PROJECT DESCRIPTION

GENERAL

THIS PORTION OF THE PROJECT INVOLVES THE INSTALLATION OF A NEW TRAFFIC SIGNAL AT THE RECONSTRUCTED INTERSECTION OF MD 80 (FINGERBOARD ROAD) AND I-270 NB RAMPS/ PARK & RIDE LOT IN FREDERICK COUNTY. MD 80 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION

INTERSECTION OPERATION

THIS INTERSECTION IS TO OPERATE IN A NEMA FIVE PHASE FULLY-TRAFFIC-ACTUATED MODE. THERE WILL BE AN EXCLUSIVE/PERMISSIVE LEFT TURN FOR THE WESTBOUND MD 80 MOVEMENT. THE THROUGH MOVEMENTS ON MD 80 WILL OPERATE CONCURRENTLY. THE I-270 NB RAMP/PARK & RIDE LOT MOVEMENT WILL OPERATE AS A SIDE ROAD SPLIT WITH AN ACTUATED PEDESTRIAN MOVEMENT WITH THE PARK & RIDE LOT MOVEMENT.

CONTROLLER REQUIREMENTS

INSTALL AN EIGHT PHASE, FULLY-TRAFFIC-ACTUATED, SOLID STATE DIGITAL CONTROLLER WITH THREE FOUR-CHANNEL RACK MOUNTED LOOP DETECTOR AMPLIFIERS, INTERSECTION MONITOR (WITH BATTERY BACK-UP FOR PHONE DROP) AND TELEMETRY MODULE, WITH ALL THE NECESSARY HARNESSES, TO BE HOUSED IN A NEMA SIZE 6 BASE- MOUNTED CABINET.

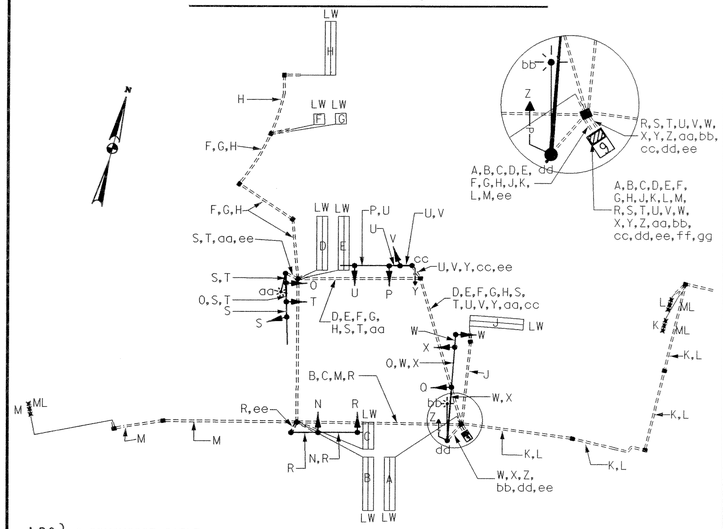
SPECIAL NOTE

UPON COMPLETION OF THIS PROJECT THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF SHA, AT 410-787-7631, TO ARRANGE FOR THE PHONE LINE INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. SNYDER WITH THE NEAREST STREET ADRESS, ZIP CODE AND TELEPHONE NUMBER.

ALL UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC AND ARE NOT TO BE CONSIDERED COMPLETE BECAUSE THESE UTILITIES MAY BE MODIFIED PRIOR TO AND DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL EQUIPMENT WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY.

THE CONTROLLER AND CABINET MUST BE DELIVERED TO THE SHA SIGNAL SHOP 14 DAYS PRIOR TO INSTALLATION FOR WIRING AND TESTING. NOTIFY MR. ED RODENHIZER, AT 410-787-7650, 72 HRS IN ADVANCE OF INTENDED DELIVERY. CATALOG CUTS FOR ALL MATERIALS MUST BE SUBMITTED AND APPROVED BY THE ADMINISTRATION PRIOR TO INSTALLATION.

WIRING DIAGRAM



A D G } 2-CONDUCTOR CABLE (ALUMINUM SHIELDED)
B E H
C F J

K } MICRO LOOP PROBE
L } LEAD-IN
M

N } 5-CONDUCTOR CABLE
P } (NO. 14 A.W.G.)
Q
R
O

[A]

P } 7-CONDUCTOR CABLE
R } (NO. 14 A.W.G.)
S
T
U
V
W
X

Y } 3-CONDUCTOR CABLE
Z } (NO. 14 A.W.G.)

aa } 2-CONDUCTOR TRAY CABLE
bb } (NO. 12 A.W.G.)

cc } 2-CONDUCTOR CABLE
dd } (NO. 14 A.W.G.)

ee — BARE COPPER STRANDED GROUND WIRE (NO. 6 A.W.G.)

ff — 1-WIRE #4 A.W.G. FOR INTERSECTION LIGHTING ELECTRICAL SERVICE

gg — 1-WIRE #4 A.W.G. FOR TRAFFIC SIGNAL ELECTRICAL SERVICE

PF — PROPOSED ELECTRICAL SERVICE BY ALLEGHENY POWER

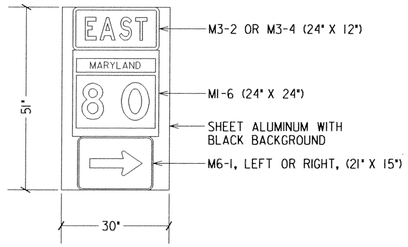
LW — LOOP WIRE (NO. 14 A.W.G.) IN FLEXIBLE TUBING

ML — MICRO LOOP PROBE

EQUIPMENT LIST "B"

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

SPEC. SECTION	QUANTITY		DESCRIPTION
816	1	EA.	FURNISH AND INSTALL EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET - BASE MOUNT
817	3	EA.	FURNISH AND INSTALL FOUR-CHANNEL LOOP DETECTOR AMPLIFIER (DELAY OUTPUT)
818	3	EA.	FURNISH AND INSTALL 27 FT. STEEL MAST ARM POLE WITH A SINGLE 40 FT. MAST ARM
818	1	EA.	FURNISH AND INSTALL 27 FT. STEEL MAST ARM POLE WITH A SINGLE 60 FT. MAST ARM



ASSOCIATED SHIELD ASSEMBLY DETAIL

NOT TO SCALE

PHASE DIAGRAM

	1	2	3	4	5	6	7	[A] 8	9	10	11	12	13	
	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	DW WK	DW WK	
PHASE 2 + 5	R	R	R			G	R	R	R	R	R	DW	DW	
5 CHANGE	R	R	R			G	R	R	R	R	R	DW	DW	
PHASE 2 + 6	G	G	G	G	G	G	R	R	R	R	R	DW	DW	
2 + 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	DW	DW	
PHASE 3	R	R	R	R	R	R		G	R	R	R	DW	DW	
3 CHANGE	R	R	R	R	R	R	Y	Y	R	R	R	DW	DW	
PHASE 3 ALT	R	R	R	R	R	R		G	R	R	R	WK	WK	
PED CLEARANCE	R	R	R	R	R	R		G	R	R	R	FL DW	FL DW	
3 ALT CHANGE	R	R	R	R	R	R	Y	Y	R	R	R	DW	DW	
PHASE 4	R	R	R	R	R	R	R	R			G	DW	DW	
4 CHANGE	R	R	R	R	R	R	R	R	Y	Y	Y	DW	DW	
FLASHING OPERATION	FL Y	FL Y	FL Y	FL Y	FL Y	FL Y	FL R	FL R	FL R	FL R	FL R	DARK	DARK	

EQUIPMENT LIST "B"

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

	SPEC. SECTION	QUANTITY		DESCRIPTION
	205	5	C.Y.	TEST PIT EXCAVATION
[A]	XXX 300	680	L.F.	12 IN. WHITE THERMOPLASTIC PREFORMED PAVEMENT MARKING
	XXX	140	L.F.	24 IN. WHITE THERMOPLASTIC PREFORMED PAVEMENT MARKING
	801	14	C.Y.	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
	812	150	L.F.	FURNISH AND INSTALL WOOD SIGN SUPPORTS 4 IN. X 6 IN.
	810	120	L.F.	FURNISH AND INSTALL NO. 6 A.W.G. STRANDED BARE COPPER GROUND WIRE
	805	90	L.F.	FURNISH AND INSTALL 1 IN. LIQUID-TIGHT NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
	810	120	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 1 CONDUCTOR (NO. 4 A.W.G. THHN/THWN)
	811	16	EA.	FURNISH AND INSTALL ELECTRICAL HANDHOLE
	813	8	EA.	BAND SIGN TO SIGN SUPPORT
	813	90	S.F.	INSTALL GROUND MOUNTED SIGN
	813	42	S.F.	INSTALL OVERHEAD SIGN
	804	5	EA.	FURNISH AND INSTALL GROUND ROD - 3/4 IN. DIAMETER X 10 FT. LENGTH
	807	1	EA.	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT (120/240V, 1 PHASE, 3 WIRE SYSTEM)
	814	6	EA.	FURNISH AND INSTALL 12 IN. 1 WAY 3 SECTION (R,Y,G) POLYCARBONATE SIGNAL HEAD - MAST ARM MOUNT
	814	3	EA.	FURNISH AND INSTALL 12 IN. 1 WAY 4 SECTION (R,Y,G,GA) POLYCARBONATE SIGNAL HEAD - MAST ARM MOUNT
	814	1	EA.	FURNISH AND INSTALL 12 IN. 1 WAY 5 SECTION (R,Y,G,YA,GA) POLYCARBONATE SIGNAL HEAD - MAST ARM MOUNT
	814	2	EA.	FURNISH AND INSTALL 12 IN. 1 WAY 2 SECTION PEDESTRIAN SIGNAL HEAD - POLE MOUNT
	810	2000	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
	810	200	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 A.W.G)
	810	200	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 3 CONDUCTOR (NO. 14 A.W.G)
[A]	810	110 150	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 A.W.G)
[A]	810	1440 1400	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 A.W.G.)
	810	280	L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 A.W.G.)
	810	3600	L.F.	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 A.W.G.)
	815	1150	L.F.	FURNISH AND INSTALL SAWCUT FOR SIGNAL (LOOP DETECTOR)
	817	2	EA.	FURNISH AND INSTALL PUSHBUTTON AND SIGN
	818	1	EA.	FURNISH AND INSTALL 10 FT. LIGHTING ARM ON SIGNAL STRUCTURE
	818	1	EA.	FURNISH AND INSTALL 20 FT. LIGHTING ARM ON SIGNAL STRUCTURE
	805	480	L.F.	FURNISH AND INSTALL 2 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
	805	930	L.F.	FURNISH AND INSTALL 3 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
	805	20	L.F.	FURNISH AND INSTALL 4 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
	806	2	EA.	FURNISH AND INSTALL 250 WATT HPS VAPOR LUMINAIRE WITH PHOTO-CELL
	810	3	EA.	FURNISH AND INSTALL MICRO LOOP PROBE SET WITH 1000 FT. LEAD-IN
	813	220	S.F.	FURNISH SHEET ALUMINUM SIGNS
	814	1	EA.	FURNISH AND INSTALL 8 IN./12 IN. 1 WAY 5 SECTION (8'-R,Y,G-12" YA,GA) POLYCARBONATE SIGNAL HEAD - MAST ARM MOUNT

REVISIONS

[A] JUNE, 1999 PROVIDE NB RIGHT OVERLAP, REMOVE MD 80 CROSSWALK HATCH

APPROVALS

ASST. DIVISION CHIEF, TEDD

ASST. DISTRICT ENGINEER, TRAFFIC

CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION

DIRECTOR, OFFICE OF TRAFFIC & SAFETY

THE WILSON T. BALLARD CO.
CONSULTING ENGINEERS
OWINGS MILLS, MARYLAND

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION

MD 80 (FINGERBOARD ROAD) AT I-270 NB RAMPS

LOG MILE NO. 10008005.06 DATE 03/30/98

DRAWN BY: JDM
CHECK BY: JDM
SCALE: NONE

F.A.P. NO. NONE
S.H.A. NO. NONE
COUNTY FREDERICK

PLAN SHEET NO.: TS-3779-GI

SHEET NO. 73 OF 95