GENERAL NOTES

1. All highway marking and sign removal shall be the responsibility of the Division of Traffic Engineering of the Bureau of Engineering, Department of Public Works, of Howard County, Maryland, and is not to be considered a part of this contract.
2. a. Approximate location of existing utilities is shown. The Contractor shall take all necessary precautions to protect existing utilities and to maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer by the Contractor at the Contractor's expense.
   b. The Contractor shall locate existing utilities a minimum of two weeks in advance of construction operations in vicinity of utilities. Cost shall be incidental to the items in the Proposal Itemization.
   c. Contractor shall notify the following utilities or agencies at least five (5) days before starting work shown on these plans:
      Miss Utility (Call Toll) 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
   d. Clear all utilities by a minimum of 6". Clear all poles 2'-0" minimum or tunnel as required. Cost for tunneling or bracing at poles shall be incidental to the items in the Proposal Itemization. The locations of poles, handboxes, conduit and controller shall be adjusted, if necessary to avoid existing utilities.
4. All disturbed areas shall be properly restored in accordance with the Contract Specifications.
5. All signal heads shall be securely wrapped and/or bagged in burlap, when not in use.
6. Sign designation and layout shown here are as shown in the State of Maryland's Standard Highway Signs Booklet.

LOOPS AND DETECTORS

1. The following new loops shall be installed:

Number	Dimensions	Phase	Mode
12	6'x40'	3	PRESENCE NON-LOCK.

* Loop to be installed with 6'X3' Power Head for detection of small vehicles.
2. All loops shall be wired to Sliding loop amplifiers and each loop shall have a separate amplifier.
3. Loop amplifiers shall be Sarasota 236T/MS or approved equal.
4. All wiring shall be in accordance with manufacturer's recommendations for correct operation.
5. All loop corners shall be cut at a 45° angle, at least 6" long.
6. The Contractor shall insure that Loop No.9 does not conflict with the inlet adjacent to it.

EXISTING UNDERGROUND WIRING

1. Underground wiring shall be placed in new PVC Conduits under the road surface and in grass areas, as shown on the Contract Drawings.
2. Under existing pavement new conduit will be pushed for Installation.
3. The use of direct lay cable or a combination of conduit and direct lay shall not be acceptable.
4. Centerline of handbox shall be 3' behind face of curb unless otherwise indicated.
5. Cable is to be placed in saw cut between detector and curbline and in conduit between curbline and handbox.

POLES

EXISTING

1. Two poles with twin support arms and a single lighting arm. Also a single pole with one support arm.
2. Style and appearance shall be equivalent to Union Metal Design No.80500 Finish shall be bronze paint.
3. Pole Number — Description
   1 — TWIN SUPPORT ARMS, ONE OF WHICH WITH 20' SPREAD SUPPORTING TWO SIGNAL HEADS i.e. 3 AND 4 AND THE REMAINING WITH 40' ARM SUPPORTING TWO SIGNAL HEADS NOS 9 & 10, AND 10' LIGHTING ARM.
   2 — TWIN SUPPORT ARMS, ONE OF WHICH WITH 40' SPREAD SUPPORTING TWO SIGNAL HEADS NO.5 & 6 AND THE REMAINING WITH 30' ARM SUPPORTING TWO SIGNAL HEADS NOS 7 & 8 AND 12' LIGHTING ARM.
   3 — SIGNAL ARM WITH 40' SPREAD SUPPORTING SIGNAL HEADS NO.8 1 & 2.

CONTROLLER AND ACCESSORIES (EXISTING)

1. NEMA eight-phase programmable controller with solid state circuitry and digital timing, equivalent to the Econolite ICC Series Digital Control unit, equivalent manufactured by Eagle Signal Corporation or Crouse Hinds or approved equal. (Econolite KMC 8000)
   a. Equipped with five vehicular actuated modules and capable of interface package for coordination. (3 - # 300TSC, 2 @ 500 HLR HONEYWELL)
   b. Vehicular actuated phase modules shall be capable of the following functions: Minimum Green, Extension, Yellow, All-Red Clearance, Dual Maximum, Recall and Memory
   c. Five-phase signal overlap capability.
2. Conflict Monitor and Solid State load switches (Econolite # SSM-12L)
3. Solid State flasher and switch accessible through police door panel. (# 2017L Flasher)
4. Ground mounted traffic controller cabinet large enough to accomodate the above control equipment. The cabinet shall be furnished with a thermostatically controlled cabinet vent fan.
5. Finish of the cabinet shall be all-weather bronze paint.
6. Meter Box shall be installed in a vandal proof enclosure supplied by the Contractor and be painted bronze.
7. Install 3' x 4' x 5" concrete slab in front of the controller cabinet

SIGNAL HEADS & OVERHEAD SIGN

1. The Contractor shall provide the following new signal heads:

Signal Number	Description
1, 2, 5 through 8, 9 & 10 (EXIST.)	12" diameter red indication and 8" amber and green indications
3, 4 (EXIST.)	12" diameter red with 12" amber and green arrow indications
11 (PROPOSED)	12" red indication; 12" amber and green indications, including turn arrows, POLE MOUNTED.
10 (PROPOSED)	ONEWAY 5 SECT. HEAD, 12" R,Y & G w/ (12"Y & G ARROW, MAST ARM MOUNTED.

2. All signals shall have brown baked enamel finish and shall be furnished with tunnel visors. All signals shall be vertically mounted on the mast arms with rigid adjustable brackets equivalent to the "MoPed Traffic Controls, Inc. Astro-Brac (Model No. 0-40-101)" or approved equal. Signal arrangement shall be as shown in the Phase and Sequence Diagram.
3. Signal heads 6 and 8 shall have backplates.
4. A "Yield When Turning on Green" sign shall be installed adjacent to signal head Number 6. See Standard Details. (EXISTING TO REMOVE BY OTHERS)
5. Install one (1) sign R3-5 (size 30" x 36") adjacent to signal head Number 7 Similarly, install one (1) sign R3-6 (size 30" x 36") adjacent to signal head Number 8, as shown. (EXISTING)
6. Signals are to be aimed at approximately 1,000 ft. to insure good visibility.
7. Signal Heads shall have the color of the bronze paint with "M.A.Bruder & Sons, Inc Seashore Gloss Trim 27721 Duramodic Bronze Code 700790 or approved equal.

PHASE AND SEQUENCE DIAGRAM		TRAFFIC SIGNAL HEADS 1	2	3,4	11	5	6	7	8	9	10	MIN. GREEN	YELLOW	RED CLEARANCE	VEH. EXT.	MAX. GREEN	RECALL
		R 12" / Y 8" / G 8"	R 12" / Y 8" / G 8"	R 12" / Y 12" / G 12"	R 12" / Y 12" / G 12"	R 12" / Y 8" / G 8"	R 12" / Y 8" / G 8"	R 12" / Y 8" / G 8"	R 12" / Y 8" / G 8"	R 12" / Y 8" / G 8"	R 12" / 12" Y / 12" G						
III	PHASE 1	G	G	↓G	↓R	R	R	R	R	R	R	6			1.8	25	OFF
III	PHASE 1 CLEAR TO 2 ONLY	G	G	Y	R	R	R	R	R	R	R		3	1			
III	PHASE 2	G	G	R	R	R	R	R	R	R	R	11			3	20	
III	PHASE 2 CLEAR TO 3 ONLY	Y	Y	R	R	R	R	R	R	R	R		4	1			
III	PHASE 3	R	R	R	↓G	G	G	R	R	R	R	6			1.8	20	OFF
III	PHASE 3 CLEAR	R	R	R	Y	Y	Y	R	R	R	R		3	1			
	PHASE 4	R	R	R	R	R	R	R	R	G	↓G	6	—	—	32	20	OFF
	PHASE 4 CLEAR	R	R	R	R	R	R	R	R	Y	Y		3	1			—
	PHASE 5	R	R	R	R	R	R	G	G	R	R	10	—	—	2	40	OFF
	PHASE 5 CLEAR	R	R	R	R	R	R	Y	Y	R	R		4	1			—
	FLASHING OPERATIONS	FL/Y	FL/Y	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	—	—	—	—	—	—

BRUNING 44-132 53864

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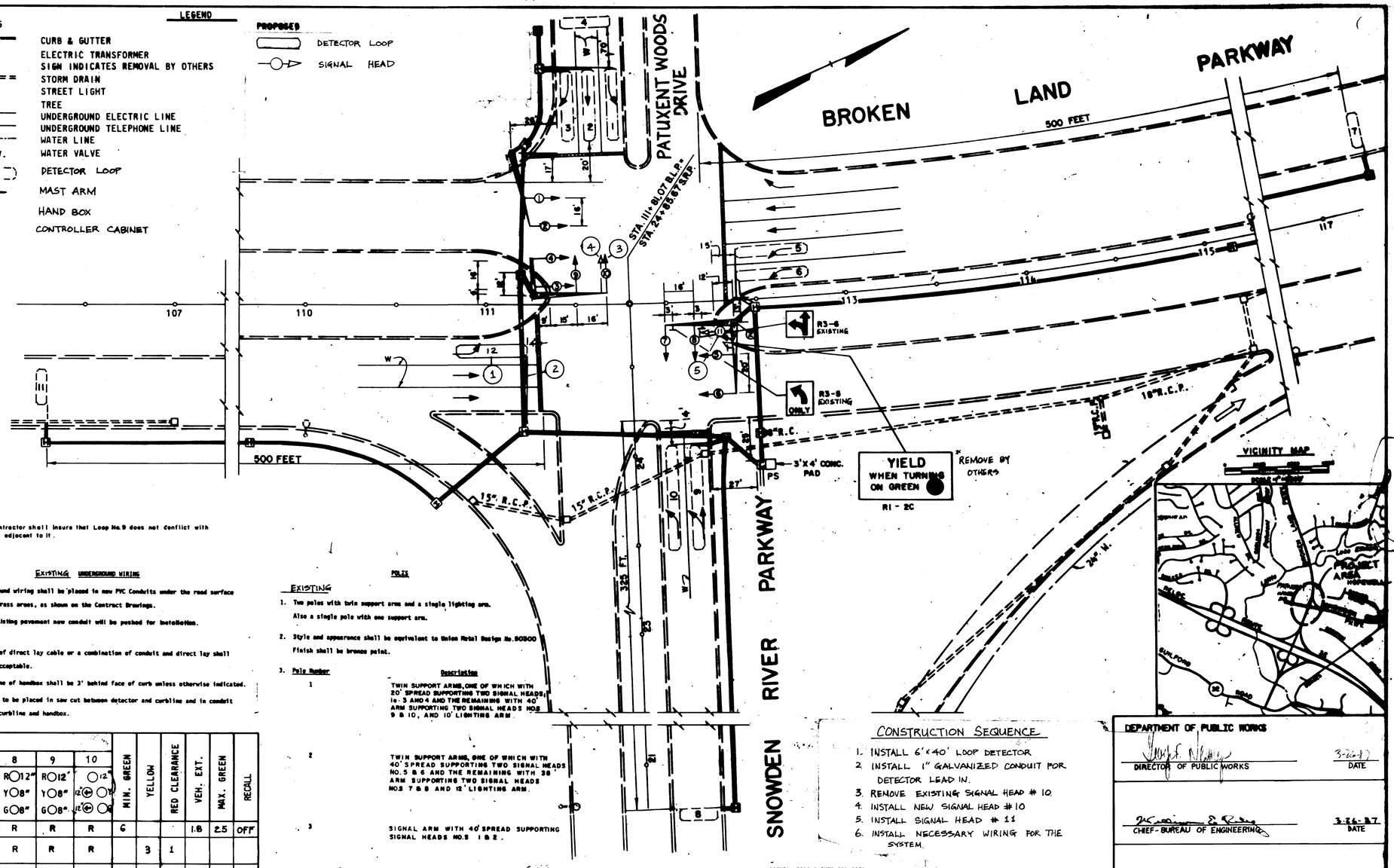

CONSTRUCTION SEQUENCE

1. INSTALL 6'x40' LOOP DETECTOR
2. INSTALL 1" GALVANIZED CONDUIT FOR DETECTOR LEAD IN.
3. REMOVE EXISTING SIGNAL HEAD # 10
4. INSTALL NEW SIGNAL HEAD # 10
5. INSTALL SIGNAL HEAD # 11
6. INSTALL NECESSARY WIRING FOR THE SYSTEM.

STATE OF MARYLAND — PROFESSIONAL ENGINEER — Registered Engr. No. 18774

DEPARTMENT OF PUBLIC WORKS

DIRECTOR OF PUBLIC WORKS — DATE 3-26-87

CHIEF-BUREAU OF ENGINEERING — DATE 3-26-87

CHIEF-ROADS, BRIDGES, STORM DRAINAGE DIVISION — DATE 3/25/87

SIGNAL MODIFICATION

AT INTERSECTION OF

SNOWDEN RIVER PKWY/ BROKENLAND PKWY

PATUXENT WOODS DRIVE

CAPITAL PROJECT T-7043

TF - 252

DIV. OF ROADS, BRIDGES, AND STORM DRAINAGE

HOWARD COUNTY MARYLAND

DESIGN BY J. CHEUNG	SCALE 1" = 30'
DRAWN BY J. CHEUNG	DATE MARCH, 87
CHECKED BY E A CALIA	SHEET NO. 1 OF 1