



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

January 10, 2012

SUBJECT: FAP Route 333 (IL 120)  
Project NHF-0333 (015)  
Section 15-N-6  
McHenry County  
Contract No. 60L27  
Item No. 3, January 20, 2012 Letting  
Addendum B

## NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Replaced the Schedule of Prices.
2. Revised the Table of Contents to the Special Provisions
3. Revised pages 6 - 17 of the Special Provisions.
4. Revised sheets 3, 4 & 5 of the Plans.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Scott E. Stitt, P.E.  
Acting Engineer of Design and Environment

A handwritten signature in black ink, appearing to read "Ted B. Walschleger P.E.".

By: Ted B. Walschleger, P. E.  
Engineer of Project Management

cc: Diane O'Keefe, Region 1, District 1; Mike Renner; Estimates

TBW:MS:jc

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER - 60L27

State Job # - C-91-663-10  
 PPS NBR - 1-77509-0000  
 County Name - MCHENRY--  
 Code - 111 - -  
 District - 1 - -  
 Section Number - 15-N-6

Project Number  
 NHF-0333/015/

Route  
 FAP 333

\*REVISED: JANUARY 05, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
A2002920	T-CELTIS OCCID 2-1/2	EACH	5.000				
X2020110	GRADING & SHAP SHLDRS	UNIT	38.000				
X4021000	TEMP ACCESS- PRIV ENT	EACH	10.000				
X6063600	COMB CC&G TM4.24	FOOT	329.000				
X7010216	TRAF CONT & PROT SPL	L SUM	1.000				
Z0001050	AGG SUBGRADE 12	SQ YD	3,725.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0030850	TEMP INFO SIGNING	SQ FT	77.100				
Z0042002	POROUS GRAN EMB SUBGR	CU YD	417.000				
Z0062456	TEMP PAVEMENT	SQ YD	2,088.000				
20100110	TREE REMOV 6-15	UNIT	68.000				
20100210	TREE REMOV OVER 15	UNIT	160.000				
20101100	TREE TRUNK PROTECTION	EACH	5.000				
20101200	TREE ROOT PRUNING	EACH	11.000				
20200100	EARTH EXCAVATION	CU YD	8,302.000				

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20201200	REM & DISP UNS MATL	CU YD	409.000				
20800150	TRENCH BACKFILL	CU YD	33.000				
21001000	GEOTECH FAB F/GR STAB	SQ YD	1,249.000				
21101625	TOPSOIL F & P 6	SQ YD	3,735.000				
25000210	SEEDING CL 2A	ACRE	0.700				
25000300	SEEDING CL 3	ACRE	0.200				
25000400	NITROGEN FERT NUTR	POUND	82.000				
25000500	PHOSPHORUS FERT NUTR	POUND	82.000				
25000600	POTASSIUM FERT NUTR	POUND	82.000				
25100630	EROSION CONTR BLANKET	SQ YD	3,735.000				
25100900	TURF REINF MAT	SQ YD	12.000				
25200110	SODDING SALT TOLERANT	SQ YD	3,735.000				
25200200	SUPPLE WATERING	UNIT	38.000				
28000250	TEMP EROS CONTR SEED	POUND	80.000				
28000305	TEMP DITCH CHECKS	FOOT	420.000				

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28000400	PERIMETER EROS BAR	FOOT	4,985.000				
28000500	INLET & PIPE PROTECT	EACH	14.000				
28100105	STONE RIPRAP CL A3	SQ YD	550.000				
28200200	FILTER FABRIC	SQ YD	550.000				
35501308	HMA BASE CSE 6	SQ YD	634.000				
35600716	HMA BC WID 10	SQ YD	419.000				
40201000	AGGREGATE-TEMP ACCESS	TON	422.000				
40600200	BIT MATLS PR CT	TON	9.000				
40600300	AGG PR CT	TON	39.000				
40600400	MIX CR JTS FLANGEWYS	TON	14.000				
40600895	CONSTRUC TEST STRIP	EACH	2.000				
40600982	HMA SURF REM BUTT JT	SQ YD	62.000				
40603335	HMA SC "D" N50	TON	74.000				
40603340	HMA SC "D" N70	TON	723.000				
40701876	HMA PAVT FD 9 3/4	SQ YD	3,306.000				

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42001300	PROTECTIVE COAT	SQ YD	107.000				
*REV 44000100	PAVEMENT REM	SQ YD	2,376.000				
44000157	HMA SURF REM 2	SQ YD	5,845.000				
44000200	DRIVE PAVEMENT REM	SQ YD	458.000				
44004250	PAVED SHLD REMOVAL	SQ YD	2,506.000				
44201789	CL D PATCH T2 12	SQ YD	350.000				
44201794	CL D PATCH T3 12	SQ YD	525.000				
44201796	CL D PATCH T4 12	SQ YD	876.000				
44300200	STRIP REF CR CON TR	FOOT	2,470.000				
48101600	AGGREGATE SHLDS B 8	SQ YD	1,197.000				
48102100	AGG WEDGE SHLD TYPE B	TON	5.000				
48203029	HMA SHOULDERS 8	SQ YD	1,510.000				
50105220	PIPE CULVERT REMOV	FOOT	170.000				
542A0217	P CUL CL A 1 12	FOOT	90.000				
542A0220	P CUL CL A 1 15	FOOT	199.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
542A0223	P CUL CL A 1 18	FOOT	83.000				
54213657	PRC FLAR END SEC 12	EACH	2.000				
54213660	PRC FLAR END SEC 15	EACH	9.000				
54213663	PRC FLAR END SEC 18	EACH	1.000				
60107600	PIPE UNDERDRAINS 4	FOOT	299.000				
60218400	MAN TA 4 DIA T1F CL	EACH	1.000				
60600095	CLASS SI CONC OUTLET	CU YD	2.000				
63000001	SPBGR TY A 6FT POSTS	FOOT	50.000				
63100167	TR BAR TRM T1 SPL TAN	EACH	1.000				
63200310	GUARDRAIL REMOV	FOOT	50.000				
67000400	ENGR FIELD OFFICE A	CAL MO	6.000				
67100100	MOBILIZATION	L SUM	1.000				
70103815	TR CONT SURVEILLANCE	CAL DA	5.000				
70106800	CHANGEABLE MESSAGE SN	CAL MO	1.000				
70300100	SHORT TERM PAVT MKING	FOOT	942.000				

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70300210	TEMP PVT MK LTR & SYM	SQ FT	154.800				
70300220	TEMP PVT MK LINE 4	FOOT	11,002.000				
70300240	TEMP PVT MK LINE 6	FOOT	360.000				
70300250	TEMP PVT MK LINE 8	FOOT	550.000				
70300260	TEMP PVT MK LINE 12	FOOT	272.000				
70300280	TEMP PVT MK LINE 24	FOOT	78.000				
70300520	PAVT MARK TAPE T3 4	FOOT	12,034.000				
70300570	PAVT MARK TAPE T3 24	FOOT	76.000				
70301000	WORK ZONE PAVT MK REM	SQ FT	5,035.000				
72000100	SIGN PANEL T1	SQ FT	89.500				
72400100	REMOV SIN PAN ASSY TA	EACH	1.000				
72900100	METAL POST TY A	FOOT	176.000				
78000100	THPL PVT MK LTR & SYM	SQ FT	154.800				
78000200	THPL PVT MK LINE 4	FOOT	11,002.000				
78000400	THPL PVT MK LINE 6	FOOT	360.000				

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78000500	THPL PVT MK LINE 8	FOOT	550.000				
78000600	THPL PVT MK LINE 12	FOOT	272.000				
78000650	THPL PVT MK LINE 24	FOOT	78.000				
78100100	RAISED REFL PAVT MKR	EACH	111.000				
78200420	GUARDRAIL MKR TYPE B	EACH	2.000				
78201000	TERMINAL MARKER - DA	EACH	1.000				
78300200	RAISED REF PVT MK REM	EACH	59.000				
80500020	SERV INSTALL POLE MT	EACH	1.000				
81028200	UNDRGRD C GALVS 2	FOOT	677.000				
81028210	UNDRGRD C GALVS 2 1/2	FOOT	87.000				
81028220	UNDRGRD C GALVS 3	FOOT	52.000				
81028240	UNDRGRD C GALVS 4	FOOT	326.000				
81400100	HANDHOLE	EACH	1.000				
81400200	HD HANDHOLE	EACH	6.000				
81400300	DBL HANDHOLE	EACH	1.000				

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85700200	FAC T4 CAB	EACH	1.000				
86200200	UNINTER POWER SUP STD	EACH	1.000				
87301245	ELCBL C SIGNAL 14 5C	FOOT	1,613.000				
87301255	ELCBL C SIGNAL 14 7C	FOOT	672.000				
87301305	ELCBL C LEAD 14 1PR	FOOT	1,208.000				
87301805	ELCBL C SERV 6 2C	FOOT	56.000				
87301900	ELCBL C EGRDC 6 1C	FOOT	453.000				
87502480	TS POST GALVS 14	EACH	4.000				
87502500	TS POST GALVS 16	EACH	1.000				
87700180	S MAA & P 28	EACH	1.000				
87700240	S MAA & P 40	EACH	1.000				
87800100	CONC FDN TY A	FOOT	20.000				
87800150	CONC FDN TY C	FOOT	4.000				
87800400	CONC FDN TY E 30D	FOOT	10.000				
87800415	CONC FDN TY E 36D	FOOT	13.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
88030020	SH LED 1F 3S MAM	EACH	3.000				
88030050	SH LED 1F 3S BM	EACH	3.000				
88030110	SH LED 1F 5S MAM	EACH	1.000				
88030240	SH LED 2F 1-3 1-5 BM	EACH	1.000				
88030310	SH LED 3F 3S BM	EACH	1.000				
88200210	TS BACKPLATE LOU ALUM	EACH	4.000				
88500100	INDUCTIVE LOOP DETECT	EACH	5.000				
88600100	DET LOOP T1	FOOT	470.000				

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Revised 01/10/12

- (b) Commercial Entrance. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The maximum grade shall be six percent, except as required to match the existing grade.
- (c) Road. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

Maintaining the temporary access shall include relocating and/or regrading the aggregate surface course for any operation that may disturb or remove the temporary access. The same type and gradation of material used to construct the temporary access shall be used to maintain it.

When use of the temporary access is discontinued, the aggregate shall be removed and utilized in the permanent construction or disposed of according to Article 202.03.”

Add the following to Article 402.12 of the Standard Specifications:

“Aggregate surface course for temporary access will be measured for payment as each for every private entrance, commercial entrance or road constructed for the purpose of temporary access. If a residential drive, commercial entrance, or road is to be constructed under multiple stages, the aggregate needed to construct the second or subsequent stages will not be measured for payment but shall be included in the cost per each of the type specified.”

Revise the second paragraph of Article 402.13 of the Standard Specifications to read:

“Aggregate surface course for temporary access will be paid for at the contract unit price per each for TEMPORARY ACCESS (PRIVATE ENTRANCE), TEMPORARY ACCESS (COMMERCIAL ENTRANCE) or TEMPORARY ACCESS (ROAD).

Partial payment of the each amount bid for temporary access, of the type specified, will be paid according to the following schedule:

- (a) Upon construction of the temporary access, sixty percent of the contract unit price per each, of the type constructed, will be paid.
- (b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access.”

**FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)**

Effective: May 1, 2007

Revised: January 1, 2012

Revise Article 1003.03 (c) of the Standard Specifications to read:

“(c) Gradation. The fine aggregate gradation for all HMA shall be FA1, FA 2, FA 20, FA 21 or FA 22. When Reclaimed Asphalt Pavement (RAP) is incorporated in the HMA design, the use of FA 21 Gradation will not be permitted.

Revised 01/20/12

## RECLAIMED ASPHALT PAVEMENT AND SHINGLES (D-1)

Effective: January 1, 2012

Revise Section 1031 of the Standard Specifications to read:

### “SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND SHINGLES

**1031.01 Description.** RAP is reclaimed asphalt pavement resulting from cold milling and crushing of an existing hot-mix asphalt (HMA) pavement. RAP will be considered processed FRAP after completion of both crushing and screening to size. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.

RAS is reclaimed asphalt shingles resulting from the processing and grinding of either preconsumer or post consumer shingles.

RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable materials, as defined in Bureau of Materials and Physical Research Policy (BMPR) Memorandum *Reclaimed Asphalt Shingle (RAS) Sources*, by weight of RAS. All RAS used shall come from a BMPR approved processing facility.

RAS shall meet either Type 1 or Type 2 requirements as specified herein.

- (a) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.
- (b) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

**1031.02 Stockpiles.** The Contractor shall construct individual, sealed RAP or RAS stockpiles meeting one of the following definitions. No additional RAP or RAS shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. All stockpiles (including unprocessed RAP and Processed FRAP) shall be identified by signs indicating the type as listed below (i.e. “crushed natural aggregate, ACBF and steel slag, crystalline structure or Type 2 RAS”, etc...).

- (a) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. All FRAP shall be processed prior to testing and sized into fractions with the separation occurring on or between the #4 (4.75mm) and ½ in. (12.5mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP in the coarse fraction shall pass the maximum sieve size specified for the mix the RAP will be used in.
- (b) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, Superpave (High ESAL), or HMA (High ESAL).

Revised 01/10/12

If approved by the Engineer, the aggregate from a maximum 3.0 inch single combined pass of surface/binder milling will be classified as B quality. All millings from this application will be processed into FRAP as described previously.

- (c) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed (FRAP) prior to testing. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (d) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from HMA shoulders, bituminous stabilized subbases or Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture. The coarse aggregate in this RAP may be crushed or processed (FRAP DQ) but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (e) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP/FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, plant cleanout etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

Type 1 and Type 2 RAS shall be stockpiled separately and shall not be intermingled. Each stockpile shall be signed indicating what type of RAS is present. However, a RAS source may submit a written request to the Department for approval to blend mechanically a specified ratio of type 1 RAS with type 2 RAS. The source will not be permitted to change the ratio of the blend without the Department prior written approval.

The Engineer's written approval will be required, to mechanically blend RAS with any fine aggregate produced under the AGCS, up to an equal weight of RAS, to improve workability. The fine aggregate shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The fine aggregate shall be one that is approved for use in the HMA mixture and shall be accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type and lot number shall be maintained by project contract number and kept for a minimum of 3 years.

**1031.03 Testing.** When used in HMA, the RAS/RAP/FRAP shall be sampled and tested either during processing or after stockpiling.

- (a) RAS shall be sampled and tested as follows:

Revised 01/10/12

During stockpiling, washed extraction, and testing for unacceptable materials shall be run at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 1000 ton (900 metric ton) thereafter. A minimum of five tests are required for stockpiles less than 1000 ton (900 metric ton). Once a  $\leq 1000$  ton, five-test stockpile has been established it shall be sealed. Additional incoming RAS shall be stockpiled in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content, and gradation. Individual test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	$\pm 5 \%$
No. 16 (1.18 mm)	$\pm 5 \%$
No. 30 (600 $\mu\text{m}$ )	$\pm 4\%$
No. 200 (75 $\mu\text{m}$ )	$\pm 2.0 \%$
Asphalt Binder Content	$\pm 1.5 \%$

(b)RAP/FRAP shall be sampled and tested as follows:

For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restocking. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

All of the RAP/FRAP extraction results shall be compiled and averaged for asphalt binder content and gradation and, when applicable (for slag)  $G_{mm}$ . Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	RAP or FRAP	Conglomerate "D" Quality RAP
1 in. (25 mm)		$\pm 5 \%$
1/2 in. (12.5 mm)	$\pm 8 \%$	$\pm 15 \%$
No. 4 (4.75 mm)	$\pm 6 \%$	$\pm 13 \%$
No. 8 (2.36 mm)	$\pm 5 \%$	
No. 16 (1.18 mm)		$\pm 15 \%$
No. 30 (600 $\mu\text{m}$ )	$\pm 5 \%$	
No. 200 (75 $\mu\text{m}$ )	$\pm 2.0 \%$	$\pm 4.0 \%$
Asphalt Binder	$\pm 0.4 \%$ <sup>1/</sup>	$\pm 0.5 \%$
$G_{mm}$	$\pm 0.03$ <sup>2/</sup>	

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- 1/ The tolerance for FRAP shall be  $\pm 0.3$  %
- 2/ for slag and steel slag

Before extraction, each field sample whether, RAS, RAP or FRAP, shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt binder content test results fall outside the appropriate tolerances, the RAS, RAP or FRAP shall not be used in HMA unless the RAS, RAP or FRAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, when testing for RAP or FRAP, the ignition oven may be substituted for extractions according to the Illinois Test Procedure, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

#### **1031.04 Quality Designation of Aggregate in RAP/FRAP.**

(a) The aggregate quality of the RAP, Fractionated RAP, Restricted FRAP, Conglomerate, and conglomerate "D" quality stockpiles shall be set by the lowest quality of coarse aggregate in the stockpile and are designated as follows:

- (1) RAP from Class I, Superpave (High ESAL)/HMA (High ESAL), or HMA (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.
- (2) RAP from Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.
- (3) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
- (4) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

(b) The aggregate quality of FRAP shall be determined as follows.

- (1) If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer. If the quality is not known, the quality shall be determined according to note (2) herein:
- (2) Fractionated RAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5000 tons (4500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg).

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The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant prequalified by the Department for the specified testing. The consultant shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the BMPR Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent will be applied for all HMA applications. The fine aggregate portion of the fractionated RAP shall not be used in any HMA mixtures that require a minimum of "B" quality aggregate or better, until the coarse aggregate fraction has been determined to be acceptable thru a MicroDeval Testing.

**1031.05 Use of RAS, RAP or FRAP in HMA.** The use of RAS, RAP or FRAP shall be a Contractor's option when constructing HMA in all contracts.

The use of RAS shall be as follows:

Type 1 or Type 2 RAS may be used alone or in conjunction with, Fractionated Reclaimed Asphalt Pavement (FRAP) or Reclaimed Asphalt Pavement (RAP), in all HMA mixtures up to a maximum of 5.0 percent by weight of total mix.

Reclaimed asphalt shingles (RAS) meeting Type 1 or Type 2 requirements will be permitted in all HMA mixtures for overlay applications. RAS will also be permitted in all Low ESAL full depth pavement and ALL other Mixtures (Stabilized Subbase and shoulder HMA). RAS shall not be used in full depth HMA High ESAL main line pavement.

The use of RAP/FRAP shall be as follows:

- (a) Coarse Aggregate Size (after extraction), The coarse aggregate in all RAP or FRAP shall be equal to or less than the maximum size requirement for the HMA mixture to be produced.
- (b) Steel Slag Stockpiles. RAP stockpiles containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in HMA (High ESAL and Low ESAL) surface mixtures only.
- (c) Use in HMA Surface Mixtures (High and Low ESAL). RAP/FRAP and Restricted FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall in which the coarse aggregate is Class B quality or better. RAP/FRAP shall be considered equivalent to Limestone for frictional considerations unless produced/screened to minus 3/8 inch.
- (d) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP/FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP, in which the coarse aggregate is Class C quality or better.
- (e) Use in Shoulders and Subbase. RAP/FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall RAP, Restricted FRAP, Conglomerate, or Conglomerate DQ.

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When the Contractor chooses the RAP option, the percentage of virgin asphalt binder replaced by the asphalt binder from the RAP shall not exceed the percentages indicated in the table below for a given N Design:

Max Asphalt Binder Replacement RAP Only  
 Table 1

HMA Mixtures <sup>1/, 3/</sup>	Maximum % Asphalt Binder replacement (ABR)		
	Binder/Leveling Binder	Surface	Polymer Modified
Ndesign			
30L	25	15	10
50	25	15	10
70	15	10	10
90	10	10	10
105	10	10	10

- 1/ For HMA “All Other” (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.
- 2/ When the asphalt binder replacement exceeds 15 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement would require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28).

When the Contractor chooses either the RAS or FRAP option, the percent binder replacement shall not exceed the amounts indicated in the tables below for a given N Design.

Max Asphalt Binder Replacement RAS or FRAP  
 Table 2

HMA Mixtures <sup>1/, 2/</sup>	Level 1 - Maximum % ABR		
	Binder/Leveling Binder	Surface	Polymer <sup>3/, 4/</sup> Modified
Ndesign			
30L	35	30	15
50	30	25	15
70	30	20	15
90	20	15	15
105	20	15	15

1/ For HMA “All Other” (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the asphalt binder replacement exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement will require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28).

3/ For SMA, when the FRAP option is used, the maximum ABR is 15 percent. When the RAS option is used, the maximum ABR is 20 percent.

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When the asphalt binder replacement in SMA exceeds 10 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 15 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).

4/ For IL 4.75 mix, when the FRAP option is used, the maximum ABR is 15 percent. When the RAS option is used, the maximum ABR is 20 percent. When the RAS option is used, a maximum of 5 percent RAS by weight of the mix, shall be permitted. When the ABR in the IL-4.75 exceeds 15 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 16 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).

When the Contractor chooses the RAS with FRAP combination, the percent asphalt binder replacement shall split equally between the RAS and the FRAP, and the total replacement shall not exceed the amounts indicated in the tables below for a given N Design.

Max Asphalt Binder Replacement RAS and FRAP Combination  
 Table 3

HMA Mixtures <sup>1/, 2/</sup>	Level 2 - Maximum % ABR		
	Binder/Leveling Binder	Surface	Polymer Modified <sup>3/, 4/</sup>
Ndesign			
30L	40	40	20
50	40	30	20
70	40	30	20
90	40	30	20
105	40	30	20

1/ For HMA "All Other" (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the binder replacement exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement will require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28).

3/ For SMA, 20 percent ABR from RAS maybe combined with a maximum of 10 percent ABR from FRAP. When the asphalt binder replacement in SMA exceeds 10 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 15 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).

4/ For IL 4.75, a 20 percent ABR from RAS may be combined with a maximum of 20 percent ABR from FRAP.

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When the asphalt binder replacement in the IL-4.75 exceeds 15 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 16 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).

**1031.06 HMA Mix Designs.** All HMA mixtures will be required to be tested, prior to submittal for Department verification, according to Illinois Modified AASHTO T324 (Hamburg Wheel) and shall meet the following requirements:

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG76-XX	20,000	12.5
PG70-XX	20,000	12.5
PG64-XX	10,000	12.5
PG58-XX	10,000	12.5

Note: For SMA Designs (N-80) the maximum rut depth is 6.0 mm at 20,000 repetitions.  
 For IL 4.75 mm Designs (N-50) the maximum rut depth is 9.0 mm at 15,000 repetitions.

**1031.07 HMA Production.** All HMA mixtures shall be sampled within the first 500 tons on the first day of production or during start up, with a split reserved for the Department. The mix sample shall be tested according to Illinois Modified AASHTO T324 and shall meet the requirements specified herein. The production of such mixture, shall not exceed 1,500 tons or one days production, whichever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the plant produced mixture is demonstrated prior to start of mix production for the contract.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAS, RAP and FRAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAS, RAP and FRAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAs, RAP or FRAP and either switch to the virgin aggregate design or submit a new RAS, RAP or FRAP design.

HMA plants utilizing RAS, RAP and FRAP shall be capable of automatically recording and printing the following information.

(a) Dryer Drum Plants.

- (1) Date, month, year, and time to the nearest minute for each print.
- (2) HMA mix number assigned by the Department.
- (3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

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- (4) Accumulated dry weight of RAS, RAP and FRAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
  - (5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
  - (6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
  - (7) Residual asphalt binder in the RAS, RAP and FRAP material as a percent of the total mix to the nearest 0.1 percent.
  - (8) When producing mixtures with FRAP and/or RAS, a positive dust control system shall be utilized.
  - (9) Accumulated mixture tonnage.
  - (10) Dust removed (accumulated to the nearest 0.1ton)
  - (11) Aggregate RAS, RAP and FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS, RAP FRAP are printed in wet condition.)
- (b) Batch Plants.
- (1) Date, month, year, and time to the nearest minute for each print.
  - (2) HMA mix number assigned by the Department.
  - (3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
  - (4) Mineral filler weight to the nearest pound (kilogram).
  - (5) RAS, RAP and FRAP weight to the nearest pound (kilogram).
  - (6) Virgin asphalt binder weight to the nearest pound (kilogram).
  - (7) Residual asphalt binder in the RAS, RAP and FRAP material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

**1031.08 RAP in Aggregate Surface Course and Aggregate Shoulders.** The use of RAP or FRAP in aggregate surface course and aggregate shoulders shall be as follows.

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- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except “Non-Quality” and “FRAP”. The testing requirements of Article 1031.03 shall not apply.
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded, FRAP, or single sized will not be accepted for use as Aggregate Surface Course and Aggregate Shoulders.”

**BITUMINOUS PRIME COAT FOR HOT-MIX ASPHALT PAVEMENT (FULL DEPTH) (D-1)**

Effective: May 1, 2007

Revise Article 407.06(b) of the Standard Specifications to read:

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