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**COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION**



**FINAL**

**Plasphalt Project**

**The Performance Evaluation of Jefferson Street  
Plasphalt Project**

**District 5-0, Wilson Borough**

Prepared By:

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Apex Companies, LLC

**OCTOBER 2008**

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## **1.0 INTRODUCTION**

Under the Strategic Recycling Program, PennDOT provides assistance to Districts in the selection and performance evaluation of recycled materials and demonstration projects that incorporate recyclable materials. This report provides an overview on the paving operations and a 5-year performance evaluation of Jefferson Street Plasphalt Project performed in the Borough of Wilson, Pennsylvania. This report is intended to satisfy the demonstration project reporting requirements of the PennDOT Bureau of Construction and Materials (BCM).

The Borough of Wilson awarded two contracts to Lehigh Valley Site Contractors Inc. to perform Plasphalt paving of three residential streets within the Borough: Hay Terrace (2002), 21<sup>st</sup> Street and Jefferson Street (2003). This report provides the performance evaluation for the Jefferson Street plasphalt project; separate reports are issued for the plasphalt paving projects on 21<sup>st</sup> Street and Hay Terrace Plasphalt projects.

### **1.1 Plasphalt Project Requirements**

Hot mix asphalt concrete containing Treated Recycled Plastic Aggregate (TRPA) is referred to by the trade name Plasphalt<sup>TM</sup> (plasphalt). TRPA material is composed of ground recycled thermoplastic, treated with a proprietary process to improve the bond strength between the plastic and asphalt binder. For the Wilson Borough project, TRPA materials were provided by Telecan International, Inc., Albuquerque, New Mexico, through a local representative. At this time there is still limited available research on the performance-related properties of plasphalt. Some initial studies suggest that plasphalt, when used as a pavement surface, has the potential to prevent or lessen the severity of rutting.

Local governments in Pennsylvania have been interested in the use of plasphalt material for several reasons including: Liquid Fuels monies can be used to fund plasphalt on

municipal projects, the resistance to rutting is reported in research, and there is a real and perceived benefit to the Commonwealth in the use of recycled plastic materials.

To address this interest in plaspphalt use, PennDOT developed use guidelines for municipalities and other entities interested in plaspphalt paving. These guidelines, *Instructions to Local Governments who agree to use Plaspphalt Hot Mix Asphalt (HMA) Pavement Courses* and Plaspphalt HMA Pavement Course Specifications are provided in Attachment 1.

Plaspphalt specifications call for the use of hot mix asphalt (HMA) with some of the conventional aggregate substituted with treated recycled plastic aggregate (TRPA) to a maximum of 1.5% substitution. Because plaspphalt paving projects are considered experimental, BCM requires performance evaluations to compare them to standard paving mixes. As provided in Attachment 2, PennDOT Engineering Technology & Information (ETI) Division, Bureau of Construction Materials, provided Plaspphalt specifications and a Draft Work Plan for Evaluation of Plaspphalt Recycled Aggregate Substitute in HMA for Municipality Use and Specifications.

The use guidelines recommend that a minimum quantity of 600 tons, or 7040 square yards (approximately one lane mile at 12 feet wide land at 1 ½” depth) of Plaspphalt HMA Pavement course to be used to compare against a standard Superpave 9.5 mm pavement wearing course (control section). These guidelines also call for evaluations that involve crack and rut inspections on both control and plaspphalt sections. Along with the crack surveys, string line or straightedge rut measurements, photo logs, and recording the dates and the severity of pavement distress are required to be taken and maintained throughout the five-year evaluation period.

Although minimum quantity requirement guidelines were not followed, the application was monitored for performance. Approximately 200 tons of wearing course were placed

Jefferson Street Plasphalt Project  
Wilson Borough

on Jefferson Street, with control sections using conventional asphalt comprising 97 tons, and plasphalt paving contributing the remaining 97 tons.

## **2.0 JEFFERSON STREET PLASPHALT PROJECT**

### **2.1 Plaspphalt Paving (2003)**

The Jefferson Street Plaspphalt project was performed in District 5-0, Wilson Borough, Northampton County, between 16<sup>th</sup> Street and Palmer Street, including the Jefferson Street/Palmer Street intersection. This resurfacing project was performed as a Municipal Service Project #03-48-418-01, awarded to Lehigh Valley Site Contractors, Inc. Attachment 3 provides the Wilson Borough Plaspphalt Project contract information and Site Location Map.

The Jefferson Street project involved the resurfacing and select repair of Jefferson Street, followed by installation of conventional and plaspphalt wearing courses. Milling to 3½ inches was performed prior to the paving. In addition, approximately 67 tons of conventional base course material was used to patch milled surface (approximately 740 square yards @ 1.5 depth). A 1.5 inches (9.5 mm) Superpave control wearing course was installed on the northern traffic lane, and 1.5 inches (9.5 mm) Superpave 0.0-0.3 ESALs of Plaspphalt wearing course was installed on the southern traffic lane. In addition, intersections were paved with wedges on both ends with conventional wearing course. Total area paved included 1250 SY (100 tons) of plaspphalt and 1250 SY (100 tons) of conventional wearing course.

Conventional paving material was prepared at ABE Materials, Easton PA. Plaspphalt was prepared at the Hellertown Materials, Hellertown, PA. Even though the Jefferson Street is considered a small project (200 tons), the northern traffic lane was incorporated as a control lane into this job, as outlined in the plaspphalt use guidelines. It was agreed by all parties (as identified below), that field evaluations of the placement of materials and yearly visual inspections would be performed.

Plaspphalt paving was conducted on September 18, 2003. Wilson Borough officials, including Mr. Greg Drake, Superintendent of Public Works, and plaspphalt representative,

Mr. Terry Crouthamel, Sr. were also present intermittently for the paving activities. Mr. Robert Boyer, Municipal Services Supervisor, Mr. Robin Sukely, Bureau of Construction and Materials (BCM representative), Mr. Joseph Kretulskie, District 5-0 Municipal Services, and Ms. Jelena Vukov of Apex Companies, LLC representing PennDOT Pollution Prevention Section (PPS) – Environmental Quality Assurance Division (EQAD) were present during the paving operations and present at the asphalt plant.

Approximately 100 tons of plaspphalt was used for this project. Mr. Greg Drake was provided copies of truck deliver slips for 19 mm base, 1.5 mm conventional and 9.5 mm plaspphalt HMA. TR1461 Field Evaluation Form and photographs of the operation are provided in Attachment 4.

Paving was initiated on September 18, 2003, by Lehigh Valley Site Contractors, Inc. Equipment used for paving included a Barber Green Model BT 211. For compaction, Lehigh used the Dynapac CC422 (large roller) and Dynapac Model CC122 (small roller). Short HMA paving quantities and short paving distance prohibited setting a rolling pattern. Mix delivery temperature for plaspphalt ranged from 255-310°F for conventional HMA, and 240-300°F for plaspphalt. One delivered plaspphalt truck load was measured below lower limit temperature (240-255°F and 310°F at discharge in same truck hopper). Wilson Borough Manager was informed and allowed placement. This could indicate the last portion of the truck load was much hotter than the majority of the middle and front of the truck. This may have been caused by the hot bins cooling at the plant while waiting for a truck to return, as noted during the plant visit.

Contractor performed nuclear density gauge readings. For the plaspphalt section, field densities (>92%) were achieved. Lower density readings 88-91% were observed at cooler plaspphalt load section (midsection of plaspphalt paving strip). Several non-vibratory roller passes were required to achieve this density.

Three loose samples were collected from mat behind the paver. A fourth loose sample increment was collected at Easton (asphalt plant) on the conventional wearing course mix for testing.

## **2.2 Asphalt Plant Production**

PennDOT District 5-0 State Material Inspectors were present at the Hellertown Plant during plasphalt production. Standard aggregate dosing equipment was not determined to not be functional for introduction of Treated Recycled Plastic Aggregate (TRPA) material into asphalt mixes in earlier plasphalt projects. The Hellertown Asphalt Plant addressed this by adding a separate auxiliary hopper with pneumatic injection, and a separate dosing machine, specifically for the introduction of TRPA into the asphalt mix. TRPA was added to the hopper from cardboard boxes via a small front-end loader. Although adequate for this scale of operations, this method of TRPA addition would not be adequate for larger scale plasphalt projects. No problems were observed during production. Attachment 5 contains photographs of TRPA material and plant hopper systems. Attachment 6 provides plant job mix results and burn test results from loose samples collected at the plant. Plasphalt material, as analyzed by the asphalt plant, met specifications.

## **2.3 Plasphalt Core Sample Test Results**

Six random core samples were taken along Jefferson Street during the first-year evaluation using PTM-1 to select core locations, three in the plasphalt wearing section and three in the conventional paving section. A schematic of core sampling locations is provided in Attachment 7. Core samples were analyzed for density by PennDOT Material Testing Division. Results are presented below:

Core Sample No.	Material	Density	% of Theoretical	Pass or Fail
1	Plasphalt	133.7	88	F
2	Plasphalt	133.8	88	F
3	Plasphalt	138.6	91	F
4	Conventional HMA	134.0	87	F
5	Conventional HMA	141.1	92	F
6	Conventional HMA	143.5	93	P

All three plasphalt core samples failed to meet the minimum 92% theoretical density requirement. In theory, for larger projects, this may call for the removal and replacement of the course. Density results for the conventional HMA core samples indicate an average 91% (percent within limits), translating to a payment factor of 98% for a standard paving project. (Note: No penalties were imposed on the Contractor for this demonstration project).

#### **2.4 TRPA Material Specifications**

At the Hellertown asphalt plant, TRPA materials were observed to be packaged in plastic tarp and cardboard boxes without any markings to indicate their production or expiration dates. According to Mr. Terry Crouthamel, Sr., provided TRPA materials for the 2003 paving jobs were delivered to the Commonwealth in September 2002. Some concerns were raised by PennDOT about the shelf-life of TRPA materials (ability to “retain” a charge) and if the material used in this project still met manufacturing specifications. It was agreed upon by all parties this issue would be clarified for any future approved work.

### **3.0 PERFORMANCE EVALUATIONS**

#### **3.1 First-year Performance Evaluation (2004)**

The first-year evaluation was performed on May 11, 2004 by Mr. Joseph Kretulskie, District 5-0 Municipal Services and Jelena Vukov (PPS-EQAD). The following summarized the key findings of the first-year visual evaluation from the site inspection. Attachment 7 provides photographs of the inspection and core sampling activities.

- In general, the plaspphalt and conventional paving sections show good aging. No rutting or surface impairment was observed. Photos YR1-1 and YR1-2 show wearing surface conditions.
- As expected, asphalt binder has worn off the plaspphalt and conventional wearing surfaces. Photo YR1-3 shows coated aggregate and some plastic (TRPA) pieces embedded in the asphalt wearing coat. Predominant visible colors of TRPA are red, blue and yellow. No visible TRPA pieces were dislodged along the road side curbs. Grey and clear plastics were the predominant colors of plastic pieces (TRPA) introduced in the design mix. It is undetermined whether these predominant plastics color pieces have melted or are not visible at the surface.
- Core sampling using PTM-1 was performed during the first-year evaluation. See Attachment 7 for core sampling locations. Three conventional and three plaspphalt samples were taken. See Photos YR1-4 through YR1-8.

#### **3.2 Second-year Performance Evaluation (2005)**

The second-year evaluation was performed on June 27, 2005, by Mr. Joseph Kretulskie, and Ms. Jelena Vukov. The following summarize the key findings of the second-year visual evaluation. Attachment 8 provides photographs.

- In general, the plaspphalt paving sections show good aging.
- No rutting or cracking was observed on plaspphalt wearing sections.
- One location on the control section showed some signs of rutting.

- No rutting or deflections were observed at Jefferson Street and Palmer Street intersection (see Photo YR2-1).
- No rutting or deflections were observed along Jefferson Street and 16<sup>th</sup> Street intersection (see Photo YR2-2).
- Rutting was measured at a 3/16" maximum deflection on conventional wearing course near Core Sample #4 location (see YR2-3 to YR2-5).
- As expected, asphalt binder has worn off the wearing surfaces, exposing coated aggregate and TRPA pieces. No visible difference to plaspalt paving surface in terms of exposed TRPA material was discernable from previous (first-year evaluation). See Photo YR2-6.
- Loss of some TRPA pieces from plaspalt course was visible at edge of pavement, accumulated near downgradient stormwater inlet. See Photo YR-7.

### **3.3 Third-year Performance Evaluation (2006)**

On-site evaluation was not performed at Jefferson Street in 2006.

### **3.4 Fourth-year Performance Evaluation (2007)**

The fourth-year evaluation was performed on July 6, 2007 by Mr. Joseph Kretulskie and Ms. Jelena Vukov. Photographs are provided in Attachment 9. The following summarizes the key findings of the walkthrough and visual observations:

- Pavement shows normal wear (See Photo YR4-1).
- Cracking was observed in the plaspalt forming at right turn lane (from 16<sup>th</sup> Street onto Jefferson Street) in two parallel lines, approximately 4 feet from curb end. The maximum crack length was measured at 10 feet. Maximum width of crack was approx. ½ inch wide and 1/2 inches deep. See Photo YR4-2 and YR4-3.
- No rutting was observed throughout Jefferson Street or intersections. (See Photo YR4-4).
- Observed distinct color difference between conventional and plaspalt wearing courses (see Photo YR4-5).

### **3.5 Fifth-year Performance Evaluation (2008)**

The fifth-year evaluation was performed on July 10, 2008 by Mr. Joseph Kretulskie, PennDOT and Ms. Jelena Vukov and Mr. Dave Miller (Apex). Photographs are provided in Attachment 10. The following summarizes the key findings of the walkthrough and visual observations:

- Pavement shows normal wear (See Photo YR5-1).
- Wider cracking was observed in the plaspphalt at right turn lane (from 16<sup>th</sup> Street onto Jefferson Street) in two parallel lines, approximately 4 feet from curb end. The maximum crack length was measured at 10 feet. Maximum width of crack was approximately 1½ inches wide and 1/2 inch deep. See Photos YR5-2 and YR5-3.
- No rutting was observed throughout Jefferson Street or intersections. (See Photo YR5-4).
- Observed distinct color difference between conventional and plaspphalt wearing courses (see Photo YR5-5).
- Plaspphalt wearing surface shows very slight continued loss of fines in comparison to 2007 inspection. See Photo YR5-6 and YR5-7.
- No visible loss of TRPA pieces along plaspphalt roadside observed.

## 4.0 CONCLUSIONS

The performance evaluation of plasphalt on Jefferson Street in Wilson Borough was performed over a 5-year period (2003-2008). Jefferson Street is considered a low ESAL residential street. The evaluations included asphalt testing and visual observations and measurements.

In general, the plasphalt shows comparative aging to standard conventional asphalt mixes. No rutting of the plasphalt sections were observed during the five-year performance evaluation period. While this project did have control sections, plasphalt mix and conventional paving mix were not produced at the same facility. This limits quality comparisons of placed materials between the two paving lanes.

Plasphalt core samples taken from the project indicate that plasphalt pavement did not meet the minimum 92% theoretical density requirement.

It should be noted that TRPA material is no longer available to the Commonwealth since 2003. It is recommended that any future plasphalt paving projects in the Commonwealth continue to undergo the performance evaluation process as stipulated in PennDOT BCM Use Guidance Document. Some general recommendations include:

- Plasphalt should only be used at site locations where it's promoted characteristics can be fully tested.
- Reject high temperature plasphalt loads.
- Obtain manufacturer certification on TRPA material, including production date and "shelf life" use restrictions.
- Require density testing and cores of base course for project documentation.

## **5.0 ACKNOWLEDGEMENTS**

This 5-year evaluation and has been funded by the Pennsylvania Department of Environmental Protection through the Strategic Recycling Program as administered by PennDOT Pollution Prevention Section - EQAD.

A special appreciation is extended to Mr. Joseph Kretulskie, District 5-0 Municipal Services for his technical assistance and continual support on the Hay Terrace Plaspphalt project. Mr. Kretulskie has been instrumental in compiling test and technical information on plaspphalt materials, and assisting the Pollution Prevention Section – EQAD in performing the yearly performance evaluations on this project.

# **ATTACHMENT 1**

**Instructions to Local Government on Plasphalt Pavement Courses  
Plasphalt HMA Pavement Course Specifications**

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Instructions to Local Governments who agree to use Plasphalt HMA Pavement Courses as an experimental feature.:

1. Following the guidelines in PENNDOT Pub. 242 (Pavement Policy Manual), specify the appropriate Superpave Asphalt Mixture Design, HMA Pavement Course(s) for the selected roadway.
2. In the contract, specify separate Construction Item Numbers and Quantities for the regular Superpave pavement course (control section) and the Plasphalt pavement course (experimental section). The local government will need to make a decision on how many tons or square yards of Plasphalt HMA Pavement Course are to be placed on the project. It is suggested that a minimum quantity of 600 tons or 7040 square yards (approximately 1-lane mile at 12 feet wide lane at 1½" depth) of Plasphalt HMA Pavement Course).

Example:

Item No. 0409-0484 Superpave Asphalt Mixture Design, HMA Wearing Course, PG 64-22, 0.3 to < 3 Million ESALs, 9.5 mm Mix, 1½" Depth, SRL-M

Item No. 9409-0484 Superpave Asphalt Mixture Design, HMA Wearing Course, PG 64-22, 0.3 to < 3 Million ESALs, 9.5 mm Mix, 1½" Depth, SRL-M (Plasphalt)

3. Include the attached bid document language, Plasphalt specifications, and Work Plan into the contract.
4. Indicate in the project plans or have the Engineer direct the Contactor to place the control sections and experimental sections in a typical evaluation pattern on the roadway (see attached workplan)
5. Notify Mr. Robin Sukley, of the PENNDOT ETI Division, when projects using Plasphalt will be constructed. Phone (717) 787-3137 or Email [sukleyr@dot.state.pa.us](mailto:sukleyr@dot.state.pa.us)

Include in Bid Documents:

**Experimental Use of Plasphalt HMA Pavement Courses.**

Where indicated on the plans or directed by the Engineer, place Plasphalt HMA Pavement Courses as an experimental feature. Construct Plasphalt HMA pavement courses in accordance with the attached Specification for Experimental Use of Plasphalt HMA Pavement Courses. Provide a Job Mix Formula for the Plasphalt HMA Pavement Course that uses the same materials and has the same or very similar aggregate gradation and asphalt content as the control section.

Where indicated on the plans or directed by the Engineer, place Superpave Asphalt Mixture Design, HMA Pavement Courses as a control section. Construct Superpave Asphalt Mixture Design, HMA Pavement Courses as specified and in accordance with Pub. 408, Sections 309 and/or 409.

HMA Producers are to contact a Plasphalt representative for technical assistance in developing job-mix formulas and producing Plasphalt HMA Pavement Courses.

**SPECIFICATION  
PLASPHALT HMA PAVEMENT COURSES**

**DESCRIPTION** - This work is the construction of hot mix asphalt (HMA) using a combination of virgin aggregate and treated recycled plastic aggregate (TRPA) materials. Use a maximum of 1.5 percent TRPA material consisting of shredded, granulated, and treated recycled plastic from Plasphalt Project, LLC. Construct Plasphalt courses as specified in Sections 309 and 409 except as modified or supplemented as follows.

**MATERIALS** – Section 309.2 or 409.2 with additions and modifications as follows:

**(b) Aggregate**

**5. Treated Recycled Plastic Aggregate (TRPA) Material.** Provide TRPA material from Plasphalt Project, LLC. Provide TRPA material meeting the physical and chemical properties as recommended by the manufacturer. Include a description of the plan to control TRPA in the quality control plan. Keep all TRPA material free of foreign materials.

**(d) Composition of Mixtures.** As required by Section 309 or 409.2(d) and as follows:

The Plasphalt HMA mixture consists of the TRPA material, virgin aggregate(s), and bituminous material. Obtain samples of the TRPA material from the stockpile, as required in the quality control plan, and determine the average TRPA gradation. Maintain records of the testing of TRPA gradation and make available for review when directed. Determine the average stock gradations of virgin aggregate to be blended with the TRPA material. Determine the proportions of the TRPA and virgin materials to meet the specified mix composition requirements of virgin mixes. Prepare and test Superpave gyratory specimens as directed in Bulletin 27, Chapter 2A, and have the job-mix formula reviewed.

**CONSTRUCTION** - Section 309.3 or 409.3 with additions and modifications as follows:

**(b) Bituminous Mixing Plant.** Add the following:

**1. Batch Plant.** Modify the batch plant to allow measuring the mass (weight) of the treated recycled plastic aggregate (TRPA) material prior to incorporation into the pug mill. Design the cold feed bin, conveyor system, charging chute(s), and any special bins, if used, to avoid segregation and sticking of the TRPA material.

**2. Drum Mixer Plant.** Modify the drum mixer plant to prevent direct contact of the TRPA materials with the burner flame and/or overheating of the TRPA material in the process.

**MEASUREMENT AND PAYMENT** - Section 309.4 or 409.4

## **ATTACHMENT 2**

**PennDOT Draft Guidelines for Plasphalt Project Evaluations**

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**By:**

**Date:**

## **WORK PLAN**

### **EVALUATION OF PLASPHALT RECYCLED PLASTIC AGGREGATE SUBSTITUTE IN HMA FOR MUNICIPALITY USE**

**INTRODUCTION:** Plasphalt is a treated recycled plastic aggregate substitute for hot-mix asphalt (HMA) materials. Local government roadways in the state of Pennsylvania are interested in field use of Plasphalt material. The Plasphalt material potentially will prevent or lessen severity of rutting in hot-mix asphalt and also provides a potential use for recycled plastic.

**OBJECTIVE:** The objective of this research is to evaluate this Plasphalt for performance as compared to that of a standard paving mix.

(Set limits of the project include location map of projects)

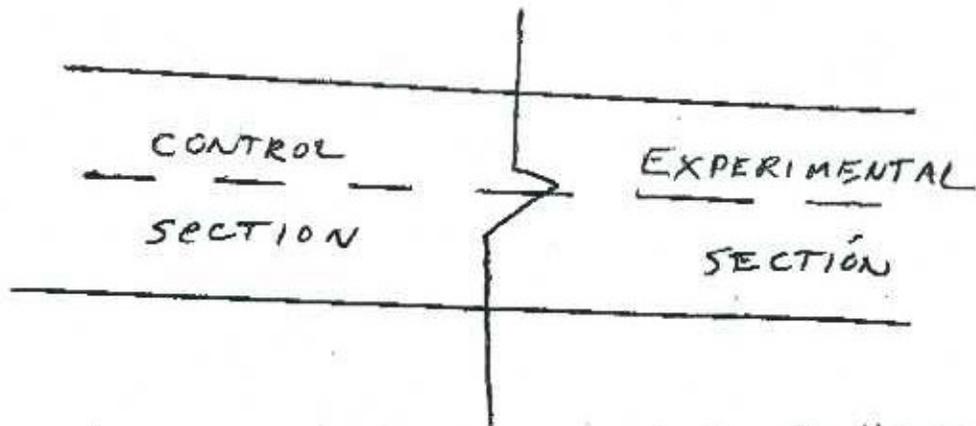
**PLAN OF STUDY:** The plan of study will be to compare Plasphalt pavement wearing course to standard Superpave 9.5 mm pavement wearing course (control section) on low trafficked roadways owned by various local governments. A control section of a standard Superpave 9.5 mm paving mix must be placed at the same time the Plasphalt pavement course is placed for proper comparison. The study will involve crack and rut inspections of both the Plasphalt and control sections. Inspections are to be conducted twice a year, for five years. Form TR 1461 (8-99) is to be filled out for each project site during each inspection. Along with the crack surveys, string line or straightedge rut measurements, photo logs recording the dates and the severity of pavement are to be taken and maintained.

Updates from these 20-30 projects by the Bureau of Municipal Services will be forwarded to Robin Sukley, Engineering Technology & Information Division, yearly, on the number, locations and status of all the municipal project sites.

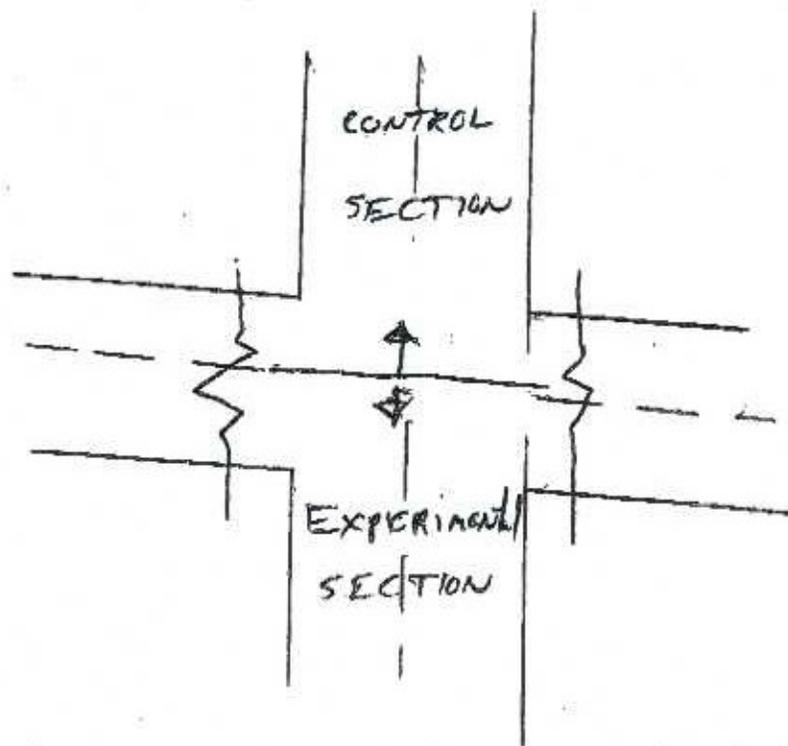
**STAFFING:** Research Project Manager: Pat Sullivan of the Department's Bureau of Municipal Services will be the centralized data collector for all local government projects and ensure that the biannual crack and rut inspections are performed on each project site.

**REPORTING:** A combination construction and final report will be written by the Research Project Manager within 90 days of collecting the final data at the end of the five-year evaluation period. The report will provide the findings, conclusions, and recommendations for potential implementation of Plasphalt pavement courses.

**SCHEDULE:** This will be a five-year evaluation.



Typical Roadway Evaluation Pattern



Typical Intersection Evaluation Pattern  
 MODIFY FOR FIELD CONDITIONS



**FIELD EVALUATION FORM**

Information for project and product identification for use with FHWA Form 1461

Product/Technology Name\* \_\_\_\_\_

Project Name\* \_\_\_\_\_

Construction Project No.\* \_\_\_\_\_

District Contact Person \_\_\_\_\_ Phone No. \_\_\_\_\_

Location\*: District \_\_\_\_\_ County \_\_\_\_\_  
SR# \_\_\_\_\_ Segment \_\_\_\_\_ Offset \_\_\_\_\_

Anticipated Date of Construction \_\_\_\_\_

Date Work Plan Approved \_\_\_\_\_ Date Feature Constructed \_\_\_\_\_

Date Evaluation Scheduled to End \_\_\_\_\_ Actual End of Evaluation \_\_\_\_\_

Construction Quantity \_\_\_\_\_ Units \_\_\_\_\_ (sy,cf,lf,m<sup>2</sup>, m<sup>3</sup>, m , etc.)

Material/Technology Purpose/ Use\* \_\_\_\_\_

Product PE# (if known) \_\_\_\_\_

Comments

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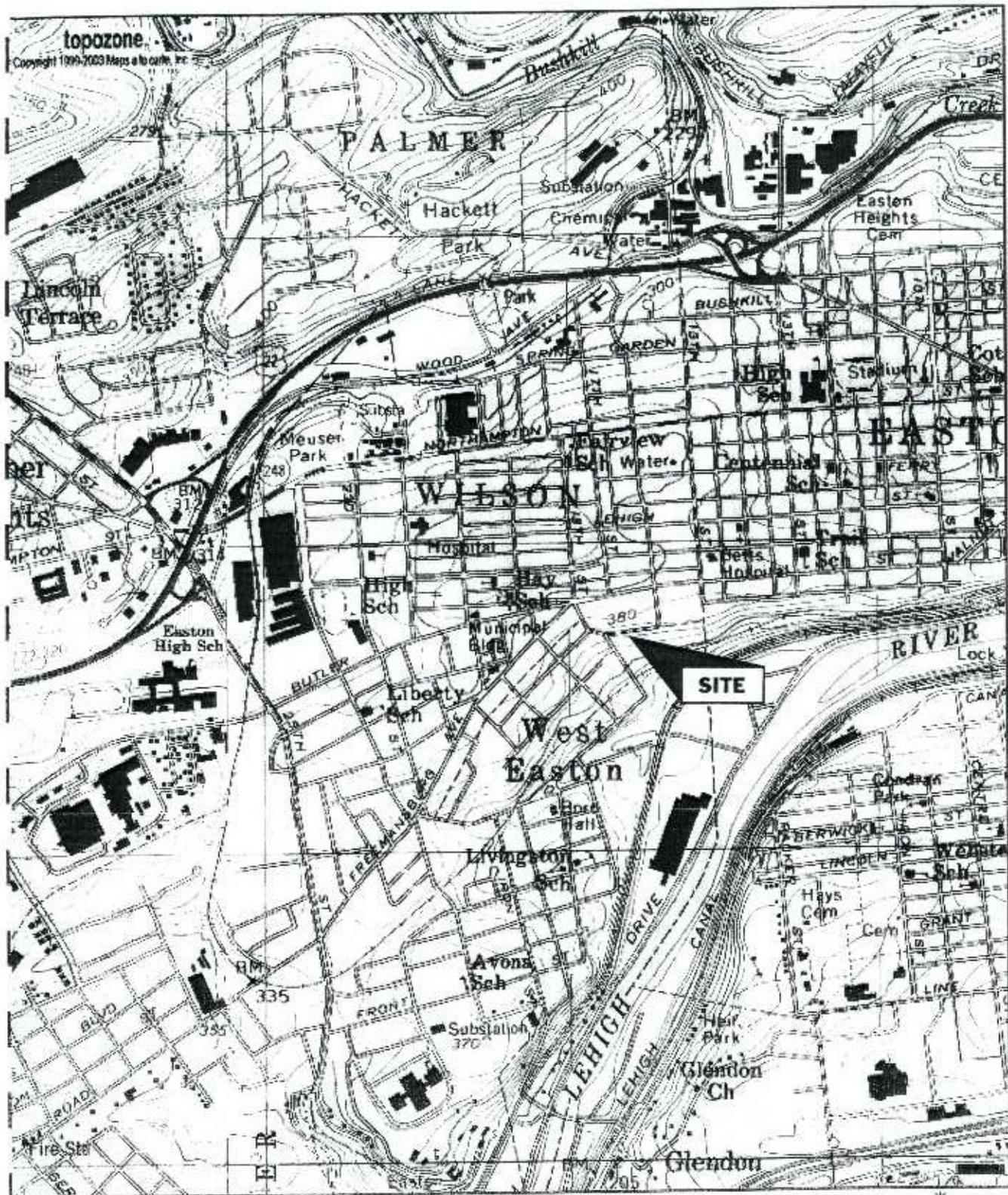
\*Denotes minimum information required. Other information to be provided if available at time of notification or initiation.

If you have any questions concerning this form, please call the Engineering technology and Information Division, Bureau of construction and materials at (717) 787-36580. This information can be faxed to ETI at (717) 783-5955

## **ATTACHMENT 3**

**Project Contract**  
**Site Location Map**

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UTM 18 479761E 4503589N (NAD27)  
 Hay School, USGS EASTON (NJ) Quadrangle  
 Projection is UTM Zone 18 NAD83 Datum



PROPOSAL & CONTRACT  
(WHEN EXECUTED)

Instructions on Page 4

(THIS PROPOSAL INCLUDES  
INSTRUCTION TO BIDDERS)

610-575-9000

STEVE BOOLY

A. DEPOSIT OF PROPOSALS:

All envelopes containing Bid proposals shall  
be clearly marked "Bid Proposal for Letting of

July 28, 2003."

DATE

Sealed Proposals will be received on or before  
4:00 pm, on the above Letting Date.

TIME

Bids will be opened and read at approximately  
7:30 pm, on the above Letting Date.

TIME

Borough Of Wilson

MUNICIPALITY (NAME & TYPE)

Karen Lohrman

SECRETARY

2040 Hay Terrace Easton Pa 18042

ADDRESS

PROPOSALS MUST BE MAILED OR OTHERWISE  
DELIVERED TO THE ABOVE ADDRESS.

1. The contractor proposes to furnish and deliver all materials (including Form TR-465, Daily Bituminous Mixture Certification) and to do and perform all work on the following project as more specifically set forth in the Schedule of Prices (Attachment), in accordance with drawings and specifications on file at The Borough of Wilson as well as the supplements and special requirements contained herein and/or attached hereto and current PennDOT Specifications (Publication 408), except (a) **bidders MUST be pre-qualified by Penn DOT (See Attachment 1A)**, and (b) Marshall testing of bituminous paving materials is not required (Sec. 401).
2. If designated as the successful bidder, the contractor will begin work on the date specified in the notice to proceed or as otherwise provided in the special requirements, and will complete all work within 90 working days.
3. Accompanying this proposal is a certified check or bid bond in the amount of 10 % made payable to the municipality as a proposal guarantee which, it is understood, will be forfeited in case the contractor fails to comply with the requirements of the proposal.

B. PROPOSAL OF:

Lehigh Valley Site Contractors, Inc.

5143 Lower Mud Run Road

Easton, PA 18040

NAME / ADDRESS OF CONTRACTOR

CONTRACTOR'S CERTIFICATION

It is hereby certified as follows:

1. The only persons) interested in this proposal as principals) is (are):  
Lehigh Valley Site Contractors, Inc.
2. None of the above persons are employees of the municipality.
3. This proposal is made without collusion with any other person, firm or corporation.
4. All plans and specifications referred to above and the site of the work have been examined by the contractor. The contractor understands that the quantities indicated herein are approximate and are subject to change as may be required; and that all work is payable on the basis of the unit prices listed on the Schedule of Prices (Attachment 1)

5. The contractor will comply with all requirements of the laws and implementing regulations of the Commonwealth of Pennsylvania and the United States relating to human relations, equal opportunity and non-discrimination in employment, and will pay to workmen employed in the performance of the contract the wages to which they may be entitled.
  
6. The contractor will provide the municipality with a performance bond, conditioned upon the faithful performance of the contract in accordance with the plans, specifications and conditions thereof, and a payment bond, conditioned on the prompt payment of all material furnished and labor supplied or performed in the prosecution of the work, in accordance with the Public Works Contractors' Bond Law of 1967; and an affidavit accepting the provisions of the Workmen's Compensation Act of 1915, as amended.

Lehigh Valley Site Contractors, Inc.  
**CONTRACTOR**

WITNESSED OR ATTESTED BY:



Stephen M. Nelson  
TITLE:  
 Stephen M. Nelson, Vice-Pres./Asst. Sec. (SEAL)

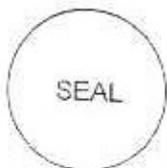
H. Christian Budenz  
TITLE:  
 H. Christian Budenz, Vice-Pres./Asst. Sec. (SEAL)

TO BE EXECUTED ONLY IN THE EVENT THE ABOVE PROPOSAL IS ACCEPTED

ACCEPTED ON: \_\_\_\_\_  
DATE

\_\_\_\_\_  
MUNICIPALITY

ATTESTED BY: \_\_\_\_\_  
TITLE



\_\_\_\_\_  
TITLE

\_\_\_\_\_  
TITLE

ATTACHMENT #1

LOCATION OF WORK:

The Borough of Wilson  
South 21st Street, Jefferson Ave.

DESCRIPTION OF WORK:

The work will be performed complete in-place including maintenance and protection of traffic. The project consists of milling existing bituminous pavement 3 1/2" and 5" depth, 3 1/2" 19 mm base course (base repair), milling of paving notches, 9.5mm Plaspalt leveling course, 1 1/2" 9.5mm Plaspalt wearing course, Crafcu PolyPatch, and sealing of completed paving project with rubberized joint sealant.

THIS PORTION TO BE COMPLETED

ESCALATOR CLAUSE :

SCHEDULE OF PRICES

1. Item No.	2. Quantities	3. Units	4. *Description	5. Unit Price	6. Total
1	167	SY	Milling of Bituminous Pavement 5" Depth	\$ 12.00	\$ 2,004.00
2	633	SY	Milling of Bituminous Pavement 3 1/2" Depth	\$ 7.95	\$ 5,032.35
3	75	SY	Milling of Paving Notches 4' Wide	\$ 12.00	\$ 900.00
4	160	Ton	19 mm Base Course (Base Repair)	\$ 43.40	\$ 6,944.00
5	67	Ton	<i>conventional</i> 9.5 mm PLASPHALT Leveling Course	\$ 71.00	\$ 4,757.00
6	1,250	SY	1 1/2" 9.5 mm PLASPHALT Wearing Course	\$ 7.10	\$ 8,875.00
7	1,084	SY	1 1/2" 9.5 mm Conventional Wearing Course	\$ 4.70	\$ 5,094.80
8	1,700	LF	Sealing of curb-line, around utilities, and paving notches utilizing Rubberized Joint Sealant.	\$ 1.75	\$ 2,975.00
9	900	Gals.	Crafcu PolyPatch Fine Mix Type 2	\$ 23.00	\$ 20,700.00
10	1	LUMP SUM	Lower Manhole at intersection of Jefferson and Palmer	\$ 835.00	\$ 835.00
		***	Bids will be awarded on a total of items 1-9 to the lowest RESPONSIBLE bidder.	***	
*DESCRIPTION: Must include ADT on wearing surfaces. USE OF CUTBACK ASPHALT IS PROHIBITED BETWEEN MAY 1st AND OCTOBER 31st EXCEPT AS NOTED IN BULLETIN NO. 25.					\$58,117.15
TOTAL AMOUNT OF BID					\$58,117.15

## PROPOSAL AND CONTRACT INSTRUCTIONS - FORM 944

1. The proposal must be typewritten or printed.
2. If more than one proposal on any project is submitted by any individual, firm or partnership, corporation or association under the same or different names, only one lowest proposal will be considered.
3. Description of Work - -
  - A. If additional space is needed, insert appropriately numbered attachment and note "Continued on Attached work sheets."
4. Part A of Page 1 to be completed by municipality. Part B of Page 1 to be completed by contractor. Schedule of Prices - Column #1 (Item), #2 (Approximate quantities), #3 (Unit, i.e., ton, square yard, linear feet, etc.) and #4 (Description, i.e., bituminous materials- ID2, FJ1, FB1, BCBC, etc.) must be filled in by the municipality to insure equitable bidding. Columns #5 (Unit Price), #6 (Total), and total amount of bid, must be filled in by the contractor. If more space is needed, add note at the bottom of the page, "Continued on Attachment No. 1-A," and add additional sheet designated as Attachment No. 1-A, 1-B, etc. Repeat for each additional sheet required.
5. If liquidated damages are to be assessed, add the following sentence to Part A #2. If all work is not completed on time, liquidated damages will be assessed at the rate of \$200.00 per additional working day. (OR " . . . as set forth in the attached schedule.")
6. Payment and Performance bonds are provided only by the successful bidder. Contracts under \$5,000 - bonds must be in 50% of the contract amount. Contracts in excess of \$5,000 - bonds must be in 100% of the amount of contract. Bond Forms MS-944 Attachments 2 and 3 and Workmen's Compensation Affidavit Attachment 4 must be submitted by the successful bidder within 20 days of the contract award. Failure to submit the bonds shall constitute grounds to cancel the contract.
7. \*Construction projects, where the estimated cost of the total project exceeds \$25,000, are subject to the provisions of the Pennsylvania Prevailing Wage Act 442. It is the responsibility of the municipality to obtain the Prevailing Wage Scale for the area and include it in the proposal. If the Prevailing Wage Act applies, this fact shall be noted in the advertisement.  
  
On projects utilizing Federal Revenue Sharing Funds, if the project cost exceeds \$2,000 and is financed with 25% or more Federal Revenue Sharing Funds, the Davis Bacon Act applies. Again it is the responsibility of the municipality to obtain the Davis Bacon Wage Rates, include them in the proposal and note the fact in the advertisement. If both Acts are applicable, the Davis Bacon Act has preference over the Pennsylvania Prevailing Wage Act.
8. An ESCALATOR CLAUSE is optional; if used, it must be included in the proposal prepared by the municipality. An escalator clause may not be inserted by the contractor.

\*(1961, Aug. 15, P. L. 987; 43 P.S. 165)



**PERFORMANCE BOND  
(With Corporate Surety)**

KNOW ALL MEN BY THESE PRESENTS, That we,

\_\_\_\_\_

(NAME AND ADDRESS OF CONTRACTOR)

as Principal and \_\_\_\_\_

(SURETY COMPANY)

a corporation incorporated under the laws of the State of \_\_\_\_\_

(NAME OF STATE)

as Surety

are held and firmly bound unto \_\_\_\_\_

(NAME OF MUNICIPALITY)

in the full and just sum of

(\$ \_\_\_\_\_) dollars

lawful money to the United States of America, to be paid to the above Municipality or its assigns, to which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bounden Principal has entered into a contract with the above Municipality, bearing even date herewith, for the undertaking of certain obligations as therein set forth.

NOW, THEREFORE, the condition of this obligation is such that if the above bounden Principal, as Contractor, shall in all respects comply with and faithfully perform the terms and conditions of said Contract, including the Specifications and conditions referred to and made a part thereof, and such alterations as may be made in said Specifications as therein provided, and shall well and truly, and in a manner satisfactory to the municipality fulfill all obligations as therein set forth, then this Obligation shall be void, but otherwise the same shall be and remain in full force, virtue and effect.

It is further provided that any alteration which may be made in the terms of the contractor or its specifications with the express approval of the Municipality or the Principal to the other, shall not in any way release the Principal and the Surety or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the surety of any such alteration or forbearance being hereby waived.

IN WITNESS WHEREOF, the said Principal and Surety have duly executed this Bond under Seal, pursuant to due and legal action authorizing the same to be done on \_\_\_\_\_

(DATE OF BOND)



Attest / Witness:

\_\_\_\_\_

CONTRACTOR

BY

\_\_\_\_\_

TITLE:

\_\_\_\_\_  
TITLE:



Attest / Witness:

\_\_\_\_\_

SURETY COMPANY

\_\_\_\_\_  
TITLE:

\_\_\_\_\_  
TITLE:

KNOW ALL MEN BY THESE PRESENTS, that we

[Empty rectangular box for name]

as PRINCIPAL and a corporation incorporated under the laws of the State of \_\_\_\_\_ as SURETY, are held and firmly bond unto the \_\_\_\_\_ in the full and just sum of \_\_\_\_\_ (\$ \_\_\_\_\_) dollars, lawful money of the United States of America, to be paid to the said \_\_\_\_\_ or its assigns, to which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bounden Principal has entered into a contract with the above municipality hereinafter called Obligee, bearing even date herewith, for the improvement of a certain section of highway or bridge in said Municipality consisting of:

\_\_\_\_\_ for approximately the sum of: \_\_\_\_\_ (\$ \_\_\_\_\_) dollars.

NOW, THEREFORE, the condition of this obligation is such that if the above bounden PRINCIPAL shall and will promptly pay or cause to be paid in full all sums of money which may be due by contract or otherwise, to any individual, firm, partnership, association or corporation, for all material furnished or labor supplied or performed in the prosecution of the work, whether or not the said for material or labor entered into and became component parts of the work and for rental of the equipment used and services rendered by public utilities in, or in connection with the prosecution of such work, then this obligation to be void, otherwise to remain in full force and effect.

The PRINCIPAL and SURETY, hereby, jointly and severally, agree with the Obligee herein that any individual firm, partnership, association or corporation, which has performed labor or furnished material in the prosecution of the work as provided, and any public utility which has not been paid in full therefor, may sue in assumpsit on this Payment Bond in his, their, or its own name and may prosecute the same to final for such sum or sums as may be justly due him, them or it, and have execution thereon. Provided, however, that the Obligee shall not be liable for the payment of any costs of expenses of such suit.

RECOVERY by any individual, firm, partnership, association or corporation hereunder shall be subject to the provisions of the "Public Works Contractors' Bond Law of 1967", Act No. 385, approved December 20, 1967, P.L. 869, which Act shall be incorporated herein and made a part hereof, as fully and completely as though its provisions were fully and at length herein recited.

It is further provided that any alterations which may be made in the terms of the contract or in the work to be done or materials to be furnished or labor to be supplied or performed under it or the giving by the Obligee of any extension of time for the performance of the contract or any other forbearance on the part of either the Obligee or the Principal to the other, shall not in any way release the PRINCIPAL and the SURETY or SURETIES of any such alteration, extension of forbearance being hereby waived.

IN WITNESS WHEREOF, the said PRINCIPAL and SURETY have duly executed this Bond under seal this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.



WITNESS:

CONTRACTOR

TITLE:

BY:

TITLE:



WITNESS:

SURETY COMPANY

TITLE:

TITLE:

AFFIDAVIT RE  
ACCEPTING PROVISIONS OF THE WORKMEN'S COMPENSATION ACT

State of \_\_\_\_\_

County of \_\_\_\_\_

}  
}  
} ss:  
}

being duly sworn according to law deposes and says that they <sup>he has</sup> have <sub>it has</sub>

accepted the provisions of the Workmen's Compensation Act of 1915 of the Commonwealth of Pennsylvania, with

its supplements and amendments, and have insured <sup>has</sup> their liability thereunder in accordance with the terms of said <sub>its</sub>

Act with \_\_\_\_\_

(SURETY COMPANY)

\_\_\_\_\_  
( TYPE OR PRINT )

\_\_\_\_\_  
CONTRACTOR

BY \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_ A.D. 20 \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE

My Commission Expires \_\_\_\_\_

\_\_\_\_\_  
( DATE )

ANTI-COLLUSION AFFIDAVIT

County \_\_\_\_\_

Municipality \_\_\_\_\_

Project Number \_\_\_\_\_

Fed. Project No. \_\_\_\_\_  
( If Applicable )

State of Pennsylvania

County of Montgomery

The undersigned deponent deposes and says that he is the Vice-Pres./Asst. Sec. of the Lehigh Valley Site Contractors, Inc. Company; that he is authorized to make this affidavit on behalf of said company in compliance with section 102.06 (e) of Department Specifications, Publication 408, as amended and that the said company has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract.

Lehigh Valley Site Contractors, Inc.  
(Contractor)

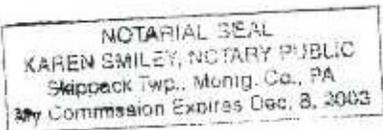
BY

*H. Christian Budenz*

H. Christian Budenz, Vice-Pres./Asst. Sec.

Sworn to and subscribed before me the undersigned notary public this

28th day of July, 2003



*Karen Smiley*  
Notary Public

My Commission expires 12/08/03

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we LEHIGH VALLEY SITE CONTRACTORS, INC.
5143 Lower Mud Run Road
Easton, PA 18040

(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and LIBERTY MUTUAL INSURANCE COMPANY
1787 Sentry Parkway, Building 18, Suite 450
Blue Bell, PA 19422

(Here insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of Massachusetts\*

as Surety, hereinafter called the Surety, are held and firmly bound unto

Borough of Wilson

(Here insert full name and address or legal title of Owner)

as Obligee, hereinafter called the Obligee, in the sum of

Ten Percent (10%) of the Bid

Dollars (\$ --- )

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

(Here insert full name, address and description of project)

Paving South 21st Street and Jefferson Avenue

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

\* and authorized to transact business in the Commonwealth of Pennsylvania

Signed and sealed this 28th day of July

XX 2003

Linda Price (Witness)

LEHIGH VALLEY SITE CONTRACTORS, INC.

(Principal) (Seal)

H. Christian Budenz, Vice-Pres./Asst. Sec. LIBERTY MUTUAL INSURANCE COMPANY

(Surety) (Seal)

(Witness)

Alan R. Hein (Title) Attorney-in-fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

LIBERTY MUTUAL INSURANCE COMPANY  
BOSTON, MASSACHUSETTS  
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint **R. M. SHEPHERD, RICHARD H. SHEPHERD, R. H. SHEPHERD, JR., ALAN R. HEIN, DAVID E. KELLS, JR., DAVID B. KANE, ROBERT J. COLMAN, ALL OF THE CITY OF FORT WASHINGTON, STATE OF PENNSYLVANIA** .....

each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations in the penal sum not exceeding **EIGHTY MILLION AND 00/100** DOLLARS (\$ **80,000,000.00** ) each, and the execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons.

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts; Section 5. Surety Bonds and Undertakings.  
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-Laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 16th day of May 2003

LIBERTY MUTUAL INSURANCE COMPANY

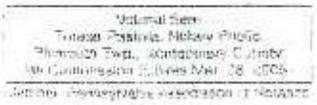
By Garnet W. Elliott  
Garnet W. Elliott, Assistant Secretary



COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 16th day of May, 2003, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



By Teresa Pastella  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980,

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 28th day of July 2003

By David M. Carey  
David M. Carey, Assistant Secretary



4 x8 currency rate, interest rate of residential value guaranties.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

**NOTICE FROM SURETY REQUIRED BY  
TERRORISM RISK INSURANCE ACT OF 2002**

In accordance with the Terrorism Risk Insurance Act of 2002 (referred to hereinafter as the "Act"), this disclosure notice is provided for surety bonds on which one or more of the following companies is the issuing surety: Liberty Mutual Insurance Company; Liberty Mutual Fire Insurance Company; LM Insurance Corporation; The First Liberty Insurance Corporation; Liberty Insurance Corporation; Employers Insurance Company of Wausau (formerly "EMPLOYERS INSURANCE OF WAUSAU A Mutual Company"); Peerless Insurance Company; and any other company that is a part of or added to the Liberty Mutual Group for which surety business is underwritten by Liberty Bond Services (referred to collectively hereinafter as the "Issuing Sureties").

**NOTICE FORMS PART OF BOND**

This notice forms part of surety bonds issued by any one or more of the Issuing Sureties.

**DISCLOSURE OF PREMIUM**

The premium attributable to any bond coverage for "acts of terrorism" as defined in Section 102(1) of the Act is Zero Dollars (\$0.00).

**DISCLOSURE OF FEDERAL PARTICIPATION  
IN PAYMENT OF TERRORISM LOSSES**

The United States will reimburse the Issuing Sureties for ninety percent (90%) of any covered losses from terrorist acts certified under the Act exceeding the applicable surety deductible.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION

PREQUALIFICATION CERTIFICATE

In accordance with the Department regulations you are hereby notified of the performance factor, maximum capacity rating, and work classifications assigned to you. You are eligible to perform as a Prime Contractor.

<b>Business Partner ID:</b>	000981	<b>Maximum Capacity:</b>	\$32,265,660.00
<b>Status:</b>	Qualified	<b>Performance Factor:</b>	7
<b>Federal ID Number:</b>	23-2520028	<b>Issued:</b>	05/01/2003
<b>Line-of-Credit:</b>	\$1,500,000	<b>Effective:</b>	05/01/2003
<b>Line-of-Credit Expiration:</b>	05/01/2004	<b>Expiration:</b>	04/30/2005

**Contractor:**

Lehigh Valley Site Contractors, Inc.  
Lehigh Valley Site Contractors, Inc.  
5143 Lower Mud Run Road  
Easton, PA 18040

Code	Work Classification
A	Clearing and Grubbing
C	Roadway Excavating and Grading
C1	NonRoadway, Drainage, Structure Related Excavation and Grading
C2	Drilling and Blasting
C3	Geotextiles
C4	Rubblizing
C6	Drilling
F	Bituminous Pavement
F1	Bituminous Pavement Patching and Repair
F2	Bituminous Joint and Crack Sealing
F3	Milling, Rumble Strips, Scarification Bituminous or Concrete
F4	Bituminous Surface Treatments, Seal Coats
H	Drainage, Water Main, Storm Sewer
H1	Pipe and Culvert Cleaning
H2	Pavement Base Drains
K	Curbs, Sidewalks, Inlets, Manholes
K1	Masonry Work
K2	Concrete and Masonry Coatings
M1	Selective Tree Removal, Trimming

*Angela Howell*

Certificates

Back

MS-329 (4-93)



# PROJECT APPROVAL

 COUNTY NORTHAMPTON  
 MUNICIPALITY Wilson Blvd  
 PROJECT NUMBER 03-48418-01

## SECTION 1: Proposed Project Information.

 Approved Start Date: 8/7/03 Person Interviewed: G. Drake Title: Supt of Pub Works  
 Contractor: Lehigh Valley Site Care, Inc. Contract Type: IN PLACE LFORCE LSUPV EQRENT MATERIAL.  
 MS-339 Project: YES  NO  Revision No.: \_\_\_\_\_ Budget Item No.: 439 Bank Loan Bond Issue: N/A

Location of Work	From	To	Length	Width	Type	
					From	To
<u>21<sup>st</sup> ST</u>	<u>NORTHAMPTON ST</u>	<u>SOUTH</u>	<u>.01</u>	<u>32</u>	<u>50</u>	<u>N/C</u>
<u>JEFFERSON ST</u>	<u>FRANK ST</u>	<u>16<sup>th</sup> ST</u>	<u>.12</u>	<u>28</u>	<u>5</u>	<u>5</u>

 Scope of Work: RECONSTRUCTION: (1) 17x6 5 1/2" DEPTH JUNE STONE BASE 19 1/2"  
BIDDER AND 1 1/2" 9.5 1/2" SUPERPAVE / ASPHALT  
 RESULT: (2) SELECT BASE REPAIR OF UTILITY TRENCH 5 1/2"  
OVERLAY ONE SIDE 9.5 1/2" SUPERPAVE AND OTHER SIDE  
9.5 1/2" SUPERPAVE WITH ASPHALT (AS PER 4/2/01 PERMISSION LETTER.)  
 Remarks: NOTE: 17x DESIGN MUST BE APPROVED PRIOR TO CONSTRUCTION.  
ALSO INCLUDED IN THIS CONTRACT IS CRACK SEALING ON  
VARIOUS BOULD STREETS.

Proposed Funding	State (Act 655)	County (Act 32)	General Funds	Other *	Total
	<u>58,117.15</u>				<u>58,117.15</u>

\* Source of Other Funding:

Engineering Fees: N/A

## SECTION 2: Approval and Instructions to Municipalities.

1. If any changes are made, such as increasing or decreasing the length or width of work, the amount of aid granted, or a change in the type of improvement, contact your Engineering District Municipal Services Representative.
2. County Aid Grants for a project will not be made until authorized by the Department at the conclusion of the project. These monies must be expended from and deposited to the General Fund.
3. The municipality must certify that all materials and work done on the aforementioned project shall conform to the current Pennsylvania Department of Transportation Specifications and that all work will be done within the legal right of way or with permission of the abutting property owners.
4. All work performed on this project must be charged to the Budget Item Number shown on this form.
5. Your municipality has the responsibility to obtain its own engineering and inspection. These are permissible Liquid Fuels expenditures.
6. Retain this form and attach all contracts, advertisements, bid tabulations, bonds and any other project materials. Present these documents to state and local auditors upon request.

APPROVED: [Signature]DATE: 8.7.03

(MUNICIPAL SERVICES REPRESENTATIVE)

Original: District Office  
cc: Municipality 8.7.03



## **ATTACHMENT 4**

**Pre-paving Photographs (2003)**  
**Initial Paving Field Evaluation Form**  
**Initial Paving Photographs (2003)**

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PLASPHALT PROJECT  
Jefferson Street, WILSON BOROUGH, PA



**PRE-PAVING PICTURES  
JEFFERSON STREET**



**PP-1**  
View of Jefferson Street from 16th Street/  
Jefferson Street intersection. Note uneven  
pavement from utility trench work.



**PP-2**  
View of Jefferson Street and Palmer Street  
intersection. Note distressed surface pavement.



**PP-3**  
Close-up view of proposed wedge location on  
Palmer Street (looking south).

**PRE-PAVING PICTURES  
JEFFERSON STREET**



PP-4  
Proposed marking for wedges at 16th Street and  
Jefferson Street intersection.



PP-4  
View of Jefferson Street after milling.

**INITIAL PAVING PICTURES  
JEFFERSON STREET**



**IP-1**  
View of plasphalt batch delivery. View from Palmer Street intersection.



**IP-2**  
Plasphalt course paving at Jefferson Street and Palmer Street intersection.



## FIELD EVALUATION DATA FORM

Information for project and product identification for use with FHWA Form 1461

**Product/Technology Name\*** Plasphalt (9.5 mm), Hellertown Materials

**Project Name\*** Wilson Borough, Jefferson Street,  
Including 16<sup>th</sup> St. and Palmer St. intersections

**Construction Project No.\*** Municipal Services Project #03-48418-01 (2 of 2)

**District Contact Person\*** Joseph Kretulskie **Telephone\*** 610-791-6024

**Location\*:** District 5-0 County: Northampton

SR# Jefferson St. Segment: \_\_\_\_\_ Offset: NA

**Anticipated Date of Construction:** 9/18/03

**Date Work Plan Approved** 9/18/03 **Date Feature Constructed** 9/09/03

**Date Evaluation Scheduled to End:** 9/18/03 **Actual End of Evaluation:** 9/18/03

**Construction Quantity:** 100 **Units:** tons (sy, cf, lf, m, m<sup>2</sup>, m<sup>3</sup>, etc.)

**Unit Cost:** \$78.89/ton or \$7.10/SY (from construction contract)

**Material/Technology Purpose /Use\*:** See Design Mix

**Product PE# (if known)** Robin Sukely, Bureau of Construction & Materials (717) 787-3137

### Comments:

This project involved resurfacing and select repair of Jefferson Street, including placement of control wearing course on the northern traffic lane and Superpave Plasphalt wearing course on the southern traffic lane.

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\*Denotes minimum information required. Other information to be provided if available at time of notification or initiation.

If you have any questions concerning this form, please call the Engineering Technology and Information Division, Bureau of Construction and Materials at (717) 787-3137. This information can be faxed to ETI Attention: Robin Sukley, PE at (717) 783-5955 or emailed to [rsukley@state.pa.us](mailto:rsukley@state.pa.us).

Construction Record

CONTRACTOR/PRODUCER: Lehigh Valley Site Contractors, Inc.  
(Please attach a copy of the JMF's)

LIST TOOLS/EQUIPMENT USED

Paving Equipment: Barber Greene Model BT 211  
Compaction Equipment: Large Roller: Dynapac CC422  
Small roller: Dynapac CC122

ROLLER PATTERN: *None established*      ROLLER PICK-UP  yes  no

*Small quantity and short paving distance prohibited setting a rolling pattern.*

MIX DELIVERY

TEMPERATURE *255-310 deg. F (one truck with mixed readings)*

Control *240-300 degree F (Plasphalt)*

One delivered plasphalt truck load was measured below lower limit temperature (in hopper 240-255 degree F). Wilson Borough Municipal Manager was informed.

Loose box samples taken behind hopper.

WEATHER: *Overcast, temp. mid 60's;*  
*morning 11:00- 3:00 PM (Plasphalt and Control)*

List any problems during construction?

*One delivered hatch in one truck load of plasphalt was cool. Field density (> 92%) was achieved on plasphalt section. Lower density readings 88-91% were observed (in midsection of plaphalt paving strip) and were at the cool plasphalt load placement location. Several non-vibratory roller passes were required to achieve this density.*

*Contractors needed to be reminded to tack coat the cold joint on Jefferson Street. Approximately half of the second lane (conventional or control) was completed before the distributor was used to tack the cold joint.*

Bi-Annual Performance Record (CONTROLS MAY NEED TO BE INSTALLED PRIOR)

Pavement Condition Rating Form

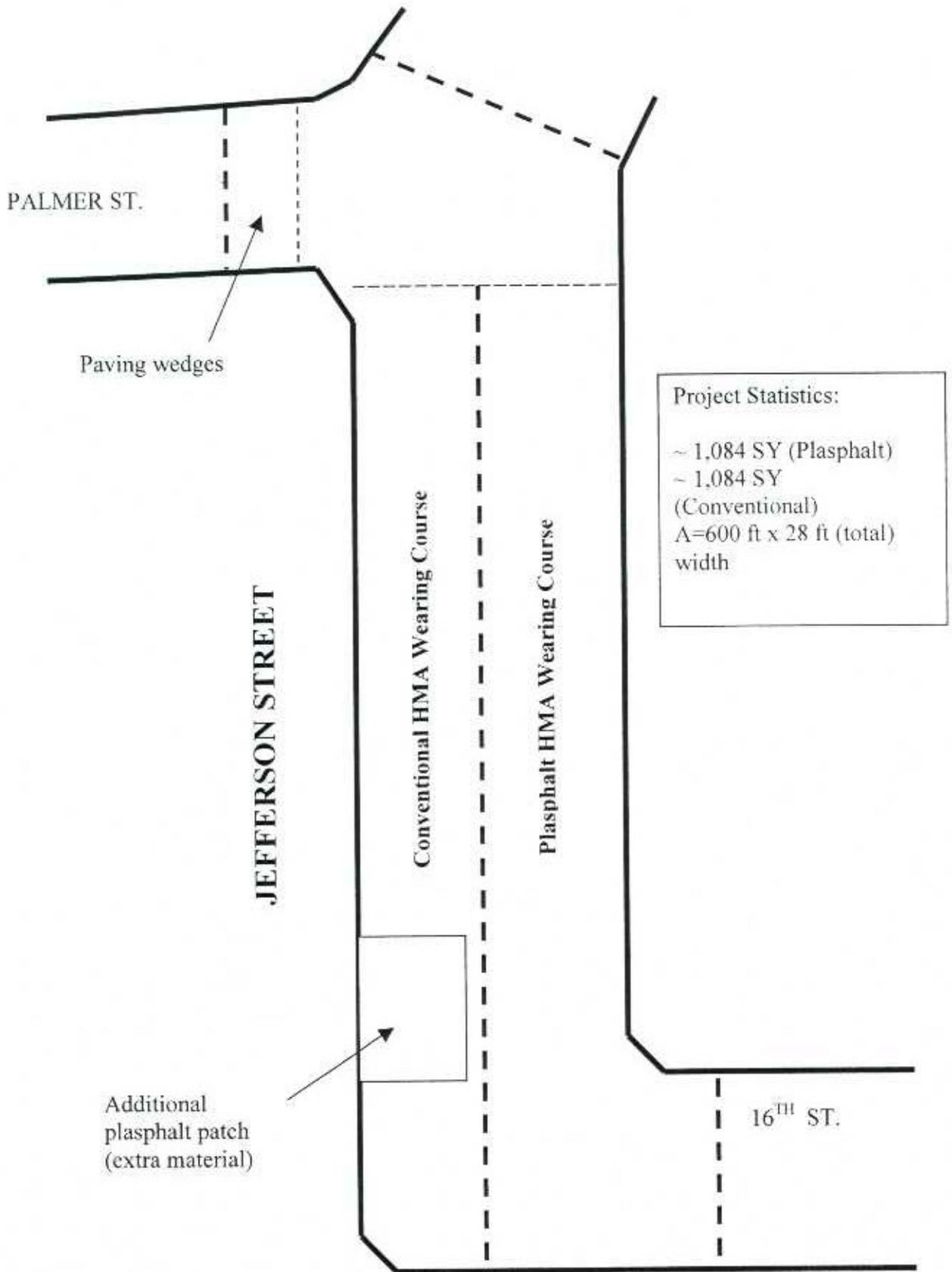
CRACKING TYPE & LOCATION (video logging may be substituted)

RUT MEASUREMENTS & LOCATION

String line or straight edge method

SHOVING? \_\_\_\_\_ EARLY AGEING? \_\_\_\_\_

JEFFERSON STREET  
WILSON BOROUGH  
2003 PAVING DIAGRAM



## **ATTACHMENT 5**

### **Hellertown Materials Plant Photographs**

**ATTACHMENT 5  
HELLERTOWN MATERIALS PLANT**



TRPA Materials provided in cardboard boxes from New Mexico manufacturer.



TRPA introduced into batch mix through separate auxiliary hopper with pneumatic injection.



Hellertown Materials Asphalt Plant.

# **ATTACHMENT 6**

## **Job Mix Formulas**

### **Plasphalt Asphalt Plant Test Results**



# JOB MIX FORMULA REPORT

JMF No.

0 3 S 0 1

SUPPLIER CODE

HEL48A41

MATERIAL CLASS

S P 9 5

AGGREGATE SRL

M

Date: August-03 Spec: 9 5mm < 3 ESAL Plaspfalt Tons P.O.

Suppliers Name: Hellertown Materials Location: Hellertown, PA

Bituminous Plant Type: McCarter-AB Daily Capacity: 5000lb. Batch Mix Time: Dry Wet

CMS NO SR Sec.

Dry	Wet
5	45

Material Supplier Code	Material Supplier Name	Material Code	Material Class	% in Mix	Bulk Sp.Gr	% Absorption
SCI48A14	Stockertown Materials	207	B3	63.3	2.749	0.64
SCI48A14	Stockertown Materials	203	A8	29.0	2.730	0.78
	Treated Recycled Plastic Aggregate	203	TRPA	1.4	0.960	
	Citgo	Asphalt	PG 64-22	6.3	1.031	-
Alternate AC Suppliers: CHEV2-15, COAS4-15, VALR1-15, TRUM3-15						

### JOB MIX FORMULA AND DESIGN

Design	AC %	75µm #200	150µm #100	300µm #50	600µm #30	1.18 #16	2.36 #8	4.75 #4	9.5 3/8"	12.5 1/2"	19.0 3/4"	25.0 1"	37.5 1 1/2"	50.0 2"	F/A %	Pb. %
Design	6.3	5.0	7	10	18	30	45	71	97	100					0.8	6.0
% Virgin AC	6.3	%		%		%		%		%		%				

### MIX CHARACTERISTICS (GYRATORY)

Design ESALS	Gyrations @ Nini	Gyrations @ Ndes	Gyrations @ Nmax	Max Density (kg/m³)/Sp.Gr.	Ndes Density (kg/m³)/Sp.Gr.
< 0.3	6	50	75	2.444	2.345
% Voids @ Nini	% Voids @ Ndes	% Voids @ Nmax	% VMA @ Ndes	% VFA @ Ndes	Weight @115mm
13.8	4.1	2.9	17.8	77.3	4806

### IGNITION FURNACE DATA

Oven Make	Set. Temp.	Sample Size	A.C. Correction Factor (C.)	#200 Correction Factor (200C <sub>i</sub> )
Thermolyne	538	1200	1.71	0.2

### COMBINED AGGREGATE CONSENSUS PROPERTIES

AASHTO T176 Sand Equivalent	AASHTO T304 Uncompacted Void Content	ASTM D5821 Coarse Aggregate Angularity	ASTM D4791 Flat & Elongated
85.0	49.0	(1 Face) 100 / (2 Face) 100	2.6

Designed by Joseph R. Smith - Asphalt Consultant Date 8/5/2002

Approved & Submitted by Edward Morrison 125 Date 8/11/2003

Reviewed by Materials Unit Date 8/14/03

Software by  
**H&K**  
©1999

# JOB MIX FORMULA REPORT

JMF No. 

0	3	S	1	1
---	---	---	---	---

SUPPLIER CODE

ABE 48A 41
------------

MATERIAL CLASS

S	P	9	5		
---	---	---	---	--	--

AGGREGATE SRL

L
---

Date: March-03 Spec: 9.5 mm, < 0.3 ESAL Tons \_\_\_\_\_ P.O. \_\_\_\_\_

Suppliers Name: ABE Materials Location Easton, PA.

Bituminous Plant Type: Simplicity-AB Daily Capacity: 6000lb. Batch Mix Time 

Dry	Wet
-	45

CMS NO. 

--	--	--	--

 SR 

--	--	--	--

 Sec. 

--	--	--

Material Supplier Code	Supplier Name	Material Code	Material Class	% in Mix	Bulk Sp.Gr.	% Absorption
ABE48A14	ABE Materials	207	E:3	40.8	2.722	0.35
CHE45A14	Chestnut Ridge	207	A:1	17.4	2.576	0.96
ABE48A14	ABE Materials	203	A:8	35.6	2.729	0.58
CITGO-5	CITGO	Asphalt	PG 64-22	6.2	1.032	
Alternate AC Suppliers <u>CHEV2-15, COAS4-15, VALR1-15, TRUM3-15</u>						

## JOB MIX FORMULA AND DESIGN

	AC %	75µm #200	150µm #100	300µm #50	600µm #30	1.18 #16	2.36 #8	4.75 #4	9.5 3/8"	12.5 1/2"	19.0 3/4"	25.0 1"	37.5 1 1/2"	50.0 2"	F/A %	Pb <sub>o</sub> %
Upper	7.0	8.0		17	24	37	51	73	100	100					1.2	
Design	6.2	5.0	8	11	18	31	45	65	96	100					0.8	5.9
Lower	5.4	2.0		5	12	25	39	57	88	100					0.6	
% Virgin AC	6.2			% Reclaimed AC												

## MIX CHARACTERISTICS (MARSHALL)

Theor. Density lb./cu.ft.	Lab Density lb./cu.ft.	% Voids	% VFA	% VMA	Stability	Flow	% Pass #8	% Pass 1/2"
153.7	147.5	4.1	78.9	17.5	N/A	N/A	45	100

## MIX CHARACTERISTICS (GYFATORY)

Design ESALS	Gyrations @ Nini	Gyrations @ Ndes	Gyrations @ Nmax	Max Density (kg/m <sup>3</sup> )/Sp.Gr.	Ndes Density (kg/m <sup>3</sup> )/Sp.Gr.
< 0.3	6	50	75	2.463	2.363
	% Voids @ Nini	% Voids @ Ndes	% Voids @ Nmax		
	13.5	4.1	2.2		

## IGNITION FURNACE DATA

Oven Make	Set. Temp.	Sample Size	A.C. Correction Factor (C.)	#200 Correction Factor (200C <sub>1</sub> )
Thermolyne	538	1200	0.17	0.2

Designed by *Alan J. Ruppel*

Date 3/19/03

Approved & Submitted by *Joseph J. Karanik* T-1

Date 3/19/02

Reviewed by Mat's Engineer *Joseph J. Karanik*

Date 3/19/03

Software by  
**H&K**  
©1999

# JOB MIX FORMULA REPORT

JMF No.

0 3 S 2 5

SUPPLIER CODE

ABE 48A 41

MATERIAL CLASS

S R 1 9 B

AGGREGATE SRL

L

Date: March-03 Spec: 19.0mm Binder <0.3 ESAL 15% RAP Tons: \_\_\_\_\_ P.O. \_\_\_\_\_

Suppliers Name: ABE Materials Location Easton, PA.

Bituminous Plant Type: Simplicity-AB Daily Capacity: 6000lb Batch Mix Time

Dry	Wet
-	45

CMS NO. [ ] [ ] [ ] [ ] [ ] SR [ ] [ ] [ ] [ ] [ ] :Sec. [ ] [ ] [ ]

Material Supplier Code	Supplier Name	Material Code	Material Class	% in Mix	Bulk Sp.Gr.	% Absorption
ABE48A14	ABE Materials	207	E3	21.8	2.722	0.35
CHE45A14	Chestnut Ridge	207	A1	9.4	2.576	0.96
ABE48A14	ABE Materials	203	A8	31.2	2.729	0.58
ABE48A14	ABE Materials	203	A57	18.0	2.733	0.44
ABE48A41	ABE Materials	017	RAP	15.0		
CITGO-5	CITGO	Asphalt	PG 64-22	4.6	1.032	
Alternate AC Suppliers: CHEV2-15, COAS4-5, VALR1-15, TRUM3-15						

## JOB MIX FORMULA AND DESIGN

	AC %	75µm #200	150µm #100	300µm #50	600µm #30	1.18 #16	2.36 #8	4.75 #4	9.5 3/8"	12.5 1/2"	19.0 3/4"	25.0 1"	37.5 1 1/2"	50.0 2"	F/A %	Pb <sub>c</sub> %
Upper	6.0	7.5		15	19	28	38			97	100	100			1.2	
Design	5.3	4.5	6	9	13	22	32	47	79	89	96	100			0.9	5.0
Lower	4.6	1.5		3	7	16	26			81	88	100			0.6	
% Virgin AC	4.6	% Reclaimed AC				0.7										

## MIX CHARACTERISTICS (MARSHALL)

Theor. Density lb./cu.ft.	Lab Density lb./cu.ft.	% Voics	% VFA	% VMA	Stability	Flow	% Pass #8	% Pass 1/2"
156.1	150.0	4.0	74.6	15.6	N/A	N/A	32	89

## MIX CHARACTERISTICS (GYRATORY)

Design ESALS	Gyrations @ Nini	Gyrations @ Ndes	Gyrations @ Nmix	Max Density (kg/m <sup>3</sup> )/Sp.Gr.	Ndes Density (kg/m <sup>3</sup> )/Sp.Gr.
< 0.3	6	50	75	2.502	2.404
	% Voics @ Nini	% Voics @ Ndes	% Voics @ Nmax		
	14.1	4.0	2.6		

## IGNITION FURNACE DATA

Oven Make	Set. Temp.	Sample Size	A.C. Correction Factor (C.)	#200 Correction Factor (200C <sub>i</sub> )
Thermolyne	538	1500	0.21	0.2

Designed by \_\_\_\_\_  
 Approved & Submitted by *Reviewed* \_\_\_\_\_  
 Reviewed by Mat's Engineer *Joseph J. Karol* \_\_\_\_\_

Date 3/19/03  
 Date 3/19/02  
 Date 3/19/03



# JOB MIX FORMULA REPORT

JMF No.  

0	2	S	0	1
---	---	---	---	---

SUPPLIER CODE: HEL48A41  
 MATERIAL CLASS: S P 9 5  
 AGGREGATE SRL: M

Date: July-02 Spec: 9.5mm < 3 ESAL Plaspalt Tons: P.O.

Suppliers Name: Hellertown Materials Location: Hellertown, PA

Bituminous Plant Type: McCarter-AB Daily Capacity: 5000lb. Batch Mix Time: Dry 5, Wet 45  
 CMS NO. SR Sec.

Material Supplier Code	Material Supplier Name	Material Code	Material Class	% in Mix	Bulk Sp Gr	% Absorption
SCI48A14	Stockertown Materials	207	B3	63.3	2.757	0.38
SCI48A14	Stockertown Materials	203	A8	29.0	2.729	0.7
	Treated Recycled Plastic Aggregate	203	TRPA	1.4	0.96	
	Citgo	Asphalt	PG 64-22	6.3	1.031	-
Alternate AC Suppliers: CHEV2-15, COAS4-15, VALR1-15, TRUM3-15						

## JOB MIX FORMULA AND DESIGN

Design	AC %	75µm #200	150µm #100	300µm #50	600µm #30	1.18 #16	2.36 #8	4.75 #4	9.5 3/8"	12.5 1/2"	19.0 3/4"	25.0 1"	37.5 1 1/2"	50.0 2"	F/A %	Pb. %
Design	6.3	5.0	7	10	18	30	45	71	97	100					0.8	6.1
% Virgin AC	6.3	% Reclaimed AC														

## MIX CHARACTERISTICS (GYRATORY)

Design ESALS	Gyrations @ Nini	Gyrations @ Ndes	Gyrations @ Nmax	Max Density (kg/m³)/Sp Gr	Ndes Density (kg/m³)/Sp Gr
< 0.3	6	50	75	2.444	2.345
% Voids @ Nini	% Voids @ Ndes	% Voids @ Nmax	% VMA @ Ndes	% VFA @ Ndes	Weight @ 115mm
13.8	4.1	2.9	17.8	77.3	4806

## IGNITION FURNACE DATA

Over Make	Set. Temp.	Sample Size	A.C. Correction Factor (C.)	#200 Correction Factor (200C.)
Thermolyne	538	1200	1.52	0.1

## COMBINED AGGREGATE CONSENSUS PROPERTIES

AASHTO T176	AASHTO T304	ASTM D5821	ASTM D4791
Sand Equivalent	Uncompacted Void Content	Coarse Aggregate Angularity	Flat & Elongated
85.0	49.0	(1 Face) 100 / (2 Face) 100	2.6

Designed by: Joseph R. Smith - Asphalt Consultant Date: 8/5/2002

Approved & Submitted by: *Edward Morrison* Edward Morrison 125 Date: 8/5/2002  
 Sign Print Tech ID#

Reviewed by Materials Unit: *Joseph R. Smith* Date: 8/12/02

2003

## SUPERPAVE SAMPLE WORKSHEET

Date:	18-Sep-03	Material:	9.5mm Plusphalt C<0.3 ESAL
Producer:	Hellertown Materials	S.R.#:	Wilson Boro
Technician:	Edward Morrison	P.O.#:	

Weight of material :	1235.5
Wt. of basket & material :	4290.0
Oven scale Wt :	
Chamber set Pt. :	538
Weight loss :	94.5
Percent loss :	7.65
Temp comp :	0.19
Asphalt Calibration Factor :	1.52

Design AC :	6.3
Calibrated AC content :	5.94

Dry Weight :	1140.8
Washed Weight :	1078.3
Weight of Loss :	62.5
#200 Correction Factor :	0.1

Sieve	Wt.	Plus Loss	% Passing	Design L (D) U
#200	6.5	69.0	5.9	2 (5) 8
#100	20.7	83.2	7	1 (7) 13
#50	49.9	112.4	10	4 (10) 16
#30	111.0	173.5	15	12 (18) 24
#16	217.0	279.5	25	24 (30) 36
#8	420.5	483.0	42	39 (45) 51
#6				
#4	714.0	776.5	68	63 (71) 79
1/4"				
3/8"	1067.0	1129.5	99	89 (97) 100
1/2"	1078.3	1140.8	100	92 (100) 100
3/4"				
1"				-
1 1/2"				-
2"				-

Sample Number	Asphalt Content	Theo Gmm	Dry Weight	Samp+ H <sub>2</sub> O+Vol	Vol+H <sub>2</sub> O Weight	Weight In H <sub>2</sub> O	SSD Weight	Sample Volume	Gmb @Ndes	Voids @Ndes	VMA @Ndes	VFA @Ndes
	A	B	C	D	E	F	G	H	I	J	K	L
						D - E		G - H	I	100 x 1 - (J/B)	(K(100-A)) Gsb	P - Q P
1	6.3	2.430	4627.0	10280.4	7636.5	2643.9	4642.5	1998.6	2.315	4.7	18.8	75.0
2	6.3	2.430	4630.2	10283.4	7636.5	2646.9	4653.6	2006.7	2.307	5.1	19.1	73.3
									2.311	4.9	19.0	74.2

PTM 740		
1	Mass of Bit. Mix	2000.6
2	Mass of Pyc. + Water	7636.5
3	Line 1 + Line 2	9637.1
4	Mass Pyc. + (Mix + Water)	8813.7
5	(3-4) = Vol. Voidless Mix	823.4
6	(1-5) = Max. Sp.Gr. of Mix	2.430

740 RUNNING AVERAGE		
1	9/18/2003	2.430
2		
3		
4		
5		
AVERAGE n=5		2.430

Bulk Gravity of Aggregate	2.673
---------------------------	-------

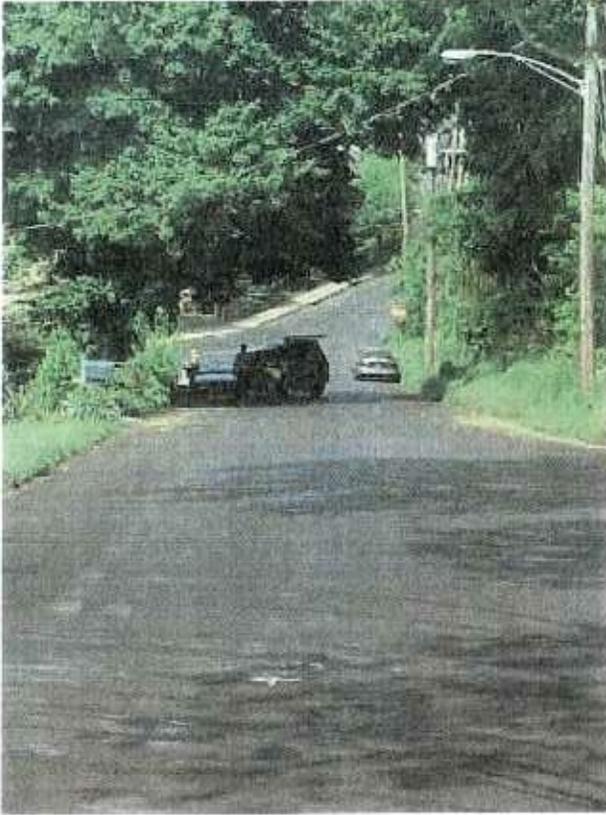
Remarks:

## **ATTACHMENT 7**

**First-Year Performance Evaluation (2004)  
Core Sampling Locations & Test Results**

---

**FIRST-YEAR PERFORMANCE EVALUATION 2004  
CORE SAMPLING LOCATIONS**



**YR1-1**  
View of Jefferson Street from Jefferson Street/16th Street intersection.



**YR1-2**  
No rutting observed throughout controlled and asphalt sections.

**FIRST-YEAR PERFORMANCE EVALUATION 2004  
CORE SAMPLING LOCATIONS**



**YR1-3**

Close-up view of asphalt wearing course.  
TRPA showing on the surface. Red, blue and  
yellow TRPA predominant.



**YR1-4**

Core locations using PTM-1.

**FIRST-YEAR PERFORMANCE EVALUATION 2004  
CORE SAMPLING LOCATIONS**



**YR1-5**  
Core drilling.



**YR1-6**  
Close-up of core drilling.



**YR1-7**  
Core removal.

**FIRST-YEAR PERFORMANCE EVALUATION 2004  
CORE SAMPLING LOCATIONS**



YR1-8

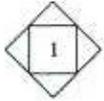
Six core samples: three plasphalt, three conventional (standard).

JEFFERSON STREET  
WILSON BOROUGH  
2003 CORE LOCATIONS

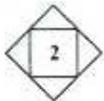
**PTM-1 (Random Core Sampling Locations)**

**9.5 mm Plasphalt**

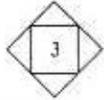
(15 feet wide x 192 feet long)



$192' \times 0.29 = 56'$ ; R  $0.66 \times 15' = 10'$  from RT



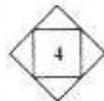
$192' \times (192' \times 0.74) = 334'$ ; R  $0.49 \times 15' = 7'$  from RT



$192' + 192' + (192' \times 0.89) = 555'$ ; L  $0.79 \times 15' = 12'$  from L

**9.5mm Conventional Superpave Cores**

(14 feet wide x 192 feet long)



$192' \times 0.60 = 115'$ ; R  $0.39 \times 14' = 5'$  from RT

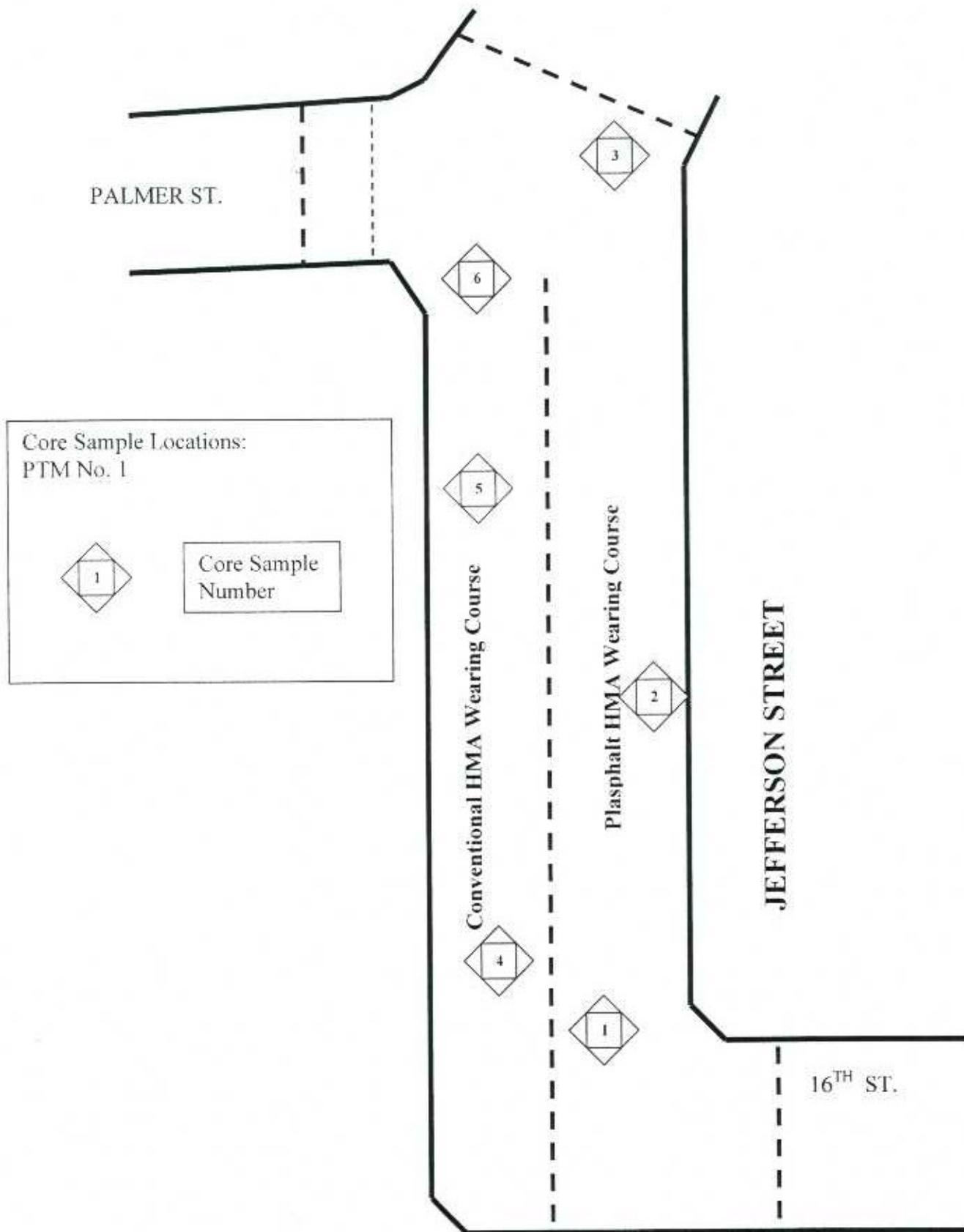


$192' + (192' \times 0.88) = 361'$ ; R  $0.31 \times 14' = 4'$  from RT



$192' + 192' + (192' \times 0.72) = 522'$ ; L  $0.54 \times 14' = 8'$  from L

JEFFERSON STREET  
WILSON BOROUGH  
2003 CORE LOCATIONS



PROGRAM: S4285250  
REPORT : CAMLR525  
LIBRARY: CAMSPROD  
FINAL REPORT

PENNDOT CAMMS TESTING REPORT  
BITUMINOUS

Page 1  
06/04/2004  
0:20:37  
ENGLISH

Ref#:A055433 Lab#:04000589 Pass/Fail:F

Cont #: 100%PA QA Rtnq: Cntroctr:  
St P N:00500309BIT 500 711 9998 Smp Cls:AS Suplier:HEL48A41  
Pr O #: Orgnztm:0500 Lctn Cd:  
Mtl Cd:011 SP9.5 State R: JMF Y/#:2003/S01  
Mtl Ds:BTMNS DENSITY SAMPLES Section: 0000 L/C Xrf:  
108Y/S:2000 409A Station: Collctd: 5/11/2004  
3upl #: Prt Tkt: SetUp: 5/26/2004  
Plc Cl:WILSON BOROUGH Lot Nbr: RcvDock: 6/01/2004  
Smp By:J.KRETULSKIE # Incrm: 3 RcvdLab: 6/02/2004  
447 Xrf: Releasd: 6/04/2004  
A.C. Calibration Factor:1.71 #200 (75um) Calibration Factor:0.2

PR-447 Remarks: PLASPHALT (STANDARD SPECIAL PROVISION)

Lab#:04000589 Ref#:A055433 Colltd: 5/11/2004 Rclb: 6/02/2004 Relsd: 6/04/2004

INC	DENSITY	%OF THEOR.	DESIGN THICKNESS:
1	133.7	88	1.50
2	133.8	88	THEO. DENSITY: 151.600
3	138.6	91	TOL. INDIV.: 0 - %
4			TOL. LOT AVG: 92 - %
----- SUMMARY -----			
AVG	135.4	89-	DENSITY PWL:
S.D	2.80		PAYFACTOR BONUS: III ( )

LOT PAYMENT: LP = .00 CP \* REMOVE AND REPLACE \*

This report is authorized by William J. Miller, Engineer of Tests.

\*\*\*\*\* end of 01 page report \*\*\*\*\*

DISTRIBUTION	
___	ADE CONSTR
___	DME ADME
___	ADE PROJECT
___	M. P. SUPER
✓	J. Kretulskie

PROGRAM: 04200200  
REPORT : CAMLR525  
LIBRARY: CAMSPROD  
FINAL REPORT

PERND01 CAMMS TESTING REPORT  
BITUMINOUS

Page 1  
06/04/2004  
0:20:37  
ENGLISH

Ref#:A055432

Lab#:04000588

Pass/Fail:F

Cont #: 100%PA  
St P N:00500309BIT 500 711 9998  
Tr O #:  
tl Cd:011 SP9.5  
Mtl Ds:BTMNS DENSITY SAMPLES  
408Y/S:2000 409A  
upl #:  
\_lc Cl:WILSON BOROUGH  
Smp By:J.KRETULSKIE

QA Rtnq:  
Smp Cls:AS  
Orgnzt:0500  
State R:  
Section: 0000  
Station:  
Prt Tkt:  
Lot Nbr:  
# Incrm: 3  
447 Xrf:  
#200 (75um) Calibration Factor:0.2

Cntrctr:  
Suplier:ABE48A41  
Lctn Cd:  
JMF Y/#:2003/S11  
L/C Xrf:  
Collctd: 5/11/2004  
SetUp: 5/26/2004  
RcvDock: 6/01/2004  
RcvdLab: 6/02/2004  
Releasd: 6/04/2004

.C. Calibration Factor:0.17

TR-447 Remarks: Matl labeled core #4, #5, #6

Lab#:04000588 Ref#:A055432 Colltd: 5/11/2004 Rclb: 6/02/2004 Relsd: 6/04/2004

	DENSITY	%OF THEOR.	
NC 1	134.0	87	DESIGN THICKNESS: 1.50
2	141.1	92	THEO. DENSITY: 153.700
3	143.5	93	TOL. INDIV.: 0 - %
4			TOL. LOT AVG: 92 - %
----- SUMMARY -----			
AVG	139.5	91-	DENSITY PWL:
.D	4.94		PAYFACTOR BONUS: 98 II ( )

LOT PAYMENT: LP = .98 CP

This report is authorized by William J. Miller, Engineer of Tests.

\*\*\*\*\* end of 01 page report \*\*\*\*\*

DISTRIBUTION	
___	AGE CONSTR
___	DWE ___ ADWE
___	AGE PROJECT
___	NEWSL BRDR
/ J. Kretulskie	

## **ATTACHMENT 8**

**Second-Year Performance Evaluation (2005)**

---

**SECOND-YEAR PERFORMANCE EVALUATION 2005  
JEFFERSON STREET**



**YR2-1**

No rutting or deflection observed at Jefferson Street and Palmer Street intersection.



**YR2-2**

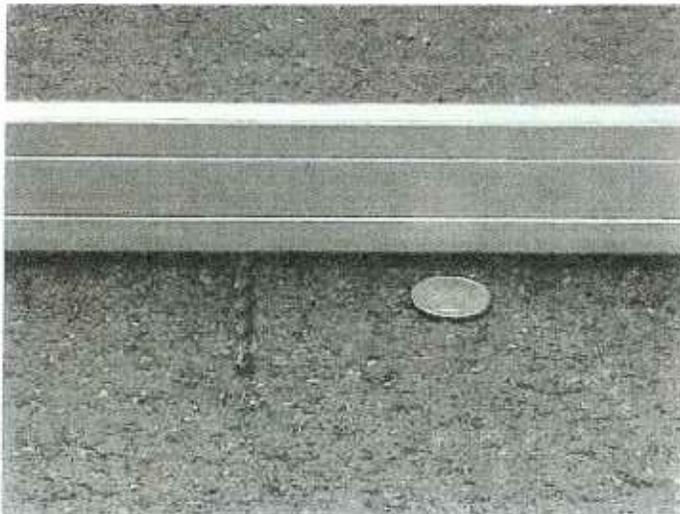
No rutting or deflection observed at Jefferson Street and 16th Street intersections. (Near core sample #1).

**SECOND-YEAR PERFORMANCE EVALUATION 2005  
JEFFERSON STREET**



**YR2-3**

Deflection of 3/16" on conventional wearing course observed near core sample #4 location.



**YR2-4**

Close-up of deflection at core sample #4 location.

**SECOND-YEAR PERFORMANCE EVALUATION 2005  
JEFFERSON STREET**



**YR2-5**  
View of Jefferson Street towards Palmer  
intersection.



**YR2-6**  
Close-up of asphalt wearing surface. Visible  
TRPA.

**SECOND-YEAR PERFORMANCE EVALUATION 2005  
JEFFERSON STREET**



**YR2-7**

Loss of some TRPA from plasphalt course at edge of pavement (near stormwater inlet).

## **ATTACHMENT 9**

**Fourth-Year Performance Evaluation (2007)**

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**FOURTH-YEAR PERFORMANCE EVALUATION 2007  
JEFFERSON STREET**



**YR4-1**  
View of Jefferson Street towards 16th Street.



**YR4-2**  
Start of cracking identified along curb at right  
turn lane from 16th Street.



**YR4-3**  
Close-up of cracking. Approximate max. 1/2"  
inch width, max. 1/2" depth.

**FOURTH-YEAR PERFORMANCE EVALUATION 2007  
JEFFERSON STREET**



**YR4-4**

View of Jefferson Street towards 16th Street.  
No rutting observed along street.



**YR4-5**

View of Jefferson Street towards 16th Street.  
Observed color difference between plasphalt  
(left) and conventional (right) wearing surface.



**YR4-6**

Plasphalt surface. Showing loss of fines.

**FOURTH-YEAR PERFORMANCE EVALUATION 2007  
JEFFERSON STREET**



YR4-7  
TRPA pieces removed from asphalt surface  
and accumulated along roadside.

# **ATTACHMENT 10**

**Fifth-Year Performance Evaluation (2008)**

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## FIFTH-YEAR PERFORMANCE EVALUATION PICTURES

2008

### Jefferson Street



YR5-1

View of Jefferson Street looking towards 16th Street.



YR5-2

Continued cracking identified along curb at right turn lane from 16th Street. Maximum measured width of crack is 1-1.5 inches.



YR5-3

Close-up of cracking. Approximate max. 1 1/2 inches wide, max. 1/2 inch deep.

## FIFTH-YEAR PERFORMANCE EVALUATION PICTURES

2008

### Jefferson Street



YR5-4

View of Jefferson Street looking towards 16th Street. No rutting observed along street.



YR5-5

View of Jefferson Street looking towards Palmer Street. Observed color difference between plasphalt (right) and conventional (left) wearing surface.



YR5-6

Plasphalt surface. Showing loss of fines.

**FIFTH-YEAR PERFORMANCE EVALUATION PICTURES**  
**2008**  
**Jefferson Street**



**YR5-7**  
Closeup of asphalt wearing surface. Visible TRPA.