

- REQUIRED CONSTRUCTION**
1. Install steel pole with a 50' mast arm and signals as shown (Note: 1-2" 90° elbow).
  2. Install steel pole with two 40' mast arms and signals as shown (Note: 1-2" 90° elbow).
  3. Install base mounted cabinet on concrete pad and all necessary control equipment (Note: 1-2" and 1-4" 90° elbows).
  4. Install handbox (frame and cover).
  5. Install 6' x 30' loop detector (2-turns).
  6. Install 6' x 24' loop detector (2-turns).
  7. Install 1" galvanized steel electrical conduit for detector lead-in.
  8. Install 2" P.V.C. electrical conduit (trenched).
  9. Install 2" galvanized steel electrical conduit (pushed).
  10. Install 3" galvanized steel electrical conduit (pushed).
  11. Install 4" P.V.C. electrical conduit (trenched).
  12. Proposed location of underground feed (separate from luminaires).

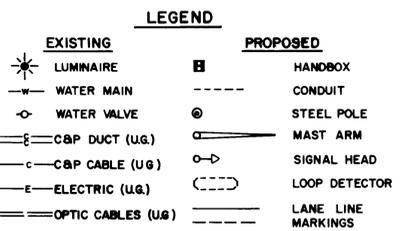
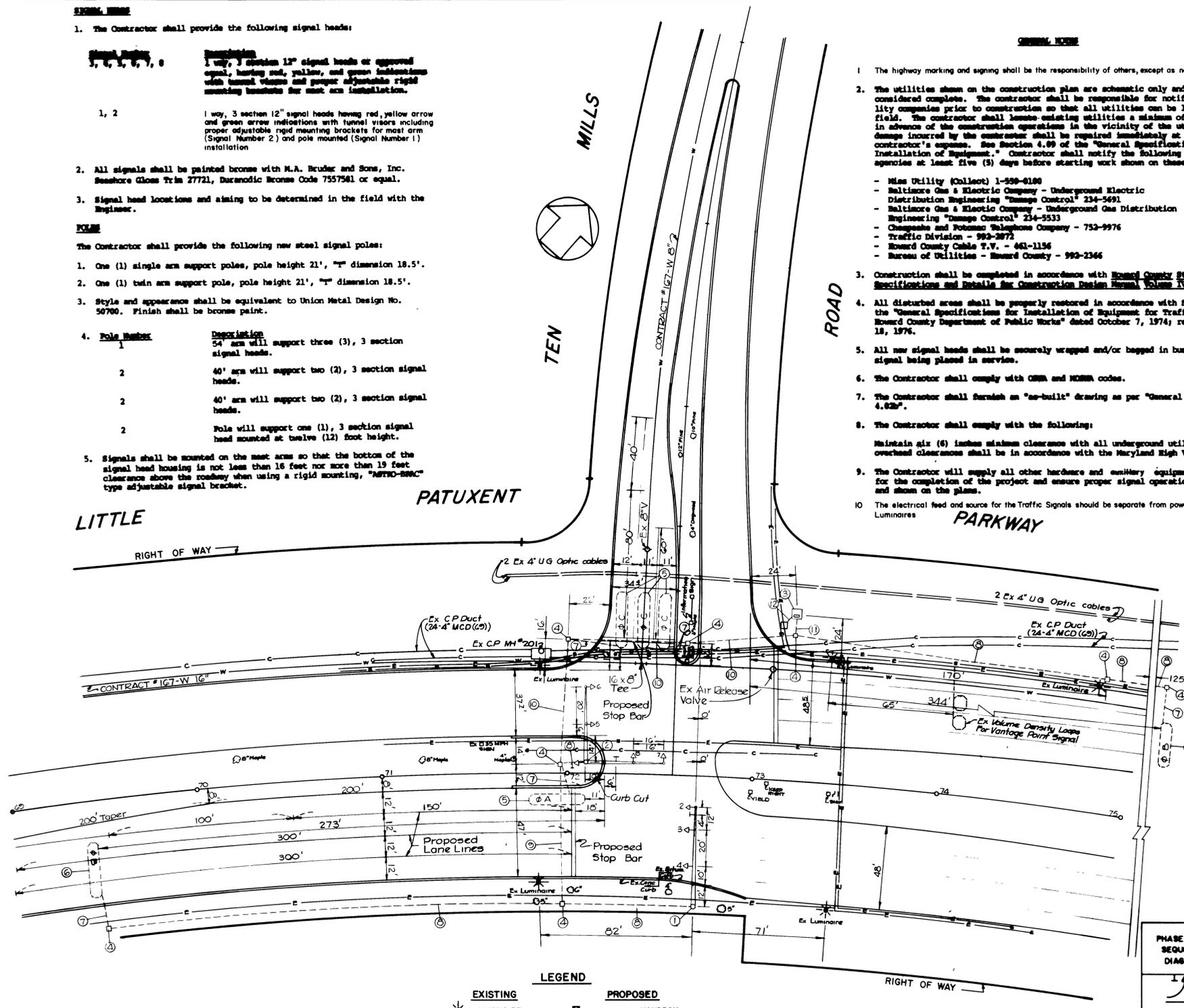
- CONTROLLER AND ACCESSORIES**
1. NEMA eight phase modular controller with solid state circuitry and digital timing, similar to Moonlite MC B-8000 Series Digital Controller Unit, equivalent manufactured by Crouse-Hinds, Eagle Signal Corporation or approved equal.
    - a. Equipped with time base coordination unit. (Non Interconnect Type - modular unit)
    - b. Equipped with two (2) vehicular actuated modules.
    - c. Equipped with one (1) vehicular actuated module with volume density controls.
    - d. Vehicular actuated phase modules shall be capable of the following functions: Minimum Green, Passage Time, Yellow, All Red Clearance, Dual Maximum, Pedestrian Timing, Recall and Memory.
    - e. Vehicular actuated phase module with volume density controls shall be capable of the following functions: Minimum Green, Passage Time, Yellow, All Red Clearance, Dual Maximum, Pedestrian Timing, Seconds per Actuation, Time to Reduce, Time for Reduction, Minimum Gap, Recall and Memory.
    - f. Four phase signal overlap capability.
  2. Conflict Monitor for all phases and Solid State load switches fully wired in cabinet.
  3. Ground mounted traffic controller cabinet large enough to accommodate the above control equipment and detectors. The cabinet shall be furnished with a thermostatically controlled cabinet vent fan.
  4. Finish of the cabinet shall be all-weather bronze paint.
  5. The controller shall be wired with six loop detector amplifiers (delay output type) and harnesses.
  6. Meter bus shall be installed in vandal proof enclosure provided by the Contractor. Finish of the meter bus, housing and conduits shall be all-weather bronze paint.
  7. All phases shall be skippable.

- UNDERGROUND WIRING**
1. Underground wiring shall be placed in new galvanized conduits pushed under the road surface. P.V.C. electrical conduit in grass median shall be trenched as specified and shown on the Contract Drawings.
  2. The contractor shall furnish an "as-built" drawing as per "General Specifications 4.02b".
- LOOPS AND INDUCTIONS**
1. The following new loops shall be installed:
- | Phase | Dimensions | No. of Loops Required |
|-------|------------|-----------------------|
| A     | 6' x 30'   | 1                     |
| B     | 6' x 24'   | 2                     |
| C     | 6' x 30'   | 3                     |
2. All wiring and saw cuts shall be in accordance with manufacturers recommendations for correct operation.
  3. Phase C and Phase A (left turns) shall operate in the presence mode. Phase B and Phase A (main line) shall operate by (extension) phase detection.
  4. Detector amplifiers shall be Saratoga 215-F or equivalent manufactured by Moonlite Control Products, Inc., Crouse-Hinds, or approved equal.

- GENERAL NOTES**
1. The Contractor shall provide the following signal heads:
 

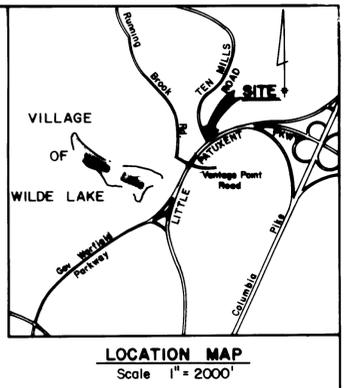
Signal Number	Description
1, 2, 3, 4, 5, 6, 7, 8	1 way, 3 section 12" signal heads of approved equal, having red, yellow, and green indications with funnel visors including proper adjustable rigid mounting brackets for mast arm installation.
  2. All signals shall be painted bronze with M.A. Bruder and Sons, Inc. Seashore Glass Trim 77721, Duranodic Bronze Code 7557581 or equal.
  3. Signal head locations and aiming to be determined in the field with the Engineer.
- POLES**
- The Contractor shall provide the following new steel signal poles:
1. One (1) single arm support poles, pole height 21', "T" dimension 18.5'.
  2. One (1) twin arm support pole, pole height 21', "T" dimension 18.5'.
  3. Style and appearance shall be equivalent to Union Metal Design No. 50700. Finish shall be bronze paint.
  4. Pole Schedule
 

Pole Number	Description
1	54' arm will support three (3), 3 section signal heads.
2	40' arm will support two (2), 3 section signal heads.
2	40' arm will support two (2), 3 section signal heads.
2	Pole will support one (1), 3 section signal head mounted at twelve (12) foot height.
  5. Signals shall be mounted on the mast arms so that the bottom of the signal head housing is not less than 16 feet nor more than 19 foot clearance above the roadway when using a rigid mounting, "ASTRO-BEAC" type adjustable signal bracket.

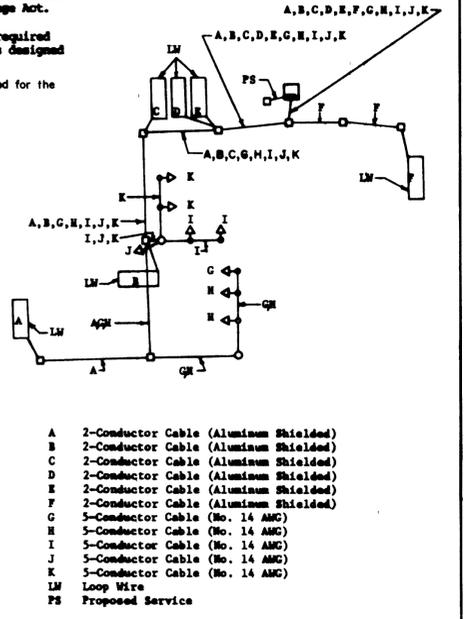


**COORDINATION**

Coordination with improved Signal at Little Patuxent Parkway, Running Brook and Ventage Point Road shall be accomplished as shown on sheet 2 of 2



1. The highway marking and signing shall be the responsibility of others, except as noted.
2. The utilities shown on the construction plan are schematic only and are not to be considered complete. The contractor shall be responsible for notifying all utility companies prior to construction so that all utilities can be located in the field. The contractor shall locate existing utilities a minimum of two (2) weeks in advance of the construction operations in the vicinity of the utilities. Any damage incurred by the contractor shall be repaired immediately at the contractor's expense. See Section 4.09 of the "General Specifications for Installation of Equipment." Contractor shall notify the following utilities or agencies at least five (5) days before starting work shown on these plans:
  - Miss Utility (Collect) 1-559-0100
  - Baltimore Gas & Electric Company - Underground Electric Distribution Engineering "Damage Control" 234-5691
  - Baltimore Gas & Electric Company - Underground Gas Distribution Engineering "Damage Control" 234-5533
  - Chesapeake and Potomac Telephone Company - 752-9976
  - Traffic Division - 992-2072
  - Howard County Cable T.V. - 461-1156
  - Bureau of Utilities - Howard County - 992-2366
3. Construction shall be completed in accordance with Howard County Standard Specifications and Details for Construction Design Manual Volume IV.
4. All disturbed areas shall be properly restored in accordance with Section 4.20 of the "General Specifications for Installation of Equipment for Traffic Signals for Howard County Department of Public Works" dated October 7, 1974; revised February 18, 1976.
5. All new signal heads shall be securely wrapped and/or bagged in burlap, prior to signal being placed in service.
6. The Contractor shall comply with OSHA and NIOSH codes.
7. The Contractor shall furnish an "as-built" drawing as per "General Specifications 4.02b".
8. The Contractor shall comply with the following:
  - Maintain six (6) inches minimum clearance with all underground utilities and all overhead clearances shall be in accordance with the Maryland High Voltage Act.
9. The Contractor will supply all other hardware and auxiliary equipment required for the completion of the project and ensure proper signal operation as designed and shown on the plans.
10. The electrical feed and source for the Traffic Signals should be separate from power feed for the Luminaires



PHASE AND SEQUENCE DIAGRAM	TRAFFIC SIGNAL HEADS				Min. Green	Passage	Ped. Clear	Min. I	Min. II	Seconds for Yellow to Red	Time to Advance from Yellow to Red	Min. Gap	Recall	Memory
	1-11-11-11-11-11	1-11-11-11-11-11	1-11-11-11-11-11	1-11-11-11-11-11										
1	1	1	1	1	5	3		30	15					
2	2	2	2	2	5			48	40	10	150	2.0	X	X
3	3	3	3	3	5	5		10	30					
4	4	4	4	4	5	3.0	5							
5	5	5	5	5										

**NOTES**

1. INSTALL BACK PLATES FOR SIGNAL HEADS 5 AND 6 AS SPECIFIED ON THE PLANS
2. TIMINGS SHOULD BE SET AND ADJUSTED IN THE FIELD AFTER THE SIGNAL IS IN OPERATION AND BASED ON CURRENT TRAFFIC VOLUMES.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

John E. Harms, Jr. & Associates, Inc.  
CONSULTING ENGINEERS  
PASADENA, MARYLAND

Professional Transportation Consultants  
LANHAM, MARYLAND

DESIGNED BY: H S CHADDA  
DRAWN BY: W E B  
CHECKED BY: W H V  
DATE: 6/24/85

DATE: 6/26/85



BY	NO	REVISION	DATE

**TRAFFIC SIGNAL PLAN**

600' SCALE MAP NO \_\_\_\_\_ BLOCK NO \_\_\_\_\_

**LITTLE PATUXENT PARKWAY AND TEN MILLS ROAD**

CAPITAL PROJECT T-7029

HOWARD COUNTY, MARYLAND

SCALE 1" = 30'

SHEET 1 OF 2