DRILL HOLES

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## PROJECT DESCRIPTION

I. GENERAL

This project involves the partial reconstruction of the existing traffic control signal at the intersection of MD 108 (Clarksville Pike) and Ten Oaks Road/Southbound MD 32 On/Off Ramps in Howard County, Maryland. MD 108 is considered to run in an east/west direction.

II. INTERSECTION OPERATION

The portion of the intersection to be reconstructed (Ten Oaks Rd intersection) currently operates in a NEMA four (4) phase, full-traffic-actuated mode. The MD 108 through movements operate concurrently. A concurrent audible pedestrian movement across the north leg of the intersection will be added. The Ten Oaks Road/Gas Station Entrance movements operate in a side street split phase mode.

The traffic signal controller is located at the Southbound MD 32 On Ramp and will be utilized.

## CONTACT LIST

The contact persons for District #7 are as follows:

Mr. John Concannon
Assistant District Engineer - Traffic
301-624-8140

Ms. Andrea Abend
Assistant District Engineer - Utility
301-624-8115

Mr. Raymond F. Johnson
Assistant District Engineer - Maintenance
301-624-8105

Mr. Richard L. Daff
Chief, Traffic Operations Division
410-787-7630

Mr. Edward Rodenhizer
Supervisor, Signal Operations
410-787-7652

## EQUIPMENT LIST

A. S.H.A. furnished equipment material.

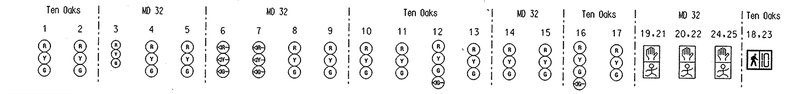
None.

B. Equipment to be furnished and installed by the Contractor.
All equipment in this list shall have catalog cuts submitted for approval prior to installation.

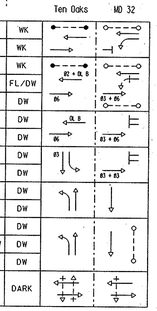
| Quantity | Units | Specification Section | Description |
|---|---|---|---|
| 1 | EA | 818 | 27 ft. steel mast arm pole with a 60 ft. mast arm. |
| 1 | EA | 818 | 27 ft. steel twin mast arm pole with 70 ft. and 50 ft. mast arms. |
| 2 | EA | 818 | 10 ft. steel pedestal pole with break away transformer base. |
| 1 | EA | --- | Four-channel loop detector amplifier. |
| 2 | EA | 814 | 12 in., one-way, four section L.E.D. (R,Y,G,GA) adjustable black faced traffic signal head with mast arm mounting hardware and tunnel visors. |
| 6 | EA | 814 | 12 in., one-way, three section L.E.D. (R,Y,G) adjustable black faced traffic signal head with mast arm mounting hardware and tunnel visors. |
| 2 | EA | 814 | 16 in., one-way, one section L.E.D. (Countdown Indication) adjustable pedestrian signal head with post top mounting hardware and cut-away visors. |
| 3 | EA | --- | Video Detection Camera and cable. (2 - 500 LF, 1-300 LF) |
| 2 | EA | 813 | 30 in. x 36 in. R 3-5(R) sign with mast arm mounting hardware. |
| 1 | EA | 813 | 30 in. x 36 in. R 3-5(L) sign with mast arm mounting hardware. |
| 1 | EA | 813 | 30 in. x 36 in. R 3-6(L) sign with mast arm mounting hardware. |
| 2 | EA | 813 | 16 in. Var. D-3(1) sign with mast arm mounting hardware. |
| 1 | EA | 813 | 30 in. x 51 in. shield assembly. sign with ground mounting hardware. |
| 1 | EA | 813 | 48 in. x 75 in. shield assembly. sign with ground mounting hardware. |
| 2 | EA | 817 | 9 in. x 15 in. R 10-3(1) pedestrian pushbutton education sign. |
| 1 | EA | --- | Central Controller Unit for audible pedestrian pushbutton. |
| 2 | EA | --- | Audible pedestrian pushbutton assembly and sign. |
| 4 | EA | --- | Non-invasive probe (set of 3) with 1000 ft. lead-in cable. |
| 1 | EA | 806 | 20 ft. luminaire arm. |
| 1 | EA | 806 | 250 W H.P.S. lamp and luminaire. |
| Lump Sum | LS | 108 | Mobilization. |
| Lump Sum | LS | 104 | Maintenance of traffic. |

| Quantity | Units | Specification Section | Description |
|---|---|---|---|
| 4 | CY | 205 | Test pit excavation. |
| 7 | EA | 811 | Handhole. |
| 375 | LF | 810 | 2-conductor electrical tray cable (No. 12 A.W.G.). |
| 800 | LF | 810 | 2-conductor electrical cable (No. 14 A.W.G.). |
| 950 | LF | 810 | 5-conductor electrical cable (No. 14 A.W.G.). |
| 1700 | LF | 810 | 7-conductor electrical cable (No. 14 A.W.G.). |
| 600 | LF | 804 | Bare copper stranded ground wire (No. 6 A.W.G.). |
| 25 | LF | 805 | 2 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched. |
| 90 | LF | 805 | 3 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched. |
| 100 | LF | 805 | 3 in. polyvinyl chloride (Schedule 80) electrical conduit - bored. |
| 200 | LF | 805 | 4 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched. |
| 200 | LF | 805 | 4 in. polyvinyl chloride (Schedule 80) electrical conduit - bored. |
| 12 | CY | 805 | Concrete foundation for traffic signal equipment. |
| 4 | EA | 804 | Ground rod - 3/4 in. diameter x 10 ft. length. |
| 2 | EA | --- | Clean, cut, and cap (mast arm/mast arm pole) |
| 120 | LF | 549 | 12 in. wide Heat Applied Thermoplastic pavement marking - white for crosswalk. |
| 75 | LF | 549 | 24 in. wide Heat Applied Thermoplastic pavement marking - white for stop line. |
| 64 | LF | 812 | 4 in. x 6 in. wood sign support. |
| 15 | SF | --- | Remove and replace 4" sidewalk. |
| 1 | EA | --- | Remove and dispose of existing concrete foundation 12 inches below grade. |
| Lump Sum | LS | --- | Remove and dispose of existing signal equipment. |

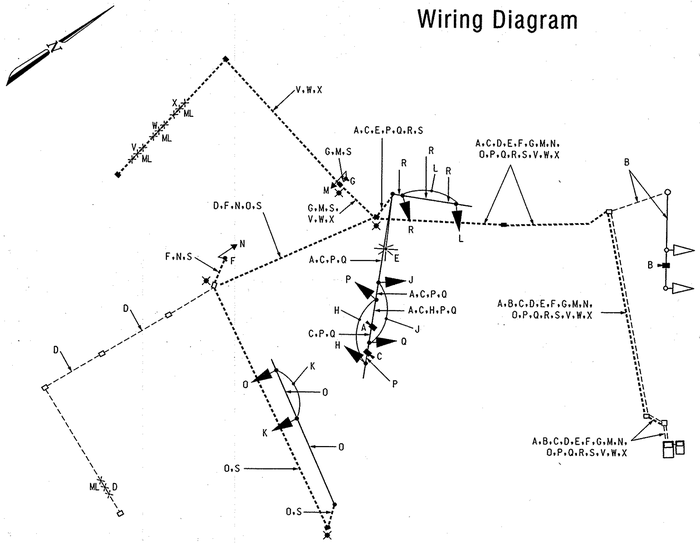
## Phase Chart




| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 19.21 | 20.22 | 24.25 | 18.23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase 2 & 5 | G | G | R | R | R | G | G | G | G | G | G | R | R | R | R | R | R | WK | DW | DW | WK |
| 5 Change | G | G | R | R | R | Y | Y | G | G | G | G | R | R | R | R | R | R | WK | WK | WK | WK |
| Phase 2 & 6 | G | G | G | G | G | FL/R | FL/R | G | G | G | G | R | R | R | R | R | R | WK | WK | DW | WK |
| Ped Clearance | G | G | G | G | G | FL/R | FL/R | G | G | G | G | R | R | R | R | R | R | FL/DW | FL/DW | DW | FL/DW |
| 2 Change | G | G | G | G | G | R | R | Y | Y | G | G | R | R | R | R | R | R | DW | DW | DW | DW |
| OL B & Phase 6 | G | G | G | G | G | R | R | R | R | G | G | R | R | R | R | R | R | DW | DW | DW | DW |
| OL B & Phase 6 Change | Y | Y | G | G | G | R | R | R | R | Y | Y | R | R | R | R | R | R | DW | DW | DW | DW |
| Phase 3 | R | R | G | G | G | R | R | R | R | R | R | R | R | R | R | G/G | G | DW | DW | DW | DW |
| 3 Change | R | R | Y | Y | Y | R | R | R | R | R | R | R | R | R | R | Y | Y | DW | DW | DW | DW |
| Phase 4 | R | R | R | R | R | R | R | R | R | R | R | G/G | G | G | G | R | R | DW | DW | DW | DW |
| 4 Change | R | R | R | R | R | R | R | R | R | R | R | Y | Y | Y | Y | R | R | DW | DW | DW | DW |
| Phase Alt 4 | R | R | R | R | R | R | R | R | R | R | R | G/G | G | G | G | R | R | DW | DW | WK | DW |
| Ped Clearance | R | R | R | R | R | R | R | R | R | R | R | G/G | G | G | G | R | R | DW | DW | FL/DW | DW |
| Alt 4 Change | R | R | R | R | R | R | R | R | R | R | R | Y | Y | Y | Y | R | R | DW | DW | DW | DW |
| Flashing Operation | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/R | FL/R | FL/Y | FL/Y | FL/Y | FL/Y | FL/R | FL/R | FL/R | FL/R | FL/R | FL/R | DARK | DARK | DARK | DARK |




## Wiring Diagram




A, B, C — Video Detector Cable

D W, V X — Non-Invasive Micro-loop Detector Lead-in Cable

E — 2-Conductor Tray Cable (No. 12 A.W.G.)

F, G — 2-Conductor Electrical Cable (No. 14 A.W.G.)

H L, J M, K N — 5-Conductor Electrical Cable (No. 14 A.W.G.)

O, P, Q, R — 7-Conductor Electrical Cable (No. 14 A.W.G.)

S — Bare Copper Ground Wire (No. 6 A.W.G.)

ML — Micro-loop Detector (Non-Invasive)

— Proposed Grounding Rod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STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

# MD 108 (Clarksville Pike) at Ten Oaks Road and Southbound MD 32 Off Ramp/On Ramp

REVISIONS

## GENERAL INFORMATION PLAN

SCALE N/A DATE 3/5/07 CONTRACT NO. BW996M82

DESIGNED BY F. Brownley
DRAWN BY
CHECKED BY
F.A.P. NO.

COUNTY Howard
LOGMILE 13010803.78
T.I.M.S. NO. I086
TOD NO.

DRAWING NO. TS # 3318D-GI

SHEET NO. 2 OF 2

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