STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0016

JOHN ELIAS BALDACCI
GOVERNOR

DAVID A. COLE
COMMISSIONER

April 7, 2008
Subject: All MST Contracts
Pin No. Multiple Pins
Amendment No. 1

Dear Sir/Ms:

Please make the following changes to the Bid Documents:

Please add the attached "Haul Distance Computation Instruction" (two pages) to be utilized in figuring your "haul distance" for the "COST COMPUTATION CHART".

The following question has been received:

Question: What are the QC requirements for the 9.5mm MST mix?

Response: All (MST + State PPM) QC requirements for 9.5mm mixes shall be in accordance with the latest 401 Special Provision as modified by the 9.5mm Special Provision.

Consider this change and information prior to submitting your bid on **April 16, 2008**.

Sincerely,

FOR

Scott Bickford
Contracts & Specifications Engineer

HAUL DISTANCE COMPUTATION INSTRUCTIONS

In order to reduce inconsistencies in figuring "haul distance" as required in the Cost Computation Chart, the following formula will cover all situations:

Distance = $\sqrt{[(X1- X2)^2 + (Y1- Y2)^2 + (Z1- Z2)^2]}$

Where:

A2 = Latitude of plant location in degrees, minutes and seconds
B2 = Longitude of plant location in degrees, minutes and seconds
r = Radius of earth = 3963.1 miles

Convert the Latitude and Longitude from degrees, minutes and seconds to rectangular coordinates:

X1 = will be provided by the State	X2 = rCos(A2) Cos(B2)
Y1 = will be provided by the State	Y2 = rCos(A2) Sin(B2)
Z1 = will be provided by the State	Z2 = rSin(A2)

EXAMPLE

The state wishes to pave a section of the road whose middle ordinate is located at;

X1=1078.93 Y1=2584.54 Z1=2803.96

The Contractor wishes to set up their plant at (point of discharge):

Latitude of 44 degree 50 minutes and 13 seconds

Longitude of 67 degrees 10 minutes and 41 seconds.

First we must find X2, Y2 and Z2:

X2=3963.1 x Cosine 44°50'13" x Cosine 67°10'41"
X2=3963.1 x .709116 x .387869
X2 = 1090.03

Y2=3963.1 x Cosine 44°50'13" x Sin 67°10'41"
Y2= 3963.1 x .709116 x .921715
Y2=2590.29

Z2=3963.1 X Sin 44°50'13"
Z2=3963.1 x .705092
Z2=2794.35

Once X2, Y2 and Z2 are found than plugged all the numbers into the following formula.

Distance = $\sqrt{}$ [(X1- X2)² + (Y1- Y2)² + (Z1- Z2)²]

Distance= $\sqrt{}$ (1078.93-1090.03)² + (2584.54 – 2590.29)² + (2803.96 – 2794.35)²

Distance = $\sqrt{}$ -11.1² + -5.75² + 9.61

Distance = $\sqrt{}$ 123.21 + 33.06 + 92.35

Distance =$\sqrt{}$248.62

Distance = 15.7677 rounded to two places 15.77 miles

15.77 miles than would be placed in COST COMPUTATION CHART column marked "Haul Distance (in miles)" Multiply that number by $0.52 and this will give you the unit haul cost. Multiply that by the tonnage and you will have your total section cost.

NOTE: ALL WORK WILL BE CARRIED OUT TO SIX PLACES TO THE RIGHT OF THE DECIMAL POINT. FINAL DISTANCE IN MILES CAN BE ENTERED INTO THE COST COMPUTATIONS SHEET ROUNDED OFF TO TWO PLACES USING SOUND ENGINEERING PRACTICES.