DRILL HOLES

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BORDER REV: DATE: June 1, 2004

PROJECT DESCRIPTION

I. GENERAL

This project involves the modification of an existing span wire Traffic Control Signal at the intersection of MD 202 (Landover Rd) and Lake Arbor Way / Arena Drive in Prince George's County. The existing signal heads shall be replaced with LED signal
[1] heads and a new Countdown pedestrian phase with audible pushbuttons as well as Exclussive left turn phases in the east-west directions, shall be added to this intersection. MD 202 (Landover Rd) is assumed to run a north-south direction.

II. INTERSECTION OPERATION

1. The intersection shall now operate in a NEMA eight-phase, fully-actuated mode, with the MD 202 (Landover Rd) approaches continuing to run concurrently. The Exclusive left turn phases shall continue to be provided for both approaches of MD 202 (Landover Rd). A new Countdown pedestrian phase with pushbutton actuation shall be provided across the south leg of MD 202 (Landover Rd). New Exclusive left turn phases shall be provided for the Lake Arbor Way / Arena Drive approaches The Lake Arbor Way / Arena Drive approaches shall now run concurrently.

2. The existing full-traffic-actuated, eight-phase controller with all necessary equipment housed in a NEMA size "6" base-mounted cabinet shall be utilized at this intersection.

III. SPECIAL NOTES

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

2. All controller cabinet wiring will be performed by the S.H.A. Signal Shop Contact Mr. Ed Rodenhizer at (410) 787-7650 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 contact persons for District #3 (Prince George's County) are as follows:

Mr. Majid Shakib
Assistant District Engineer - Traffic
Phone: (301 513-7358

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

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

Mr. Ed Rodenhizer
Signal Shop
410-787-7652

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

Sonny Bailey
Sign Shop
410-787-7670

EQUIPMENT LIST

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

	ITEM NO.	DESCRIPTION	QUANTITY
	9570	Sheet aluminum signs to consist of: (ground mount)	148 SF
		M6-2 "arrow" sign. (21" x 15")	4 EA
		M4-5 "TO" sign. (24"x12') ground mounted with hardware.	1 EA
		M1-5 "MD 214" sign. (30"x24') ground mounted with hardware.	1 EA
		M1-1 "I 95" sign. (24"x24') ground mounted with hardware.	1 EA
		M5-2 "arrow" (21" x 15') ground mounted with hardware.	1 EA
		M95-2 (mod) "NORTH / MD 202 / SOUTH" sign (78" x 30") ground mounted with hardware.	1 EA
		W11-2 "PEDESTRIAN CROSSING (SYMBOLIC)" sign. (30" x 30") ground mounted with hardware	4 EA
		R3-7L MOD "LEFT 2 LANES MUST TURN LEFT" sign. (36" X 30") ground mounted with hardware.	1 EA
		R3-7R "RIGHT LANE MUST TURN RIGHT" sign. (30" X 30") ground mounted with hardware.	5 EA
		R3-7L "LEFT LANE MUST TURN LEFT" sign. (30" X 30") ground mounted with hardware.	2 EA
		R4-7 "KEEP RIGHT (symbolic)" sign. (24" x 30") ground mounted with hardware.	1 EA
		W3-3 "SIGNAL AHEAD" sign. (36" x 36") ground mounted with hardware.	2 EA
		GUIDE SIGN (30"x51") M3-3 "SOUTH"(24"X12") M1-5 "MD 202"(30"X24") M6-1 "right arrow "(21"X15")	1 EA
	9571	Sheet aluminum signs to consist of: (pole mount)	60.5 SF
		GUIDE SHIELD ASSEMBLY (48"X75") pole mounted. M3-1 "NORTH"(30"X15") M1-5 "MD 202"(48"X36") M6-1 "left arrow "(30"X24")	1 EA
		GUIDE SHIELD ASSEMBLY (30"x51") pole mounted. M3-1 "NORTH"(24"X12") M1-5 "MD 202"(30"X24") M6-1 "right arrow "(21"X15")	1 EA
		GUIDE SHIELD ASSEMBLY (48"X75") pole mounted. M3-3 "SOUTH"(30"X15") M1-5 "MD 202"(48"X36") M6-1 "left arrow "(30"X24")	1 EA

EQUIPMENT LIST (CONT.)

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

	ITEM NO.	DESCRIPTION	QUANTITY
	9572	Sheet aluminum signs to consist of: (span wire mount)	36 SF
		R3-3(2) "NO LEFT OR U TURN" sign (30' X 30")	1 EA
		R3-5L "LEFT TURN ONLY" sign. (30" x 36").	4 EA

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

	ITEM NO.	DESCRIPTION	QUANTITY
	1001	Maintenance of traffic per assignment.	2 EA
	2001	Class 2 Excavation.	15 C.Y.
[1]	2002	Test pit	2 EA
	5001	5" white lead free reflective thermoplastic pavement marking.	1280 L.F.
	5003	12" white lead free reflective thermoplastic pavement marking.	430 L.F.
	5004	24" white lead free reflective thermoplastic pavement marking.	130 L.F.
	5005	Removal of existing permanent pavement line markings	1200 L.F.
	5006	Removal of existing permanent marking letters, symbols, arrows and numbers.	20 EA
	5007	Heat applied white permanent preformed thermoplastic pavement marking letter. (ONLY)	6 EA
	5007	Heat applied white permanent preformed thermoplastic pavement marking letter. (YIELD LINE)	7 EA
	5008	Heat applied white permanent preformed thermoplastic pavement marking arrow. (Left)	22 EA
	5008	Heat applied white permanent preformed thermoplastic pavement marking arrow. (Right)	7 EA
	6001	Depress curb & gutter.	35 L.F.
	6002	Standard type A combination curb and gutter 12" gutter pan 8" depth.	155 L.F.
[1]	6003	4" concrete sidewalk.	1320 ~~1315~~ S.F.
	8002	12" red or green LED signal head section.	40 EA
	8003	12" yellow LED signal head section.	20 EA
[1]	8006	2 wire Central Control unit	1 EA
[1]	8014	Audible/tactile pedestrian pushbutton station & signs.	4 EA
[1]	8015	Breakaway pedestal pole (10')	2 ~~1~~ EA
	8024	LED 16" countdown pedestrian signal head.	4 EA
[1]	8026	Pushbutton and R10-4(1) sign (Note: Sign to read "PUSH BUTTON TO CROSS LANDOVER ROAD")	4 ~~3~~ EA
	8028	Remove and dispose of existing equipment per assignment.	1 EA
[1]	8037	Detectable warning surfaces	64 ~~48~~ S.F.
	8038	Relocate existing sign.	5 SF
[1]	8040	Concrete for signal foundation.	2 ~~1~~ C.Y.
	8041	Wood sign supports 4"x4".	342 L.F.
[1]	8043	No. 6 AWG stranded bare copper ground wire.	175 ~~160~~ L.F.
[1]	8049	3" schedule 80 rigid polyvinyl chloride conduit - trenched.	30 ~~15~~ L.F.
	8054	1" liquid tight flexible non-metallic conduit for detector sleeve.	15 L.F.
	8063	Install ground mounted sign.	148 SF
	8064	Install overhead mounted sign.	96.5 SF
	8070	Ground rod 3/4" dia. x 10' length.	1 EA
[1]	8076	Electrical cable - 2 conductor (No. 14 AWG).	705 ~~545~~ L.F.
	8078	Electrical cable - 5 conductor (No. 14 AWG).	835 L.F.
	8079	Electrical cable - 7 conductor (No. 14 AWG).	1275 L.F.
	8080	Loop wire encased in flexible tubing (No. 14 AWG).	860 L.F.
	8081	Saw cut for signal (loop detector).	245 L.F.
	Neg.	Traffic Barrier End Treatment.	1 EA

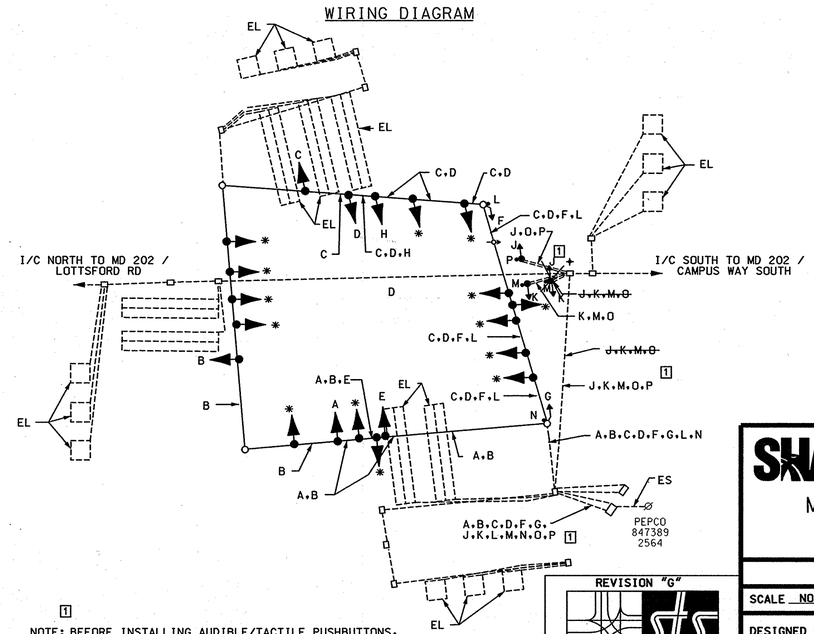
C. EQUIPMENT TO BE REMOVED

All 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	18	19	20	21	22	23	24
	◄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-	◄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				
PHASE 1 & 5	◄G-	◄G-	◄G-	R	R	◄G-	◄G-	◄G-	R	R	◄R-	◄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	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
1 & 6 CHANGE	◄Y-	◄Y-	◄Y-	G	G	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
PHASE 2 & 5	◄R-	◄R-	◄R-	R	R	◄G-	◄G-	◄G-	G	G	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
2 & 5 CHANGE	◄R-	◄R-	◄R-	R	R	◄Y-	◄Y-	◄Y-	G	G	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
PHASE 2 & 6	◄R-	◄R-	◄R-	G	G	◄R-	◄R-	◄R-	G	G	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
2 & 6 CHANGE	◄R-	◄R-	◄R-	Y	Y	◄R-	◄R-	◄R-	Y	Y	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
PHASE 3 & 7	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄G-	◄G-	◄G-	R	R	◄G-	◄G-	◄G-	R	R	DW	DW	DW	DW
CHANGES TO PHASES 3 & 8, 4 & 7 OR 4 & 8																								
PHASE 3 & 8	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄G-	◄G-	◄G-	G	G	DW	DW	DW	DW
3 & 8 CHANGE	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄Y-	◄Y-	◄Y-	G	G	DW	DW	DW	DW
PHASE 4 & 7	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄G-	◄G-	◄G-	G	G	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
4 & 7 CHANGE	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄Y-	◄Y-	◄Y-	G	G	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
PHASE 4 & 7 ALT	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄G-	◄G-	◄G-	G	G	◄R-	◄R-	◄R-	R	R	WK	WK	WK	WK
PED CLEARANCE / COUNTDOWN	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄G-	◄G-	◄G-	G	G	◄R-	◄R-	◄R-	R	R	FL/DW	FL/DW	FL/DW	FL/DW
4 & 7 CHANGE ALT	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄Y-	◄Y-	◄Y-	G	G	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
PHASE 4 & 8	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	G	G	◄R-	◄R-	◄R-	G	G	DW	DW	DW	DW
4 & 8 CHANGE	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	Y	Y	◄R-	◄R-	◄R-	Y	Y	DW	DW	DW	DW
PHASE 4 & 8 ALT	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	G	G	◄R-	◄R-	◄R-	G	G	WK	WK	WK	WK
PED CLEARANCE / COUNTDOWN	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	G	G	◄R-	◄R-	◄R-	G	G	FL/DW	FL/DW	FL/DW	FL/DW
4 & 8 ALT CHANGE	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	Y	Y	◄R-	◄R-	◄R-	Y	Y	DW	DW	DW	DW
PRE EMPT 1	◄G-	◄G-	◄G-	G	G	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
PRE EMPT 1 CHANGE	◄Y-	◄Y-	◄Y-	Y	Y	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	◄R-	◄R-	◄R-	R	R	DW	DW	DW	DW
FLASHING OPERATION	FL/◄R-	FL/◄R-	FL/◄R-	FL/Y	FL/Y	FL/◄R-	FL/◄R-	FL/◄R-	FL/Y	FL/Y	FL/◄R-	FL/◄R-	FL/◄R-	FL/R	FL/R	FL/◄R-	FL/◄R-	FL/◄R-	FL/R	FL/R	DARK	DARK	DARK	DARK

WIRING DIAGRAM



[1] NOTE: BEFORE INSTALLING AUDIBLE/TACTILE PUSHBUTTONS, THE CONTRACTOR SHALL DELIVER AUDIBLE/TACTILE PUSHBUTTONS TO SHA SIGNAL SHOP (MR ED RODENHIZER) FOR TESTING AND PROGRAMING.

[1] REDLINE REVISION 12/8/05

WIRING KEY

A, B, C, D — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
E, F, G, H, J, K — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
L, M, N, P — 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
O - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
* - USE EXISTING EXISTING WIRING
EL - LOOP WIRE (NO. 14 A.W.G.) EXISTING
LW - LOOP WIRE (NO. 14 A.W.G.)
ES - EXISTING UNDERGROUND SERVICE TO BE MAITAINED BY PEPCO
+ - GROUND ROD

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 202 AND ARENA DR/ LAKE ARBOR WAY

LARGO, MARYLAND

REVISION "G"

STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy.NW.
Glen Burnie,MD 21061
Ph (410) 590-5500
Fax (410) 590-6637

4985GI.dgn D6-66

SCALE NONE	DATE 11/22/05	CONTRACT NO. AT7825185	
DESIGNED BY JAMES ALLEN JR.		COUNTY PRINCE GEORGE'S	
DRAWN BY RC		LOGMILE 16020208.08	
CHECKED BY		TIMS NO. H311	
F.A.P. NO.		TOD NO.	
TS NO.1000 G	DRAWING NO. 2 OF 4	SHEET NO. OF	

PLOTTED: $DATETIME$
FILE: $FILE$

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