

**PROJECT DESCRIPTION**

**GENERAL**  
 THIS PORTION OF THE PROJECT INVOLVES THE RECONSTRUCTION OF THE TRAFFIC SIGNAL AT MD 193 (UNIVERSITY BOULEVARD) AND MD 320 (PINEY BRANCH ROAD) IN MONTGOMERY COUNTY, DUE TO THE GEOMETRIC IMPROVEMENTS AT THE INTERSECTION. MD 320 WILL BE WIDENED ALONG THE NORTHWEST CORNER OF THE INTERSECTION TO PROVIDE A RIGHT-TURN LANE IN THE SOUTHBOUND DIRECTION. IN ADDITION, ALL CHANNELIZATION ISLANDS HAVE BEEN REMOVED AND ALL CORNER RADAI HAVE BEEN REDUCED. LED COUNTDOWN PEDESTRIAN SIGNALS AND APS WILL BE INSTALLED. LED VEHICULAR TRAFFIC SIGNALS WILL BE INSTALLED AND ALL VIDEO DETECTION CAMERAS WILL BE RELOCATED. MD 193 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

**INTERSECTION OPERATION**  
 THE INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE, FULL-TRAFFIC ACTUATED MODE WITH EXCLUSIVE LEFT TURN PHASING FOR MD 193 AND SPLIT PHASING FOR MD 320. THE MAINLINE PEDESTRIAN PHASE WILL BE CONCURRENT AND ALTERNATE SIDE STREET PEDESTRIAN PHASES ARE PROPOSED. VIDEO DETECTION CAMERAS WILL BE RELOCATED AND USED FOR PRESENCE DETECTION ON EACH APPROACH.

**CONTROLLER REQUIREMENTS**  
 THE EXISTING BASE MOUNTED CABINET WILL BE REMOVED UPON COMPLETION OF THE NEW SIGNAL. INSTALL A NEW EIGHT-PHASE FULLY ACTUATED TRAFFIC SIGNAL CONTROLLER WITH ALL NECESSARY EQUIPMENT. THE CONTRACTOR WILL INSTALL A 2-WIRE CENTRAL CONTROL UNIT. THE SHA SIGNAL SHOP WILL INSTALL THE NEW VIDEO INTERFACE EQUIPMENT INTO THE CABINET.

**PHONE DROP**  
 THE CONTRACTOR SHALL NOTIFY MR. KAMAL HAMUD OF MONTGOMERY COUNTY AT 240-777-8761 FOR THE PHONE DROP LINE INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. HAMUD WITH THE NEAREST STREET ADDRESS, ZIP CODE AND PHONE NUMBER.

**APS WILL FUNCTION AS FOLLOWS:**

- NORTH LEG**
- A. WHEN THE PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS PINEY BRANCH AT UNIVERSITY."
  - B. WHEN THE WALK PHASE BEGINS, THE PUSHBUTTON UNIT WILL PROVIDE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.
- SOUTH LEG**
- A. WHEN THE PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS UNIVERSITY AT PINEY BRANCH."
  - B. WHEN THE WALK PHASE BEGINS, THE PUSHBUTTON UNIT WILL PROVIDE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.
- EAST LEG**
- A. WHEN THE PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS UNIVERSITY AT PINEY BRANCH."
  - B. WHEN THE WALK PHASE BEGINS, THE PUSHBUTTON UNIT WILL PROVIDE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.
- WEST LEG**
- A. WHEN THE PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS UNIVERSITY AT PINEY BRANCH."
  - B. WHEN THE WALK PHASE BEGINS, THE PUSHBUTTON UNIT WILL PROVIDE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

**THE CONTACT PERSONS FOR DISTRICT #3 ARE AS FOLLOWS:**

- Mr. Jeff Wentz  
 Assistant District Engineer - Traffic  
 Phone: 301-513-7358
- Mr. Augie Reblsh  
 District Utility Engineer  
 Phone: 301-513-7350
- Mr. Wayne Mowdy  
 Assistant District Engineer - Maintenance  
 Phone: 301-513-7304
- Mr. Kevin Nowak  
 Assistant District Engineer - Construction  
 Phone: 301-513-7336
- Mr. Richard L. Daff Sr.  
 Chief, Traffic Operations Division  
 Phone: 410-787-7630
- Mr. Edward Rodenhizer  
 Chief, SHA Traffic Signal Shop  
 Phone: 410-787-7652
- The Power Company Representative is:  
 Potomac Electric Power Company  
 4061 Powder Mill Road, Suite 600  
 Calverton, Maryland 20705  
 Phone: 301-931-2880
- Mr. Kamal Hamud  
 Montgomery County Department  
 of Public Works  
 Phone: 240-777-8761

**EQUIPMENT LIST 'A'**

EQUIPMENT TO BE FURNISHED BY THE SHA.

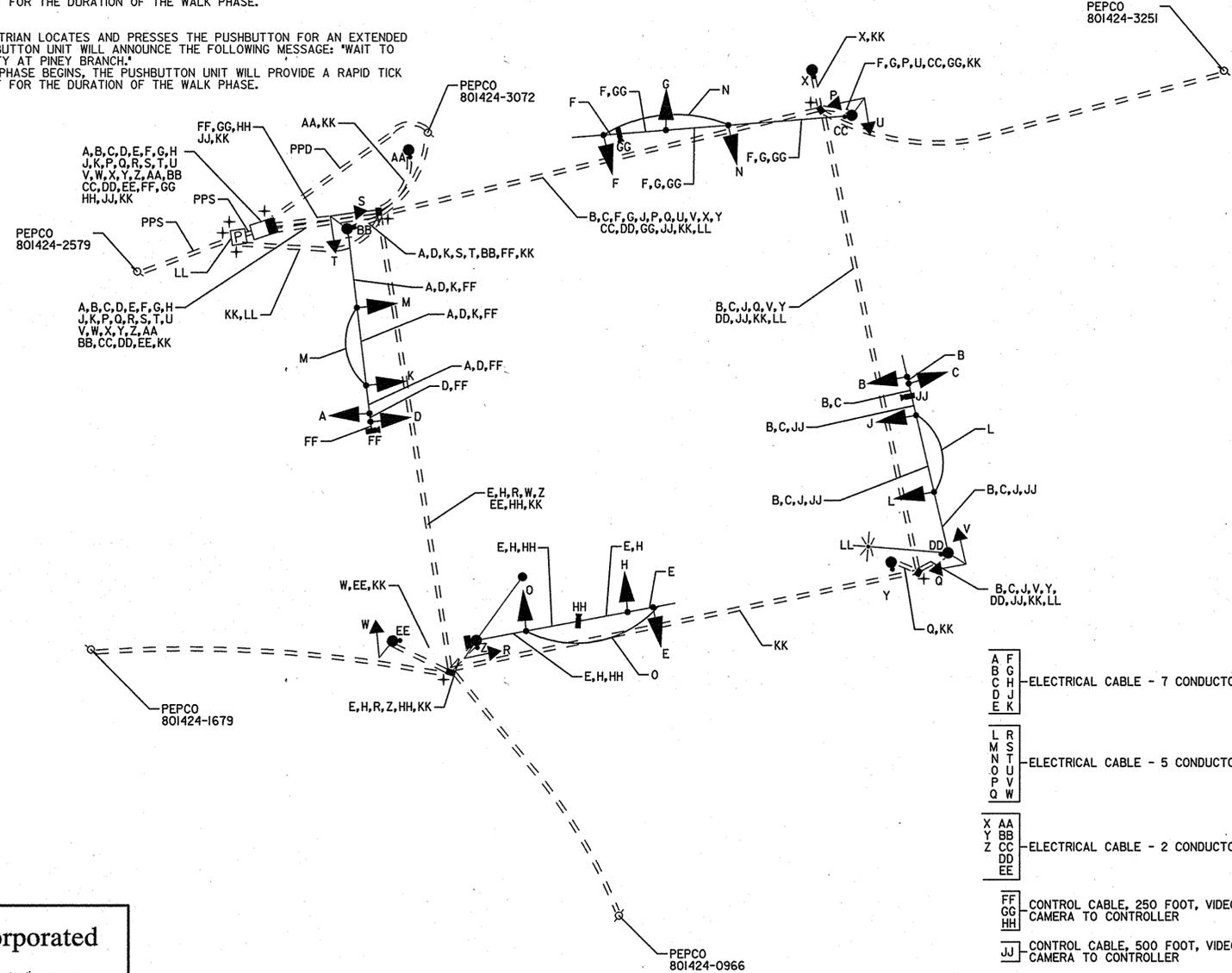
| ITEM NO | QUANTITY | DESCRIPTION   |
|---------|----------|---|
| 900000  | 1 EA     | VIDEO DETECTION INTERFACE EQUIPMENT: 1-4 CAMERAS  |
| 971017  | 1 EA     | EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET BASE MOUNT  |
| 973023  | 193 SF   | SHEET ALUMINUM MAST ARM/POLE MOUNTED SIGN:<br>4 EACH - R10-3(I) (9 IN. X 15 IN.) POLE MOUNT, (UNIVERSITY BOULEVARD)<br>4 EACH - R10-3(I) (9 IN. X 15 IN.) POLE MOUNT, (PINEY BRANCH ROAD)<br>2 EACH - D-3(I) (VAR. X 16 IN.) MAST ARM MOUNT, DUAL FACED (PINEY BRANCH RD., <8800, PINEY BRANCH RD., 8800>)<br>2 EACH - D-3(I) (VAR. X 16 IN.) MAST ARM MOUNT, DUAL FACED (UNIVERSITY BLVD. E., <700, UNIVERSITY BLVD. E., 700>)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *EAST, MD 193, RIGHT ARROW* (30 IN. X 51 IN.)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *WEST, MD 193, RIGHT ARROW* (30 IN. X 51 IN.)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *EAST, MD 193, LEFT ARROW* (48 IN. X 75 IN.)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *WEST, MD 193, LEFT ARROW* (48 IN. X 75 IN.)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *NORTH, MD 320, RIGHT ARROW* (30 IN. X 51 IN.)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *SOUTH, MD 320, RIGHT ARROW* (30 IN. X 51 IN.)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *NORTH, MD 320, LEFT ARROW* (48 IN. X 75 IN.)<br>1 EA - ASSOCIATED SHIELD ASSEMBLY POLE MOUNT *SOUTH, MD 320, LEFT ARROW* (48 IN. X 75 IN.) |

**EQUIPMENT LIST 'B'**

EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

| ITEM NO | QUANTITY | DESCRIPTION  |
|---------|----------|--|
| 120500  | 1 LS     | MAINTENANCE OF TRAFFIC   |
| 203030  | 9 CY     | TEST PIT EXCAVATION  |
| 585412  | 800 LF   | 12 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS |
| 585424  | 200 LF   | 24 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS |
| 800000  | 1 EA     | 2-WIRE CENTRAL CONTROL UNIT  |
| 800000  | 6 EA     | 8 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION                   |
| 800000  | 8 EA     | ACCESSIBLE PEDESTRIAN PUSHBUTTON                                   |
| 800000  | 210 LF   | ELECTRICAL CABLE - 1 CONDUCTOR, 250 KCMIL, CU, USE                 |
| 800000  | 8 EA     | LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEAD SECTION - POLE MOUNT  |
| 800000  | 1 LS     | REMOVE AND DISPOSE OF TRAFFIC SIGNAL EQUIPMENT                     |
| 800000  | 4 EA     | RELOCATE EXISTING VIDEO DETECTION CAMERA                           |
| 800000  | 3 EA     | 27 FOOT STEEL 'T' POLE WITH A SINGLE 50 FOOT MAST ARM              |
| 800000  | 1 EA     | 27 FOOT STEEL 'T' POLE WITH A SINGLE 70 FOOT MAST ARM              |
| 810004  | 19 CY    | CONCRETE FOR SIGNAL FOUNDATION                                     |
| 802501  | 630 LF   | NO. 6 AWG STRANDED BARE COPPER GROUND WIRE                         |
| 805125  | 110 LF   | 2 INCH SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - TRENCHED         |
| 805135  | 440 LF   | 3 INCH SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - TRENCHED         |
| 805140  | 80 LF    | 4 INCH SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - TRENCHED         |
| 805155  | 480 LF   | 4 INCH SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - SLOTTED          |
| 807202  | 1 EA     | METERED SERVICE PEDESTAL   |
| 811001  | 4 EA     | FURNISH AND INSTALL ELECTRICAL HANDHOLE                            |
| 811002  | 8 EA     | REMOVE ELECTRICAL HANDHOLE   |
| 813015  | 193 SF   | INSTALL OVERHEAD SIGN  |
| 816005  | 2 EA     | CONTROL CABLE, 250 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER      |
| 816010  | 2 EA     | CONTROL CABLE, 500 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER      |
| 818004  | 4 EA     | 10 FOOT BREAKAWAY PEDESTAL POLE                                    |
| 831010  | 1 EA     | 250 WATT HIGH PRESSURE SODIUM LAMP AND LUMINAIRE                   |
| 837001  | 8 EA     | GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH                    |
| 860284  | 40 EA    | 12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION                  |
| 860292  | 3 EA     | CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE             |
| 861105  | 1500 LF  | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)                        |
| 861107  | 1650 LF  | ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)                        |
| 861108  | 2500 LF  | ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)                        |
| 861116  | 370 LF   | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG), TC                    |
| 866104  | 2 EA     | 20 FOOT LIGHTING ARM ON SIGNAL STRUCTURE                           |
| 871202  | 1 EA     | INSTALL CONTROLLER AND CABINET - BASE MOUNT                        |

**WIRING DIAGRAM**



**EQUIPMENT LIST 'C'**

EQUIPMENT TO BE REMOVED AND RETURNED TO SHA.

| ITEM NO | QUANTITY | DESCRIPTION   |
|---------|----------|---|
| NONE    |          | ALL REMOVED EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR |

- KK - NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
- LL - ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG), TC
- PPD - PROPOSED UNDERGROUND TELEPHONE DROP TO BE INSTALLED BY OTHERS
- PPS - PROPOSED UNDERGROUND POWER SERVICE ELECTRICAL CABLE - 1 CONDUCTOR, 250 KCMIL, CU, USE (3 RUNS WITH 3-30' COILS OF SLACK CABLE AT UTILITY POLE) (FINAL SERVICE CONNECTION TO BE MADE BY PEPCO)
- RR - PROPOSED GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
- PP - METERED SERVICE PEDESTAL
- FF - CONTROL CABLE, 250 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER
- JJ - CONTROL CABLE, 500 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER

**STV Incorporated**  
 engineers/architects/planners/construction managers  
 7125 Ambassador Road Baltimore, MD 21244-2722 (410) 944-9112

**SHA** STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF TRAFFIC & SAFETY  
 TRAFFIC ENGINEERING DESIGN DIVISION  
 MD 193 (UNIVERSITY BOULEVARD) AT MD 320 (PINEY BRANCH ROAD)

**GENERAL INFORMATION - 01**

SCALE NONE ADVERTISED DATE APRIL 2008 CONTRACT NO. MC9945187

DESIGNED BY SBS COUNTY MONTGOMERY  
 DRAWN BY SBS LOGMILE 15019306.15  
 CHECKED BY BAB TMS NO. H325  
 F.A.P. NO. SEE TITLE SHEET TOD NO.

TS NO. 3661E DRAWING - OF SHEET NO. 16 OF 21