DRILL HOLES

BORDER REV: DATE: June 1, 2004

PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction of an existing strain pole Traffic Control Signal with street lighting and interconnect at the intersection of MD 190 (River Rd) and Royal Dominion Drive / Holton Arms School Driveway in Montgomery County. A new mast arm traffic signal with APS / CPS, video detection, street lighting and interconnect shall be installed at this location. MD 190 (River Rd) is assumed to run an east-west direction.

II. INTERSECTION OPERATION

1. The intersection shall continue to operate in a NEMA six-phase, semi-actuated mode, with the MD 190 (River Rd) approaches running concurrently. The Exclusive/Permissive left turn phases for both approaches of MD 190 (River Rd) shall remain in operation. The pedestrian phase across the east leg of MD 190 (River Rd) shall now be a Countdown pedestrian phase with audible pushbutton actuation. The pedestrian phase across the south leg of Royal Dominion Drive shall now be a Countdown pedestrian phase with audible pushbuttons on recall. The Royal Dominion Drive / Holton Arms School Driveway approaches shall continue to operate as a side street split phase.

2. A full-traffic-actuated, eight-phase controller with video interface, L.A.U. and L.A.U. Panel, UPS battery backup and all necessary equipment housed in a NEMA Type "S" base-mounted cabinet shall be installed at this intersection.

3. Montgomery County Signal Shop shall install APS control unit into controller cabinet. The APS push buttons should be delivered to Bob Ricketts at the Montgomery County Traffic for programming at least two weeks prior to the beginning of work.

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 and splicing of interconnect cable shall be performed by Montgomery County Forces. The contractor shall run the interconnect cable into the base of each cabinet and properly tag the cable. All controller cabinet wiring will be performed by Montgomery County Forces. Contact Kamal Hamud at (240) 777-8761 seventy-two hours in advance of intended work.

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.

The contacts for Montgomery County and SHA are as follows:

Mr. Cedric Ward
Assistant District Engineer - Traffic
Phone: (301) 513-7404

Mr. Vernon Stinnett
Assistant District Engineer - Maintenance
Phone: (301) 513-7304

Mr. Victor Grafton
Assistant District Engineer - Utility
Phone: (301) 513-7350

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

Mr. Bob Ricketts
Signal Shop (Mont Co.)
240-876-3681

Mr. Sonny Bailey
Manager, Sign Shop Operations
410-787-7670

Mr. Kamal Hamud
Mont. County TMC Center
240-777-8761

The power company representative is:

Ms. Cheryl Hunt
PEPCO Customer Design
201 W Guide Dr.,
Rockville, MD 20850
Phone: 301 548-4329

DRILL HOLES

EQUIPMENT LIST

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

ITEM NO.	DESCRIPTION	QUANTITY
9000	Controller cabinet, Type "S" with video interface (1-8 cameras)	1 EA
9000	Uninteruptable Power Supply and equipment.	1 EA
9000	LAU Panel (Montgomery County only)	1 EA
9000	Controller ASC III with telemetry	1 EA
9570	Sheet aluminum signs to consist of: (ground mount)	60 SF
	R4-7 "KEEP RIGHT (symbolic)" sign, (24" x 30")	1 EA
	S1-1 "SCHOOL" sign, (36" x 36")	5 EA
	W16-7P(R) "arrow (symbolic)" diagonal sign, (12" x 24")	2 EA
	W16-7P(L) "arrow (symbolic)" diagonal sign, (12" x 24")	3 EA
9571	Sheet aluminum signs to consist of: (mast arm or pole mount)	132 SF
	D-3(1) "River RD <7300/ River Rd 7300>" sign, (variable x 16") (dual faced).	2 EA
	D-3(1) "Royal Dominion Dr <7400 / Royal Dominion Dr 7400>" sign, (variable x 16") (dual faced).	2 EA
	R3-5R "RIGHT TURN ONLY" sign, (30" x 36")	1 EA
	R3-5L "LEFT TURN ONLY" sign, (30" x 36")	1 EA
	R3-6 "LEFT TURN AND THRU" sign, (30" x 36")	1 EA
	M1-5(6) GUIDE SHIELD ASSEMBLY (48"x72") pole mounted. SOUTH / MD 190 / LEFT ARROW	1 EA
	M1-5(6) GUIDE SHIELD ASSEMBLY (30"x48") pole mounted. NORTH / MD 190 / RIGHT ARROW	1 EA
	M1-5(6) GUIDE SHIELD ASSEMBLY (48"x72") pole mounted. NORTH / MD 190 / LEFT ARROW	1 EA
	M1-5(6) GUIDE SHIELD ASSEMBLY (30"x48") pole mounted. SOUTH / MD 190 / RIGHT ARROW	1 EA

DRILL HOLES

EQUIPMENT LIST (CONT.)

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

ITEM NO.	DESCRIPTION	QUANTITY
	Pedestrian education R10-3(1) sign (9"x15"). (Note: Sign to read "PUSHBUTTON TO CROSS RIVER ROAD".)	2 EA
	Pedestrian education R10-3(1) sign (9"x15"). (Note: Sign to read "PUSHBUTTON TO CROSS ROYAL DOMINION DR".)	2 EA

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

ITEM NO.	DESCRIPTION	QUANTITY
1003	Maintenance of traffic per assignment.	3 EA
2001	Class 2 Excavation.	1 C.Y.
2002	Test Pit Excavation	8 C.Y.
5001	heat applied permanent preformed thermoplastic pavement marking (right arrow)	1 EA
5001	heat applied permanent preformed thermoplastic pavement marking (thru/left arrow)	1 EA
5003	Removal of existing permanent pavement marking Letters, Symbols, Arrows and Numbers	2 EA
5004	12" white preformed thermoplastic pavement marking lines.	850 L.F.
5005	24" white preformed thermoplastic pavement marking lines.	140 L.F.
5007	Removal of existing permanent pavement line markings.	740 L.F.
6001	Standard type A combination curb and gutter 12" gutter pan 8" depth.	200 L.F.
6002	5" concrete sidewalk.	580 S.F.
8001	2 wire Central Control unit	1 EA
8006	Any size lighting arm on signal pole with 250 Watt HPS lamp and luminaire.	2 EA
8007	Audible/tactile pedestrian pushbutton station & signs.	4 EA
8008	Breakaway Pedestal pole (10')	4 EA
8013	LED 16" countdown pedestrian signal head.	4 EA
8015	Mast arm pole and 38' mast arm any "T" dimension	1 EA
8017	Mast arm pole and 70' mast arm any "T" dimension	1 EA
8021	Remove and dispose of existing material & equipment per assignment.	1 EA
8022	Twin mast arm pole & 50'/60' mast arms any "T" dimension.	1 EA
8025	Video detection camera & cable any length.	4 EA
8028	12-pair communication cable overhead / underground.	1000 L.F.
8029	3 inch diameter PVC conduit schedule 80, riser	30 L.F.
8031	Disconnect, pull back and reroute cable.	140 L.F.
8033	Schedule 80 rigid PVC conduit up to 4" - bored.	260 L.F.
8035	Schedule 80 rigid PVC conduit up to 4" - trenched.	200 L.F.
8036	Wood sign supports up to 4"x6".	80 L.F.
8037	Detectable warning surface for curb ramps	90 S.F.
8038	Install overhead or ground mounted sign (including all hardware).	192 S.F.
8040	No. 6 AWG stranded bare copper ground wire.	380 L.F.
8041	Weatherhead, 3 inch.	1 EA
8042	Embedded Metered service pedestal.	1 EA
8045	1 conductor electrical cable, No. 8 AWG-THHN/THWN	50 L.F.
8046	Furnish and install electrical handhole.	5 EA
8050	12" LED Vehicular Traffic Signal Head Section	51 EA
8054	Electrical cable - 2 conductor (No. 14 AWG).	400 L.F.
8056	Electrical cable - 5 conductor (No. 14 AWG).	855 L.F.
8057	Electrical cable - 7 conductor (No. 14 AWG).	1915 L.F.
8058	Electrical cable - 2 conductor (No. 12 AWG) tray cable.	475 L.F.

EQUIPMENT LIST (CONT.)

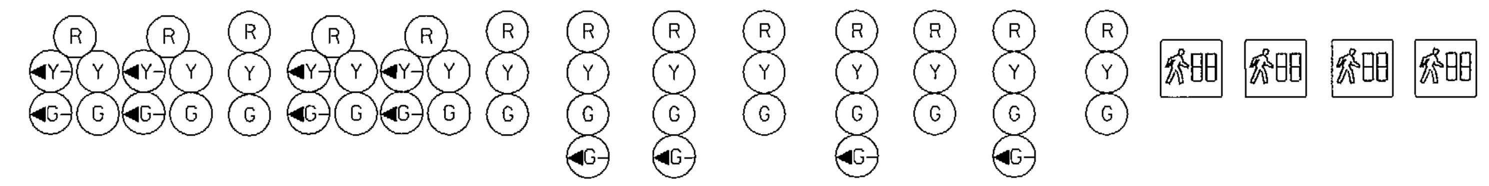
B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

ITEM NO.	DESCRIPTION	QUANTITY
8065	Install controller and cabinet base mount. (any size).	1 EA
Neg.	Cable - 1 conductor, No. 250 KCMIL, Cu, Use 600V.	150 L.F.

C. EQUIPMENT TO BE REMOVED

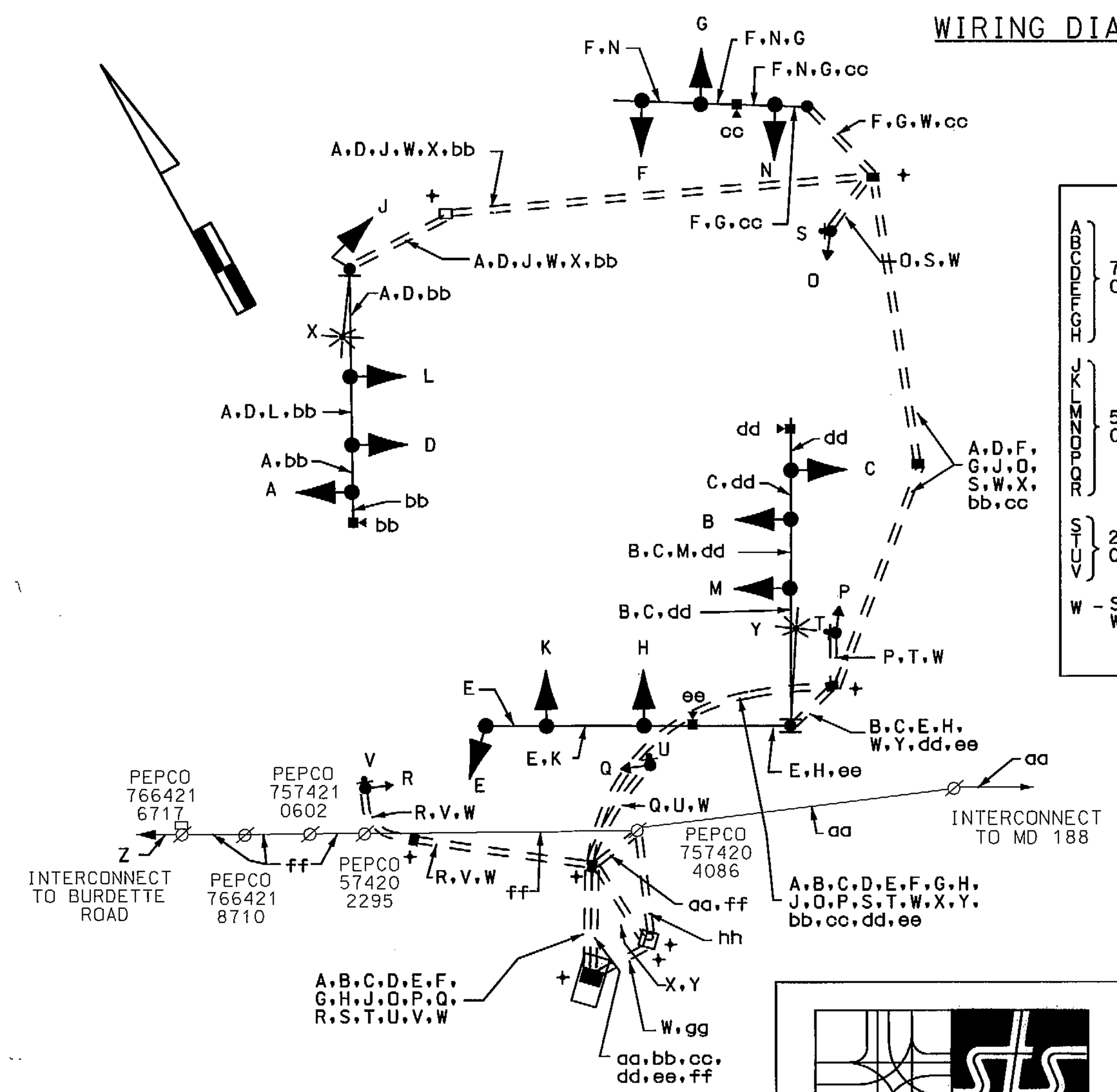
Montgomery County Forces shall remove the controller and all auxilliary equipment from the controller cabinet. The cabinet and all other removed signal materials are to become property of the contractor.

PHASE CHART



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
PHASE 1 & 5	◄G-/R	◄G-/R	R	◄G-/R	◄G-/R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	
CHANGES TO PHASES 1 & 6, 2 & 5 OR 2 & 6																		
PHASE 1 & 6	◄G-/G	◄G-/G	G	R	R	R	R	R	R	R	R	R	R	WK	WK	DW	DW	
1 & 6 CHANGE	◄Y-/G	◄Y-/G	G	R	R	R	R	R	R	R	R	R	R	WK	WK	DW	DW	
PHASE 2 & 5	R	R	R	◄G-/G	◄G-/G	G	R	R	R	R	R	R	R	DW	DW	DW	DW	
2 & 5 CHANGE	R	R	R	◄Y-/G	◄Y-/G	G	R	R	R	R	R	R	R	DW	DW	DW	DW	
PHASE 2 & 6	G	G	G	G	G	G	R	R	R	R	R	R	R	WK	WK	DW	DW	
PED CLEAR / COUNTDOWN	G	G	G	G	G	G	R	R	R	R	R	R	R	FL/DW	FL/DW	DW	DW	
2 & 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R	R	DW	DW	DW	DW	
PHASE 3	R	R	R	R	R	R	G / ◄G-	G / ◄G-	G	R	R	R	R	DW	DW	DW	DW	
3 CHANGE	R	R	R	R	R	R	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	
PHASE 4	R	R	R	R	R	R	R	R	R	G / ◄G-	G	G / ◄G-	G	DW	DW	DW	DW	
4 CHANGE	R	R	R	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	
PHASE 3 ALT	R	R	R	R	R	R	G / ◄G-	G / ◄G-	G	R	R	R	R	DW	DW	WK	WK	
PED CLEAR / COUNTDOWN	R	R	R	R	R	R	G / ◄G-	G / ◄G-	G	R	R	R	R	DW	DW	FL/DW	FL/DW	
PHASE 3 ALT CHANGE	R	R	R	R	R	R	Y	Y	Y	R	R	R	R	DW	DW	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	FL/R	FL/R	DARK	DARK	DARK	DARK	

WIRING DIAGRAM



* NOTE: PEPCO HAS JURISDICTION ON THE TYPE OF WIRING USED TO THE METERED SERVICE PEDESTAL. THE CONTRACTOR SHOULD CONTACT THEM PRIOR TO INSTALLATION FOR APPROPRIATE CABLE

TOD NO: XX351-20
SHA NO: MO256A54/K54
MD 190 @ Royal Dominion/Holton Arms School

WIRING KEY

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

J K L M N O P Q R } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

S T U V } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

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

X Y } 2-CONDUCTOR TRAY CABLE (NO. 12 A.W.G)

Z aa } EXISTING 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING)

bb cc dd ee } CONTROL CABLE (CAMERA TO CONTROLLER) UP TO 500'

ff - 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING)

gg - 3-1 CONDUCTOR ELECTRICAL CABLE (NO. 8 A.W.G.) THHN/THWN

hh - 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

5983GI.DGN T-136

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 190 (RIVER ROAD) AND ROYAL DOMINION DRIVE/HOLTON ARMS SCHOOL

BETHESDA, MD

GENERAL INFORMATION SHEET

SCALE NONE DATE 12/2/11 CONTRACT NO. XX3515168

DESIGNED BY R.R.Z. COUNTY MONTGOMERY
DRAWN BY R.C. LOGMILE 15019011.96
CHECKED BY MF TIMS NO. K536
F.A.P. NO. TOD NO.

TS NO. 1773C DRAWING NO. 3 OF 3 SHEET NO. OF

PLOTTED: $DATETIME$
FILE: $FILE$

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