

GENERAL CONSTRUCTION NOTES:

INSTALLATION AND CONSTRUCTION SHALL CONFORM TO THE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS SECTIONS APPLICABLE, STANDARD PLANS DATED AND EFFECTIVE FOR THE CURRENT YEAR, AND ANY SPECIAL MUNICIPALITY CODE 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 JOB SITE CONDITIONS, HAND EXCAVATE FOUNDATION UNTIL CLEAR OF ALL SUBSTRUCTURES AND PROTECT ALL FACILITIES DURING CONSTRUCTION. SUBCONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS FOR UNDERGROUND UTILITY REMOVAL OR RELOCATION 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 SLEEVED 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 SHALL CALL THE TRANSPORTATION TRAFFIC DIVISION, FIVE (5) DAYS PRIOR TO THE START OF WORK FOR A TRAFFIC CONTROL PLAN APPOINTMENT.
6. THE SUBCONTRACTOR IS REQUIRED TO SUBMIT A WEEKLY SCHEDULE PRIOR TO START OF WORK EACH WEEK. (NO EXCEPTIONS)
7. POLE MOUNTED DETECTOR AND EQUIPMENT LOCATIONS SHALL BE AS DEPICTED ON SITE PLAN. THE SUBCONTRACTOR SHALL VERIFY EQUIPMENT FIELD LOCATIONS WITH THE ACS IMPLEMENTATION MANAGER (301) 357-9403 OR LOCAL AND/OR EXCAVATION AUTHORITY AND ACS PRIOR TO INSTALLATION.
8. THE SUBCONTRACTOR SHALL SUPPLY AND INSTALL ALL CONDUCTORS NECESSARY FOR THE INTENDED OPERATION AS NOTED ON THESE PLANS, NEC AND ALL APPLICABLE MUNICIPALITY CODES.
9. PROVIDE ANCHOR BOLT NUT COVERS IF REQUIRED DUE TO EXTERIOR INSTALLATION.
10. ALL PULLBOXES AND COVERS SHALL BE CONCRETE OR PVC AS REQUIRED BY THE MUNICIPALITY.
11. ALL PULLBOXES SHALL BE NO. 5 UNLESS OTHERWISE NOTED OR REQUIRED BY THE MUNICIPALITY.
12. ALL CONCRETE FORMS ARE TO BE INSPECTED BY LOCAL AUTHORITIES BEFORE CONCRETE IS PLACED.
13. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND COORDINATION WITH THE SERVING (ELECTRICAL) UTILITY COMPANY AND PAY REQUIRED FEES FOR SERVICE CONNECTIONS.
14. 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 ENGINEER 24 HOURS PRIOR TO COMPLETION OF WORK.
15. THE SUBCONTRACTOR IS TO BUILD AND MAINTAIN A CONSTRUCTION BARRICADE, TRAFFIC CONTROLS SHALL BE PER THE LATEST TMDOT STANDARDS TO INCLUDE THE ARROW BOARD, NO LANE CLOSURES DURING PEAK TRAFFIC HOURS.
16. 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. ALL WORK SHALL BE IN ACCORDANCE WITH NEC, ALL LOCAL, STATE AND FEDERAL CODES, ORDINANCES AND ANY APPLICABLE AMENDMENTS.

16. 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.
17. 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.
18. 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.
19. 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.
20. P.R.C. EQUIPMENT SHALL NOT BE INSTALLED ON MEDIANS LESS THAN FIVE FEET (5') IN WIDTH.
21. P.R.C. RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FIVE FEET (5') OF FIRE HYDRANT.
22. P.R.C. RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FOUR FEET (4') OF ADA RAMPS.
23. SUBCONTRACTOR SHALL SUPPLY AS-BUILT DRAWINGS TO ACS ENGINEERING DEPARTMENT WITHIN THIRTY (30) DAYS OF CONSTRUCTION COMPLETION.
24. SUBCONTRACTOR SHALL COMPLETE A "RLC POST CONSTRUCTION INSTALLATION ACCEPTANCE FORM" FOR EACH RLC INSTALLED. COMPLETED FORMS SHALL BE FORWARDED TO ACS CONSTRUCTION DEPARTMENT.
25. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE RESPECTIVE OWNERS AND OTHER AGENCIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. CONTACT:
 - * GAS COMPANY
 - * WATER DISTRICT
 - * PHONE COMPANY
 - * CABLE COMPANY
 - * LOCAL AND/OR STATE EXCAVATION AUTHORITY

SPECIFIC CONSTRUCTION NOTES:

1. THE SUBCONTRACTOR SHALL INSTALL ALL SUBSTRUCTURES ACCORDING TO LOCAL GOVERNING AGENCY FROST LINE REQUIREMENTS WHERE APPLICABLE.
2. THE SUBCONTRACTOR SHALL MODIFY ALL SIDEWALKS WHERE NECESSARY, IN COMPLIANCE WITH THE ADA STANDARDS, TO ALLOW ACCESS FOR HANDICAP PEDESTRIAN PASSAGE.

INDEX OF PLANS

<u>SHEET NUMBER</u>	<u>LOCATION/DESCRIPTION</u>
SIG 1	GENERAL NOTES
SIG 2	SITE PLAN
SIG 3	LOOP INSTALLATION DETAILS
SIG 4	SINGLE LINE DIAGRAM
SIG 5	CAMERA UNIT TERMINAL STRIP WIRING DETAILS
SIG 6	FLASH UNIT TO CAMERA POLE WIRING DETAILS
SIG 7	PELCO POLE DETAILS
SIG 8	CAMERA INDIVIDUAL FLASH CONFIGURATION



12410 MILESTONE CENTER
DRIVE
4TH FLOOR
GERMANTOWN, MD 20876
PHONE: (301) 357-9403



RAMEY KEMP
ASSOCIATES, INC.
 Transportation Engineers
 6806 Faringdon Place, Suite 100
 Raleigh, North Carolina 27609
 919-872-6116 Tel. 919-878-6416 Fax.



750 Greenfield Pkwy, Garner, NC 27529

SR 1005 (Six Forks Road)
at
Dartmouth Road/North Hills Mall

Division 5 Wake County Raleigh

PLAN DATE:	Jan 2009	REVIEWED BY:	D.J. Darity
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PREPARED BY: H.M. Surti	RKA PROJ. NO.: 08232 (240)
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	REVISIONS	INIT.	DATE
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8 Phase
Fully Actuated
(Raleigh Signal System)

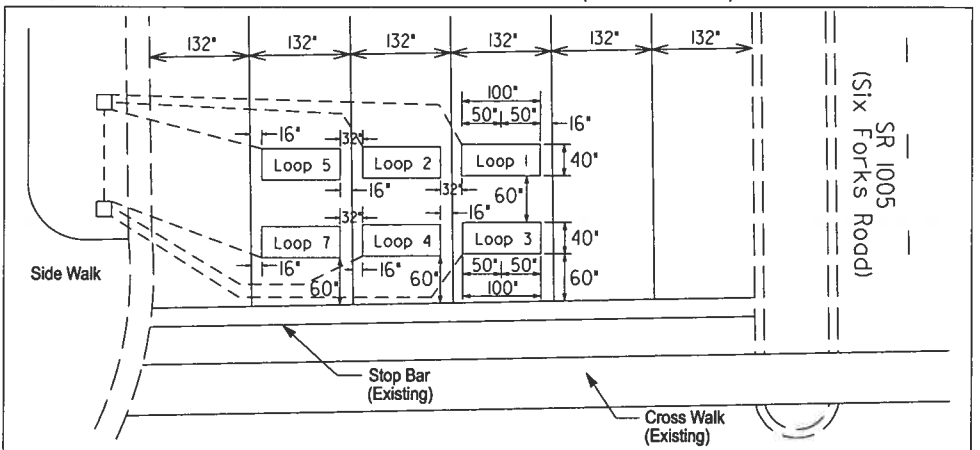
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006, "Standard Specifications for Roads and Structures" dated July 2006 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website:
<http://www.ncdot.org/doh/preconstruct/traffic/itss/>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Pavement markings are existing.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Contractor to remove existing red light camera unit and loops on NB approach and install new equipment as shown on this plan.

LEGEND

PROPOSED	EXISTING
	N/A
N/A	
N/A	
N/A	

LOOP LOCATION DETAIL
(NOT TO SCALE)



Red Light Camera Installation - Site Plan

Prepared for:
12410 MILESTONE CENTER DRIVE
4TH FLOOR
GERMANTOWN, MD 20876
PHONE: (301) 357-9403

Prepared in the offices of:
RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
6808 FARRINGTON PLACE, SUITE 100
RALEIGH, NORTH CAROLINA 27609
919-872-5116 Tel. 919-878-5416 Fax.
www.rameykemp.com

SR 1005 (Six Forks Road)
at
Dartmouth Road/North Hills Mall

Division 5 Wake County Raleigh

PLAN DATE: Jan 2009 REVIEWED BY: D.J. Darity

PREPARED BY: H.W. Surti RKA PROJ. NO.: 08232 (240)

REVISIONS

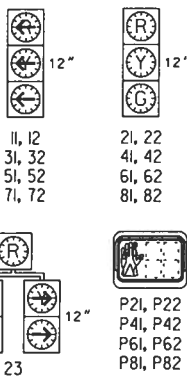
SCALE
0 40
1"=40'

SEAL
DONALD J. DARTY
ENGINEER
1-28-2009
DATE
SIC. INVENTORY NO. 05-0454

SIGNAL FACE	PHASE							
	01+5	02+6	03+7	04+8	05+9	06+0	07+1	08+2
11, 12	---	---	---	---	---	---	---	---
21, 22	R	R	G	G	R	R	R	Y
23	R	R	G	G	R	R	R	Y
31, 32	---	---	---	---	---	---	---	---
41, 42	R	R	R	R	R	R	G	G
51, 52	---	---	---	---	---	---	---	---
61, 62	R	G	R	G	R	R	R	Y
71, 72	---	---	---	---	---	---	---	---
81, 82	R	R	R	R	R	G	R	G
P21, P22	DW	DW	W	W	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	DW	W	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	W	DW	W	DRK

SIGNAL FACE I.D.

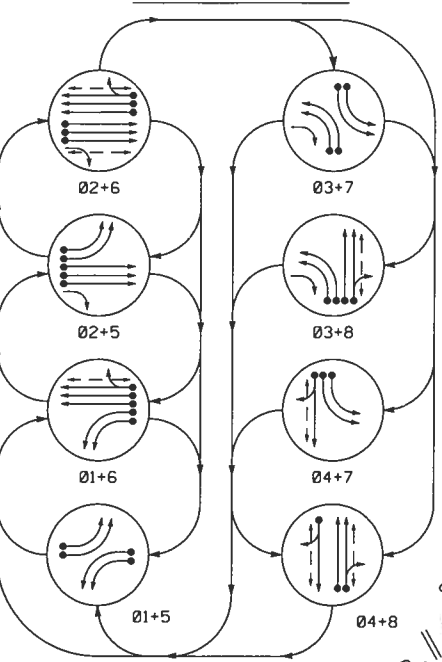
Denotes L.E.D.



RED LIGHT CAMERA LEGEND

Video Detection Camera	
Camera Unit	
Auxiliary Flash Assembly	
No. 5 Pullbox	
Power Pedestal	

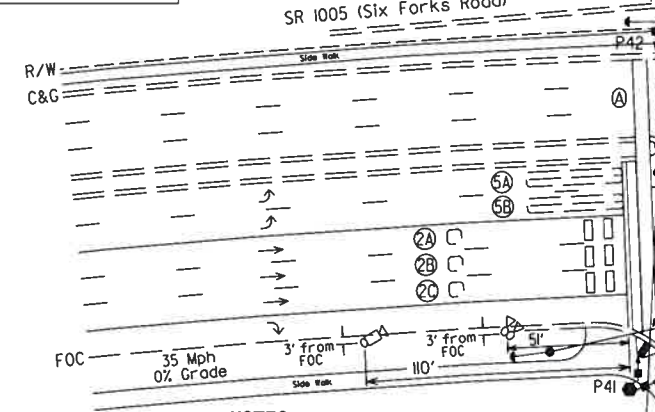
PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

	DETECTED MOVEMENT
	UNDETECTED MOVEMENT (OVERLAP)
	UNSIGNALIZED MOVEMENT
	PEDESTRIAN MOVEMENT

CONDUIT PLAN
(NOT TO SCALE)

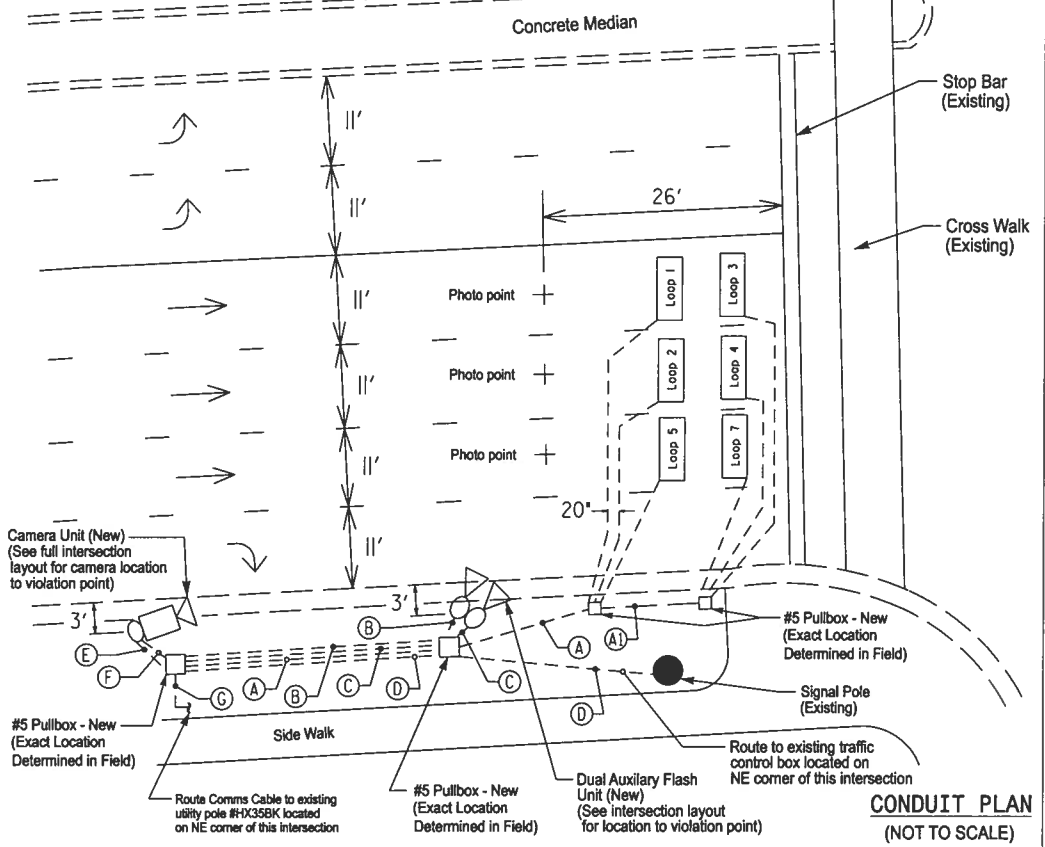


- NOTES
- ACS TO PROVIDE CAMERA POLE AND CAMERA UNIT, SUBCONTRACTOR TO PROVIDE PELCO FOUNDATION. POLES SHALL BE FIELD LOCATED AND SHALL BE 36" MINIMUM FROM FACE OF CURB TO CENTER OF BASE. SEE DETAIL. LOCATION OF EQUIPMENT SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
 - INSTALL TO LOCAL AND NEC SPECIFICATIONS.
 - EACH POLE SHALL BE GROUNDED WITH #10 SOLID GROUND WIRE AND 10' GROUND ROD.
 - CONTRACTOR SHALL HAND DIG POLE FOUNDATION FOR ACS CAMERA OR FLASH UNIT POLES.
 - CONDUIT SHALL BE INSTALLED BY MEANS OF TRENCHING, TRENCHING SHALL BE IN ACCORDANCE TO CURRENT DOT STANDARD SPECIFICATIONS.
 - CONTRACTOR SHALL MODIFY EXISTING 120VAC SERVICE, A DUPLEX OUTLET SHALL BE INCLUDED FOR ACCESS BY DOT PERSONNEL.
 - INSTALL NEW PULL BOX - SEE GENERAL NOTES #10, SHEET SIG-1.
 - CONTRACTOR TO CLEAN UP DEBRIS AROUND WORK AREA AND RESTORE LANDSCAPE.
 - INSTALL IN-LINE FUSE HOLDERS RATED AT 20 AMPS FOR POWER.
 - INSTALL IN-LINE FUSE HOLDERS RATED AT 5 AMPS FOR PHASE CONDUCTORS.
 - INSTALL IN-LINE FUSE HOLDERS RATED AT 15 AMPS FOR EACH AUX FLASH POWER.
 - CONTRACTOR SHALL REPAIR AND REPLACE SIDEWALK IN KIND AS REQUIRED TO INSTALL EQUIPMENT AND CONDUITS.

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	10	7	7	7	10	7	7
Passage Gap *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Maximum Green *	15	50	15	30	15	50	15	30
Yellow Change	3.0	3.8	3.0	3.2	3.0	3.8	3.0	3.0
Red Clear	3.7	2.3	3.7	3.7	3.7	2.7	3.6	3.4
Walk *	-	7	-	7	-	7	-	7
Prohibition Clear	-	18	-	27	-	15	-	25
Added Initial *	-	-	-	-	-	-	-	-
Maximum Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK	NON-LOCK	NON-LOCK
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

SR 1005 (Six Forks Road)



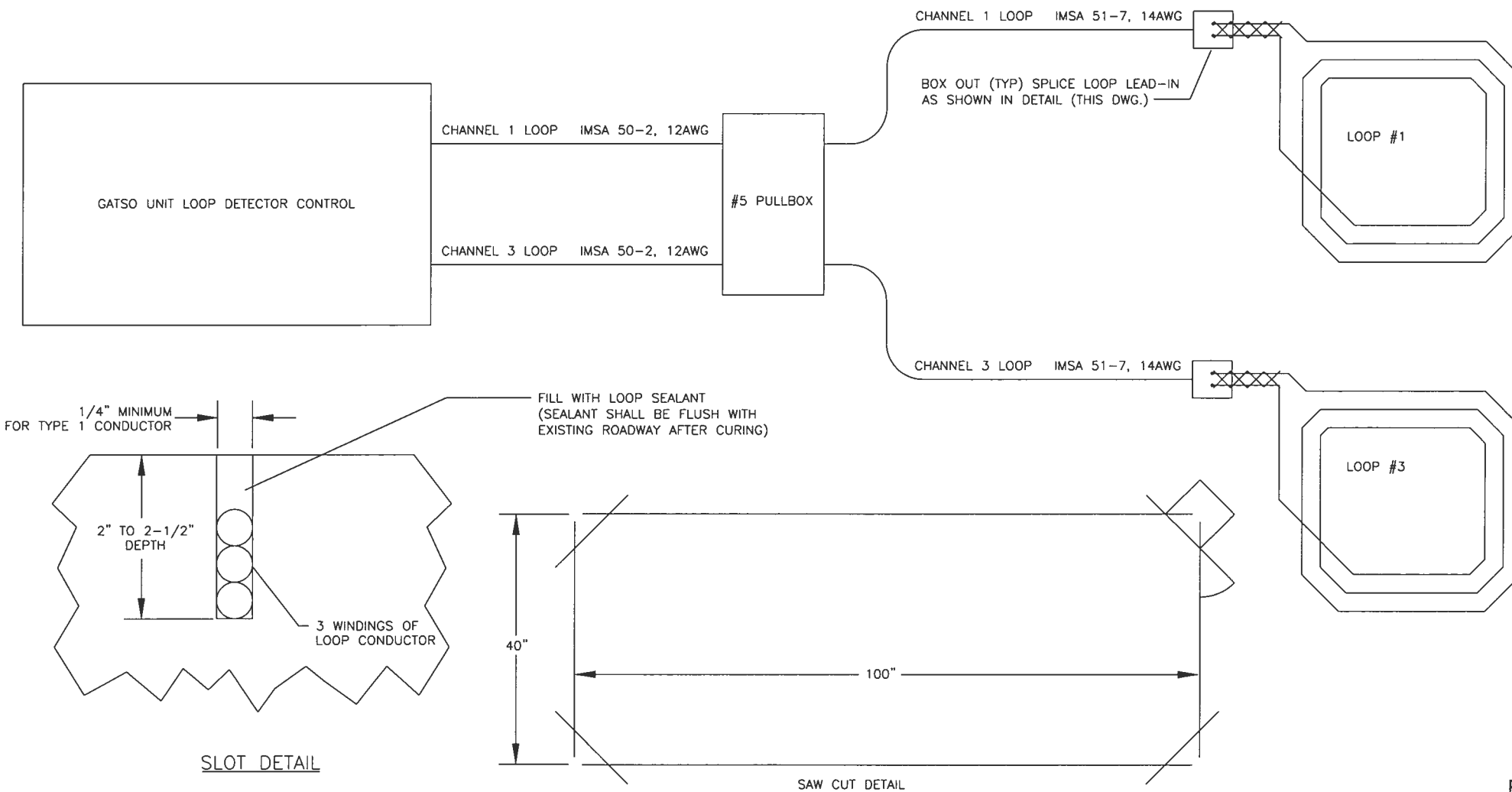
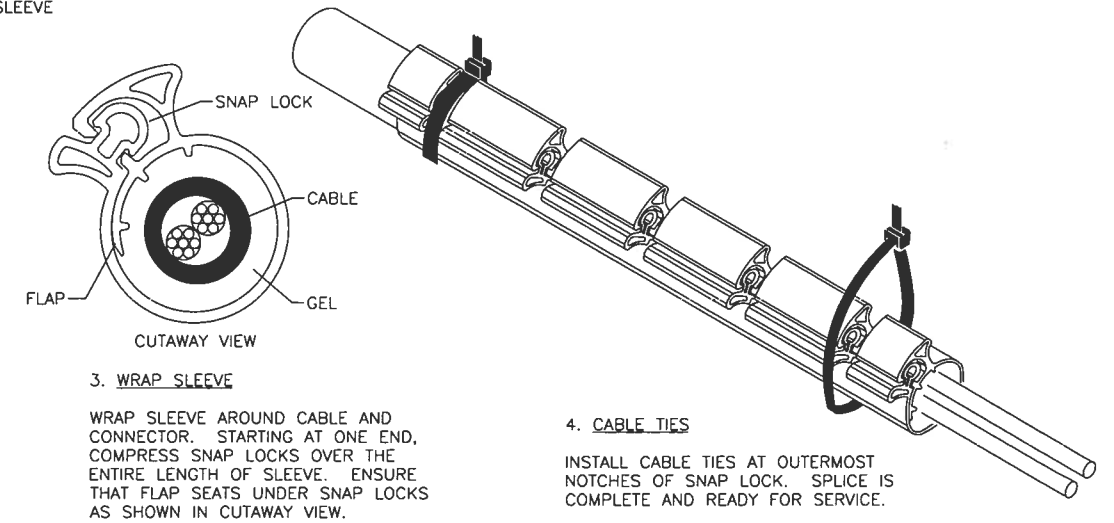
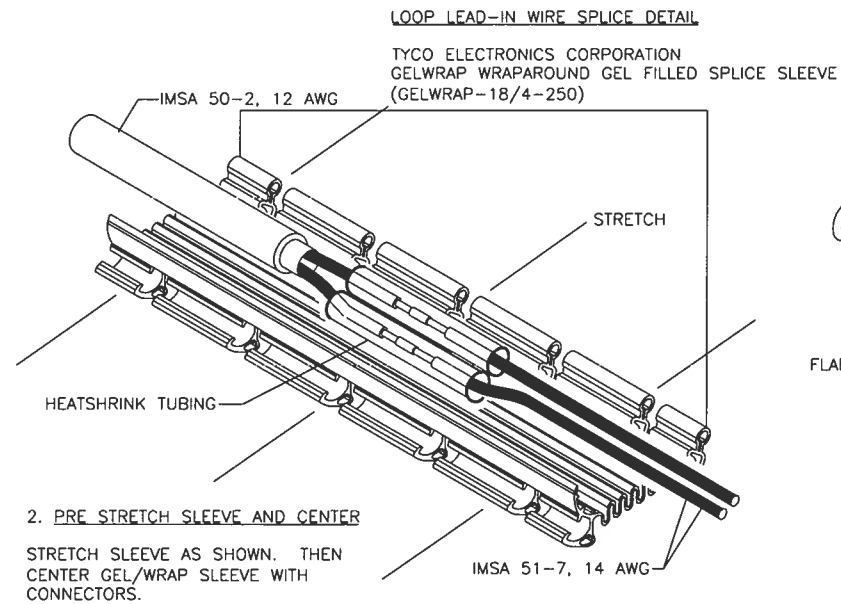
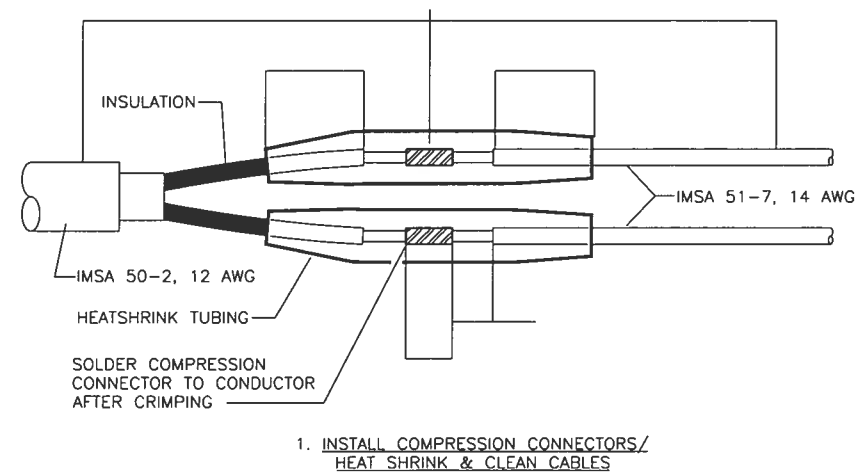
CONDUIT SCHEDULE

LETTER	CONDUIT SIZE	CONDUIT CONSTRUCTION	TYPE OF SERVICE	EQUIPMENT SERVICED	CABLE QUANTITY	CABLE DETAILS
A	2"	PVC	COMMS	LOOPS 1, 2, 3, 4, 5, 7	6	5
B	2"	PVC	COMMS	LOOPS 3, 4, 7	3	5
C	2"	PVC	COMMS	DUAL AUX FLASH UNIT	2	4
D	2"	PVC	POWER	DUAL AUX FLASH UNIT	6	1
E	2"	PVC	POWER	CAMERA UNIT POWER, RED/YELLOW PHASE CONTROL	3	3 1
F	2"	PVC	POWER	GS-II UNIT	3	9 1
G	2"	PVC	COMMS	GS-II UNIT	2	4 6 5 1 4A
H	2"	PVC	COMMS	TO D-MARC LOCATION	1	4B

CABLE SCHEDULE

- #14 AWG THHN
- #12 AWG THHN
- #10 AWG THHN
- IMS 40-2, 3 PAIR 18AWG w/ POLYETHYLENE JACKET (COMMS CABLE)
- CAT-5e (BELDEN 7919A OR EQUIVALENT)
- IMS 50-2, 12 AWG
- IMS 51-7, 14 AWG
- 12 STRAND FIBER OPTIC CABLE
- RG-59 VIDEO CABLE

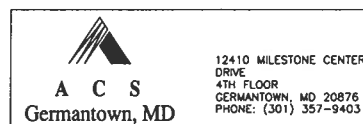
LOOP & DETECTOR UNIT INSTALLATION CHART SE-PAC 2070 CONTROLLER WITH 170 CABINET									
INDUCTIVE LOOPS					DETECTOR PROGRAMMING				
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	ASSIGNED PHASE	TIMING	EXTEND (STRETCH)	VEHICLE	OPERATION MODE	STATUS
1A	6X40	EXIST	0	-	X	1	-	SEC	X
1B	6X40	EXIST	0	-	X	1	-	SEC	X
2A	6X6	EXIST	70	-	X	2	-	SEC	X
2B	6X6	EXIST	70	-	X	2	-	SEC	X
2C	6X6	EXIST	70	-	X	2	-	SEC	X
3A	6X40	EXIST	0	-	X	3	-	SEC	X
3B	6X40	EXIST	0	-	X	3	-	SEC	X
4A	6X40	EXIST	0	-	X	4	10	SEC	X
5A	6X40	EXIST	0	-	X	5	-	SEC	X
5B	6X40	EXIST	0	-	X	5	-	SEC	X
6A	6X6	EXIST	70	-	X	6	-	SEC	X
6B	6X6	EXIST	70	-	X	6	-	SEC	X
6C	6X6	EXIST	70	-	X	6	-	SEC	X
7A	6X40	EXIST	0	-	X	7	-	SEC	X
7B	6X40	EXIST	0	-	X	7	-	SEC	X
8A	6X40	EXIST	0	-	X	8	-	SEC	X
8B	6X40	EXIST	0	-	X	8	10	SEC	X

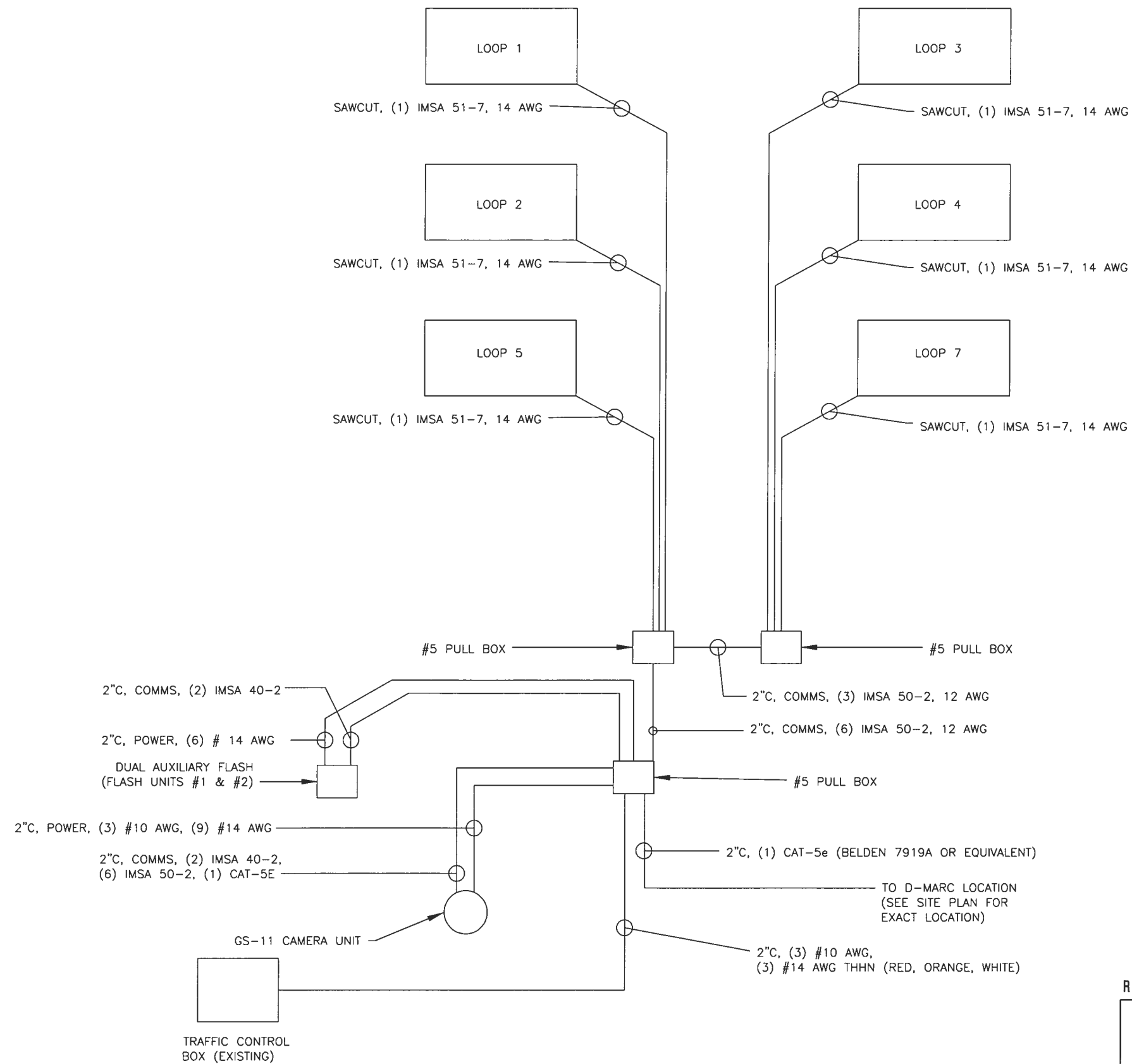


- NOTES:



1. SAWCUT LOOP LEAD-IN WIRE TRENCH WITH A UNIFORM 1/4" WIDE SLOT WITH A DEPTH BETWEEN 2" AND 2-1/2". (SEE DETAIL)
2. CUT 6" LENGTH x 1/4" WIDE SLOTS AT THE SAME DEPTH AS STRAIGHT SAWCUTS IN EACH CORNER AS SHOWN IN DRAWING AND REMOVE ALL DEBRIS FROM SAWCUT PRIOR TO INSTALLING LOOP WIRE.
3. SPLICE IN LOOP WIRE ARE NOT PERMITTED. THERE SHALL BE 3 TURNS AS SHOWN IN DETAIL.
4. FROM THE LEAD-IN SLOT TO THE POINT OF TERMINATION TO THE IMSA 51-7, 14 AWG, THE 2 LOOP WIRES SHALL BE TWISTED WITH A MINIMUM OF 4 TWISTS PER FOOT.
5. EACH LOOP CONFIGURATION WILL BE INDIVIDUALLY CABLED TO THE RLC POLE. THE DLC CABLES TO THE RLC WILL BE KEPT AS SHORT AS POSSIBLE AND THEY WILL GO IN A STRAIGHT RUN FROM THE PULL BOX TO THE RLC POLE. THE BARE WIRED DRAIN WIRE WILL BE TERMINATED IN THE RLC POLE AT THE TERMINAL BLOCK GROUND CONNECTION.

Red Light Camera Installation - Loop Installation Details

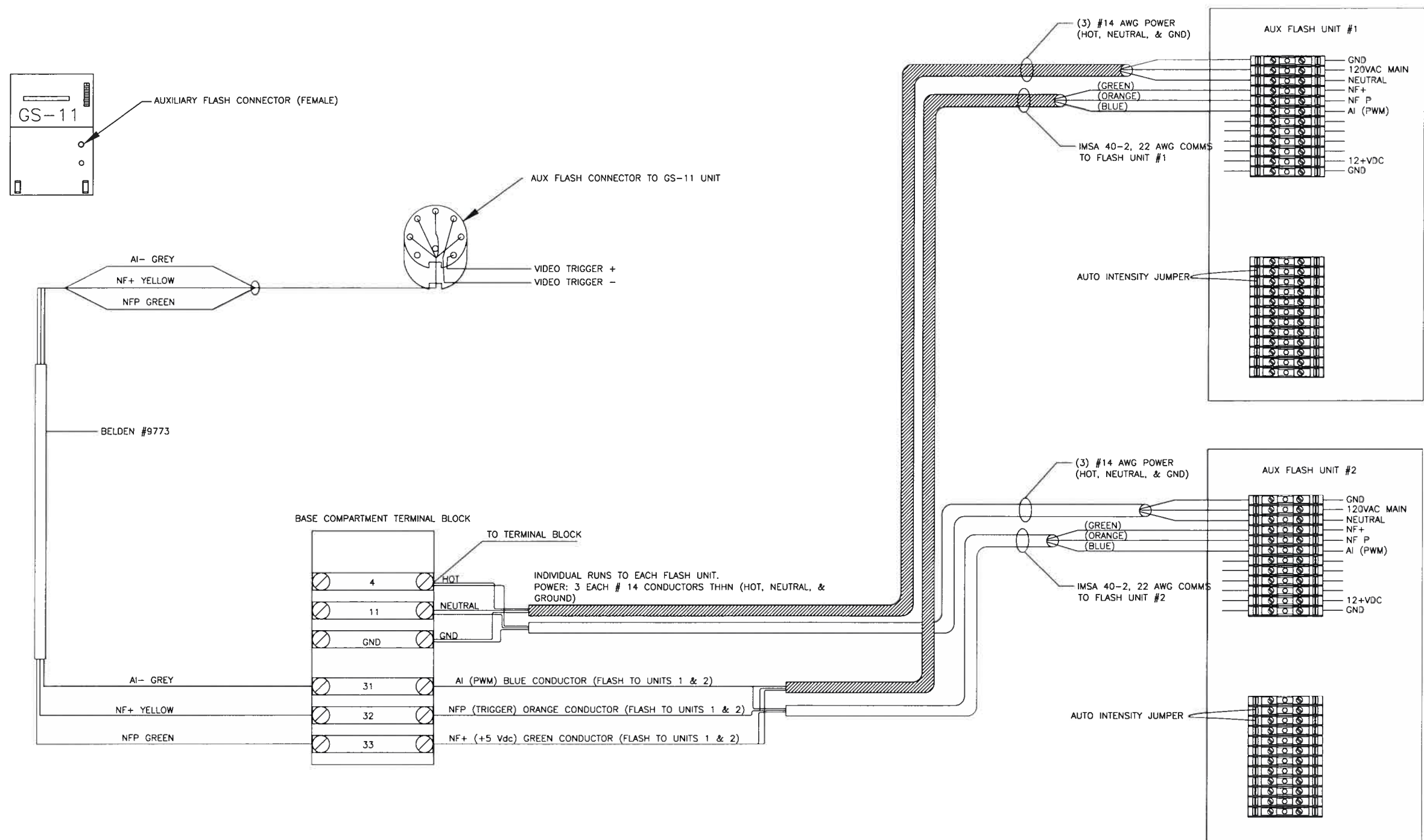
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Red Light Camera Installation - Single Line Diagram

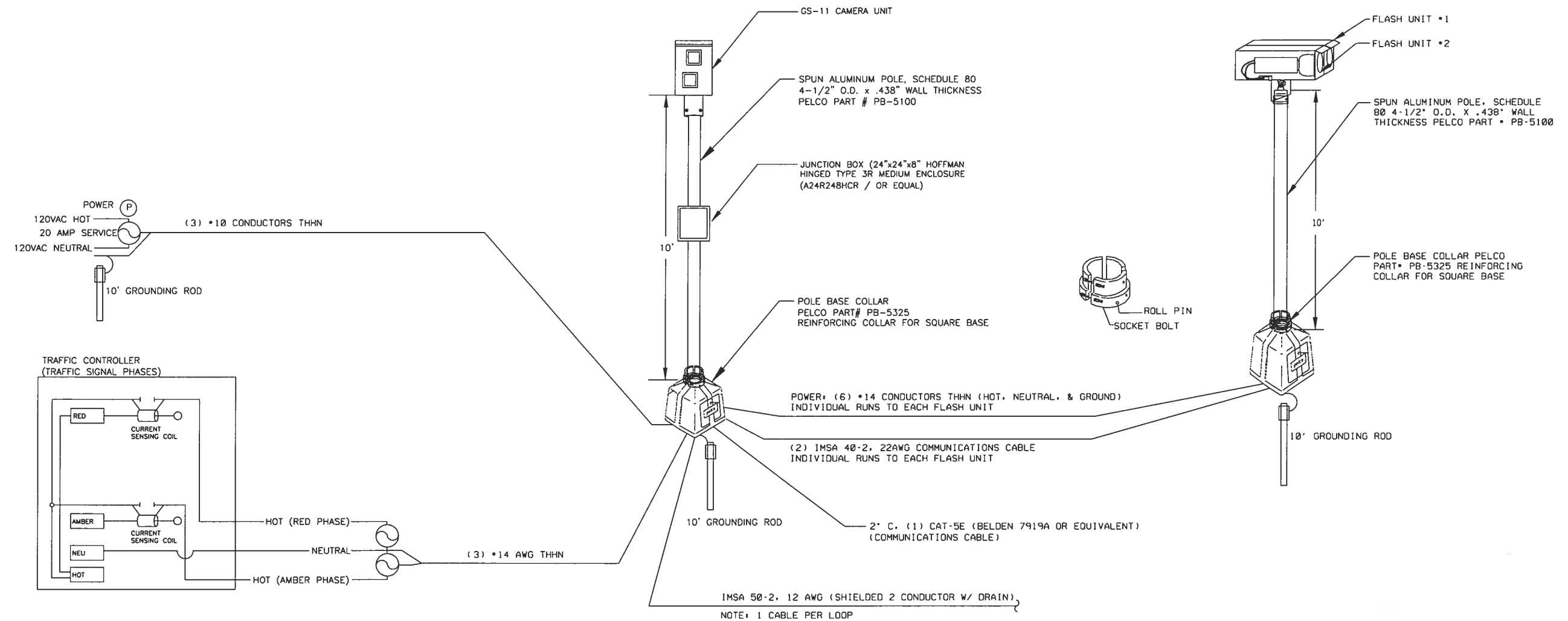
<p><i>Prepared for:</i></p>  <p style="text-align: center;">STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SPECIAL AND GEOMETRIC SECTION</p> <p><i>750 Greenfield Plaza, Garner, NC 27529</i></p>	<p style="text-align: center; font-size: 1.2em;">SR 1005 (Six Forks Road) at Dartmouth Road/North Hills Mall</p> <table style="width: 100%;"> <tr> <td style="width: 33%;">Division 5</td> <td style="width: 33%;">Wake County</td> <td style="width: 33%;">Raleigh</td> </tr> <tr> <td>PLAN DATE: Jan 2009</td> <td>REVIEWED BY: D.J. Darity</td> <td></td> </tr> <tr> <td>PREPARED BY: H.M. Surti</td> <td>RKA PROJ. NO.: 08232 (240)</td> <td></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">REVISONS</th> <th style="width: 20%;">INIT.</th> <th style="width: 20%;">DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Division 5	Wake County	Raleigh	PLAN DATE: Jan 2009	REVIEWED BY: D.J. Darity		PREPARED BY: H.M. Surti	RKA PROJ. NO.: 08232 (240)		REVISONS	INIT.	DATE																															<p style="text-align: center;">SEAL</p>  <p style="text-align: center;">ENGINEER DONALD J. DARITY <i>1-28-2009</i></p> <hr/> <p>SIGNATURE _____ DATE _____</p> <p>SIG. INVENTORY NO. 05-0454</p>
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[illegible]



Red Light Camera Installation - Flash Unit to Camera Pole Wiring Details

SUBCONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT
LEAST THREE (3) WORKING DAYS PRIOR TO COMMENCEMENT OF
EXCAVATION. NORTH CAROLINA ONE CALL CENTER
1-800-632-4949



Red Light Camera Installation - Camera Unit/Dual Flash Configuration