DRILL HOLES

BORDER REV: DATE: June 1, 2004

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PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction of an existing Traffic Control Signal with interconnect and traffic Surveillance camera at the intersection of MD 193 (University Blvd) and Arcola Avenue in Montgomery County. The existing strain pole structure shall be replaced by a new mast arm Traffic Signal with video detection and Countdown pedestrian signals with audible pushbuttons. MD 193 (University Blvd) is assumed to run an east-west direction.

II. INTERSECTION OPERATION

1. The intersection shall continue to operate in a NEMA four-phase, semi-actuated mode, with the MD 193 (University Blvd) approaches running concurrently. The pedestrian phase across the west leg of MD 193 (University Blvd) shall now be a Countdown pedestrian phase with audible pushbutton actuation. The pedestrian on recall across Arcola Avenue shall now be a Countdown pedestrain phase with audible pushbuttons. Arcola Avenue shall continue to operate in its own phase. The MD 193 (University Blvd) westbound right turn approach shall operate concurrently with Arcola Avenue.

2. A full-traffic-actuated, eight-phase controller with video interface. 2-wire Control Unit and all necessary equipment housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

3. Montgomery County signal shop shall install APS control unit into controller cabinet. The Contractor shall deliver the Control Unit and audible pushbuttons to the Montgomery County Signal Shop for testing and programming.

III. SPECIAL NOTES

1. The Contractor shall be responsible for terminating all signal cables, excluding interconnect, to the appropriate terminals and shall properly label each cable.

2. Disconnecting of interconnect cable shall be performed by Montgomery County Forces. The Contractor shall run these cables into the splice box and properly tag the cables. All splice box connections will be performed by Montgomery County Forces. Contact Mr. Keith Lord at (301) 279-1291 one week in advance of intended work for wiring of interconnect.

3. All controller cabinet wiring will be performed by the Montgomery County Signal Shop. Contact Mr. Kamal Hamud at (240) 777-8761 seventy-two hours in advance of intended work.

4. 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.

5 Disconnecting of Traffic Surveillance cable shall be performed by Montgomery County Forces. The Contractor shall run these cables into the splice box and properly tag the cables. All splice box connections will be performed by Montgomery County Forces. Contact Mr. Mike Kinney at (301) 674-8958 one week in advance of intended work for wiring of interconnect.

6. APS will function as follows:

FOR MD 193 (UNIVERSITY BLVD)

a When pedestrian locates and presses pushbutton for an extended time, the pushbutton unit will be " Wait to cross University Boulevard"

b. When WALK phase begins, the message will be a rapid tick which will last for the duration of the WALK phase.

FOR ARCOLA AVENUE

a When pedestrian locates and presses pushbutton for an extended time, the pushbutton unit will be " Wait to cross Arcola Avenue"

b. When WALK phase begins, the message will be a rapid tick which will last for the duration of the WALK phase.

The contact persons for District #3 (Montgomery County) are as follows:

Mr. Jeff Wentz
Assistant District Engineer - Traffic
Phone: (301) 513-7358

Mr. Wayne Mowdy
Assistant District Engineer - Maintenance
Phone: (301) 513-7304

Mr. Augie Rebish
District Engineer - Utility
Phone: (301) 513-7350

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

Mr. Ed Rodenhizer
Signal Shop
410-787-7652

Mr. Sonny Bailey
Sign Shop
410-787-7676

The power company representative is:

Mr. Steve Custer
PEPCO Customer Design
201 W Gude Dr.
Rockville, MD 20850
Phone: 301 548-4333

EQUIPMENT LIST

A. EQUIPMENT TO BE SUPPLIED BY S.H.A..

CAT NO.	DESCRIPTION		QUANTITY
971017	EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET - BASE MOUNT		1 EA
973023	SHEET ALUMINIUM SIGNS		76 SF
	D3-2 "Arcola Ave <900 / Arcola Ave 900>" sign. (dual faced) (variable x 16").	2 EA	
	D3-2 "University Blvd" sign. (variable x 16").	1 EA	
	R3-5L "LEFT TURN ONLY" sign. (30" x 36")	2 EA	
	R3-5R mod "RIGHT TURN ONLY / EXCEPT BUSES" sign. (30" x 36")	1 EA	
	R10-11a (NO TURN ON RED)" sign. (30" x 24")	1 EA	
	R3-4 "NO U-TURN" sign. (24" x 24').	1 EA	

EQUIPMENT LIST (cont.)

A. EQUIPMENT TO BE SUPPLIED BY S.H.A..

CAT NO.	DESCRIPTION	QUANTITY
	Pedestrian education R10-3(1) mod sign. (Note: Sign to read "PUSHBUTTON TO CROSS UNIVERSITY BLVD").	2 EA
	Pedestrian education R10-3(1) mod sign. (Note: Sign to read "PUSHBUTTON TO CROSS ARCOLA AVE").	2 EA
	M6-2 "Arrow" sign, (21" x 15").	1 EA
	S2-1 "SCHOOL" sign, (36" x 36")	1 EA

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

CAT NO.	DESCRIPTION	QUANTITY
120662	REMOVAL OF EXISTING PAVEMENT LINE MARKINGS - ANY WIDTH	455 SF
201032	CLASS 2 EXCAVATION	4.5 CY
203030	TEST PIT EXCAVATION	6 CY
585621	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	375 SF
585625	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	80 SF
634300	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH	380 LF
⚠1 ~~655104~~ 655105	~~4~~ 5 INCH CONCRETE SIDEWALK	1100 SF
655120	DETECTABLE WARNING SURFACE FOR CURB RAMPS	60 SF
800000A	16" COUNTDOWN PEDESTRIAN SIGNAL HEAD	4 EA
800000A	2 WIRE CONTROL UNIT	1 EA
800000A	AUDIBLE TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGNS	4 EA
⚠1 800000A	~~3-WIRE,~~ 1 CONDUCTOR (No. 250 KCMIL) ELECTRICAL CABLE	~~65~~ 195 LF
801004	CONCRETE FOR SIGNAL FOUNDATION	10 CY
801104	WOOD POST 4" X 4".	20 LF
802501	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	510 LF
805155	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED	350 LF
805125	2 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	45 LF
805135	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	275 LF
805140	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	80 LF
807202	METERED SERVICE PEDESTAL	1 EA
811001	FURNISH AND INSTALL ELECTRICAL HANDHOLE	5 EA
813014	INSTALL GROUND MOUNTED SIGN	10 SF
813015	INSTALL OVERHEAD SIGN	66 SF
813023	RELOCATE EXISTING GROUND MOUNTED SIGN	10 SF
816001	VIDEO DETECTION CAMERA	2 EA
816005	CONTROL CABLE, 250 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER	2 EA
816015	VIDEO INTERFACE EQUIPMENT	1 EA
⚠1 818004	10 FOOT BREAKAWAY PEDESTAL POLE	~~3~~ 4 EA
818030	STEEL POLE WITH A SINGLE 38 FOOT MAST ARM	1 EA
818051	STEEL POLE WITH A TWIN 50 FT AND 70 FT MAST ARMS	1 EA
822002	12-PAIR INTERCONNECT CABLE (UNDERGROUND)	30 LF
837001	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH	8 EA
860284	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION	33 EA
861101	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	545 LF
861107	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	615 LF
861108	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	1050 LF
861117	ELECTRICAL CABLE - 3 WIRE (NO. 4 AWG)	25 LF
871202	INSTALL CONTROLLLER CABINET - BASE MOUNT	1 EA
⚠1 ~~873001~~ 800000	REMOVE AND SALVAGE EXISTING EQUIPMENT	1 EA

C. EQUIPMENT TO BE REMOVED

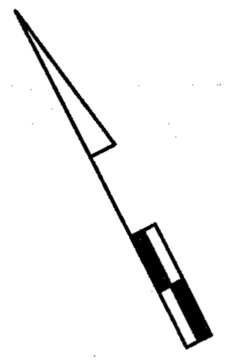
Montgomery County Forces shall remove the controller and all auxilliary equipment from the controller cabinet. The cabinet and all other removed signal materials are to become property of the contractor.

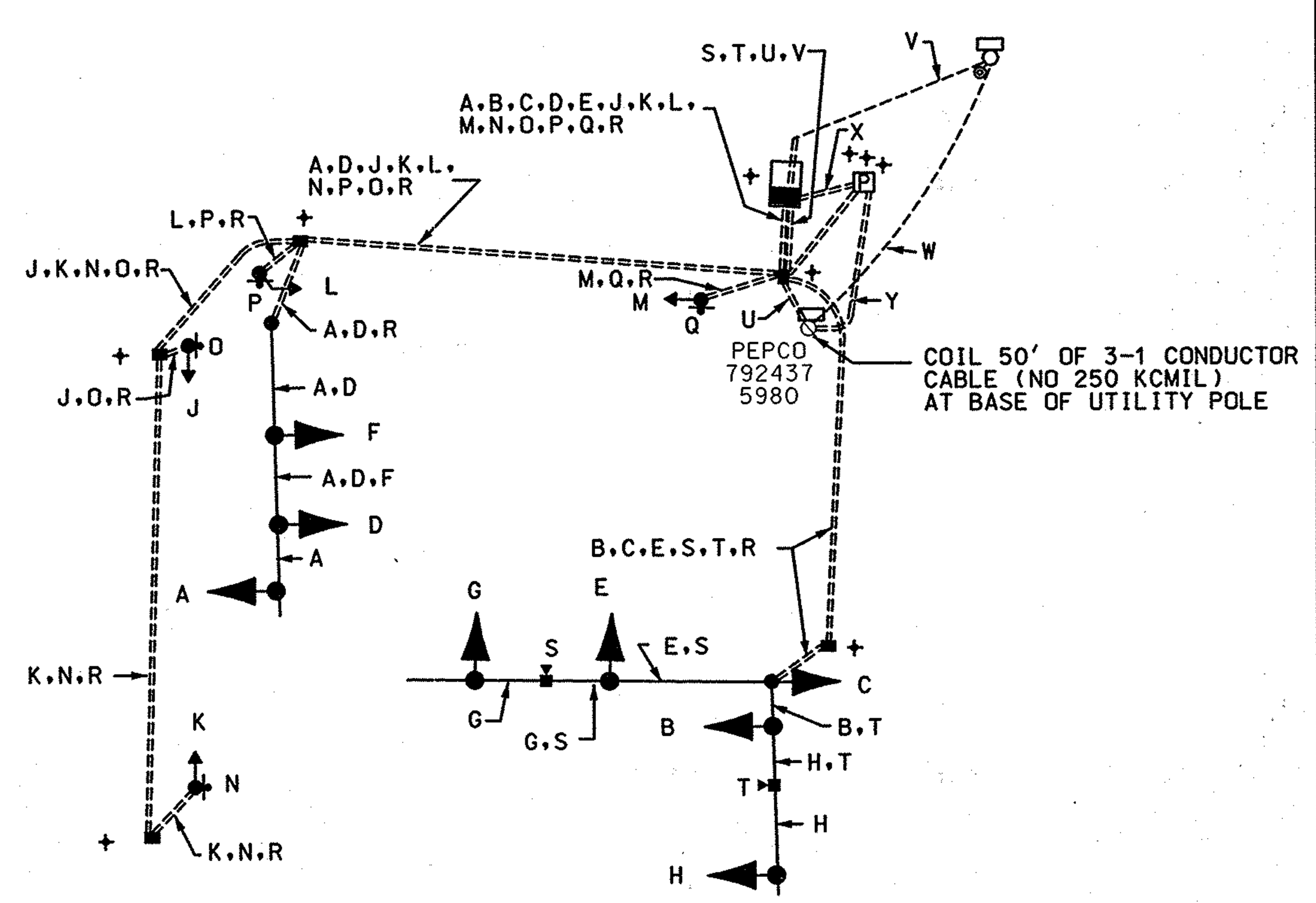
⚠1 ADDENDUM 1: DATE: 10-16-07

PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	
PHASE 1 & 6	◄G-/G	◄G-/G	G	R	R	R	R	R	DW	DW	DW	DW	
1 & 6 CHANGE	◄Y-/G	◄Y-/G	G	R	R	R	R	R	DW	DW	DW	DW	
PHASE 2 & 6	G	G	G	G	G	G	R	R	WK	WK	DW	DW	
PED CLEAR / COUNTDOWN	G	G	G	G	G	G	R	R	FL/DW	FL/DW	DW	DW	
2 & 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	DW	DW	DW	DW	
PHASE 3 & 8	R	R	R	R	R	R	G	G	DW	DW	DW	DW	
3 & 8 CHANGE	R	R	R	R	R	R	G	G	DW	DW	DW	DW	
PHASE 4 & 8	R	R	R	R	R	R/-G►	G	G	DW	DW	DW	DW	
4 & 8 CHANGE	R	R	R	R	R	R/-Y►	Y	Y	DW	DW	DW	DW	
PHASE 3 & 8 ALT	R	R	R	R	R	R	G	G	DW	DW	WK	WK	
3 & 8 ALT CHANGE	R	R	R	R	R	R	G	G	DW	DW	WK	WK	
PHASE 4 & 8 ALT	R	R	R	R	R	R/-G►	G	G	DW	DW	WK	WK	
PED CLEAR / COUNTDOWN	R	R	R	R	R	R/-G►	G	G	DW	DW	FL/DW	FL/DW	
4 & 8 ALT CHANGE	R	R	R	R	R	R/-Y►	Y	Y	DW	DW	DW	DW	
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	DARK	DARK	DARK	DARK	

WIRING DIAGRAM





WIRING KEY

A B C D E } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

F G H J K L M } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

N O P Q } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

R - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)

S T } CONTROL CABLE (CAMERA TO CONTROLLER) 250'

U - 12-PAIR VOICE GRADE INTERCONNECT CABLE (JELLY FILLED)

V - TRAFFIC SURVEILLANCE POWER CABLE (REROUTED BY MONTGOMERY COUNTY)

W - EXISTING TRAFFIC SURVEILLANCE CABLE

X - 3-1 CONDUCTOR ELECTRICAL CABLE (NO. 4 A.W.G.)

Y - 3-1 CONDUCTOR ELECTRICAL CABLE (NO. 250 KCMIL)

+ - GROUND ROD

STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy.,N.W.
Glen Burnie,MD 21061
Ph (410) 590-5500
Fax (410) 590-6637
5197aGI.dgn T-63

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 193 (UNIVERSITY BLVD) AND ARCOLA AVE

GENERAL INFORMATION SHEET

SCALE NONE DATE 6-18-07 CONTRACT NO.

DESIGNED BY JWA COUNTY MONTGOMERY
DRAWN BY RC LOGMILE 15019303.00
CHECKED BY TIMS NO. I105
F.A.P. NO. AC-STPG-000A(241)E TOD NO.

TS NO. DRAWING NO. 2 OF 2 SHEET NO. 39 OF 42

PLOTTED: $DATETIME$
FILE: $FILE$

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