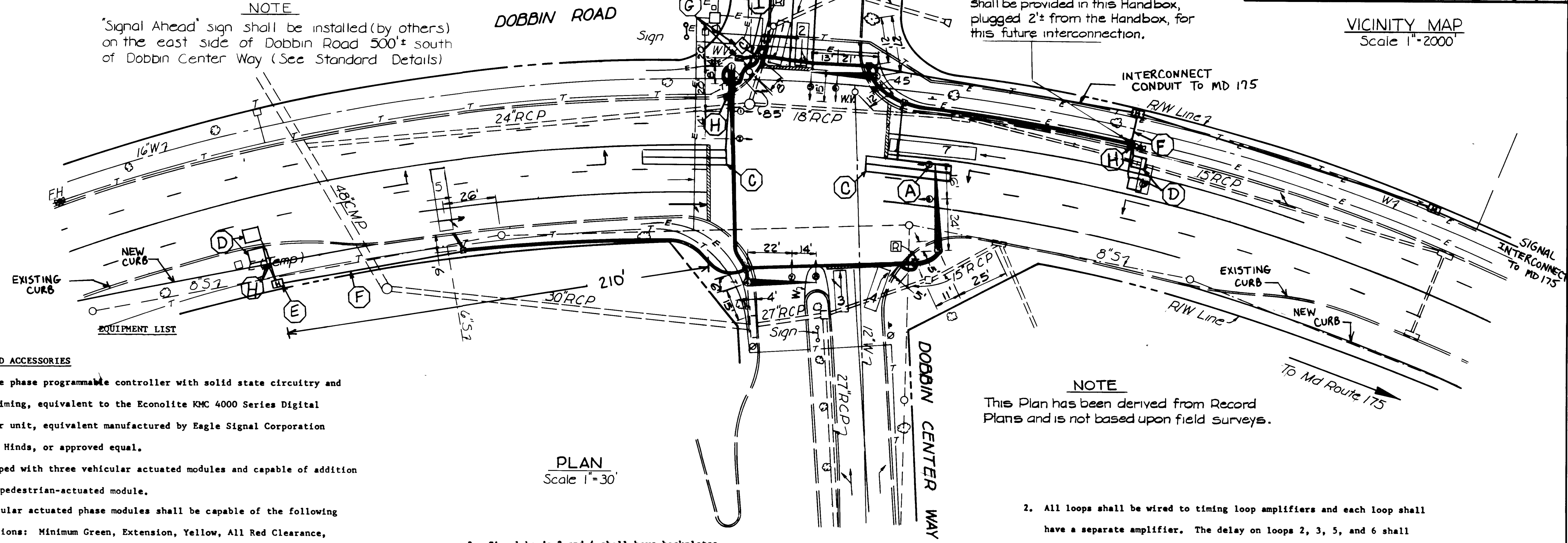
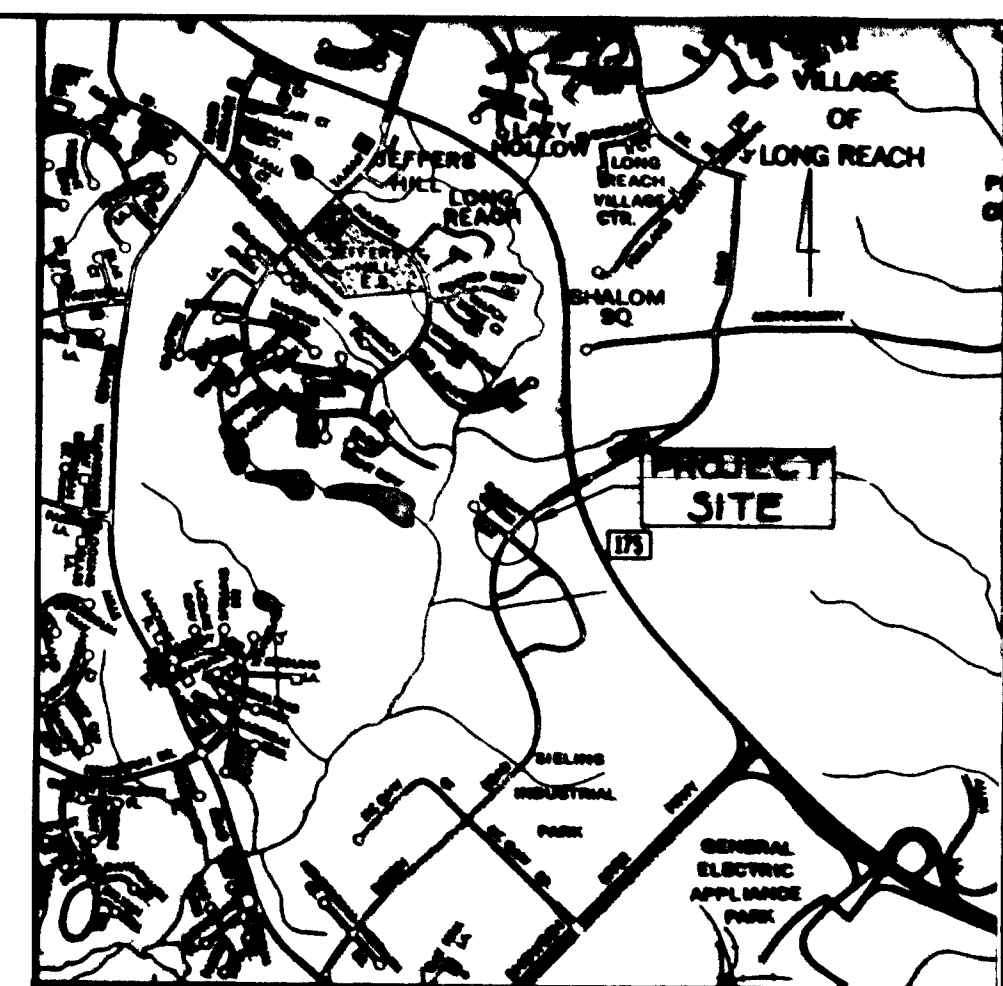


PHASE AND SEQUENCE DIAGRAM	TRAFFIC SIGNAL HEADS					Min Green	Yellow	Red Clearance	Veh Ext	Maximum Green	Recall
	1	2	3,4	5,7,8	6						
	G	G	R	R	R	6	-	-	10	25	OFF
	G	G	R	R	R	-	4	1	-	-	-
	G	G	G	R	R	11	-	-	3	20	ON
	Y	Y	Y	R	R	-	4	1	-	-	-
	R	R	R	G	G	10	-	-	2	20	OFF
	R	R	R	Y	Y	-	4	1	-	-	-
	Y	Y	Y	R	R	-	-	-	-	-	-

EXISTING		PROPOSED	
	Curb & Gutter		Controller w/Electric Meter
	Electric Transformer		Detector Loop
	Fire Hydrant		Hand Box
	Sign (Indicates removal by others)		Mast Arm
	Storm Drain		Signal Head
	Street Light		Steel Pole
	Telephone Transformer		Stop Bar (By Others)
	Tree		Underground Signal Wiring
	Underground Electric Line		White Lane Arrow (By Others)
	Underground Telephone Line		Single White Stripe (By Others)
	Water Line		Double Yellow Stripe (By Others)
	Water Valve		



- CONTROLLER AND ACCESSORIES**
- NEMA three phase programmable controller with solid state circuitry and digital timing, equivalent to the Econolite KMC 4000 Series Digital Controller unit, equivalent manufactured by Eagle Signal Corporation or Crouse Hinds, or approved equal.
    - Equipped with three vehicular actuated modules and capable of addition of a pedestrian-actuated module.
    - Vehicular actuated phase modules shall be capable of the following functions: Minimum Green, Extension, Yellow, All Red Clearance, Dual Maximum, Recall and Memory.
    - Three phase signal overlap capability.
  - Conflict Monitor and Solid State load switches.
  - Solid State flasher and switch accessible through police door panel.
  - 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.
  - Finish of the cabinet shall be all-weather bronze paint.
  - Meter Box shall be installed in a vandal proof enclosure supplied by the Contractor.
  - Install 3' x 4' x 5" concrete slab in front of the controller cabinet.

- SIGNAL HEADS & OVERHEAD SIGN**
- The Contractor shall provide the following new signal heads:
 

Signal Number	Description
1, 3, 4, 5, 7, 8	12" diameter red indication and 8" amber and green indications
2, 6	12" red indication; 12" amber and green indications, including turn arrows
  - 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 "VaPed Traffic Controls, Inc. Astro-Brac (Model No. O-AB-101)" or approved equal. Signal arrangement shall be as shown in the Phase and Sequence Diagram.

- POLES**
- Proposed Poles:**
- Four support poles with individual support arms.
  - Style and appearance shall be equivalent to Union Metal Design No. 50700. Finish shall be bronze paint.
- | Pole Number | Description                                 |
|-------------|---|
| 1, 2        | 34' arm spread supporting two signal heads. |
| 3           | 40' arm spread supporting two signal heads. |
| 4           | 36' arm spread supporting two signal heads. |

- LOOPS AND DETECTORS**
- The following new loops shall be installed:
 

Number	Dimensions	Phase	Mode
1, 4	6' x 20'	3	Presence, non-lock
2, 3	6' x 20'	3	Presence, non-lock
5	6' x 30'	2	Pulse, non-lock
6	6' x 17'	2	Pulse, non-lock
7	6' x 40'	1	Presence, non-lock
- \*Loop to be installed with 6' x 3' power head for detection of small vehicles.

**NOTE**  
Handboxes and Conduit between the Controller and this Handbox shall be sized to accommodate a future interconnection cable from the Dobbin Rd - Md Rte 175 Intersection. A Spare 2" Conduit Elbow shall be provided in this Handbox, plugged 2" from the Handbox, for this future interconnection.

**NOTE**  
This Plan has been derived from Record Plans and is not based upon field surveys.

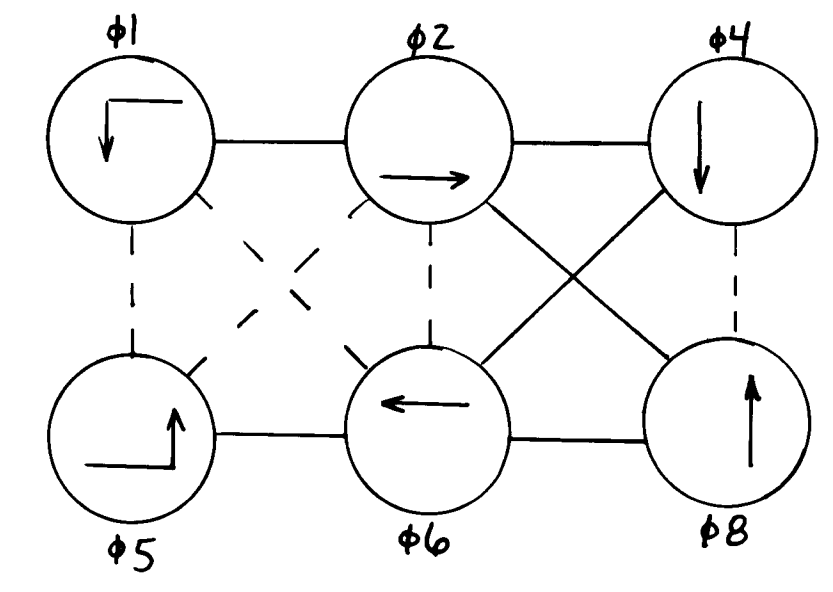
**CONSTRUCTION DETAILS**

- REPLACE SIGNAL #3 WITH 5-SECTION SIGNAL (INSTALL 7-CONDUCTOR CABLE) AND INSTALL R10-12 "LEFT TURN YIELD ON GREEN" SIGN NEXT TO SIGNAL
- REPLACE SIGNALS #1, 2, 4, THRU 8 WITH NEW 12" YELLOW SIGNALS
- INSTALL 6' X 40" DETECTOR
- INSTALL 6' X 6" DETECTOR
- INSTALL HANDBOX
- INSTALL 2" PVC - TRENCHED
- INSTALL NEW BASE AND CABINET NOTE: 1" PVC AND 2-4" GALV 90 DEGREE ELBOW REMOVE EXISTING CABINET AND BASE
- INSTALL 1" GALV STEEL CONDUIT - DETECTOR WIRE SLEEVE
- INSTALL TWO 4" GALV STEEL CONDUIT TRENCHED

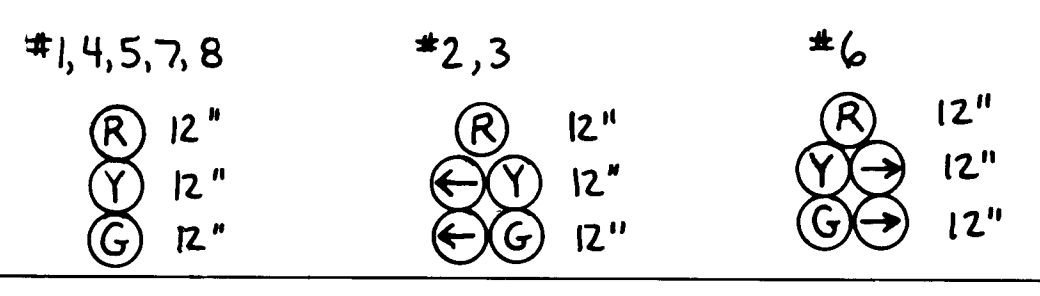
REVISION #1 - MAY '93

*C. Edward Walters* 4/26/93  
CHIEF, TRAFFIC ENGINEERING DIVISION

**PROPOSED NEMA PHASING**



**PROPOSED SIGNAL HEADS**



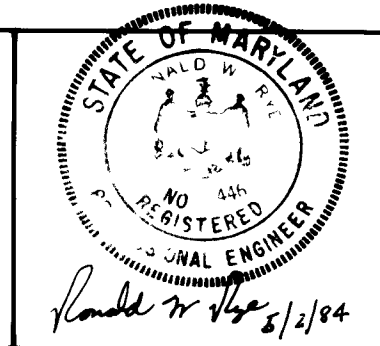
- All loops shall be wired to timing loop amplifiers and each loop shall have a separate amplifier. The delay on loops 2, 3, 5, and 6 shall be zero and the delay for loops 1 and 4 shall be 8 seconds. This delay is to be in effect only during Phases 1 and 2. The delay for detector 7 shall be zero during phases 1 and 3 and 15 seconds during phase 2.
  - Loop amplifiers shall be Sarasota 235T/MS or approved equal.
  - All wiring shall be in accordance with manufacturer's recommendations for correct operation.
  - All loop corners shall be cut at a 45° angle, at least 6" long.
- UNDERGROUND WIRING**
- Underground wiring shall be placed in new PVC Conduits under the road surface and in grass areas, as shown on the Contract Drawings.
  - The conduit shall be sized to accommodate future wiring for pedestrian (WALK/DON'T WALK) signal heads.
  - The Contractor shall furnish an "as-built" drawing as per "General Specifications - 4.02 b."
  - The use of direct lay cable or a combination of conduit and direct lay shall not be acceptable.
  - Conduit under existing pavement shall be installed by pushing or boring.
  - Centerline of handbox shall be 3' behind face of curb unless otherwise indicated.
  - Cable is to be placed in saw cut between detector and curbline and in conduit between curbline and handbox.

NO	DATE	DESCRIPTION OF REVISION	SIGNATURE
1	5-93	DOBBS RD WIDENING	CEW

**DEPARTMENT OF PUBLIC WORKS**

HOWARD COUNTY, MARYLAND  
 DATE: 5-7-94  
 CHIEF-BUREAU OF ENGINEERING  
 DATE: 5/7/94

PREPARED BY  
 THE WILSON T BALLARD COMPANY  
 CONSULTING ENGINEERS  
 OWINGS MILLS, MARYLAND



**TRAFFIC SIGNAL SYSTEM TF-250**  
 AT  
 DOBBIN ROAD AND DOBBIN CENTER WAY  
**PLAN AND EQUIPMENT LIST**

DRAWING NO	SCALE	R.W.R. DESIGNED BY
1	1"=30'	JSL
DRAFTED BY	R.W.R. CHECKED BY	
1		