SECTION 905 -- PROPOSAL (CONTINUED)

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) enclose a certified check, cashier's check or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO.	1	DATED	4/12/2006	ADDENDUM NO.		DATED	
ADDENDUM NO		DATED		ADDENDUM NO.		DATED	

Number	Description
1	Table of Contents, replaces same; NTB 811, replaces same; Add NTB 881; Add S.P. 907-687-1; Add S.P. 907-688-1; Proposal Shts. 2-5 and 2-14, replaces same; Revised or Add Plan Shts. 2,3,5,6,7,11,12, 46.01,46.02,46.03,46.04, 46.05,460.06, 46.07, 46.08,& 46.09; Revised Project Disk Required.

TOTAL ADDENDA: 1
(Must agree with total addenda issued prior to opening of bids)

Respectfully Submitted,

DATE _____

_____
Contractor

BY _____
Signature

TITLE _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE _____

FAX _____

E-MAIL _____

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

_____
President Address

_____
Secretary Address

_____
Treasurer Address

The following is my (our) itemized proposal.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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907-804-2: Concrete Bridges and Structures
906-3: MDOT On-the-Job Training Program
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SECTION 905 - PROPOSAL,
PROPOSAL SHEET NOS. 2-1 THRU 2-16,
COMBINATION BID PROPOSAL,
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HAUL PERMIT FOR BRIDGES WITH POSTED WEIGHT LIMITS

(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET OF SECTION 905 AS ADDENDA)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 811 **CODE: (SP)**

DATE: 04/12/2006

SUBJECT: Specialty Items

PROJECT: IM-0055-02(186) / 104166--HINDS & MADISON COUNTY(IES)

Pursuant to the provisions of Section 108, the following work items are hereby designated as "Specialty Items" for this contract. Bidders are reminded that these items must be subcontracted in order to be considered as specialty items.

CATEGORY: CURB

Ref No	Pay Item	Description
460	609-D	Combination Concrete Curb and Gutter Type 2 Modified

CATEGORY: ELECTRICAL

Ref No	Pay Item	Description
900	635-A	Vehicle Loop Assemblies
901	907-687-A	Vehicle Classification and Axle Detector System
902	907-688-A	Vehicle Inductive Loop and Axle Detector System

CATEGORY: EROSION CONTROL

Ref No	Pay Item	Description
80	212-B	Standard Ground Preparation
90	907-213-A	Agricultural Limestone
100	213-B	Combination Fertilizer, 13-13-13
120	214-A	Seeding, Bermudagrass
130	214-A	Seeding, Tall Fescue
140	214-A	Seeding, Crimson Clover
150	215-A	Vegetative Materials for Mulch
160	216-A	Solid Sodding
170	219-A	Watering
180	220-A	Insect Pest Control
200	234-A	Temporary Silt Fence
210	235-A	Temporary Erosion Checks

CATEGORY: GRANULAR/EXCAVATION

Ref No	Pay Item	Description
220	304-A	Granular Material, LVM, Class 5, Group C

CATEGORY: GUARDRAIL

Ref No	Pay Item	Description
40	202-B	Removal of Guard Rail, Including Rails, Posts and Terminal Ends
420	606-B	Guard Rail, Class A, Type 1
430	606-D	Guard Rail, Bridge End Section, Type A
431	606-D	Guard Rail, Bridge End Section, Type I
440	606-E	Guard Rail, Terminal End Section
870	630-F	Delineators, Guard Rail, White

CATEGORY: PAVEMENT MARKING

Ref No	Pay Item	Description
700	626-A	6" Thermoplastic Traffic Stripe, Skip White
710	626-C	6" Thermoplastic Edge Stripe, Continuous White
730	626-F	6" Thermoplastic Edge Stripe, Continuous Yellow
740	626-G	Thermoplastic Detail Stripe, White
750	626-G	Thermoplastic Detail Stripe, Yellow
760	626-H	Thermoplastic Legend, White
770	626-H	Thermoplastic Legend, White
780	627-K	Red-Clear Reflective High Performance Raised Markers
790	627-L	Two-Way Yellow Reflective High Performance Raised Markers
800	627-N	One-Way Yellow Reflective High Performance Raised Markers
810	907-628-I	6" High Performance Cold Plastic Traffic Stripe, Skip White, Series 380I
820	907-628-J	6" High Performance Cold Plastic Traffic Stripe, Continuous White,
830	907-628-M	6" High Performance Cold Plastic Traffic Stripe, Continuous Yellow,
840	907-628-O	High Performance Cold Plastic Detail Stripe, White, Series 380I ES
850	907-628-O	High Performance Cold Plastic Detail Stripe, Yellow, Series 380I ES
860	907-628-P	High Performance Cold Plastic Legend, White, Series 380I ES

CATEGORY: SIGNING

Ref No	Pay Item	Description
880	630-F	Delineators, Post Mounted, Single White
890	630-F	Delineators, Post Mounted, Double Yellow

CATEGORY: TRAFFIC CONTROL

Ref No	Pay Item	Description
500	619-A1	Temporary Traffic Stripe, Continuous White
510	619-A1	Temporary Traffic Stripe, Continuous White, Type 1 Tape
520	619-A2	Temporary Traffic Stripe, Continuous Yellow

CATEGORY: TRAFFIC CONTROL

Ref No	Pay Item	Description
530	619-A2	Temporary Traffic Stripe, Continuous Yellow, Type 1 Tape
540	619-A3	Temporary Traffic Stripe, Skip White
550	619-A4	Temporary Traffic Stripe, Skip Yellow
560	619-A5	Temporary Traffic Stripe, Detail
570	619-A6	Temporary Traffic Stripe, Legend
580	619-A6	Temporary Traffic Stripe, Legend
590	619-C1	Red-Clear Reflective Raised Pavement Markers
600	619-D1	Standard Roadside Construction Signs, Less than 10 Square Feet
610	619-D2	Standard Roadside Construction Signs, 10 Square Feet or More
620	907-619-E3	Changeable Message Sign
630	619-F1	Portable Median Barrier, Greater than 45 MPH
640	619-F2	Remove and Reset Portable Median Barrier
650	619-G4	Barricades, Type III, Single Faced
660	619-J1	Impact Attenuator, 60 MPH
670	619-J1	Impact Attenuator, 70 MPH
680	619-J2	Impact Attenuator, 60 MPH, Replacement Package
690	619-J2	Impact Attenuator, 70 MPH, Replacement Package

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 881 **CODE: (SP)**

DATE: 04/05/2006

SUBJECT: Special Requirements for Hot Mix Asphalt, HT, 19 mm, Polymer Modified

PROJECT: IM-0055-02(186) / 104166 -- Hinds and Madison Counties

Bidders are hereby advised that the following is a special requirement for the 19 mm Polymer Modified HMA on this project.

When the combined aggregate gradation of the job mix formula is plotted on FHWA 0.45 power chart paper, the HMA 19 mm polymer modified mixture shall be designed above the Maximum Density Line on all sieve sizes smaller than the No. 4 sieve. The mixture shall have a minimum fine aggregate angularity index of 44.0, per ASTM Designation: C1252, Method A.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-687-1 **CODE: (SP)**

DATE: 04/05/2006

SUBJECT: Vehicle Classification and Axle Detector (VCAD) Systems

PROJECT: IM-0055-02(186) / 104166 -- Hinds and Madison Counties

Section 907-687, Vehicle Classification and Axle Detector Systems, is hereby added to and made a part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-687 - VEHICLE CLASSIFICATION AND AXLE DETECTOR SYSTEMS

907-687.01--Description. This work consists of furnishing vehicle classification and axle detector systems of the types specified and assembling, constructing, erecting, and installing same in conformity with these specifications to insure properly operating units in accordance with the designs and at the locations shown on the plans or as directed. This axle detector system should classify vehicles in all lanes of traffic.

The Contractor shall include all hardware necessary to operate the field station when connected to a portable traffic counter.

1) The System shall utilize one (1) Class II Piezo strip as utilized by Mikros System and two (2) loops, as recommended by the manufacturer in all lanes.
2) The vendor shall provide three (3) copies of all manuals on Installation, Operating, Schematics, and Maintenance for the entire System.

The Piezo sensors, inductive loops, cables, leads and electronic hardware will be furnished, installed, tested, calibrated and made operational by the Contractor. The Contractor shall provide all services required for construction, tests, the satisfactory performance period(s), and miscellaneous usage on this project until the final inspection of the project. All cost, etc., associated with the System up to and including the date of the final inspection of the System shall be the responsibility of the Contractor.

At least 24 hours prior to starting any vehicle classification and axle detector system work, the Contractor shall contact the MDOT Planning Division at 601-359-7685 so that a representative of the Planning Division can be on site while this work is being performed.

907-687.02--Materials. The materials used in this construction shall conform with the general requirements of these specifications and the specific requirements set out herein. Prior to the scheduled start of work, the Contractor shall provide the Engineer with submittals on the following items and shall obtain the Engineer's approval before starting affected work.

907-687.02.1--Sensors. Vehicle axle detectors shall utilize piezoelectric cable in a sensor assembly and be of a type that has been shown to be successful for vehicle classification in both asphaltic and portland cement concrete pavements. Sensor length shall be six (6) feet minimum. Sensors as delivered from manufacturer shall include a shielded transmission cable of sufficient length for a continuous run to pull box without splicing.

907-687.02.l.1--Piezoelectric Cable/Sensors. Piezoelectric Cable/Sensors shall be as those utilized by Mikros System. Sensitivity dispersion shall be Class II, ±5%.

907-687-02.2--Shielded Transmission Cable. Coaxial cable type RG58 C/U shall conform to IMSA 50-2 for polyethylene insulated, polyethylene jacketed cable, AWG #14. Cable shall meet the requirements of Section 636 for the Standard Specifications.

907-687.02.3--Conduit and Pull Boxes. Conduit and pull boxes shall meet the requirements of Section 668 of the Standard Specifications.

907-687.02.3.1--Under Roadways. Conduit shall be Schedule 80 PVC or coated rigid galvanized steel.

907-687.02.3.2--Other Conduit. Other conduit shall be Schedule 40 PVC direct buried conduit unless noted otherwise.

907-687.02.3.3--Pull Boxes. Size shall be Type 2, cover does not require words inscribed on top.

907-687.02.4--Loop Wire. Loop wire, IMSA 51-3, AWG #14, shall meet the requirements of Section 722.03.

907-687.02.5--Loop Sealant. Loop sealant shall be "Traffic Loop Sealant" as manufactured by 3M Corporation, or approved equal.

907-687.02.6--Sensor Cement. The sensor assembly shall be cemented into the pavement with an epoxy resin of a type recommended by the sensor manufacturer.

907-687.03--Construction Requirements. The general layout of the work shall conform to the detail shown on typical installation plans and shall be verified at each location with the Engineer. The vendor shall have a representative on site during installations.

907-687.03.1--Manufacturer's Recommendations. Sensors must be installed in accordance with the approved procedures and specifications provided by the sensor manufacturer. All sensors and connecting cables shall be positioned and installed to assure compatibility with the inductive loops to provide electrical signals for vehicle classification.

907-687.03.2--Conflicts. Conflicts between any piece of equipment, which if installed as shown in relation to any previously installed equipment, may impair the proper operation of that equipment, shall be resolved by the Contractor as approved by the Engineer.

907-687.03.3--Conduit Runs. The number of conductors, conduits and fittings necessary to produce an operative system as specified herein shall be provided. It is the intent of these specifications to have all joints, connections, etc. completely water and moisture tight. Shielded transmission cable and wire leads shall be installed in conduit from paved shoulders to pull boxes.

907-687.03.4--Slots in Pavement. All slots required in pavement and paved shoulders shall be saw cut with diamond blade power saw. Edges shall be straight, smooth and true. Depth shall be uniform.

907-687.03.4.1--Loop Slots. Slots for loop wire shall be 1/4 inch minimum width. Depth in asphalt shall be 2½ inch and 1½ inch in concrete. Diagonal slots shall be cut at corners by overlapping cuts so that the entire slot intended for wire has full depth. There shall be no jagged edges or protrusions which may damage wire.

907-687.03.4.2--Cable Slots. Slots for cable shall be 3/8 inch width (±1/16) and 2-inch depth. Do not exceed 45 degree turns and overlap cuts so that slot has full depth. There shall be no jagged edges or protrusions which may damage cable. Cable leads from each sensor shall be run in individual saw cut slots at a minimum spacing of 12 inches.

907-687.03.4.3--Sensors Slots. Slots for sensors shall be of the width and depth specified by the sensor manufacturer. Cavity of sensor slots may be made with chisel between saw cut sides, but bottom shall be smooth and level, without protrusions. In overlay of four inches (4") or less, the slot shall extend to the top of the course below the overlay.

907-687.03.5--Loop Assemblies. Inductive loop assemblies shall meet the requirements of Section 635 of the Standard Specifications.

907-687.03.6--Inspection. Pavement slots shall be inspected at time of sensor and cable installation. Surfaces shall be clean and dry, free of all dust, grit, moisture and other contaminants that might affect sealant or cement bond.

907-687.03.6.1--Sensor Check. Prior to final installation, sensor assembly shall be placed in position in slot and inspected for compliance with manufacturer's requirements as to clearance, surface alignment, etc. Sensor output shall be checked using oscilloscope.

907-687.03.6.2--Cable Inspection. The cable shall not have any cuts, nicks, abrasions or breaks in the insulation at the time of filling slot with sealant. Any sensor having defects in the shielded transmission cable shall be replaced.

907-687.03.6.3--Loop Inspection. The loop wire shall not have any cuts, nicks, abrasions or breaks in the insulation before or after installation in the slot. Loop inductance shall be 124 microhenries.

907-687.03.7--Sensor Installation. Approved epoxy cement shall completely fill the cavity spaces and surround all three sides of the sensor assembly. To insure that there are no voids under the sensor assembly the sensor shall first be removed after installation inspection, the slot partially filled with epoxy, then the sensor pressed into position and the side cavities filled to the pavement surface before the bottom epoxy has hardened. Sensor installation shall be protected from traffic until epoxy cement is sufficiently cured.

907-687.03.8--Sleeves. Flexible sleeve or other protection shall be provided for shielded cable at sensor ends to prevent damage. The Contractor shall take care to insure that the sleeve is not filled with epoxy cement. In addition, the Contractor shall provide flexible sleeve, approximately 12 inches long, at pavement construction joints including joints between lanes and between pavement and paved shoulder.

907-687.03.9--Cable and Wire Installation. The cable or lead wires shall be placed in the bottom of the slot so that there are no kinks, curls, straining or stretching of the insulation. The two loop lead wires shall be twisted two to five turns per foot before placement in the slot. Special care shall be taken in seating the cable and wire so that the insulation will not be broken or abraded. No sharp tools such as screwdriver or metal object shall be used for this operation.

907-687.03.9.1--Conditions. The Contractor shall install the sealant in strict adherence to the manufacturer's recommendation and these specifications. No sealant shall be installed during inclement weather or under any condition which might introduce moisture into the pavement slots.

907-687.03.9.2--Sealant. The viscosity of the sealant shall be such that it can be readily placed in the slot, completely surround the wires, displace all air and fill the slot so that the sealant is flush with the roadway surface. The finished installation shall be waterproof and present a neat workmanlike appearance. Minimum required clearance shall be maintained to cable and wire.

907-687.03.9.3--Protection. The sealant shall be sufficiently hardened before allowing traffic on it.

907-687.03.10--Cleaning. All excess encapsulate and sealant shall be removed from pavement surface and sensor after installation. A hand grinder shall be used, if necessary, to smooth out rough or high areas that might affect sensor operation.

907-687.03.11-Tags. Each shielded transmission cable and pair of lead wires shall be uniquely identified by an insulated, waterproof tag in every pull box.

907-687.03.12--Trenching and Backfilling. All trenching shall be done by mechanical means and all sides shall be straight and vertical. Width of trenches shall not exceed eight (8) inches on either side of placed conduits. All backfill shall be made with a friable material which has been

approved by the Engineer. Place material in compacted lifts as approved by the Engineer. The site, including shoulders, shall be returned to its original condition

907-687.03.13--Jacking or Boring. Approved jacking or boring methods shall be used where a conduit must be placed under an existing roadway. Jacking/boring pits shall be kept a minimum of five (5) feet from the edge of shoulder, and care shall be taken not to disturb existing pavement. Excessive use of water or other methods which could undermine pavements shall not be permitted. The jacking/boring site must be returned to its undisturbed state upon completion of the operation. Only experienced labor shall be used for jacking/boring work. Conduit shall be not less than 36 inches below pavement surface.

907-687.03.14-Pull Boxes. Pull boxes shall be located at least 10 feet from shoulder. Pull boxes shall be set on 12 inches minimum thickness washed gravel. Holes for drainage shall be provided in bottom of pull box. Locate conduit entering pull box so as to leave the major portion of the box clear.

907-687.03.15--Conduit. Conduit shall be laid to a depth of not less than 36 inches below the finished grade (except at conduit ends). All conduits shall be run at least 10 feet outside shoulder unless otherwise approved. One size of conduit shall be used for each run, no reducing couplings will be permitted.

907-687.03.16--Conductor Installation. Before placing shielded cable or wire leads in conduit, the conduit shall be cleaned with compressed air and rigid metal conduit shall also be cleaned with a mandrel. Only approved lubricants which will not injure conductor insulation while pulling cables shall be used.

907-687.03.16.1--Splices. Splices shall be made in pull boxes only, soldered, and sealed in epoxy type splice connectors equal to 3M. An insulation equal in rating and thickness to the conductor insulation shall be provided.

907-687.03.17--System Acceptance. The Contractor shall be required to demonstrate to the Engineer the satisfactory operation of each device installed on this project.

907-687.03.18--Material Warranty. The following warranty stipulations are in addition to those covered by Section 106.01 of the Standard Specifications:

907-687.03.18.1--Final Inspection. All sensors, loops and related components shall be fully operational at the final acceptance of the project.

907-687.03.18.2--Guarantee. At each location, the Contractor shall warrant and guarantee all sensors, loops and related components for a period of twelve (12) months, beginning at the date of partial release from maintenance.

907-687.03.18.3--Responsibility. It is the intent of the preceding paragraph to provide for equipment which performs as intended by the manufacturer. It is the further intent to obtain from the Contractor a level of workmanship which will assure the Department of an operation

system devoid of Contractor laxities. Failure to perform as indicated shall require the Contractor to replace in kind or repair, at his option, the equipment or workmanship in question. All material and labor cost resulting from the replacement or repair of equipment or correction of poor workmanship shall be borne by the Contractor.

907-687.03.18.4--Repairs. The Contractor shall not be responsible for outages occurring during the twelve month warranty period due to vandalism, traffic accidents, or any problems not related to materials or workmanship. The Contractor will be required to make the necessary repairs for such outages but the cost of such repair will be borne by the Department.

907-687.03.18.5--Manufacturer's Guarantees. All manufacturer's standard warranties or guarantees for all electrical and mechanical equipment which are provided as customary trade practice shall be made our to the Department and shall begin simultaneously with the commencement of the twelve month warranty period.

907-687.04--Method of Measurement. Vehicle Classification and Axle Detector Systems, of the type specified, complete in place and accepted, will be measured per lump sum. Such measurement shall include all materials, labor, equipment, operation, and other incidentals necessary to complete all the work at all the locations.

907-687.05--Basis of Payment. Vehicle Classification and Axle Detector Systems, measured as provided herein, will be paid for at the contract unit price lump sum, which price shall be full compensation for furnishing, installing, testing and guaranteeing all equipment and for all other labor, tools, and incidentals necessary to complete the work at all the locations.

Payment will be made under:

907-687-A: Vehicle Classification and Axle Detector System - lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-688-1 **CODE: (SP)**

DATE: 04/05/2006

SUBJECT: Vehicle Inductive Loop and Axle Detector Systems

PROJECT: IM-0055-02(186) / 104166 -- Hinds and Madison Counties

Section 907-688, Vehicle Inductive Loop and Axle Detector Systems, is hereby added to and made a part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-688 - VEHICLE INDUCTIVE LOOP AND AXLE DETECTOR SYSTEMS

907-688.01--Description. This work consists of furnishing vehicle inductive loop and axle detector systems of the types specified and assembling, constructing, erecting, and installing same in conformity with these specifications to insure properly operating units in accordance with the designs and at the locations shown on the plans or as directed. This axle detector system should classify vehicles in all lanes. The system should also be compatible for future upgrading to a Weigh-In-Motion system using a solid state WIM card.

The Contractor shall include all hardware and software necessary to operate the field station for extended periods of time unattended.

1) The System shall utilized two (2) Kistler quartz sensor strips as utilized by Tel System and one (1) loop, as recommended by the manufacturer in all lanes.
2) The vendor shall provide three (3) copies of all manuals on Installation, Operating, Schematics, and Maintenance for the entire System.

The Kistler sensors, induction loops, cables, leads, cabinet, electronic hardware and software will be furnished, installed, tested, calibrated and made operational by the Contractor. The Contractor shall provide all electrical power and telephone service required for construction, tests, the satisfactory performance period(s), and miscellaneous usage on this project until the final inspection of the project. Deposits, customer charges, connection cost, etc., associated with the System up to and including the date of the final inspection of the System shall be the responsibility of the Contractor.

The person(s) or firm performing the installation of the Kistler quartz sensors must be certified by Kistler in the installation procedures of Kistler quartz sensors and must be on the job site at each installation when the quartz sensors are being installed.

At least 24 hours prior to starting any vehicle inductive loop and axle detector system work, the Contractor shall contact the MDOT Planning Division at 601-359-7685 so that a representative of the Planning Division can be on site while this work is being performed.

907-688.02--Materials. The materials used in this construction shall conform to the general requirements of these specifications and the specific requirements set out herein. Prior to the scheduled start of work, the Contractor shall provide the Engineer with submittals on the following items and shall obtain the Engineer's approval before starting affected work.

907-688.02.1--Sensors. Vehicle axle detectors shall utilize piezoelectric cable in a sensor assembly and be of a type that has been shown to be successful for vehicle classification in both asphaltic and portland cement concrete pavements. Sensor length shall be five (5) feet minimum. Sensors as delivered from manufacturer shall include a shielded transmission cable of sufficient length for a continuous run to pull box without splicing.

907-688.02.l.1--Kistler Quartz Cable/Sensors. The Kistler Quartz Cable/Sensors shall be as utilized by Tel System.

907-688-02.2--Shielded Transmission Cable. Coaxial cable type RG58 C/U shall conform to IMSA 50-2 for polyethylene insulated, polyethylene jacketed cable, AWG #14. Cable shall meet the requirements of Section 636 for the Standard Specifications.

907-688.02.3--Conduit and Pull Boxes. Conduit and pull boxes shall meet the requirements of Section 668 of the 2004 Standard Specifications.

907-688.02.3.1--Under Roadways. Conduit shall be coated rigid galvanized steel.

907-688.02.3.2--Other Conduit. Other conduit shall be galvanized steel, direct buried conduit unless noted otherwise.

907-688.02.3.3--Pull Boxes. Size shall be type 2, cover does not require words inscribed on top.

907-688.02.4--Loop Wire. Loop wire, IMSA 51-3, AWG #14, shall meet the requirements of Subsection 722.03.

907-688.02.5--Loop Sealant. Loop sealant shall be "Traffic Loop Sealant" as manufactured by 3M Corporation, or approved equal.

907-688.02.6--Sensor Cement. The sensor assembly shall be cemented into the pavement with sand – epoxy grouting of a type recommended by the sensor manufacturer.

907-688.03--Construction Requirements. The general layout of the work shall conform to the detail shown on typical installation plans and shall be verified at each location with the Engineer. The Contractor shall have a representative certified by the vendor on site during installations.

907-688.03.1--Manufacturer's Recommendations. Sensors must be installed in accordance with the approved procedures and specifications provided by the sensor manufacturer. All sensors and connecting cables shall be positioned and installed to assure compatibility with the inductive loops to provide electrical signals for vehicle classification.

907-688.03.2--Conflicts. Conflicts between any piece of equipment, which if installed as shown in relation to any previously installed equipment, may impair the proper operation of that equipment, shall be resolved by the Contractor as approved by the Engineer.

907-688.03.3--Conduit Runs. The Contractor shall provide the number of conductors, conduits and fittings necessary to produce an operative system as specified herein. It is the intent of these specifications to have all joints, connections, etc. completely water and moisture tight. Shielded transmission cable and wire leads shall be installed in conduit from paved shoulders to pull boxes.

907-688.03.4--Slots in Pavement. All slots required in pavement and paved shoulders shall be saw cut with diamond blade power saw. Edges shall be straight, smooth and true. Depth shall be uniform.

907-688.03.4.1--Loop Slots. Slots for loop wire shall be 1/4 inch minimum width. Depth in asphalt shall be 2½ inch and 1½ inch in concrete. Cut diagonal slot at corners, overlapping cuts so that entire slot intended for wire has full depth. There shall be no jagged edges or protrusions which may damage wire.

907-688.03.4.2--Cable Slots. Slots for cable shall be 0.32-inch width (± 1/16) and 3.15-inch depth. Do not exceed 45 degree turns and overlap cuts so that sloth has full depth. There shall be no jagged edges or protrusions which may damage cable. Cable leads from each sensor shall be run in individual saw cut slots at a minimum spacing of 12 inches. Cable shall be protected by a foam tube layer below the bitumen protective layer.

907-688.03.4.3--Sensors Slots. Slots for sensors shall be 2.83-inch width (±1/8). Depth shall be 2.17 inches (±1/8). Cavity of sensor slots may be made with chisel between saw cut sides, but bottom shall be smooth and level, without protrusions. In overlay of four inches or less, the slot shall extend to the top of the course below the overlay.

907-688.03.5--Loop Assemblies. Inductive loop assemblies shall meet the requirements of Section 635 of the 2004 Standard Specifications.

907-688.03.6--Inspection. Pavement slots shall be inspected at time of sensor and cable installation. Surfaces shall be clean and dry, free of all dust, grit, moisture and other contaminants that might affect sealant or cement bond.

907-688.03.6.1--Sensor Check. Prior to final installation, sensor assembly shall be placed in position in slot and inspected for compliance with manufacturer's requirements as to clearance, surface alignment, etc. Sensor output shall be checked using oscilloscope.

907-688.03.6.2--Cable Inspection. The cable shall not have any cuts, nicks, abrasions or breaks in the insulation at the time of filling slot with sealant. Any sensor having defects in the shielded transmission cable shall be replaced.

907-688.03.6.3--Loop Inspection. The loop wire shall not have any cuts, nicks, abrasions or breaks in the insulation before or after installation in the slot. Loop inductance shall be 124 microhenries.

907-688.03.7--Sensor Installation. Approved sand/epoxy grouting shall completely fill the cavity spaces and surround all three sides of the sensor assembly. To insure that there are no voids under the sensor assembly the sensor shall first be removed after installation inspection, the slot partially filled with epoxy, then the sensor pressed into position and the side cavities filled to the pavement surface before the bottom epoxy has hardened. Protect sensor installation from traffic until epoxy cement is sufficiently cured.

907-688.03.8--Sleeves. Provide flexible sleeve or other protection for shielded cable at sensor ends to prevent damage. Take care to insure that the sleeve is not filled with epoxy cement. In addition, provide flexible sleeve, approximately 12 inches long, at pavement construction joints including joints between lanes and between pavement and paved shoulder.

907-688.03.9--Cable and Wire Installation. The cable or lead wires shall be placed in the bottom of the slot so that there are no kinks, curls, straining or stretching of the insulation. The two loop lead wires shall be twisted two to five turns per foot before placement in the slot. Special care shall be taken in seating the cable and wire so that the insulation will not be broken or abraded. No sharp tools such as screwdriver or metal object shall be used for this operation.

907-688.03.9.1--Conditions. The Contractor shall install the sealant in strict adherence to the manufacturer's recommendation and these specifications. No sealant shall be installed during inclement weather or under any condition which might introduce moisture into the pavement slots.

907-688.03.9.2--Sealant. The viscosity of the sealant shall be such that it can be readily placed in the slot, completely surround the wires, displace all air and fill the slot so that the sealant is flush with the roadway surface. The finished installation shall be waterproof and present a neat workmanlike appearance. Minimum required clearance shall be maintained to cable and wire.

907-688.03.9.3--Protection. The sealant shall be sufficiently hardened before allowing traffic on it.

907-688.03.10--Cleaning. All excess encapsulate and sealant shall be removed from pavement surface and sensor after installation. Hand grinders shall be used, if necessary, to smooth out rough or high areas that might affect sensor operation.

907-688.03.11--Tags. Each shielded transmission cable and pair of lead wires shall be uniquely identified by an insulated, waterproof tag in every pull box.

907-688.03.12--Trenching and Backfilling. All trenching shall be done by mechanical means and all sides shall be straight and vertical. Width of trenches shall not exceed eight (8) inches on either side of placed conduits. All backfill shall be made with a friable material which has been approved by the Engineer. Material shall be placed in compacted lifts as approved by the Engineer. The site, including shoulders, shall be returned to its original condition

907-688.03.13--Jacking or Boring. Approved jacking or boring methods shall be used where a conduit must be placed under an existing roadway. Jacking/boring pits shall be kept a minimum of five (5) feet from the edge of shoulder, and care shall be taken not to disturb existing pavement. Excessive use of water or other methods which could undermine pavements shall not be permitted. The jacking/boring site must be returned to its undisturbed state upon completion of the operation. Use only experienced labor for jacking/boring work. Conduit shall be not less than 36 inches below pavement surface.

907-688.03.14--Pull Boxes. Pull boxes shall be located at least 10 feet from shoulder. Pull boxes shall be set on 12 inches minimum thickness washed gravel. Holes for drainage shall be provided in bottom of pull box. Conduit entering pull box shall be located so as to leave the major portion of the box clear.

907-688.03.15--Conduit. Conduit shall be laid to a depth of not less than 36 inches below the finished grade (except at conduit ends). All conduits shall be run at least 10 feet outside shoulder unless otherwise approved. One size of conduit shall be used for each run, no reducing couplings will be permitted.

907-688.03.16--Conductor Installation. Before placing shielded cable or wire leads in conduit, the conduit shall be cleaned with compressed air and rigid metal conduit shall also be cleaned with a mandrel. Only approved lubricants which will not injure conductor insulation while pulling cables shall be used.

907-688.03.16.1--Splices. Splices shall be made in pull boxes only, soldered, and sealed in an Inline Resin Splice Kit (82-A series) as produced by the 3M corporation. An insulation equal in rating and thickness to the conductor insulation shall be provided.

907-688.03.17--System Acceptance. The Contractor shall be required to demonstrate to the Engineer the satisfactory operation of each device installed on this project.

907-688.03.18--Material Warranty. The following warranty stipulations are in addition to those covered by Subsection 106.01 of the Standard Specifications:

907-688.03.18.1--Final Inspection. All vehicle inductive loop and axle detector systems shall have polled without any problems for at least 10 consecutive days prior to final inspection. All sensors, loops and related components shall be fully operational at the final acceptance of the project.

907-688.03.18.2--Guarantee. At each location, the Contractor shall warrant and guarantee all sensors, loops and related components for a period of twelve (12) months, beginning at the date of partial release from maintenance.

907-688.03.18.3--Responsibility. It is the intent of the preceding paragraph to provide for equipment which performs as intended by the manufacturer. It is the further intent to obtain from the Contractor a level of workmanship which will assure the Department of an operation system devoid of Contractor laxities. Failure to perform as indicated shall require the Contractor to replace in kind or repair, at his option, the equipment or workmanship in question. All material and labor cost resulting from the replacement or repair of equipment or correction of poor workmanship shall be borne by the Contractor.

907-688.03.18.4--Repairs. The Contractor shall not be responsible for outages occurring during the twelve month warranty period due to vandalism, traffic accidents, or any problems not related to materials or workmanship. The Contractor will be required to make the necessary repairs for such outages but the cost of such repair will be borne by the Department.

907-688.03.18.5--Manufacturer's Guarantees. All manufacturer's standard warranties or guarantees for all electrical and mechanical equipment which are provided as customary trade practice shall be made to the Department and shall begin simultaneously with the commencement of the twelve month warranty period.

907-688.04--Method of Measurement. Vehicle Inductive Loop and Axle Detector Systems complete in place and accepted, will be measured per lump sum. Such measurement shall include all materials, labor, equipment, operation, and other incidentals necessary to complete all the work at all the locations.

907-688.05--Basis of Payment. Vehicle Inductive Loop and Axle Detector Systems, measured as prescribed above, will be paid for at the contract unit price lump sum, which price shall be full compensation for furnishing, installing, testing and guaranteeing all equipment and for all other labor, tools, and incidentals necessary to complete the work at all the locations.

Payment will be made under:

907-688-A: Vehicle Inductive Loop and Axle Detector System - lump sum

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(260)	907-403-D	(B) (A1)	13,446	Ton	Hot Mix Asphalt, HT, 9.5-mm mixture, Polymer Modified, PG 82-22				
(270)	907-403-D	(B) (A1)	58,575	ton	Hot Mix Asphalt, HT, 12.5-mm mixture, Polymer Modified				
(280)	907-403-D	(B) (A1)	97,390	Ton	Hot Mix Asphalt, HT, 12.5-mm mixture, Polymer Modified, PG 82-22				
(290) CHANGED 04/12/2006	907-403-D	(B) (A1)	93,229	ton	Hot Mix Asphalt, HT, 19-mm mixture, Polymer Modified				
(300)	406-A		80,416	ton	Cold Milling of Bituminous Pavement, All Depths				
(310)	406-B		43,929	square yard	Cold Milling of Concrete Pavement, All Depths				
(320)	413-C		5,280	linear foot	Cleaning and Sealing Cracks				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(870)	630-F		7	each	Delineators, Guard Rail, White				
(880)	630-F		155	each	Delineators, Post Mounted, Single White				
(890)	630-F		795	each	Delineators, Post Mounted, Double Yellow				
(900)	635-A		15,500	linear foot	Vehicle Loop Assemblies				
(901)	907-687-A ADDED 04/12/2006			Lump Sum	Vehicle Classification and Axle Detector System	XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX	XXXX XXXX XXXX XXXX		
(902)	907-688-A ADDED 04/12/2006			Lump Sum	Vehicle Inductive Loop and Axle Detector System	XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX	XXXX XXXX XXXX XXXX		

SUBTOTAL - DIRECT PAY ITEMS.....$_____