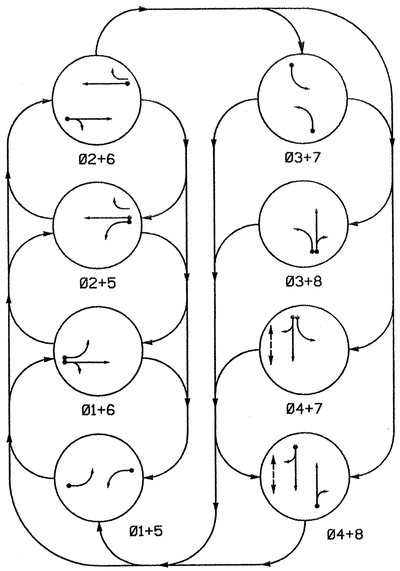
PROJECT REFERENCE NO.	SHEET NO.
R-2904	SIG. 4

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

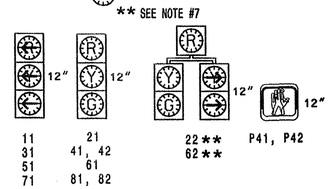
TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	F* LASH
11	~~-~~	~~-~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21, 22	R	R	G	G	R	R	R	R	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	~~-~~	~~-~~	~~R~~	~~R~~	~~R~~
41, 42	R	R	R	R	R	R	G	G	R
51	~~-~~	~~R~~	~~-~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	R	R	Y
71	~~R~~	~~R~~	~~R~~	~~R~~	~~-~~	~~R~~	~~-~~	~~R~~	~~R~~
81, 82	R	R	R	R	R	G	R	G	R
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DRK

* SEE NOTE #2

SIGNAL FACE I.D.

Denotes L.E.D.
** SEE NOTE #7



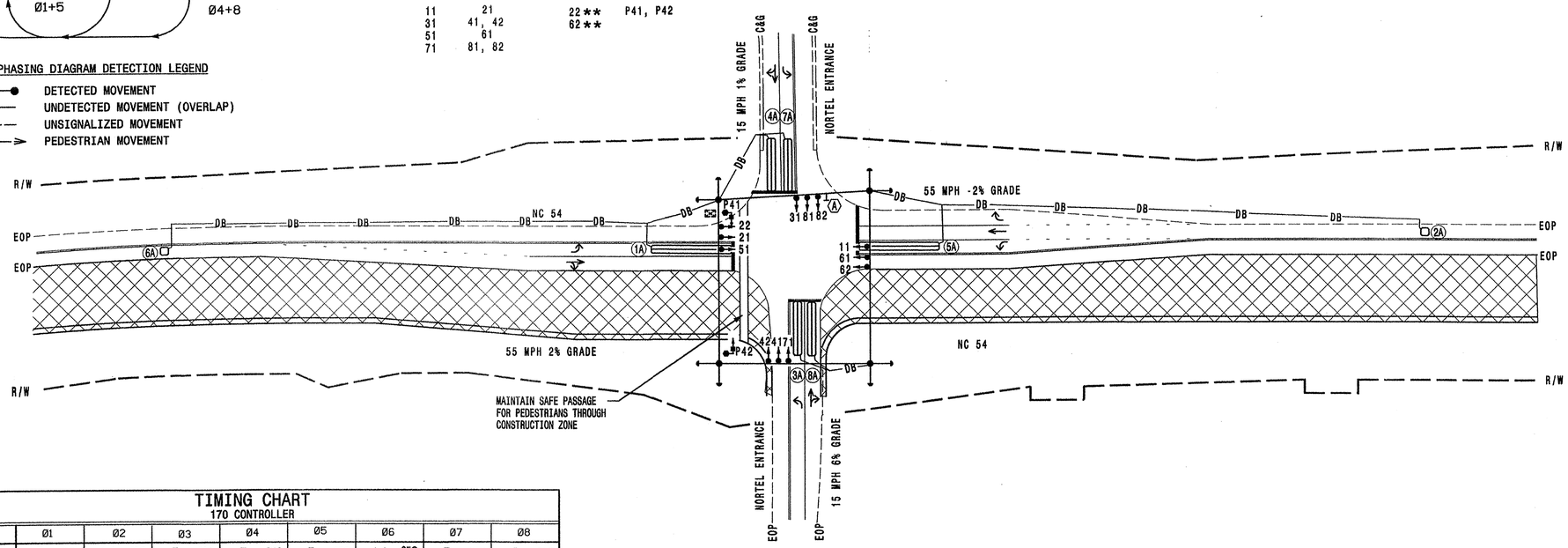
LOOP & DETECTOR UNIT INSTALLATION CHART
170 CONTROLLER AND CABINET

INDUCTIVE LOOPS						DETECTOR PROGRAMMING													
							TIMING		ATTRIBUTES								STATUS	
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	NEMA PHASE	DELAY	CARRY (STRETCH)	1 FULL TIME DELAY	2 PEDESTRIAN CALL	3 RESERVED	4 COUNT	5 EXTENSION	6 TYPE 3	7 CALLING	8 ALTERNATE	SYSTEM LOOPS	NEW	EXISTING
1A	6X60	2-4-2	0	X	-	1	3 SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
2A	6X6	6	420	X	-	2	- SEC.	- SEC.	-	-	-	X	X	-	X	-	-	-	X
3A	6X40	2-4-2	0	X	-	3	3 SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
4A	6X40	2-4-2	0	X	-	4	10 SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
5A	6X60	2-4-2	0	X	-	5	3 SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
6A	6X6	6	420	X	-	6	- SEC.	- SEC.	-	-	-	X	X	-	X	-	-	-	X
7A	6X40	2-4-2	0	X	-	7	3 SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
8A	6X40	2-4-2	0	X	-	8	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
P41,P42	-	-	-	X	-	-	- SEC.	- SEC.	-	X	-	-	-	-	-	-	-	-	X

8 PHASE
FULLY ACTUATED
(ISOLATED)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002, and all applicable sections of the latest version of the Project Special Provisions.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Reposition existing signal heads numbered 11, 21, 22, 51 61 and 62.
4. Program all timing information into phase banks 1, 2 and 3 unless otherwise noted.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Set all detector units to presence mode.
7. De-energize and bag arrow signal faces on heads 22 and 62.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Pedestrian Signal Pedestal	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
DB	Direct Bury	N/A
	Right of Way with Marker	
	Directional Arrow	
	Pavement Marking Arrow	
	Construction Zone Drums	N/A
	Construction Zone	N/A
A	"NO TURN ON RED" Sign (R10-11)	A

TIMING CHART
170 CONTROLLER

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MINIMUM INITIAL	7 SEC.	14 SEC.	7 SEC.	7 SEC.	7 SEC.	14 SEC.	7 SEC.	7 SEC.
VEHICLE EXTENSION	1.0 SEC.	6.0 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.	6.0 SEC.	1.0 SEC.	1.0 SEC.
YELLOW CHANGE INT.	4.0 SEC.	5.4 SEC.	4.0 SEC.	4.0 SEC.	4.0 SEC.	5.4 SEC.	4.0 SEC.	4.0 SEC.
RED CLEARANCE	1.5 SEC.	1.5 SEC.	2.0 SEC.	2.5 SEC.	1.5 SEC.	1.5 SEC.	2.0 SEC.	2.5 SEC.
MAXIMUM LIMIT	20 SEC.	90 SEC.	20 SEC.	40 SEC.	20 SEC.	90 SEC.	20 SEC.	40 SEC.
RECALL POSITION	NONE	VEH. RECALL	NONE	NONE	NONE	VEH. RECALL	NONE	NONE
VEHICLE CALL MEMORY	NONE	YELLOW LOCK	NONE	NONE	NONE	YELLOW LOCK	NONE	NONE
DOUBLE ENTRY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK	– SEC.	– SEC.	– SEC.	7 SEC.	– SEC.	– SEC.	– SEC.	– SEC.
FLASHING DON'T WALK	– SEC.	– SEC.	– SEC.	23 SEC.	– SEC.	– SEC.	– SEC.	– SEC.
TYPE 3 LIMIT	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.
ALTERNATE EXTENSION	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.	– SEC.
ADD PER VEHICLE	– SEC.	2.5 SEC.	– SEC.	– SEC.	– SEC.	2.5 SEC.	– SEC.	– SEC.
MAXIMUM INITIAL	– SEC.	46 SEC.	– SEC.	– SEC.	– SEC.	46 SEC.	– SEC.	– SEC.
MAXIMUM GAP	1.0 SEC.	7.0 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.	7.0 SEC.	1.0 SEC.	1.0 SEC.
REDUCE 0.1 SEC EVERY	– SEC.	1.5 SEC.	– SEC.	– SEC.	– SEC.	1.5 SEC.	– SEC.	– SEC.
MINIMUM GAP	1.0 SEC.	3.4 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.	3.4 SEC.	1.0 SEC.	1.0 SEC.

SIGNAL UPGRADE - TEMPORARY DESIGN THREE

PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
P.O. Box 33068
Raleigh, NC 27636
(919) 677-2000

Traffic Engineering and Safety Systems Branch
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals and Geometrics Section
122 N. McDowell St., Raleigh, NC 27603

SCALE 0 50' 1"=50'

NC 54
AT
NORTEL ENTRANCES

DIVISION 5 DURHAM COUNTY DURHAM

PLAN DATE: JUNE 2004	REVIEWED BY:
PREPARED BY: SP PENNINGTON	REVIEWED BY: DE MARCEAU

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 024910 ENGINEER DARREN E. MARCEAU

SIGNATURE DATE 7/18/04

SIG. INVENTORY NO. 05-1081T3

t:\01108105\signals\05-108105-108113_2004.sig

07/21/2004