586 FIELD OFFICE COMPUTER EQUIPMENT

(Revised XX-XX-13)

The Standard Specifications are revised as follows:

SECTION 628, BEGIN LINE 8, DELETE AND INSERT AS FOLLOWS:

**628.02 Field Office and Laboratory Requirements**

When specified, the Contractor shall provide a field office, computer ~~systems~~equipment, office machines, field laboratory, services, equipment and supplies for the Department's exclusive use in accordance with the minimum requirements listed below.

SECTION 628, BEGIN LINE 28, DELETE AND INSERT AS FOLLOWS:

The field office shall be complete and ready for use by the Department, including all utility connections and specified computer ~~systems~~equipment, office machines, internet service, equipment and supplies, prior to the start of work. If the Contractor is unable to provide the permanent field office prior to the start of the work, the Engineer shall be notified in writing and the Contractor and the Engineer will agree to temporary field office arrangements prior to the start of work. A temporary field office will not be accepted by the Department for more than two months, at which time a permanent field office shall be ready for the Department's use.

SECTION 628, BEGIN LINE 191, DELETE AND INSERT AS FOLLOWS:

**(c) Field Office Computer ~~System~~Equipment**

~~When specified in the Schedule of Pay Items, the Contractor shall provide one field office computer system for the Department's exclusive use~~ the following ~~for each field office specified. The Contractor has the option to provide either a desktop or a laptop computer system in accordance with the minimum requirements listed below.~~

**1. Field Office Desktop Computer System**

- a. Processor – Intel or AMD compatible, 2.0 GHz
- b. Memory – 1.0 GB, 533 MHz
- c. Hard Drive – 60 GB, 5,400 rpm
- d. Optical Drive – 24X CD-RW drive
- e. Ports – Two USB 2.0 compliant ports
- f. Network/Wireless – Ethernet or wireless card to be compatible with the selected internet and office network connections
- g. Graphics – Integrated graphics card
- h. Monitor – 22 in. widescreen digital flat panel

REVISION TO SPECIAL PROVISION

RSP 628-C-586 FIELD OFFICE COMPUTER EQUIPMENT

- i. Keyboard –USB enhanced multimedia keyboard
- j. Mouse – USB 2-button scroll mouse

**2. Field Office Laptop Computer System**

- a. Processor – Intel or AMD compatible, 2.0 GHz
- b. Memory – 1.0 GB, 533 MHz
- c. Hard Drive – 60GB, 5,400 rpm
- d. Module Bay Device – 24X CD-RW drive
- e. Ports – Two USB 2.0 compliant ports
- f. Network/Wireless – Ethernet or wireless card to be compatible with the selected internet and office network connections
- g. Graphics – Integrated graphics card
- h. Display – 15” XWGA LCD panel
- i. Battery – 9 cell lithium ion
- j. External Monitor – 22 in. widescreen digital flat panel
- k. External Keyboard – USB enhanced multimedia keyboard
- l. External Mouse – USB 2-button scroll mouse
- m. Miscellaneous – One compatible port replicator with AC adapter, one additional AC adapter, one DC adapter and one padded carrying case.

**3. Field Office Computer Equipment for Department Provided Laptop**

- 1a. External Monitor – 22 in. widescreen digital flat panel, with VGA and DVI connections*
- 2b. External Keyboard – USB enhanced multimedia keyboard*
- 3c. External Mouse – USB 2- button scroll mouse*
- 4d. DELL E-series port replicator with AC adapter, and one DC adapter*
- 5e. Wireless router compatible with IEEE 802.11 a/b/g, or b/g/n, and shall have 1 input and 4 output 10/100 Ethernet ports. The router shall have WI-FI protected access (WPA2-PSK, WPA-PSK) and WEP security.*

**34. Computer Software**

The Contractor shall provide software for the computer system in accordance with the minimum requirements listed below.

- a. Operating System Software – Windows XP Professional.
- b. Productivity Software – Microsoft Office 2003 Small Business and Adobe Acrobat Professional.
- c. Security Software – McAfee Virus Scan Plus.

REVISION TO SPECIAL PROVISION  
RSP 628-C-586 FIELD OFFICE COMPUTER EQUIPMENT

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All software shall include the most current updates and patches at the time the computer system is provided to the Department. The Contractor shall provide for installation of updates and patches for the operating system, productivity and security software during the term of use of the computer system by the Department. Updates and patches shall be provided by an automatic update method.

The Department may install and maintain proprietary software on the computer in order to run the Department's construction management programs.

**45. Miscellaneous Computer Requirements**

The initial condition of the computer ~~system~~equipment shall be nearly pristine. All owner installed e-mail accounts, games, spyware, online services, applications, network or other profiles previously set up on the system shall be removed prior to placement in the field office. If the system was provided for a previous Department contract, all software not specified shall be removed prior to placement in the current field office.

The Contractor shall provide an uninterruptible power supply, UPS, minimum 120 VA, 100 Watts and full time surge suppression for each field office ~~computer system~~ specified in the contract.

The Contractor shall provide all cables, connections and software required to connect the field office computer system to the printer and the scanner.

~~When more than one computer system is specified for a field office, t~~The Contractor shall provide either an Ethernet or wireless office network to enable all computer systems in the field office to access the field office internet service, the printer and the scanner.

The Contractor shall provide appropriate dust covers for all field office desktop computer systems.

The Contractor shall provide all manuals necessary for operation of the computer system and software with the system and shall include all documentation normally furnished with the equipment and software when purchased.

The Department will be utilizing the computer system to run or access Department provided construction management software applications. These applications are known to run on Intel and AMD compatible equipment when using the Windows XP Professional operating system. If the Department experiences problems running these applications due to hardware or software compatibility, the Contractor shall replace the equipment to ensure compatibility to the satisfaction of the Engineer within five business days.

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RSP 628-C-586 FIELD OFFICE COMPUTER EQUIPMENT

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The computer system shall be maintained in good working order. If a portion of the system becomes defective, inoperable, damaged, or stolen, that portion shall be repaired or replaced within five business days after the Contractor is notified by the Engineer. If the computer system and related accessories are not maintained by the Contractor as required, the Engineer may withhold partial payments until the computer system is operational to the Department's satisfaction.

SECTION 628, BEGIN LINE 311, DELETE AND INSERT AS FOLLOWS:

**2. Printer**

The printer shall be compatible with the computer system provided by the Contractor or the Department for use by the Department in the field office. The printer shall be capable of printing single-sided, black and white letter, legal and ledger US paper size documents at a rate of 20 pages per minute and capable of automatic duplex printing. More than one printer may be used to meet this requirement. All devices shall be compatible with the Department's laptops or iPads and accommodate wireless mobile printing from the iPads.

**3. Document Scanner**

The document scanner shall be compatible with the computer system provided by the Contractor or the Department for use by the Department in the field office. The scanner shall be capable of scanning letter and legal size documents and shall have an automatic document feeder and be capable of 200 to 600 dpi black and white resolution, preset to 200 dpi.

SECTION 628, BEGIN LINE 383, DELETE AND INSERT AS FOLLOWS:

**628.03 Additional Computer Systems and Mobile Internet Service**

When specified, the Contractor shall provide the following computer systems and internet services for the Department's exclusive use.

**(a) Additional Field Office Computer System**

The additional field office computer system shall be either a desktop or laptop computer system in accordance with 628.02(c)1 or 628.02(c)2 except that the monitor for a desktop system may be a 19 in. flat panel and the external monitor for a laptop system will not be required. The requirements of 628.02(c)34 and 628.02(c)45 shall apply to each additional field office computer.

**(b) Mobile Laptop Computer System**

The mobile laptop computer system shall be in accordance with 628.02(c)2 except that the external monitor, integrated graphics card, external keyboard and port replicator with AC adapter will not be required. Mobile laptop computers will be used by the Department for contracts that do not include a field office. The requirements of 628.02(c)34 and 628.02(c)45 shall apply to each mobile laptop computer except that those requirements specifically for a field office computer will not apply.

**(c) Mobile Internet Service**

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The mobile broadband internet service access card will be used by the Department in a laptop computer provided by either the Contractor or the Department.

The card shall connect to the laptop via a type II PC card slot, an express card slot or a USB 2.0 compliant port. The card and service shall be capable of a minimum average upload speed of 350 Kbps. The internet service rate plan shall include unlimited data and time usage with no roaming charge for national domestic use. All software necessary for the operation of the card shall be provided to the Engineer.

The Contractor shall not purchase any card or enter into any service agreement until authorized by the Engineer. The Engineer will provide a minimum of 10 business days notice prior to the date the card will be required.

**628.043. Cellular Telephones**

SECTION 628, BEGIN LINE 465, DELETE AND INSERT AS FOLLOWS:

**628.054 Method of Measurement**

Field office and field laboratory will be measured by the month for the specified type. Partial months will be rounded up to the next 1/2 or whole month. The Department will provide two weeks advanced notice prior to when the facility will be vacated.

If a field laboratory is specified and is included in the same space as the field office, the field laboratory will not be measured for payment.

Additional field office computer system, mobile laptop computer system, mobile internet service, and cCellular telephone service will be measured by the month for each system or service provided. Partial months will be rounded up to the next 1/2 or whole month. The Department will provide two weeks advanced notice prior to when mobile internet service and cellular telephone service will no longer be required.

**628.065 Basis of Payment**

Field office and field laboratory will be paid for at the contract unit price per month, complete in place until released.

Additional field office computer system, mobile laptop computer system and mobile internet service will be paid by the month for each system or service provided.

Cellular telephone units will be paid for at the contract unit price per each per each type specified. Cellular telephone service will be paid for at the contract unit price per month per each phone. Monthly charges for cellular telephone minutes and data in excess of those specified in the contract will be paid for by the dollar amount for the invoiced price per each occurrence as cellular telephone, additional charges.

Payment will be made under:

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| <b>Pay Item</b>  | <b>Pay Unit Symbol</b> |
|--|------------------------|
| Cellular Telephone Service, _____<br>anytime minutes           | MOS                    |
| Cellular Telephone _____<br>type                               | EACH                   |
| Cellular Telephone, Additional Data .....                      | DOL                    |
| Cellular Telephone, Additional Minutes.....                    | DOL                    |
| Field Laboratory, _____<br>type                                | MOS                    |
| <u>Field Office Computer System, Additional, _____</u><br>Each | <u>MOS</u>             |
| <u>qty</u>   |                        |
| Field Office, _____<br>type                                    | MOS                    |
| <u>Mobile Internet Service, _____</u><br>Each                  | <u>MOS</u>             |
| <u>qty</u>   |                        |
| <u>Mobile Laptop Computer System, _____</u><br>Each            | <u>MOS</u>             |
| <u>qty</u>   |                        |

SECTION 628, BEGIN LINE 533, DELETE AND INSERT AS FOLLOWS:

All costs necessary to provide *and maintain* the field office computer ~~system~~ *equipment*, including the required software, manuals, ~~peripherals and related equipment~~, technical support and miscellaneous computer requirements shall be included in the cost of the field office.

All costs necessary to establish, install and maintain field office internet service, *both wireless and Ethernet*, including any required hardware, software, fees, monthly charges, setup, installation and technical support shall be included in the cost of the field office.

All costs necessary to provide the copier, printer, document scanner and fax machine, including setup, installation, all required connections to computers ~~systems~~, technical support and miscellaneous office machine requirements shall be included in the cost of the field office.

All costs necessary to establish and maintain a field office network when one or more additional field office computer systems are specified shall be included in the cost of the field office.

All cost necessary to provide an additional field office computer system, including the required software, manuals, peripherals and related equipment and technical support shall be included in the cost of the additional field office computer.

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All costs necessary to provide the mobile laptop computer system, including the required software, manuals, peripherals and related equipment, technical support and miscellaneous computer requirements shall be included in the cost of the mobile laptop computer.

All costs necessary to establish, install and maintain mobile internet service, including required hardware, software, fees, monthly charges, setup, installation and technical support shall be included in the cost of mobile internet service.

The Contractor shall provide a copy of the detailed invoice from the service provider for each cellular telephone unit each month.

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ADDENDUM 01

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RSP 628-C-586 FIELD OFFICE COMPUTER EQUIPMENT (PROPOSED DRAFT)

628-C-586 FIELD OFFICE COMPUTER EQUIPMENT

(Revised XX-XX-13)

The Standard Specifications are revised as follows:

SECTION 628, BEGIN LINE 8, DELETE AND INSERT AS FOLLOWS:

**628.02 Field Office and Laboratory Requirements**

When specified, the Contractor shall provide a field office, computer ~~system~~equipment, office machines, field laboratory, services, equipment and supplies for the Department's exclusive use in accordance with the minimum requirements listed below.

SECTION 628, BEGIN LINE 28, DELETE AND INSERT AS FOLLOWS:

The field office shall be complete and ready for use by the Department, including all utility connections and specified computer ~~system~~equipment, office machines, internet service, equipment and supplies, prior to the start of work. If the Contractor is unable to provide the permanent field office prior to the start of the work, the Engineer shall be notified in writing and the Contractor and the Engineer will agree to temporary field office arrangements prior to the start of work. A temporary field office will not be accepted by the Department for more than two months, at which time a permanent field office shall be ready for the Department's use.

SECTION 628, BEGIN LINE 191, DELETE AND INSERT AS FOLLOWS:

**(c) Field Office Computer System~~Equipment~~**

~~When specified in the Schedule of Pay Items, the Contractor shall provide one field office computer system for the Department's exclusive use for each field office specified. The Contractor has the option to provide either a desktop or a laptop computer system in accordance with the minimum requirements listed below.~~

SECTION 628, AFTER LINE 229, INSERT AS FOLLOWS:

**3. Field Office Computer Equipment for Department Provided Laptop**

- a. External Monitor – 22 in. widescreen digital flat panel, with VGA and DVI connections
- b. External Keyboard – USB enhanced multimedia keyboard
- c. External Mouse – USB 2- button scroll mouse
- d. DELL E-series port replicator with AC adapter, and one DC adapter
- e. Wireless router compatible with IEEE 802.11 a/b/g, or b/g/n, and shall have 1 input and 4 output 10/100 Ethernet ports. The router shall have WI-FI protected access (WPA2-PSK, WPA-PSK) and WEP security.

**34. Computer Software**

SECTION 628, BEGIN LINE 248, DELETE AND INSERT AS FOLLOWS:

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#### **45. Miscellaneous Computer Requirements**

The initial condition of the computer ~~system~~*equipment* shall be nearly pristine. All owner installed e-mail accounts, games, spyware, online services, applications, network or other profiles previously set up on the system shall be removed prior to placement in the field office. If the system was provided for a previous Department contract, all software not specified shall be removed prior to placement in the current field office.

The Contractor shall provide an uninterruptible power supply, UPS, minimum 120 VA, 100 Watts and full time surge suppression for each field office ~~computer system~~ specified in the contract.

The Contractor shall provide all cables, connections and software required to connect the field office computer ~~system~~ to the printer and the scanner.

~~When more than one computer system is specified for a field office, t~~The Contractor shall provide either an Ethernet or wireless office network to enable all computer systems in the field office to access the field office internet service, the printer and the scanner.

SECTION 628, BEGIN LINE 311, DELETE AND INSERT AS FOLLOWS:

#### **2. Printer**

The printer shall be compatible with the computer system provided by the Contractor *or the Department* for use by the Department in the field office. The printer shall be capable of printing single-sided, black and white letter, legal and ledger US paper size documents at a rate of 20 pages per minute and capable of automatic duplex printing. More than one printer may be used to meet this requirement. *All devices shall be compatible with the Department's laptops or iPads and accommodate wireless mobile printing from the iPads.*

#### **3. Document Scanner**

The document scanner shall be compatible with the computer system provided by the Contractor *or the Department* for use by the Department in the field office. The scanner shall be capable of scanning letter and legal size documents and shall have an automatic document feeder and be capable of *200 to 600 dpi* black and white resolution, *preset to 200 dpi.*

SECTION 628, BEGIN LINE 387, DELETE AND INSERT AS FOLLOWS:

#### **(a) Additional Field Office Computer System**

The additional field office computer system shall be ~~either a desktop or laptop~~ computer system in accordance with ~~628.02(c)1 or 628.02(c)2~~ *except that the monitor for a desktop system may be a 19 in. flat panel and the external monitor for a laptop system will not be required.* The requirements of 628.02(c)3 and 628.02(c)4 shall apply to each additional field office computer.

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**(b) Mobile Laptop Computer System**

The mobile laptop computer system shall be in accordance with 628.02(c)2 except that the external monitor, integrated graphics card, external keyboard and port replicator with AC adapter will not be required. Mobile laptop computers will be used by the Department for contracts that do not include a field office. The requirements of 628.02(c)34 and 628.02(c)45 shall apply to each mobile laptop computer except that those requirements specifically for a field office computer will not apply.

SECTION 628, BEGIN LINE 533, DELETE AND INSERT AS FOLLOWS:

All costs necessary to provide *and maintain* the field office computer ~~system~~*equipment*, including the required software, manuals, ~~peripherals and related equipment~~, technical support and miscellaneous computer requirements shall be included in the cost of the field office.

All costs necessary to establish, install and maintain field office internet service, *both wireless and Ethernet*, including any required hardware, software, fees, monthly charges, setup, installation and technical support shall be included in the cost of the field office.

All costs necessary to provide the copier, printer, document scanner and fax machine, including setup, installation, all required connections to computers ~~systems~~, technical support and miscellaneous office machine requirements shall be included in the cost of the field office.

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COMMENTS AND ACTION

RSP 628-C-586 FIELD OFFICE COMPUTER EQUIPMENT

|   |  |
|---|--|
| <p>Motion:<br/>         Second:<br/>         Ayes:<br/>         Nays:</p>             | <p>Action:<br/> <input type="checkbox"/> Passed as Submitted<br/> <input type="checkbox"/> Passed as Revised<br/> <input type="checkbox"/> Withdrawn</p> |
| <p>Standard Specifications Sections affected:</p>                                     | <p><input type="checkbox"/> 2016 Standard Specifications Book<br/> <input type="checkbox"/> Revise Pay Items List</p>                                    |
| <p>SECTION 628 pg 470 thru 482<br/>         Recurring Special Provision affected:</p> | <p><input type="checkbox"/> Create RSP (No. _____)<br/>         Effective _____ Letting<br/>         RSP Sunset Date: _____</p>                          |
| <p>RSP 628-C-586 FIELD OFFICE<br/>         COMPUTER EQUIPMENT</p>                     | <p><input type="checkbox"/> Revise RSP (No. _____)<br/>         Effective _____ Letting<br/>         RSP Sunset Date: _____</p>                          |
| <p>Standard Sheets affected:<br/>         NONE</p>                                    | <p>Standard Drawing Effective _____</p>  |
| <p>Design Manual Sections affected:<br/>         NONE</p>                             | <p><input type="checkbox"/> Create RPD (No. _____)<br/>         Effective _____ Letting<br/> <input type="checkbox"/> Technical Advisory</p>             |
| <p>GIFE Sections cross-references:<br/>         NONE</p>                              | <p>GIFE Update Req'd.? Y ___ N ___<br/>         By ___ Addition or ___ Revision</p>  |
|   | <p>Frequency Manual Update Req'd? Y ___ N ___<br/>         By ___ Addition or ___ Revision</p>   |
|   | <p>Received FHWA Approval? _____</p>   |