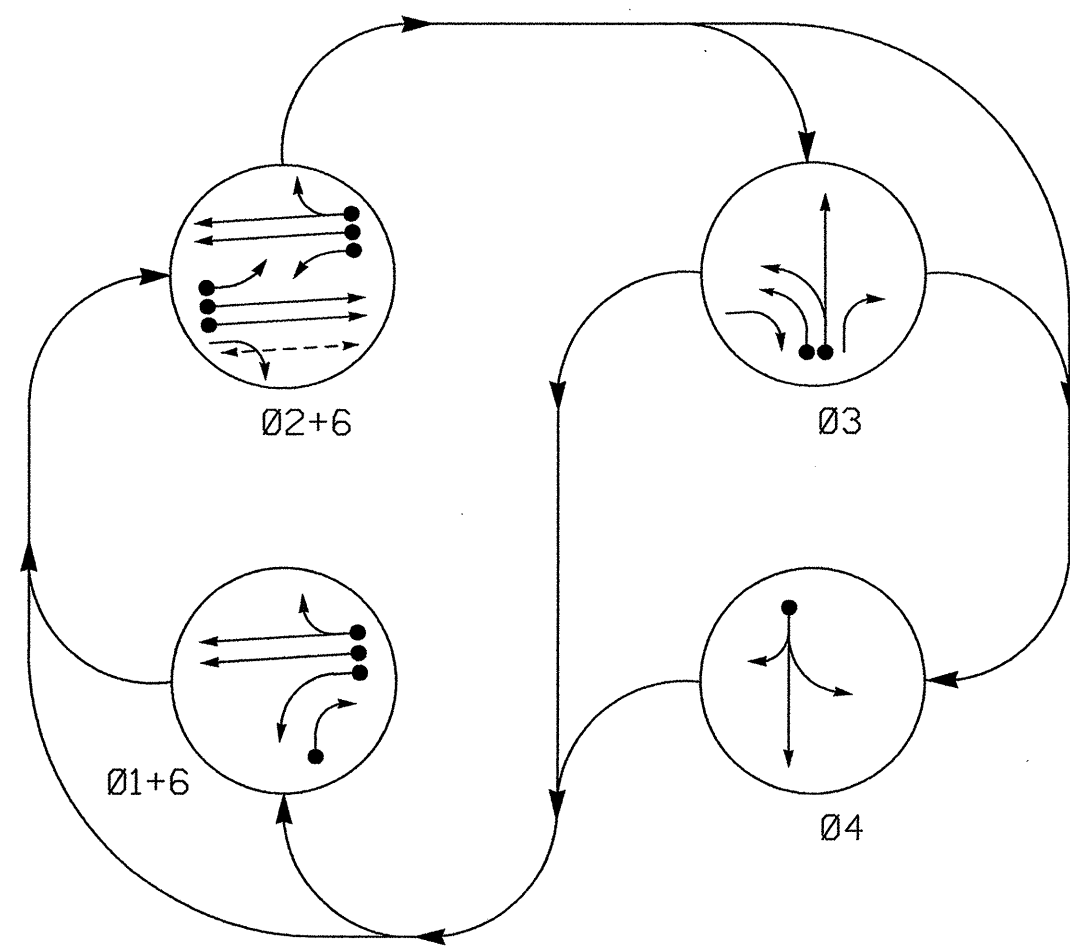


PHASING DIAGRAM



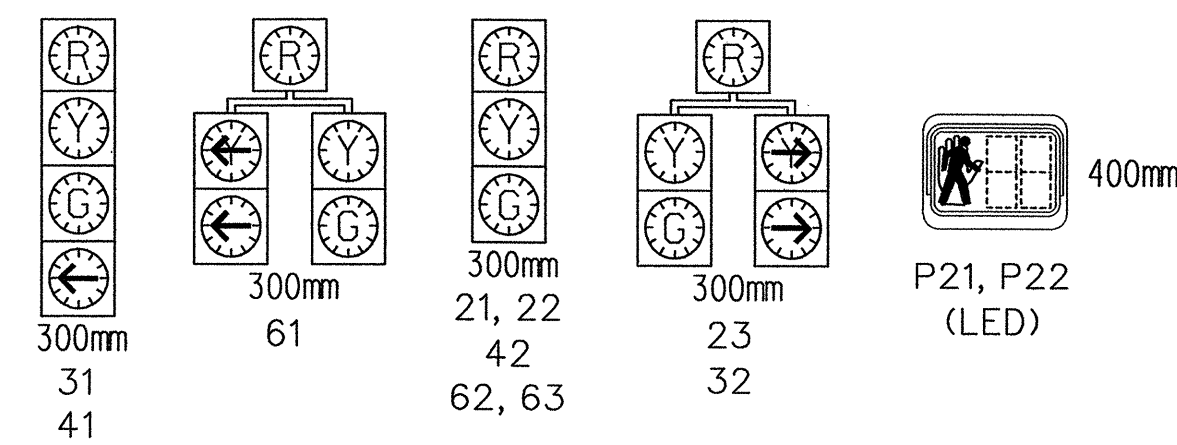
PHASING DIAGRAM DETECTION LEGEND

- ← ● → DETECTED MOVEMENT
- ← ○ → UNDETECTED MOVEMENT (OVERLAP)
- ← - - - → UNSIGNALIZED MOVEMENT
- ← - - - - - → PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE				L.E.D.
	Ø 1 + 6	Ø 2 + 6	Ø 3	Ø 4	
21, 22	R	G	R	R	Y
23	R	G	R	R	Y
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
61	G	G	R	R	Y
62, 63	G	G	R	R	Y
P21, P22	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

⊙ Denotes L.E.D.



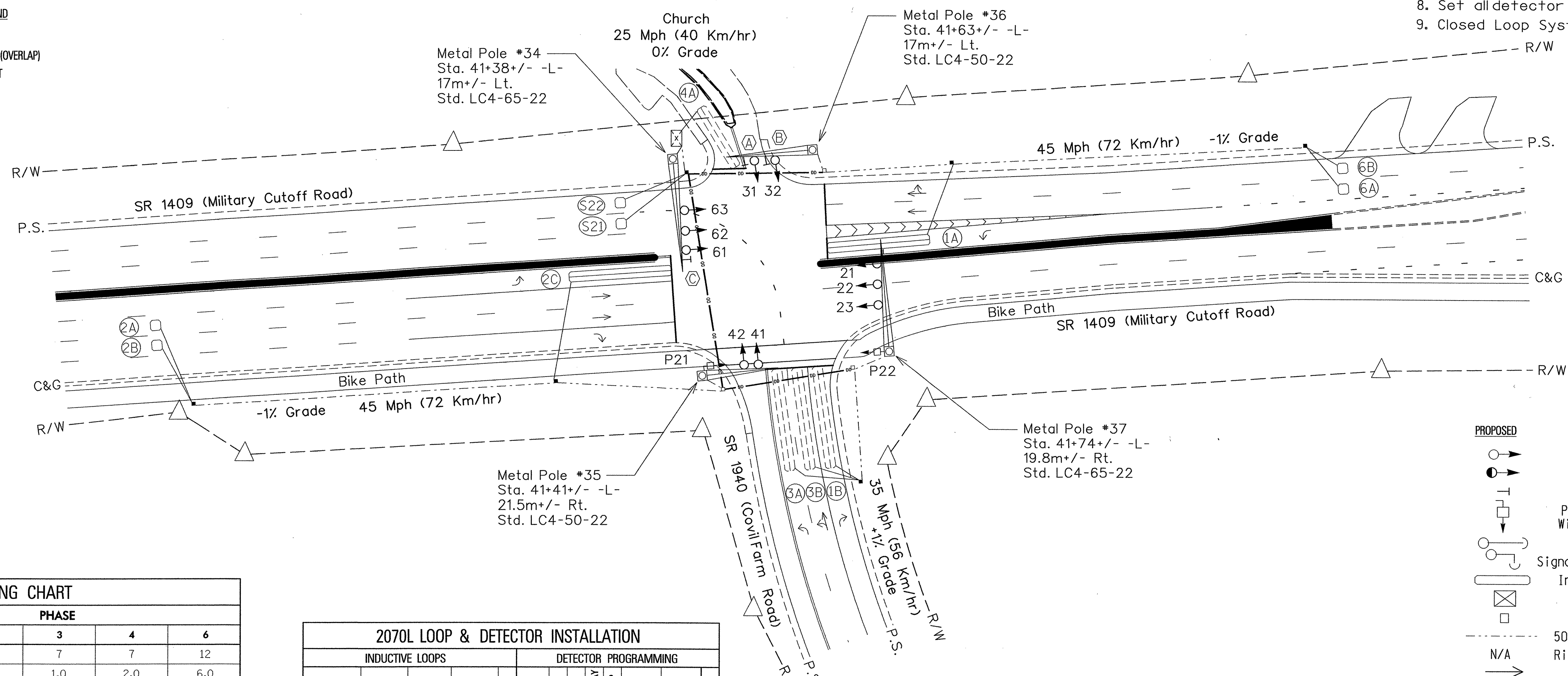
PLAN QUANTITIES

Pay Item	Meters
Signal Cable	250
Messenger Cable	0
Lead-in Cable	750

4 Phase  
(Fully Actuated)  
(Military Cutoff Road Closed Loop System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002.
- Omit phase 1 during phase 2 on.
- Program controller to clear from phase 2+6 to phase 1+6 by progressing through phase 4 (See Electrical Details).
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- During coordination, the order of phase 3 and 4 may be reversed.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to count down the flashing "DON'T WALK" time only.
- Set all detector units to presence mode.
- Closed Loop System Data: Controller Asset #0882.



FEATURE	2070L TIMING CHART				
	1	2	3	4	6
Min Green 1*	7	12	7	7	12
Extension 1*	1.0	6.0	1.0	2.0	6.0
Max Green 1*	15	100	25	25	100
Yellow Clearance	4.0	4.7	4.0	4.0	4.7
Red Clearance	2.0	1.5	3.0	2.0	1.5
Walk 1*	-	4	-	-	-
Don't Walk 1	-	15	-	-	-
Seconds Per Actuation*	-	1.5	-	-	1.5
Max Variable Initial*	-	34	-	-	34
Time Before Reduction*	-	15	-	-	15
Time To Reduce*	-	30	-	-	30
Minimum Gap	-	3.0	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (M)	TURNS	DISTANCE FROM STOPBAR (M)	DETECTOR PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	SYSTEM LOOP	STRETCH TIME	DELAY TIME	NEW CARD
1A	1.8x18	2-4-2	0	Y	1	Y	Y	-	-	-	15	-
1B	1.8x18	2-4-2	0	-	1	Y	Y	-	-	-	15	-
2A	1.8x1.8	5	90	Y	2	Y	Y	-	-	-	-	-
2B	1.8x1.8	5	90	Y	2	Y	Y	-	-	-	-	-
2C	1.8x18	2-4-2	0	Y	2	Y	Y	-	-	-	3	-
3A	1.8x18	2-4-2	0	-	3	Y	Y	-	-	-	3	-
3B	1.8x18	2-4-2	0	-	3	Y	Y	-	-	-	-	-
4A	1.8x12	2-4-2	0	-	4	Y	Y	-	-	-	10	-
6A	1.8x1.8	5	90	Y	6	Y	Y	-	-	-	-	-
6B	1.8x1.8	5	90	Y	6	Y	Y	-	-	-	-	-
S21	1.8x1.8	5	+35	Y	-	-	-	-	Y	-	-	-
S22	1.8x1.8	5	+35	Y	-	-	-	-	Y	-	-	-

LEGEND

- |  |   |  |   |
|--|---|--|---|
|  | PROPOSED Traffic Signal Head                          |  | EXISTING Traffic Signal Head                          |
|  | PROPOSED Modified Signal Head                         |  | EXISTING Modified Signal Head                         |
|  | PROPOSED Pedestrian Signal Head                       |  | EXISTING Pedestrian Signal Head                       |
|  | PROPOSED Signal Pole with Guy                         |  | EXISTING Signal Pole with Guy                         |
|  | PROPOSED Inductive Loop Detector                      |  | EXISTING Inductive Loop Detector                      |
|  | PROPOSED Controller & Cabinet                         |  | EXISTING Controller & Cabinet                         |
|  | PROPOSED Junction Box                                 |  | EXISTING Junction Box                                 |
|  | PROPOSED 50mm Underground Conduit                     |  | EXISTING 50mm Underground Conduit                     |
|  | PROPOSED Right of Way with Marker                     |  | EXISTING Right of Way with Marker                     |
|  | PROPOSED Directional Arrow                            |  | EXISTING Directional Arrow                            |
|  | PROPOSED Pavement Marking Arrow                       |  | EXISTING Pavement Marking Arrow                       |
|  | PROPOSED Metal Pole with Mastarm                      |  | EXISTING Metal Pole with Mastarm                      |
|  | PROPOSED Directional Drill                            |  | EXISTING Directional Drill                            |
|  | PROPOSED Left Arrow "ONLY" Sign (R3-5L)               |  | EXISTING Left Arrow "ONLY" Sign (R3-5L)               |
|  | PROPOSED Combined Through and Left Arrow Sign (R3-6L) |  | EXISTING Combined Through and Left Arrow Sign (R3-6L) |
|  | PROPOSED "U-TURN YIELD TO RIGHT TURN" Sign (R10-16)   |  | EXISTING "U-TURN YIELD TO RIGHT TURN" Sign (R10-16)   |

Signal Upgrade Final Design

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Prepared for:  
  
 122 N. McDowell St., Raleigh, NC 27603  
 SCALE: 1:500

**SR 1409 (Military Cutoff Road) at SR 1940 (Covil Farm Road) and Church**  
 Division 3 New Hanover County Wilmington  
 PLAN DATE: Sept 2003 REVIEWED BY: L. M. Eddins  
 PREPARED BY: H. M. Surti REVIEWED BY: S. S. Asefnia  
 REVISIONS: INIT. DATE

SEAL  
  
 12/11/03  
 SIGNATURE DATE  
 SIG. INVENTORY NO. 03-0882

\*\*\*\*\*ACTIVE\*\*\*\*\*  
 \*\*\*\*\*USER\*\*\*\*\*  
 \*\*\*\*\*SERIAL\*\*\*\*\*