SECTION 11.11
LOOP VEHICLE DETECTOR AND SAWCUT

11.11.01--Description: These items shall consist of:

1. Furnishing and installing a loop vehicle detector in conformity with these specifications.

2. Furnishing and installing Sawcut to be used with a loop vehicle detector as shown on the plans and in conformity with these specifications.

11.11.02--Materials: The materials for this work shall conform to the requirements of Article M.16.12.

11.11.03--Construction Methods:

1. The loop vehicle detector shall be mounted in the controller cabinet. Wiring shall be done in a neat manner, and each wire shall be fitted with a spade lug and attached to the proper terminal.

A loop identification tag shall be permanently attached to each loop amplifier harness. The tag shall be pre-printed by the manufacturer so that the Contractor can record the pertinent information on the tag. The following information shall be recorded legibly on the tag by the Contractor, with indelible ink, in the order shown.

CT D.O.T.

LOOP NO.:_____
PHASE CALL:_____
FIELD LOCATION:_____
_____
_____
LOCAL DET. NO.:_____
SYSTEM DET. NO.:_____
CABINET TERMINALS:_____
_____

Field location shall include the route number or street name, the direction (such as Northbound), and the lane (left, center, right).

Each system detector shall be connected to the corresponding system sensor input of the local computer communications unit (either the C.I.C.U. or the C.L.L.C.U.).

Example: S.D. 1 connected to System Sensor 1
S.D. 2 connected to System Sensor 2

2. Loop detectors installed in new or resurfaced pavements shall have the slots saw cut in the pavement base course and the loop wires placed and sealed before the placing of the pavement wearing course.

No loop detector saw cut shall be placed over a patched trench or existing pavement without the approval of the Engineer. The Contractor shall remove the existing pavement and replace it with new pavement for installation of the loop detectors, at the direction of and within the limits prescribed by the Engineer, where the condition of the existing pavement is not suitable for installation. The work shall be performed under the items "Removal of Bituminous Surface," "Cut Bituminous Concrete Pavement," "Material for Tack Coat," and "Bituminous Concrete Class 1." The existing pavement shall be removed a minimum of 75 mm in depth. The replaced pavement shall be overlaid as directed. The loop detector shall be installed in the new pavement, under the overlay.

The size of the loop shall be as shown on the plans and shall be made using a power saw having an abrasive or diamond blade 9.5 mm wide. The depth of the slot shall be 45 mm to 50 mm and shall extend from the loop to the location shown on the plan. The cuts shall overlap at the corners of the loop and at any angles in the saw cut to the controller to ensure full depth. The corners are to be rounded off by drilling a 32 mm diameter hole to eliminate kinking of the wire. When the cutting has been completed, the slot shall be cleaned of all cutting dust and grit with oil free compressed air. The slot shall be completely dry before inserting the wire. The entire loop and lead-in shall consist of one continuous #14 stranded wire encased in tubing, unless otherwise shown on the plans. The lead-in wires shall be twisted together with at least 16 turns per meter and taped at 0.6 m intervals beginning at a point where the wire leaves the saw cut and enters the plastic conduit to the terminals in the controller cabinet or, when spliced to a two-conductor lead-in cable. The twisted wire shall remain together and shall not be coiled at any point. Splices will not be permitted at any point of the loop or lead-in unless otherwise indicated on the plans or as directed by the Engineer.

At the time of installing the loop wire, the ends of the tubing shall be sealed to prevent any entrance of moisture into the tubing. When splices are required in handholes or junction boxes, they shall be made in accordance with the installation details. The saw cuts on all lead-ins shall be as shown on the plans or as directed by the Engineer. The number of turns of wire for each loop shall be as shown on the plans. After installation, the wire shall be checked for slack or raised portions in the roadway slot. A paint mix stock or similar blunt instrument shall be used to push the wire in the slot. The wire shall be held in the slot with wooden pegs or inserting wedges formed from 25 mm sections of the plastic tubing, folded before insertion. The loop should be tested prior to sealing the saw cut. An unacceptable loop installation would consist of leakage to ground below 10 megohms or an open circuit. The saw cut shall then be filled with plastic compound to a level of approximately 2 mm below the roadway surface. In no case shall the plastic compound overflow the saw cut and all excess material shall be removed. The plastic compound shall be applied in accordance with the manufacturer's recommendations. The plastic compound shall adhere to the sides of the saw cut and not show a separation when pressure is applied by a blunt instrument.

Each pair of lead-in wires in the cabinet shall be tagged and identified to determine phase and geographical location of the loop in the roadway, Example--"Phase 4--East End Bank St.--Right Lane."

When a one part urethane elastomeric compound is used to seal the sawcut the manufacturer's installation procedure shall be followed.

The sawcut, complete and tested with wire installed and retained with plastic wedges, shall be filled with the elastomeric compound from the bottom up. The sawcut shall be filled to 3 mm from the surface of the pavement. The elastomeric compound shall not be applied if the pavement surface temperature is less than 4° C or more than 38° C.

11.11.04--Method of Measurement: This work will be measured for payment as follows:

1. Loop vehicle detectors will be measured for payment by the number of loop vehicle detectors of the type specified, completed, operating and accepted in place.

2. Loop Detector Saw Cut: The quantity to be paid for under this item shall be the actual number of meters of saw cut, measured along the center of the cut, with #14 Stranded Wire encased in tubing completely installed, tested and accepted in place. #14 Stranded Wire encased in tubing shall not be measured for payment separately but shall be included in the measurement for saw cut.

11.11.05--Basis of Payment:

1. Loop vehicle detector will be paid for at the Contract unit price each for "Loop Vehicle Detector" of the type specified, which price shall include connecting cable, sensor unit, all materials, labor and work incidental thereto.

2. Loop detector saw cut will be paid for at the Contract unit price per meter of "Loop Detector Saw Cut," which price shall include; saw cut, #14TW stranded wire (including that to handholes, traffic control

foundations or controller cabinets), necessary fittings, flexible plastic tubing, plastic compound, splicing and connecting, equipment, labor, materials and work incidental thereto.

Pay Item	Pay Unit
Loop Vehicle Detector (Type)	EA.
Loop Detector Saw Cut	m