Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

June 3, 2015

SUBJECT: FAP Route 337 (IL 22)
Project ACNHPP-0337(011)
Section 19-N-2
Lake County
Contract No. 60P06
Item No. 225, June 12, 2015 Letting
Addendum A

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 page i of the Table of Contents to the Special Provisions
3. Revised pages 40-51 of the Special Provisions
4. Revised sheets 8, 10, 56 & 58 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,

John D. Baranzelli, P.E.
Acting Engineer of Design and Environment

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

cc: John Fortmann, Region 1, District 1; Tim Kell; Estimates

MS/kf

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60P06

State Job # - C-91-451-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 19-N-2

Project Number
ACNHPP-0337/011/
*REVISED: MAY 29, 2015

Route
FAP 337

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
A2005556	T-NYSSA SYLVAT CL 6'	EACH	2.000				
A2006568	T-QUERCUS BICL CL 7'	EACH	8.000				
A2007616	T-TAXODIUM DIS 2	EACH	5.000				
B2000564	T-AMELAN CAN SF 5'	EACH	6.000				
C2C00424	S-ARONIA ARB BRIL 2'C	EACH	220.000				
C2C01424	S-CORNUS AMOMUM 2'C	EACH	650.000				
C2C01536	S-CORNUS RACEMOSA 3'C	EACH	625.000				
C2C019G5	S-ARON MEL IB CG 5G	EACH	175.000				
C2C06024	S-RHUS TYPHINA 2'C	EACH	160.000				
C2009640	S-SAMBUCUS CANAD 3'	EACH	130.000				
K0013030	P PL WETLND 2X4 DPPLG	UNIT	20.000				
K0029632	WEED CONT N SEL/N RES	GALLON	2.500				
K0029634	WEED CONTR PRE-EM GRN	POUND	36.000				
X0324085	EM VEH P S LSC 20 3C	FOOT	260.000				
X1200032	STL CAS P AUG/JKD 28	FOOT	150.000				

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*DEL ~~X1400081~~	~~FAC T SUPER P CAB SP~~	~~EACH~~	~~1.000~~				
*ADD X1400107	FAC T SUPER P CAB	EACH	1.000				
X2502014	SEEDING CL 4A MOD	ACRE	1.450				
X2502024	SEEDING CL 4B MOD	ACRE	1.450				
X4021000	TEMP ACCESS- PRIV ENT	EACH	3.000				
X7010216	TRAF CONT & PROT SPL	L SUM	1.000				
X7030030	WET REF TEM TAPE T3 4	FOOT	14,466.000				
X7030055	WET REF TEM TPE T3 24	FOOT	44.000				
X7040125	PIN TEMP CONC BARRIER	EACH	42.000				
X8620200	UNINTER POWER SUP SPL	EACH	1.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0030850	TEMP INFO SIGNING	SQ FT	52.000				
Z0062456	TEMP PAVEMENT	SQ YD	594.000				
Z0068100	STEEL CASINGS 28	FOOT	150.000				
Z0076600	TRAINEES	HOUR	500.000		0.800		400.000

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
Z0076604	TRAINEES TPG	HOUR	500.000		15.000		7,500.000
20100110	TREE REMOV 6-15	UNIT	20.000				
20100500	TREE REMOV ACRES	ACRE	1.240				
20101000	TEMPORARY FENCE	FOOT	50.000				
20101100	TREE TRUNK PROTECTION	EACH	10.000				
20101200	TREE ROOT PRUNING	EACH	10.000				
20101300	TREE PRUN 1-10	EACH	10.000				
20200100	EARTH EXCAVATION	CU YD	4,283.000				
20201200	REM & DISP UNS MATL	CU YD	2,429.000				
20800150	TRENCH BACKFILL	CU YD	39.000				
21001000	GEOTECH FAB F/GR STAB	SQ YD	548.000				
21101505	TOPSOIL EXC & PLAC	CU YD	3,732.000				
21101805	COMPOST F & P 2	SQ YD	445.000				
21400100	GRADING & SHAP DITCH	FOOT	47.000				
25000210	SEEDING CL 2A	ACRE	0.360				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
25000400	NITROGEN FERT NUTR	POUND	33.000				
25000600	POTASSIUM FERT NUTR	POUND	33.000				
25100115	MULCH METHOD 2	ACRE	1.800				
25100630	EROSION CONTR BLANKET	SQ YD	7,508.000				
25100635	HD EROS CONTR BLANKET	SQ YD	1,217.000				
25100900	TURF REINF MAT	SQ YD	536.000				
25200200	SUPPLE WATERING	UNIT	7.000				
28000250	TEMP EROS CONTR SEED	POUND	181.000				
28000305	TEMP DITCH CHECKS	FOOT	310.000				
28000400	PERIMETER EROS BAR	FOOT	5,180.000				
28001200	TEMP HD EROS CONTR BL	SQ YD	1,217.000				
28100105	STONE RIPRAP CL A3	SQ YD	10.000				
28100107	STONE RIPRAP CL A4	SQ YD	60.000				
28200200	FILTER FABRIC	SQ YD	70.000				
30300001	AGG SUBGRADE IMPROVE	CU YD	397.000				

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Code - 97 - -	*REVISED: MAY 29, 2015	
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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
30300112	AGG SUBGRADE IMPR 12	SQ YD	3,507.000				
31101200	SUB GRAN MAT B 4	SQ YD	594.000				
35501308	HMA BASE CSE 6	SQ YD	195.000				
35600706	HMA BC WID 7 1/2	SQ YD	1,515.000				
40600275	BIT MATLS PR CT	POUND	4,800.000				
40600400	MIX CR JTS FLANGEWYS	TON	8.000				
40600635	LEV BIND MM N70	TON	243.000				
40600982	HMA SURF REM BUTT JT	SQ YD	52.000				
40603340	HMA SC "D" N70	TON	620.000				
44000100	PAVEMENT REM	SQ YD	622.000				
44000158	HMA SURF REM 2 1/4	SQ YD	4,955.000				
44000200	DRIVE PAVEMENT REM	SQ YD	283.000				
44004250	PAVED SHLD REMOVAL	SQ YD	250.000				
44201769	CL D PATCH T3 10	SQ YD	36.000				
44201789	CL D PATCH T2 12	SQ YD	30.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
44201794	CL D PATCH T3 12	SQ YD	10.000				
44201796	CL D PATCH T4 12	SQ YD	142.000				
44300200	STRIP REF CR CON TR	FOOT	3,091.000				
48102100	AGG WEDGE SHLD TYPE B	TON	62.000				
48203030	HMA SHOULDERS 8 1/4	SQ YD	1,333.000				
50100100	REM EXIST STRUCT	EACH	1.000				
50105220	PIPE CULVERT REMOV	FOOT	329.000				
54001001	BOX CUL END SEC C1	EACH	2.000				
54010502	PCBC 5X2	FOOT	44.000				
542A5497	P CUL CL A 1 EQRS 42	FOOT	68.000				
542D0229	P CUL CL D 1 24	FOOT	60.000				
542D5470	P CUL CL D 1 EQRS 15	FOOT	89.000				
54213660	PRC FLAR END SEC 15	EACH	4.000				
54213669	PRC FLAR END SEC 24	EACH	2.000				
54214527	PRC FL END S EQ RS 42	EACH	2.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
54215559	MET END SEC 24	EACH	6.000				
54260311	TRAVERS PIPE GRATE	FOOT	67.000				
54390180	INSERT CUL LIN 24	FOOT	220.400				
60100060	CONC HDWL FOR P DRAIN	EACH	6.000				
60107600	PIPE UNDERDRAINS 4	FOOT	800.000				
60108100	PIPE UNDERDRAIN 4 SP	FOOT	100.000				
63200310	GUARDRAIL REMOV	FOOT	726.000				
66900200	NON SPL WASTE DISPOSL	CU YD	2,325.000				
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000				
66900530	SOIL DISPOSAL ANALY	EACH	1.000				
67000400	ENGR FIELD OFFICE A	CAL MO	6.000				
67100100	MOBILIZATION	L SUM	1.000				
70106800	CHANGEABLE MESSAGE SN	CAL MO	2.000				
70300100	SHORT TERM PAVT MKING	FOOT	2,715.000				
70300210	TEMP PVT MK LTR & SYM	SQ FT	73.000				

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70300220	TEMP PVT MK LINE 4	FOOT	7,411.000				
70300240	TEMP PVT MK LINE 6	FOOT	230.000				
70300260	TEMP PVT MK LINE 12	FOOT	100.000				
70300280	TEMP PVT MK LINE 24	FOOT	86.000				
70301000	WORK ZONE PAVT MK REM	SQ FT	8,746.000				
70400100	TEMP CONC BARRIER	FOOT	350.000				
70600260	IMP ATTN TEMP FRN TL3	EACH	2.000				
72000100	SIGN PANEL T1	SQ FT	76.500				
72000200	SIGN PANEL T2	SQ FT	91.000				
72300100	INSTALL EX SIGN PANEL	SQ FT	30.000				
72400100	REMOV SIN PAN ASSY TA	EACH	17.000				
72400200	REMOV SIN PAN ASSY TB	EACH	1.000				
72900100	METAL POST TY A	FOOT	164.000				
78000100	THPL PVT MK LTR & SYM	SQ FT	73.000				
78000200	THPL PVT MK LINE 4	FOOT	7,411.000				

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78000400	THPL PVT MK LINE 6	FOOT	230.000				
78000600	THPL PVT MK LINE 12	FOOT	100.000				
78000650	THPL PVT MK LINE 24	FOOT	86.000				
78100100	RAISED REFL PAVT MKR	EACH	2.000				
78200530	BAR WALL MKR TYPE C	EACH	30.000				
78300100	PAVT MARKING REMOVAL	SQ FT	500.000				
78300200	RAISED REF PVT MK REM	EACH	2.000				
80500020	SERV INSTALL POLE MT	EACH	1.000				
81028200	UNDRGRD C GALVS 2	FOOT	640.000				
81028210	UNDRGRD C GALVS 2 1/2	FOOT	50.000				
81028220	UNDRGRD C GALVS 3	FOOT	81.000				
81028240	UNDRGRD C GALVS 4	FOOT	216.000				
81400200	HD HANDHOLE	EACH	7.000				
81400300	DBL HANDHOLE	EACH	1.000				
87301225	ELCBL C SIGNAL 14 3C	FOOT	260.000				

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87301245	ELCBL C SIGNAL 14 5C	FOOT	1,210.000				
87301255	ELCBL C SIGNAL 14 7C	FOOT	600.000				
87301305	ELCBL C LEAD 14 1PR	FOOT	1,175.000				
87301805	ELCBL C SERV 6 2C	FOOT	50.000				
87301900	ELCBL C EGRDC 6 1C	FOOT	530.000				
87502480	TS POST GALVS 14	EACH	2.000				
87502500	TS POST GALVS 16	EACH	2.000				
87700180	S MAA & P 28	EACH	2.000				
87700190	S MAA & P 30	EACH	1.000				
87700200	S MAA & P 32	EACH	1.000				
*REV 87800100	CONC FDN TY A	FOOT	24.000				
*REV 87800150	CONC FDN TY C	FOOT	4.000				
87800400	CONC FDN TY E 30D	FOOT	10.000				
87800415	CONC FDN TY E 36D	FOOT	47.000				
88030020	SH LED 1F 3S MAM	EACH	6.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
88030050	SH LED 1F 3S BM	EACH	2.000				
88030100	SH LED 1F 5S BM	EACH	2.000				
88030110	SH LED 1F 5S MAM	EACH	2.000				
88200410	TS BACKPLATE L F PLAS	EACH	8.000				
88500100	INDUCTIVE LOOP DETECT	EACH	6.000				
88600100	DET LOOP T1	FOOT	500.000				
88700200	LIGHT DETECTOR	EACH	2.000				
88700300	LIGHT DETECTOR AMP	EACH	1.000				

CONTRACT NUMBER **60P06**

THIS IS THE TOTAL BID **$** _____

NOTES:

1. **Each PAY ITEM should have a UNIT PRICE and a TOTAL PRICE.**
2. **The UNIT PRICE shall govern if no TOTAL PRICE is shown or if there is a discrepancy between the product of the UNIT PRICE multiplied by the QUANTITY.**
3. **If a UNIT PRICE is omitted, the TOTAL PRICE will be divided by the QUANTITY in order to establish a UNIT PRICE.**
4. **A bid may be declared UNACCEPTABLE if neither a unit price nor a total price is shown.**

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Revised 6/3/15

Add the following to the end of Note 1. of article 1030.03 of the Standard Specifications:

"A dedicated storage tank for the Ground Tire Rubber (GTR) modified asphalt binder shall be provided. This tank must be capable of providing continuous mechanical mixing throughout by continuous agitation and recirculation of the asphalt binder to provide a uniform mixture. The tank shall be heated and capable of maintaining the temperature of the asphalt binder at 300 °F to 350 °F (149 °C to 177 °C). The asphalt binder metering systems of dryer drum plants shall be calibrated with the actual GTR modified asphalt binder material with an accuracy of ± 0.40 percent."

Revise 1030.02(c) of the Standard Specifications to read:

"(c) RAP Materials (Note 3) ……..1031"

Add the following note to 1030.02 of the Standard Specifications:

Note 3. When using reclaimed asphalt pavement and/or reclaimed asphalt shingles, the maximum asphalt binder replacement percentage shall be according to the most recent special provision for recycled materials.

RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (D-1)
Effective: November 1, 2012 Revise: April 2, 2015

Revise Section 1031 of the Standard Specifications to read:

"**SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES**

1031.01 Description. Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

(a) Reclaimed Asphalt Pavement (RAP). RAP is the material resulting from cold milling or crushing 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.

Revised 6/3/15

(b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Bureau of Materials and Physical Research Policy Memorandum "Reclaimed Asphalt Shingle (RAS) Sources", by weight of RAS. All RAS used shall come from a Bureau of Materials and Physical Research approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 90 percent passing the #4 (4.75 mm) sieve . RAS shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.

(1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.

(2) 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. RAP and RAS stockpiles shall be according to the following.

(a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. Additional processed RAP (FRAP) shall be stockpiled in a separate working pile, as designated in the QC Plan, and only added to the sealed stockpile when test results for the working pile are complete and are found to meet tolerances specified herein for the original sealed FRAP stockpile. Stockpiles shall be sufficiently separated to prevent intermingling at the base. All stockpiles (including unprocessed RAP and FRAP) shall be identified by signs indicating the type as listed below (i.e. "Non- Quality, FRAP -#4 or Type 2 RAS", etc…).

(1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, Superpave HMA (High and Low 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 (4.75 mm) and 1/2 in. (12.5 mm) 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 FRAP will be used in.

(2) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, Superpave (High ESAL), or HMA (High ESAL). 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.

(3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, Superpave HMA (High and Low 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.

(4) 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 round 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.

(5) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP or 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.

(b) RAS Stockpiles. Type 1 and Type 2 RAS shall be stockpiled separately and shall be sufficiently separated to prevent intermingling at the base. 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 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 three years.

Revised 6/3/15

1031.03 Testing. FRAP and RAS testing shall be according to the following.

(a) FRAP Testing. When used in HMA, the FRAP shall be sampled and tested either during processing or after stockpiling. It shall also be sampled during HMA production.

(1) During Stockpiling. 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).

(2) Incoming Material. For testing as incoming material, washed extraction samples shall be run at a minimum frequency of one sample per 2000 tons (1800 metric tons) or once per week, whichever comes first.

(3) After Stockpiling. 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 restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Before extraction, each field sample of 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.

(b) RAS Testing. RAS shall be sampled and tested during stockpiling according to Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Shingle (RAS) Sources”. The Contractor shall also sample as incoming material at the HMA plant.

(1) 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 tons (900 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a ≤ 1000 ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS shall be 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.

(2) Incoming Material. For testing as incoming material at the HMA plant, washed extraction shall be run at the minimum frequency of one sample per 250 tons (227 metric tons). A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). The incoming material test results shall meet the tolerances specified herein.

Revised 6/3/15

The Contractor shall obtain and make available all test results from start of the initial stockpile sampled and tested at the shingle processing facility in accordance with the facility's QC Plan.

Before extraction, each field sample 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 procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

1031.04 Evaluation of Tests. Evaluation of tests results shall be according to the following.

(a) Evaluation of FRAP Test Results. All test results shall be compiled to include asphalt binder content, gradation and, when applicable (for slag), G_{mm}. A five test average of results from the original pile will be used in the mix designs. Individual extraction test results run thereafter, shall be compared to the average used for the mix design, and will be accepted if within the tolerances listed below.

Parameter	FRAP
No. 4 (4.75 mm)	± 6 %
No. 8 (2.36 mm)	± 5 %
No. 30 (600 μm)	± 5 %
No. 200 (75 μm)	± 2.0 %
Asphalt Binder	± 0.3 %
G_{mm}	± 0.03 1/

1/ For stockpile with slag or steel slag present as determined in the current Manual of Test Procedures Appendix B 21, "Determination of Reclaimed Asphalt Pavement Aggregate Bulk Specific Gravity".

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the FRAP stockpile shall not be used in Hot-Mix Asphalt unless the FRAP representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

The Contractor shall maintain a representative moving average of five tests to be used for Hot-Mix Asphalt production.

With the approval of the Engineer, 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)" or Illinois Modified AASHTO T-164-11, Test Method A.

(b) Evaluation of RAS Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and gradation. A five test average of results from the original pile will be used in the mix designs. Individual test results run thereafter, when compared to the average used for the mix design, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	± 5 %
No. 30 (600 µm)	± 4 %
No. 200 (75 µm)	± 2.5 %
Asphalt Binder Content	± 2.0 %

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the RAS shall not be used in Hot-Mix Asphalt unless the RAS representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

(c) Quality Assurance by the Engineer. The Engineer may witness the sampling and splitting conduct assurance tests on split samples taken by the Contractor for quality control testing a minimum of once a month.

The overall testing frequency will be performed over the entire range of Contractor samples for asphalt binder content and gradation. The Engineer may select any or all split samples for assurance testing. The test results will be made available to the Contractor as soon as they become available.

The Engineer will notify the Contractor of observed deficiencies.

Differences between the Contractor's and the Engineer's split sample test results will be considered acceptable if within the following limits.

Test Parameter	Acceptable Limits of Precision	
% Passing:[1/]	FRAP	RAS
1/2 in.	5.0%	
No. 4	5.0%	
No. 8	3.0%	4.0%
No. 30	2.0%	3.0%
No. 200	2.2%	2.5%
Asphalt Binder Content	0.3%	1.0%
G_{mm}	0.030	

1/ Based on washed extraction.

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In the event comparisons are outside the above acceptable limits of precision, the Engineer will immediately investigate.

(d) Acceptance by the Engineer. Acceptable of the material will be based on the validation of the Contractor's quality control by the assurance process.

1031.05 Quality Designation of Aggregate in RAP and FRAP.

(a) RAP. The aggregate quality of the RAP for homogenous, conglomerate, and conglomerate "D" quality stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

(1) RAP from Class I, Superpave/HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.

(2) RAP from Superpave/HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.

(3) RAP from Class I, Superpave/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) FRAP. 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 as follows. Fractionated RAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5,000 tons (4,500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). 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.

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1031.06 Use of FRAP and/or RAS in HMA. The use of FRAP and/or RAS shall be a Contractor's option when constructing HMA in all contracts.

(a) FRAP. The use of FRAP in HMA shall be as follows.

(1) Coarse Aggregate Size (after extraction). The coarse aggregate in all FRAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.

(2) Steel Slag Stockpiles. FRAP 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) mixtures regardless of lift or mix type.

(3) Use in HMA Surface Mixtures (High and Low ESAL). FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall have coarse aggregate that is Class B quality or better. FRAP shall be considered equivalent to limestone for frictional considerations unless produced/screened to minus 3/8 inch.

(4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. 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.

(5) Use in Shoulders and Subbase. FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, Restricted FRAP, conglomerate, or conglomerate DQ.

(b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.

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(c) FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with FRAP in HMA mixtures up to a maximum of 5.0% by weight of the total mix.

When FRAP is used alone or FRAP is used in conjunction with RAS, the percent of virgin asphalt binder replacement (ABR) shall not exceed the amounts indicated in the table below for a given N Design.

Max Asphalt Binder Replacement for FRAP with RAS Combination

HMA Mixtures [1/ 2/ 4/]	Maximum % ABR		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified [3/]
30L	50	40	30
50	40	35	30
70	40	30	30
90	40	30	30
4.75 mm N-50			40
SMA N-80			30

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 using a virgin asphalt binder grade of PG64-22 will be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 percent, the required virgin asphalt binder grade shall be PG64-28.

3/ When the ABR for SMA or IL-4.75 is 15 percent or less, the required virgin asphalt binder shall be SBS PG76-22 and the elastic recovery shall be a minimum of 80. When the ABR for SMA or IL-4.75 exceeds 15%, the virgin asphalt binder grade shall be SBS PG70-28 and the elastic recovery shall be a minimum of 80.

4/ When FRAP or RAS is used alone, the maximum percent asphalt binder replacement designated on the table shall be reduced by 10 percent.

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1031.07 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the detailed requirements specified herein.

(a) FRAP and/or RAS. FRAP and /or RAS mix designs shall be submitted for verification. If additional FRAP or RAS stockpiles are tested and found to be within tolerance, as defined under "Evaluation of Tests" herein, and meet all requirements herein, the additional FRAP or RAS stockpiles may be used in the original design at the percent previously verified.

(b) RAS. Type 1 and Type 2 RAS are not interchangeable in a mix design. A RAS stone bulk specific gravity (Gsb) of 2.300 shall be used for mix design purposes.

1031.08 HMA Production. HMA production utilizing FRAP and/or RAS shall be as follows.

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 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 during mix production, corrective actions fail to maintain FRAP, RAS or QC/QA test results within control tolerances or the requirements listed herein the Contractor shall cease production of the mixture containing FRAP or RAS and conduct an investigation that may require a new mix design.

(a) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.

(b) HMA Plant Requirements. HMA plants utilizing FRAP and/or RAS shall be capable of automatically recording and printing the following information.

(1) Dryer Drum Plants.

a. Date, month, year, and time to the nearest minute for each print.

b. HMA mix number assigned by the Department.

c. Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

d. Accumulated dry weight of RAS and FRAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

e. Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.

f. Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.

g. Residual asphalt binder in the RAS and FRAP material as a percent of the total mix to the nearest 0.1 percent.

h. Aggregate RAS and FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS and FRAP are printed in wet condition.)

i. When producing mixtures with FRAP and/or RAS, a positive dust control system shall be utilized.

j. Accumulated mixture tonnage.

k. Dust Removed (accumulated to the nearest 0.1 ton)

(2) Batch Plants.

a. Date, month, year, and time to the nearest minute for each print.

b. HMA mix number assigned by the Department.

c. Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).

d. Mineral filler weight to the nearest pound (kilogram).

f. RAS and FRAP weight to the nearest pound (kilogram).

g. Virgin asphalt binder weight to the nearest pound (kilogram).

h. Residual asphalt binder in the RAS 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.

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1031.09 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.

(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. RAP used to construct aggregate surface course and aggregate shoulders shall be according to the current Bureau of Materials and Physical Research’s Policy Memorandum, “Reclaimed Asphalt Pavement (RAP) for Aggregate Applications”

(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.”

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