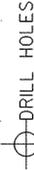


BORDER REV. DATE: June 1, 2004



BY: \$USERNAME\$

### PROJECT DESCRIPTION

#### I. GENERAL

This project involves the installation of a new traffic signal at the intersection of Frederick Road (MD 355) and Monument Office Park Entrance. This installation is in conjunction with the development of the site.

#### II. INTERSECTION OPERATION

The intersection will operate as a modified Maryland "T" in a NEMA three-phase, fully actuated mode. An exclusive only left turn phase shall be provided for the northbound approach of MD 355 concurrently with right turns from Monument Office Park. Southbound traffic on MD 355 shall run on its own phase as will the Monument Office Park approach.

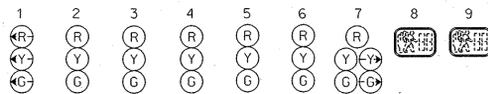
#### III. CONTROLLER REQUIREMENTS

The controller assembly will be an eight phase fully actuated NEMA controller complete with system package, video interface equipment, and miscellaneous auxiliary equipment as required. A NEMA size "6" base mounted cabinet is to be used.

#### IV. SPECIAL NOTES

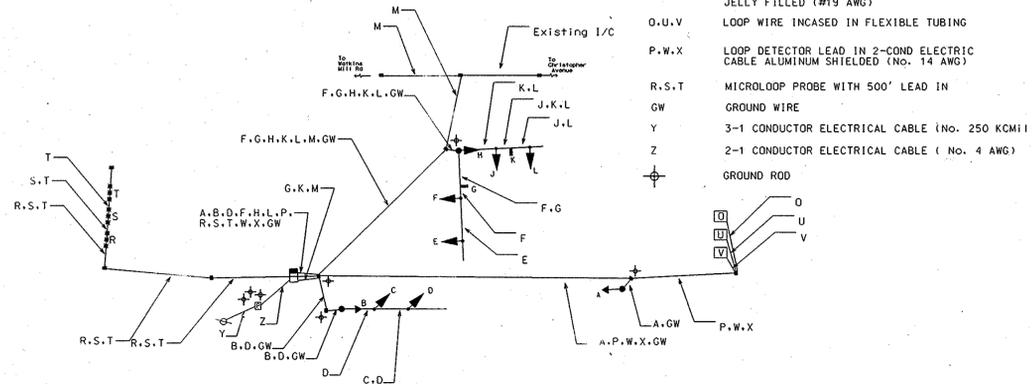
1. MAINTENANCE OF TRAFFIC WILL BE HANDLED BY THE CONTRACTOR UTILIZING THE FOLLOWING STANDARD PLATES FOR TRAFFIC CONTROL: 104.00-13, 104.00-19, 104.00-21-104.00-24, 104.17-01, 104.17-02, 104.39-02, 104.41-02, 104.48-01, 104.48-02, 104.49-01, 104.49-02, 104.81-01, 104.81-02.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLES, EXCLUDING INTERCONNECT, TO APPROPRIATE TERMINALS AND SHALL PROPERLY LABEL EACH CABLE.
3. ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY 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 WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
4. DISCONNECTING AND SPLICING OF TRAFFIC SIGNAL INTERCONNECT CABLE SHALL BE PERFORMED BY THE MONTGOMERY COUNTY DP&T. THE CONTRACTOR SHALL RUN THE INTERCONNECT CABLE INTO THE BASE OF EACH CABINET AND PROPERLY TAG THE CABLE. CONTACT DR. WILHELM DERMINASSIAN AT (240) 777-8795 AT LEAST 72 HOURS PRIOR TO INITIATING ANY CONSTRUCTION WORK

#### PHASE CHART AND PHASING DIAGRAM



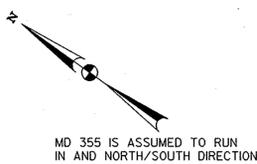
PHASE 1	← G	G	G	R	R	R	R/G →	DW	DW	
PHASE 1 CHANGE	← Y	Y	Y	R	R	R	R/Y →	DW	DW	
PHASE 2	← R	R	R	G	G	R	R	W	W	
PHASE 2 PED CLEAR	← R	R	R	G	G	R	R	FL/DW	FL/DW	
PHASE 2 CHANGE	← R	R	R	Y	Y	R	R	DW	DW	
PHASE 4	← R	R	R	R	R	G	G/G →	DW	DW	
PHASE 4 CHANGE	← R	R	R	R	R	Y	Y/Y →	DW	DW	
FLASH	FL/R	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	DARK	DARK	

#### WIRING DIAGRAM



#### WIRING LEGEND

- A,B,C,E,J 5-COND. ELECTRICAL CABLE (#14 AWG)
- D,F,H,L 7-COND. ELECTRICAL CABLE (#14 AWG)
- G,K VC - VIDEO DETECTION LEAD IN
- M 12 PAIR INTERCONNECT CABLE, JELLY FILLED (#19 AWG)
- O,U,V LOOP WIRE INCASED IN FLEXIBLE TUBING
- P,W,X LOOP DETECTOR LEAD IN 2-COND ELECTRIC CABLE ALUMINUM SHIELDED (No. 14 AWG)
- R,S,T MICROLOOP PROBE WITH 500' LEAD IN
- GW GROUND WIRE
- Y 3-1 CONDUCTOR ELECTRICAL CABLE (No. 250 KCMII)
- Z 2-1 CONDUCTOR ELECTRICAL CABLE (No. 4 AWG)
- ⊕ GROUND ROD



MD 355 IS ASSUMED TO RUN IN AND NORTH/SOUTH DIRECTION

#### EQUIPMENT LIST "A"

A. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY SHA

None

#### EQUIPMENT LIST "B"

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

QUANTITY	UNITS	SPECIFICATION SECTION	DESCRIPTION
1	LS	104	Maintenance of Traffic.
1	LS	108	Mobilization.
3	CY	205	Test pit excavation.
1	EA	807	200 Amp Metered Service Pedestal
10	CY	801	Furnish and install concrete for signal foundation.
7	EA	804	Ground rod - 3/4 in. diameter X 10 ft.
400	LF	804	Stranded bare copper ground wire (#6 AWG)
600	LF	805	3 in. schedule 80 rigid PVC conduit (trenched).
55	LF	805	3 in. schedule 80 rigid PVC conduit (trenched) w/ riser.
25	LF	805	4 in. schedule 80 rigid PVC conduit (trenched).
350	LF	805	4 in. schedule 80 rigid PVC conduit (bored).
60	LF	805	3 in. schedule 80 rigid PVC conduit (bored).
25	LF	805	2 in. schedule 80 rigid PVC conduit (trenched).
1	EA	807	Electrical service equipment.
80	LF	812	4"x4" wood post
80	LF	810	1 conductor electrical cable (No. 4 AWG).
270	LF	810	1 conductor electrical cable (No. 250 KCMII).
720	LF	810	2 conductor electrical cable (aluminum shielded).
470	LF	810	5 conductor electrical cable (No. 14 AWG).
680	LF	810	7 conductor electrical cable (No. 14 AWG).
8	EA	811	Electrical handhole.
3	EA	810	Microloop probe set 500' lead-in
80	SF	813	Sheet aluminum signs consisting of: 2 ea. R3-2(MOD) 30"x30" - (ARM MOUNT, GROUND MOUNT) 2 ea. R4-7 24"x30" - (GROUND MOUNT) 2 ea. R5-1 30"x30" - (GROUND MOUNT) 1 ea. R4-7AL 24"x30" - (GROUND MOUNT) 1 ea. W4-1L 30"x30" - (GROUND MOUNT) 2 ea. OM-1(II) 18"x18" - (GROUND MOUNT) 1 ea. W3-3 36"x36" - (GROUND MOUNT) 1 ea. M95-1 (Mod) 78"x24" - (ARM MOUNT)
2	EA	814	16" pedestrian count down signal head section (pole mount)
23	EA	814	12 in. vehicular signal head section
1	EA	816	Video detection interface equipment.
2	EA	816	250' video cable for detection unit
2	EA	816	Video detection camera with arm and clamp.
1	EA	816	Econolite eight-phase, full-traffic-actuated controller with system package housed in a NEMA size "6" base mounted cabinet per MSHA specifications. Cabinet with LAU panel to be delivered to Montgomery County Signal Shop for wiring and testing prior to installation. Contact Keith Lord 72 hours prior to delivery.

#### EQUIPMENT LIST "B" (cont.)

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

QUANTITY	UNITS	CATEGORY CODE #	DESCRIPTION
1	EA	818	27' steel pole with twin 50' mast arm
1	EA	818	27' steel pole with 50' mast arm
1	EA	818	10' steel pedestal pole
1100	EA	810	12-pair communication cable, jellyfilled
930	EA	810	Pull back and reroute existing 12-pair communication cable, jellyfilled
24	LF	805	1" liquid filled plastic non metallic conduit.
230	LF	815	Saw cut for loop detector.
490	LF	810	Loop wire incased in plastic tubing.
100	LF	549	Furnish and install 24' white reflective heat applied thermoplastic pavement marking tape.
260	LF	549	Furnish and install 12' white reflective heat applied thermoplastic pavement marking tape.
80	LF	549	Remove existing pavement markings.

#### EQUIPMENT LIST "C"

C. EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE STATE HIGHWAY ADMINISTRATION. 7491 CONNELLEY DRIVE, HANOVER, MARYLAND 21076.

QUANTITY	UNITS	CATEGORY CODE #	DESCRIPTION
None			

#### PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

Mr. Richard L. Daff, Sr.  
Chief, Traffic Operations Design Division  
Phone # (410) 787-7630

Dr. Wilhelm Derminassian  
Engineer III (Montgomery County)  
Phone # (240) 777-8795

Mr. Wayne Mowdy  
Asst. District Engineer - Maintenance  
Phone # (301) 513-7304

Mr. Augustine Rebish  
Asst. District Engineer Utility  
Phone # (301) 513-7350

Mr. Lee Starkloff  
Asst. District Engineer - Traffic  
Phone # (301) 513-7358

Mr. Keith Lord  
Signal Shop Supervisor  
Phone # (301) 279-1291



STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
TRAFFIC SIGNAL DESIGN PLAN  
FREDERICK ROAD (MD355) AND  
MONUMENT OFFICE PARK ENTRANCE

APPROVALS	REVISIONS	SCALE 1" = 20'	DATE 7/25/05	CONTRACT NO. BW996M82
TEAM LEADER		DESIGNED BY DPN/PHS	COUNTY MONTGOMERY	
ASST. DIV. CHIEF		DRAWN BY DPN	LOGMILE 15035515.90	
DIVISION CHIEF		CHECKED BY CT	T.I.M.S. NO. G940	
OFFICE DIRECTOR		F.A.P. NO.	TOD NO.	
		DRAWING NO. 4442 G1	OF	SHEET NO. 2 OF 2

PLOTTED: #DATE#  
FILE: #FILE#