

GENERAL CONSTRUCTION NOTES

INSTALLATION AND CONSTRUCTION SHALL CONFORM TO THE STATE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS SECTIONS APPLICABLE AND STANDARD PLANS DATED AND EFFECTIVE FOR THE CURRENT YEAR AND ANY SPECIAL MUNICIPALITY CODES PROVISIONS.

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IS APPROXIMATE. THE SUBCONTRACTOR SHALL DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES INCLUDING THOSE NOT SHOWN ON PLANS AND VERIFY ALL JOBSITE CONDITIONS, AND EXCAVATE FOUNDATION UNTIL CLEAR OF ALL SUBSTRUCTURES AND PROTECT ALL FACILITIES DURING CONSTRUCTION. SUBCONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS FOR UNDERGROUND UTILITY REMOVAL OR LOCATION WITH RESPECTIVE UTILITY OWNERS AS MAY BE REQUIRED SUFFICIENTLY IN ADVANCE TO PREVENT DELAY IN OPERATIONS.
2. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND UTILITIES ENCOUNTERED IN AREAS WHERE EXCAVATIONS ARE INDICATED AND SHALL REPAIR ANY SUCH DAMAGE AT OWN EXPENSE. WHERE UTILITY LINES MUST BE MAINTAINED UNDER STRUCTURE, THEY SHALL BE PROPERLY SUBVED THROUGH FOUNDATION.
3. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OR REPAIR OF ANY DAMAGE CAUSED BY THEM OR THEIR SUBCONTRACTORS.
4. THE SUBCONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND NOTIFY ALL UTILITIES AND THE CITY AT LEAST 72 HOURS IN ADVANCE OF CONSTRUCTION.
5. THE SUBCONTRACTOR IS REQUIRED AND MUST SUBMIT A WEEKLY SCHEDULE PRIOR TO START OF WORK EACH WEEK (NO EXCEPTIONS).
6. POLE DETECTOR AND EQUIPMENT LOCATIONS SHALL BE AS DEPICTED ON SITE PLAN. THE SUBCONTRACTOR SHALL VERIFY EQUIPMENT FIELD LOCATIONS WITH THE CITY TRAFFIC ENGINEER OR LOCAL AND/OR EXCAVATION AUTHORITY AND ACS PRIOR TO INSTALLATION.
7. THE SUBCONTRACTOR SHALL SUPPLY AND INSTALL ALL CONDUCTORS NECESSARY FOR THE INTENDED OPERATION AS NOTED ON THESE PLANS, NEC AND ALL APPLICABLE MUNICIPALITY CODES.
8. PROVIDE ANCHOR BOLT NUT COVERS FOR ALL STANDARDS.
9. ALL PULLBOXES AND COVERS SHALL BE CONCRETE OR PVC AS REQUIRED BY THE MUNICIPALITY. ALL PULLBOXES SHALL BE NO. 5 UNLESS OTHERWISE NOTED OR REQUIRED BY THE MUNICIPALITY.
10. ALL CONCRETE FORMS ARE TO BE INSPECTED BY LOCAL AUTHORITIES BEFORE CONCRETE IS PLACED.
11. THE SUBCONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES DURING TRAFFIC SIGNAL INSTALLATION.
12. INDUCTIVE LOOPS SHALL BE 40" x 100" OR APPLICABLE (SEE DETAIL IN THE TECHNICAL SPECIFICATIONS) WITH THREE (3) TURNS, UNLESS OTHERWISE SPECIFIED ON PLAN. OF IMSA SPECIFICATION 51-5 W/PS APPROVED LOOP DETECTOR WIRE AND ELASTOMERIC SEALANT, PER LOCAL CODES THE LEAD IN RUNS WILL BE INSTALLED WITH FIVE (5) TURNS PER FOOT INTO THE STUBOUT PER CITY AND DOT STANDARDS. ALL DLO'S SHALL MEET IMSA SPECIFICATION 50-2. ALL CONDUITS SHALL BE PVC, 2" MINIMUM INSIDE DIAMETER, UNLESS OTHERWISE SPECIFIED ON PLAN.
13. THERE SHALL BE A MINIMUM OF 36" BETWEEN EXISTING LOOPS AND PROPOSED INDUCTIVE LOOPS.
14. INDUCTIVE LOOP CABLE INTO NEW NO. 5 PULLBOX SHALL BE THROUGH 2" MINIMUM PVC CONDUIT SPACED 8" APART TO ISOLATE THE SIGNALING AND PREVENT INTERFERENCE.
15. ALL CUT LINES SHALL HAVE A MINIMUM SPACING OF 12".
16. ALL INDUCTIVE LOOPS AND CUT LINES SHALL BE PLACED A MINIMUM OF 60" FROM ANY METAL COVERS AND/OR GRATING IN ROAD SURFACES.
17. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND COORDINATION WITH THE SERVING (ELECTRICAL) UTILITY COMPANY AND PAY REQUIRED FEES FOR SERVICE CONNECTIONS.
18. THE SUBCONTRACTOR TO OBTAIN A NO FEE ENCROACHMENT PERMIT FROM THE CITY PRIOR TO COMMENCEMENT OF WORK. ALL WORK SHALL BE INSPECTED BY CITY FORCES. AT COMPLETION OF PROJECT CONTACT THE CITY TRAFFIC ENGINEER 24 HOURS PRIOR TO COMPLETION OF WORK.
19. THE SUBCONTRACTOR IS TO BUILD AND MAINTAIN A CONSTRUCTION BARRICADE (ALL NECESSARY LIGHTS, SIGNS, ETC. IF REQUIRED) FOR PROTECTION OF THE PUBLIC AS DIRECTED BY THE LOCAL AUTHORITIES.
20. ALL SUBCONTRACTORS TO PROVIDE LIABILITY INSURANCE AND WORKERS COMPENSATION BENEFITS IN ACCORDANCE WITH STATE LAW FOR ALL WORKERS AND AGENTS WHO WILL BE ON THE SITE AT ANY TIME WHILE PERFORMING WORK ON THIS PROJECT.
21. ALL WORK SHALL BE IN ACCORDANCE WITH NEC, ALL LOCAL, STATE AND FEDERAL CODES, ORDINANCES AND ANY APPLICABLE AMENDMENTS.
22. ALL DEBRIS, EXCESS MATERIAL, ETC. IS TO BE REMOVED BY THE SUBCONTRACTOR BY THE END OF THE JOB. JOB TO BE LEFT SUFFICIENTLY CLEAN AS TO WARRANT CITY APPROVAL.
23. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, FEES AND INSPECTIONS AS MAY BE REQUIRED FOR COMPLETION OF THE JOB AS PER ALL GOVERNING AGENCIES.
24. THE SUBCONTRACTOR TO PROVIDE COST ESTIMATE FOR ALL WORK SHOWN ON DRAWINGS AND WORK NORMALLY REQUIRED TO CARRY OUT THE DESIGN INTENT OF THESE DRAWINGS.
25. DRAWINGS ARE NOT TO BE SCALED. WORK SHALL BE GOVERNED BY DIMENSION ONLY. DISCREPANCIES BETWEEN THE DRAWINGS AND/OR THE EXISTING SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF ACS IMMEDIATELY.
26. RLC EQUIPMENT SHALL NOT BE INSTALLED ON MEDIANS LESS THAN FIVE FEET (5') IN WIDTH.
27. RLC RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FIVE FEET (5') OF FIRE HYDRANT.
28. RLC RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FOUR FEET (4') OF ADA RAMP.
29. SUBCONTRACTOR SHALL SUPPLY AS-BUILT DRAWINGS TO ACS ENGINEERING DEPARTMENT WITHIN THIRTY (30) DAYS OF CONSTRUCTION COMPLETION.
30. SUBCONTRACTOR SHALL COMPLETE A "RLC POST CONSTRUCTION INSTALLATION ACCEPTANCE FORM" FOR EACH RLC INSTALLED. COMPLETED FORMS SHALL BE FORWARDED TO ACS CONSTRUCTION DEPARTMENT.
31. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE RESPECTIVE OWNERS AND OTHER AGENCIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. CONTACT: CITY OF RALEIGH PUBLIC WORKS DEPT., TRAFFIC ENGINEERING DIV.

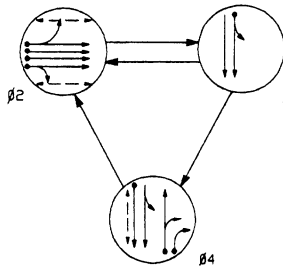
- * GAS COMPANY
- * WATER DISTRICT
- * PHONE COMPANY
- * CABLE COMPANY
- * LOCAL AND/OR STATE EXCAVATION AUTHORITY

32. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING LOOPS, LEAD-INS OR OTHER TRAFFIC SIGNAL EQUIPMENT. ANY DAMAGE TO LOOPS, LEAD-INS OR OTHER SIGNAL EQUIPMENT SHALL BE REPAIRED IN ACCORDANCE WITH CURRENT NCDOT SIGNAL STANDARDS.

GENERAL CONSTRUCTION NOTES:

1. THE SUBCONTRACTOR SHALL INSTALL ALL SUBSTRUCTURES ACCORDING TO LOCAL GOVERNING AGENCY POST LINE REQUIREMENTS WHERE APPLICABLE.
2. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING PHOTO ENFORCEMENT SIGNAGE PER CITY STANDARDS.
3. THE SUBCONTRACTOR SHALL SUPPLY AND INSTALL "TRAFFIC, NO. 1" BREAKAWAY BOLTS ONTO "A" BOLT. THE BOLT SHALL NOT PROTRUDE MORE THAN 1/2" ABOVE FINISHED CONCRETE SURFACE.
4. PULLBOX COVERS SHALL HAVE MARKING "TRAFFIC SIGNAL".

PHASING DIAGRAM



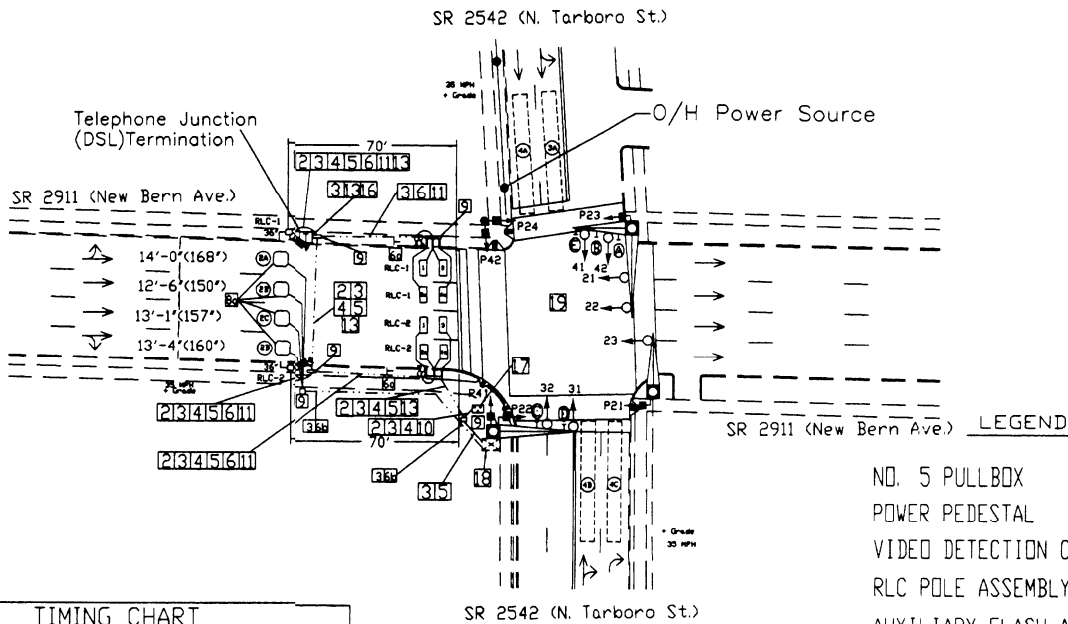
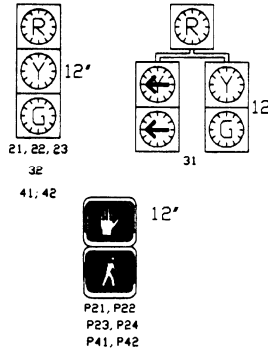
PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE	PHASE				L A S H
	# 2	# 3	# 4	# 1	
21, 22, 23	G	R	R	Y	
31	R	G	G	R	
41, 42	R	R	G	R	
P21, P22	V	DV	DV	DRK	
P23, P24	V	DV	DV	DRK	
P41, P42	DW	W	W	DRK	

SIGNAL FACE I.D.

Denotes L.E.D.



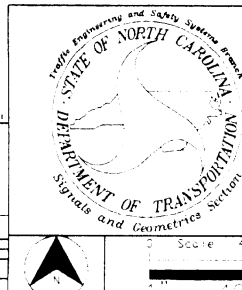
TIMING CHART NEMA CONTROLLER				
PHASE	#2	#3	#4	
MINIMUM GREEN	12 SEC.	7 SEC.	7 SEC.	
PASSAGE/GAP	3 SEC.	1 SEC.	1 SEC.	
YELLOW CHANGE INT.	4.0 SEC.	4.0 SEC.	4.0 SEC.	
RED CLEARANCE	1.5 SEC.	2.0 SEC.	2.0 SEC.	
MAX. I	40 SEC.	20 SEC.	30 SEC.	
RECALL POSITION	MIN. RECALL	NONE	NONE	
VEHI. CALL MEMORY	LOCK	NONLOCK	NONLOCK	
WALK	7 SEC.	— SEC.	7 SEC.	
FLASHING DON'T WALK	7 SEC.	— SEC.	9 SEC.	

LOOP & DETECTOR UNIT INSTALLATION CHART NEMA CONTROLLER WITH TS-1 CABINET									
INDUCTIVE LOOPS					DETECTOR UNITS				
LOOP NO.	SIZE (Ft)	TURNS	DIST. FROM STOPBAR (Ft)	NEW/EXISTING	UNIT NO.	NEW/EXISTING	CHANNEL	NEMA PHASE	INHIBIT DELAY DURING GREEN
2A, 2B 2C, 2D	6' x 6'	3	70	X	1	X	1	#2	
3A	6' x 50'	1	+5	X	2	X	1	#3	
4A	6' x 50'	1	+5	X	3	X	1	#4	
4B, 4C	6' x 50'	1	+5	X	4	X	1	#4	

ACS STATE AND LOCAL SOLUTIONS
PUBLIC SAFETY SOLUTIONS
1400 N. 7TH STREET, SUITE 3
SCOTTSDALE, AZ 85250
TEL: 480-386-3397 FAX: 480-386-1972

RED LIGHT PHOTO ENFORCEMENT PLAN
CITY OF RALEIGH
EB, NEW BERN AVE & TARBORO

Signal Upgrade
Prepared in the Offices of:
Ramey Kemp & Associates, Inc.
1400 N. 7TH STREET, SUITE 3
SCOTTSDALE, AZ 85250
TEL: 480-386-3397 FAX: 480-386-1972



SR 2911 (NEW BERN AVE.)
AT
SR 2542 (N. TARBORO STREET)

DIVISION 05
DATE: 04-16-04
DESIGNED BY: [Signature]
CHECKED BY: [Signature]
APPROVED BY: [Signature]

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
DONALD J. DARTY
1973
4/26/04
SIGNATURE: [Signature]
DATE: [Date]
PROJECT NO. 05-0102

NOTES

1. ALL PAVEMENT MARKINGS ARE EXISTING.
2. REFER TO "ROADWAY STANDARD DRAWINGS NCDOT" DATED JANUARY 2002, "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2002 AND ALL APPLICABLE SECTIONS OF THE LATEST VERSION OF THE GENERIC PROJECT SPECIAL PROVISIONS. THE PSP CAN BE ACCESSSED AT THE FOLLOWING WEBSITE: <http://www.doh.dot.state.nc.us/preconstruct/traffic/tmssu/ws/default.htm>
3. MAXIMUM TIMES SHOWN IN TIMING CHART ARE FOR FREE-RUN OPERATION ONLY. COORDINATE SIGNAL SYSTEM TIMING VALUES SHALL SUPERSEDE THESE VALUES.
4. SET ALL DETECTOR UNITS TO PRESENCE MODE.
5. OMIT "WALK" AND FLASHING "DON'T WALK" WITH NO PEDESTRIAN CALLS.

CONSTRUCTION LEGEND:

1. ACS TO PROVIDE POLE CAMERA UNIT. SUBCONTRACTOR TO PROVIDE 2" x 2" x 30" PCC FOUNDATION. SUBCONTRACTOR SHALL INSTALL 4" CAP AT LEAST 30" WIDE. POLES SHALL BE 36" MIN. FROM CURB FACE UNLESS OTHERWISE NOTED ON DRAWING.
2. INSTALL 3 # 10 THW CABLING FOR 120 Vac POWER. COLOR CODE BLACK, WHITE & GREEN.
3. INSTALL 2" PVC CONDUIT PER CITY SPECIFICATIONS, STUB INTO NEW OR EXISTING PULL BOX.
4. CONNECT 3 WIRE CIRCUIT TO CONTROLLER OR TRAFFIC SIGNAL POLE ON SEPARATE 20 AMP CIRCUIT BREAKER FOR 120 Vac POWER. ROUTE TO ALL RLC CAMERAS.
5. INSTALL 3 CONDUCTOR # 14 SHIELDED CABLE FOR 120 Vac RED AND YELLOW PHASE CONTROL. ROUTE FROM RLC CAMERA TO TRAFFIC SIGNAL POLE. TAP BOX REFER TO CR 9321 MAGNETIC MODULE WIRING DETAIL ON SHEET 2.
6. INSTALL (4) 2 CONDUCTOR SHIELDED DLO'S WITH DRAIN WIRE. IMSA 50-2, 12 AWG CABLING TO EACH ACS POLE. (4 EACH CABINET).
- 6a. MOVE "Tarboro Center" SIGN BEHIND RLC #1 AND "MLK Memorial Garden" SIGN BEHIND RLC #2.
- 6b. INSTALL (4) 2 CONDUCTOR SHIELDED DLO'S WITH DRAIN WIRE. IMSA 50-2, 12 AWG CABLING TO CABINET VIA SEPARATE 2" CONDUIT FOR 6"x6" LOOP DETECTORS.
7. INSTALL LOOP STUB OUT TO PULL BOX. EACH LOOP LEAD WIRE SHALL BE CUT IN SEPARATE CHANNELS TO STUB OUT.
8. INSTALL (8) LOOP DETECTORS: IMSA 51-7, 14 AWG CABLING.
- 8a. INSTALL (4) 6"x6" LOOP DETECTORS: IMSA 51-7, 14 AWG CABLING.
9. INSTALL NEW PULL BOX. ALL PULL BOXES SHALL BE NO. 5 UNLESS OTHERWISE NOTED ON DRAWING.
10. INSTALL IN-LINE FUSE HOLDERS RATED AT 20 AMPS FOR POWER. INSTALL IN-LINE FUSE HOLDERS RATED AT 5 AMPS FOR PHASE CONDUCTORS.
11. INSTALL 3 PAIR # 14 THW AND 6 PAIR IMSA 50-2, #22 AWG FOR AUXILIARY FLASH POWER AND TRIGGERING FOR EACH AUXILIARY FLASH UNIT.
12. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING 9" AUXILIARY FLASH POLE. INSTALL PELCO TYPE 1A FOOTING WITH A 12" BOLT CIRCLE FOR FLASH POLE.
13. INSTALL 6 PAIR IMSA 50-2, # 22 AWG FOR RLC ROUTER INTERFACE CABLE. ROUTE FROM TELEPHONE JUNCTION BOX TO EACH GTCD POLE.
14. SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING NEW OVERHEAD WIRING AND LASHING.
15. SPlice & Solder LOOP DETECTOR LEAD INS TO DLO CABLES AND INSTALL 3M COUPLERS OR EQUIVALENT IN THE PULL BOX.
16. TELEPHONE ISDN TERMINATIONS.
17. INSTALL POWER PEDESTAL TO DOT SPECIFICATIONS. POWER PEDESTAL LOCATION TO BE DETERMINED BY SERVICE PLANNER.
18. INSTALL CR 9321 MAGNETIC MODULE AT TRAFFIC SIGNAL CONTROL CABINET. SEE WIRING DIAGRAM ON SHEET 2. INSTALL 5 # 10 THW CABLING FOR 120 Vac POWER FOR MAGNETIC SWITCH.
19. UPGRADE ALL SIGNAL HEADS TO L.E.D. INDICATIONS.