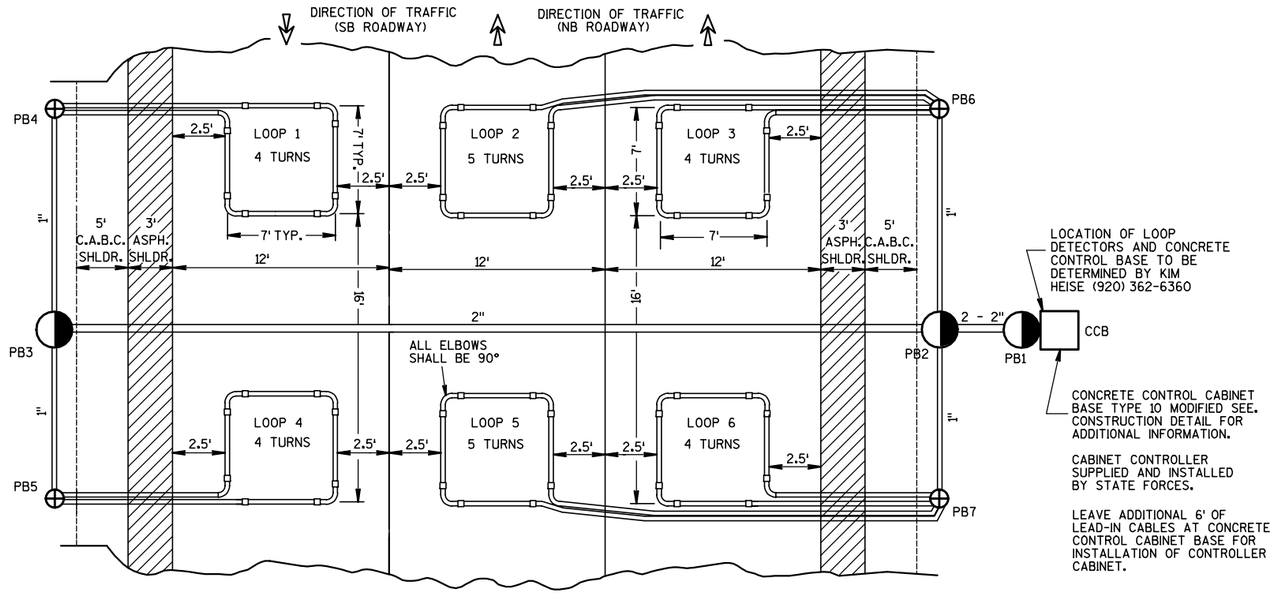
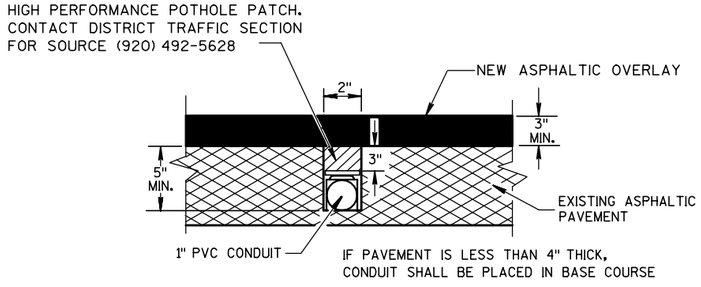


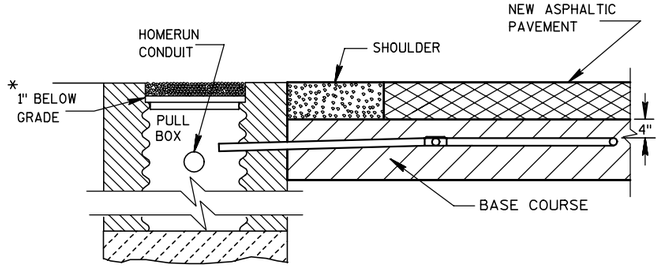
LOOP DETECTOR INSTALLATION



SIDE VIEW
SECTION C-C

LOOP DETECTOR SLOT DETAIL

(FOR LOOPS 1,2,4 & 5)



SECTION A-A
NO CURB & GUTTER

DETECTOR LOOP INSTALLATION DETAIL

*RECESS PULL BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.

(FOR LOOPS 3 & 6)

NORTH

GENERAL NOTES

THE CONTRACTOR SHALL FURNISH THE FOLLOWING PER THIS DETAIL AND AS SHOWN ON CONSTRUCTION DETAIL SHEETS: 1-INCH LOOP DETECTOR CONDUIT, 12 INCH X 24 INCH PULL BOX, 2-INCH PVC CONDUIT, 24-INCH X 36-INCH PULL BOXES, 12 AWG LOOP DETECTOR WIRE, TWO CONDUCTOR 14 AWG LOOP DETECTOR LEAD-IN CABLE, AND "TYPE 10 MODIFIED" CONCRETE CONTROL CABINET BASE.

THE CONTROL CABINET LOCATION SHALL BE SELECTED BY THE PROJECT ENGINEER IN COORDINATION WITH KIM HEISE (920) 362-6360.

NO TRANSVERSE SAW JOINTS OR PAVEMENT CORING IS ALLOWED 6-FEET EITHER OF THE LOOP AREA.

ALL LOOP INSTALLATIONS SHALL HAVE THE 1-INCH SCHEDULE 40 PVC CONDUIT PITCHED TO DRAIN TOWARD THE PULL BOX.

EACH LOOP CIRCUIT SHALL BE CONTINUOUS TO THE PULL BOX WITHOUT SPLICES AND FREE FROM GROUNDS. THE RESISTANCE TO GROUND SHALL BE INFINITY AS DETERMINED WITH A MEGGER.

ALL LOOPS TO HAVE THE NUMBER OF TURNS INDICATED ON DETAIL. LOOP WIRE SHALL BE NO. 12 AWG STRANDED COPPER TYPE USE WITH XLP INSTALLATION. THE TWO SINGLE CONDUCTOR STRANDED LOOP WIRES, FROM THE CONDUIT TO PULL BOX SHALL BE TWISTED AT A RATE OF THREE TURNS PER FOOT.

ANTI-SEIZE LUBRICATING MATERIAL SHALL BE USED ON ALL BOLT THREADS BEFORE INSTALLATION.

PROTECTION OF CONDUIT AND PULL BOXES SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE THE ASPHALT PAVEMENT IS PLACED.

ENTRANCE HOLES INTO PULL BOXES SHALL CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC PUNCH. THE HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT OR DUCT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4-INCH.

TWO CONDUCTOR NO. 14 AWG. SHIELDED CABLE SHALL BE USED FROM SPLICE CONNECTION AT THE PULL BOX TO THE CONTROL CABINET.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN THE PULL BOX WHICH IS NEAR THE EDGE OF THE ROAD. ALL SPLICES SHALL BE MADE AS SOON AS POSSIBLE AFTER THE WIRES ARE INSTALLED. THE PROPER SPLICE OF A TWO CONDUCTOR CABLE CONSISTS OF TWO SOLDERED JOINTS ENCLOSED IN SINGLE SPLICE KIT. EACH SOLDERED CONNECTION SHALL BE INSULATED FROM ONE ANOTHER. ALL SPLICES SHALL MADE WITH EPOXY TYPE SPLICE KITS SUCH AS (3M 82A1) OR APPROVED EQUAL.

IF A SPLICE TO THE LEAD-IN WIRE CANNOT BE MADE THE SAME DAY THAT THE LOOP WIRE OR LEAD-IN CABLE IS INSTALLED, THE WIRE/CABLE ENDS SHALL BE SEALED WITH TAR OR 3M SCOTCHKOTE TO KEEP WATER OUT OF THE INSULATING JACKET OF THE WIRE.

TO AVOID IMPROPER OPERATION OF DETECTOR AMPLIFIERS, LOOP WIRE/LEAD-IN CABLES SHALL BE CUT TO THE SHORTEST POSSIBLE LENGTH TO ELIMINATE ADDITIONAL WIRE OR CABLE LOOPS IN THE CABINET OR PULL BOXES.

DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATER PROOF TAGS IN THE PULL BOX AND CABINET.

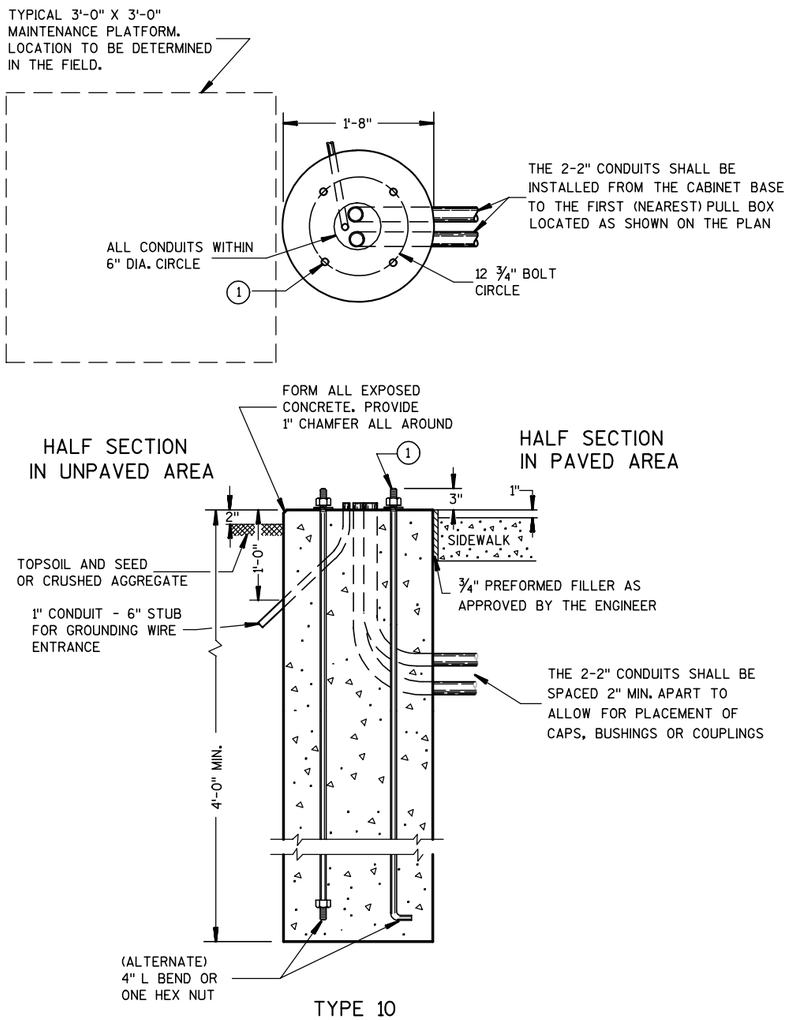
A COMPLETE "AS BUILT" WIRING DIAGRAM SHOWING LOOP CONNECTIONS AND LEAD-IN CABLES SMALL BE PROVIDED TO STEVEN WISWELL, WISCONSIN DOT, TRAVEL SURVEYS SHOP, AT 3633 PIERSTORFF ST., MADISON, WI, 53704, TEL. 608-246-3266, UPON COMPLETION OF THE SYSTEM INSTALLATION.

LEGEND

PULL BOX 12" X 24" ⊕
PULL BOX 24" X 36" ◐
CONTROL CABINET BASE □

PROJECT NO: 9170-08-71	HWY: STH 32	COUNTY: OCONTO	CONSTRUCTION DETAL, CONTROL STATION 42-6051	SHEET	E

CONTROL CABINET BASE TYPE	DIMENSIONS	C.Y. CONCRETE (APPROX.)
TYPE 10 - POST MOUNT	AS SHOWN	.32



TYPE 10

CONCRETE CONTROL CABINET BASE TYPE 10 MODIFIED

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

CONTROL CABINET BASE TOP SURFACES SHALL BE TROWEL FINISHED AND LEVEL.

WHEN A TYPE 10 CONTROL CABINET BASE IS USED TO POST MOUNT A CONTROL CABINET, A 36" SQUARE 4" THICK CONCRETE MAINTENANCE PLATFORM SHALL BE REQUIRED ON THE DOOR SIDE OF THE CABINET. THE TOP 1 INCH SHALL BE ABOVE FINISHED GRADE AND BE BROOM FINISHED AND LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

ALL FOUR (TWO INCH AND THREE INCH) CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST PULL BOX LOCATED AS SHOWN ON THE PLANS.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

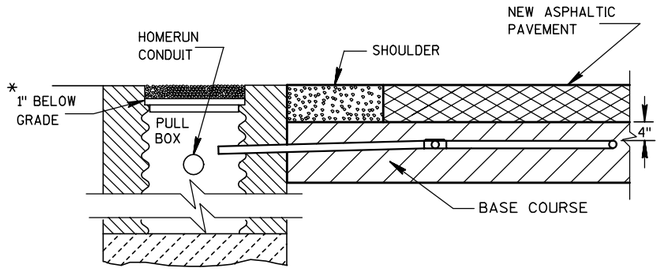
CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

WHEN ANCHOR RODS USING THE ALTERNATE L BEND ARE FURNISHED FOR THE TYPE 10 BASE, THE 4" L BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH.

THE "L" BEND SHALL NOT BE THREADED.

STRAIGHT ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD.

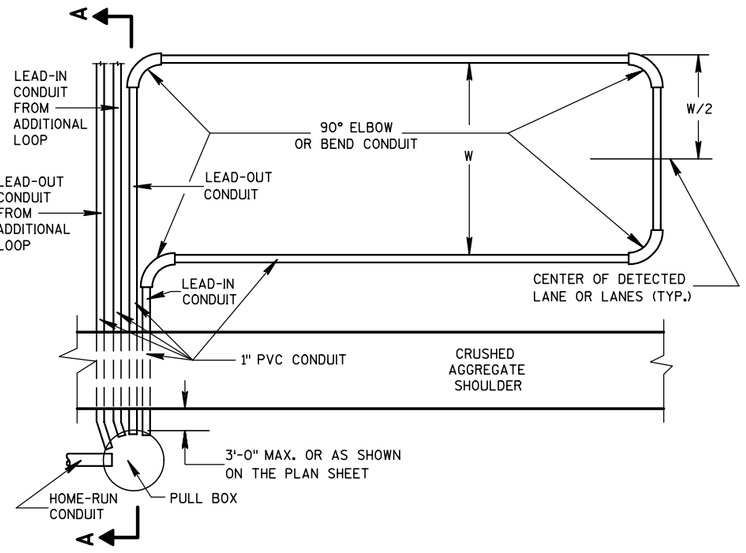
FOUR (4) ANCHOR RODS, 1" DIA. X 3'-6"
ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS AND IN ACCORDANCE WITH A-449, OR ASTM. A-687 (GRADE 105).



SECTION A-A
NO CURB & GUTTER

DETECTOR LOOP INSTALLATION DETAIL

*RECESS PULL BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.



TYPICAL PLAN OF LOOP DETECTOR

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

LOOP SIZE, LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD-OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS SUCH AS 3M TYPE 82A1 OR APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

THE GROUND RESISTANCE READING OF THE LOOP SHALL READ "INFINITY" TO GROUND ON AN OHMMETER USING A MULTIPLIER SCALE OF 1 MEGOHM AND AN INPUT RESISTANCE OF 11 MEGOHMS MINIMUM BEFORE SPLICING THE LOOP TO THE LEAD-IN CABLE.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

ANTI-SIEZE LUBRICATING MATERIAL SHALL BE USED ON ALL THREADS OF THREADED ASSEMBLIES BEFORE INSTALLATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

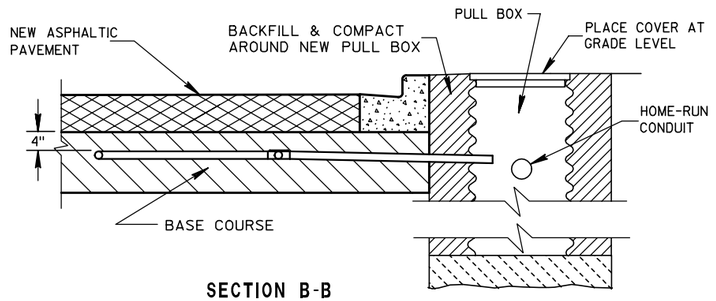
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, THROUGH THE LOOP DUCT, BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE, NON-SPLICED, CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT AND CONDULET SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE THE ASPHALTIC PAVEMENT IS PLACED.

WHEN MULTIPLE LAYERS OF ASPHALTIC PAVEMENT ARE TO BE PLACED, LOOPS MAY BE INSTALLED BY SAWING A TWO INCH WIDE SLOT IN THE FIRST LAYER, DIG OUT THE ASPHALTIC MATERIAL AND BASE COURSE, PLACE THE LOOP, FILL THE SLOT WITH BASE COURSE MATERIAL AND NEW ASPHALTIC MATERIAL AND TAMP THE ASPHALTIC MATERIAL IN PLACE.

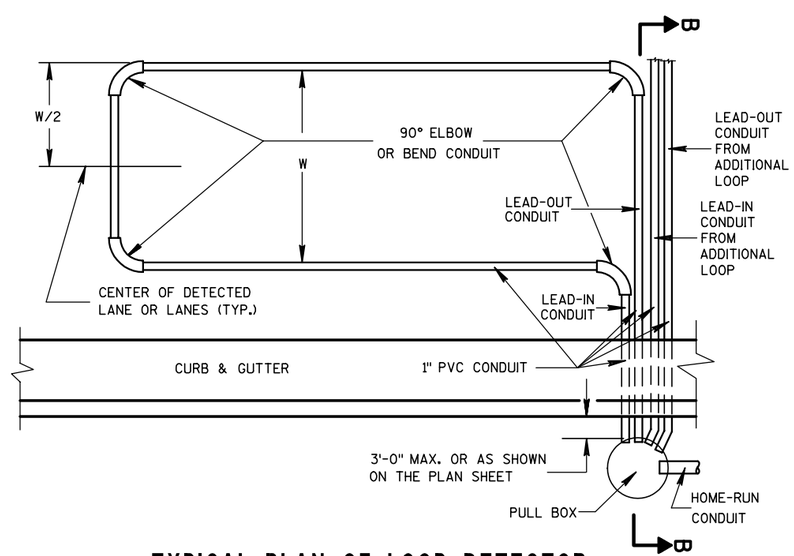
SHOULD TRAFFIC BE ALLOWED TO USE THE AREA OF ROADWAY WITH THE NEWLY INSTALLED LOOP BEFORE THE PLACEMENT OF THE NEXT LAYER OF ASPHALTIC PAVEMENT, THE SLOT/PAVEMENT OPENING SHALL BE SEALED WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".

DRIVE A 1½" MAX. PK NAIL INTO THE NEW ASPHALTIC PAVEMENT AND DIRECTLY ABOVE THE CONDULET AFTER THE FINAL LAYER OF NEW ASPHALTIC PAVEMENT IS COMPLETELY INSTALLED, IF REQUIRED BY THE DISTRICT TRAFFIC SECTION.



SECTION B-B
CURB & GUTTER

LOOP DETECTOR INSTALLATION DETAIL



TYPICAL PLAN OF LOOP DETECTOR

LOOP DETECTOR PLACED IN CRUSHED AGREGATE BASE (NEW ASPHALTIC PAVEMENT)

PROJECT NO: 9170-08-71	HWY: STH 32	COUNTY: OCONTO	CONSTRUCTION DETAL, CONTROL STATION 42-6051	SHEET	E