INDEX OF SHEETS

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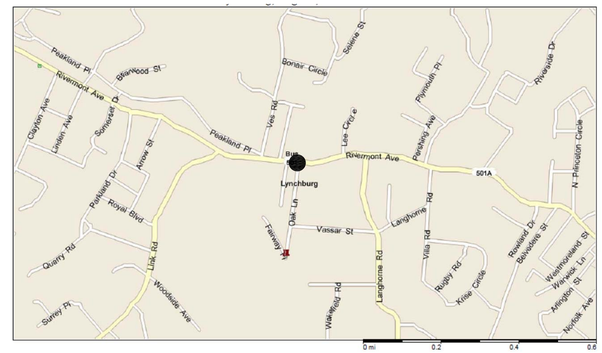
3	INTERSECTION PLAN SHEET

TRAFFIC SIGNALIZATION PLAN FOR THE INTERSECTION OF OAK LANE AT RIVERMONT AVENUE

CITY OF LYNCHBURG, VIRGINIA

VICINITY MAP



NTS

NO.	DESCRIPTION	DATE	APP

COMMONWEALTH OF VIRGINIA
WILLIAM L. WUENSCH
Lic. No. 33905
2/13/13
PROFESSIONAL ENGINEER

EPR, P.C.
"ENGINEERING & PLANNING RESOURCES"
Civil • Stormwater • Traffic • Transportation
3205 WATTS STATION DR.
Charlottesville • Virginia
22911 • (804) 647-7701

JOB NO.:	12-040
DATE:	1-28-2013
SCALE:	AS SHOWN
DRAWN BY:	LLW
DESIGNED BY:	WLW
CHECKED BY:	WLW

SIGNAL DESIGN PLANS
FOR OAK LANE AT RIVERMONT AVENUE
LYNCHBURG, VIRGINIA

COVER

SHEET NO. S1

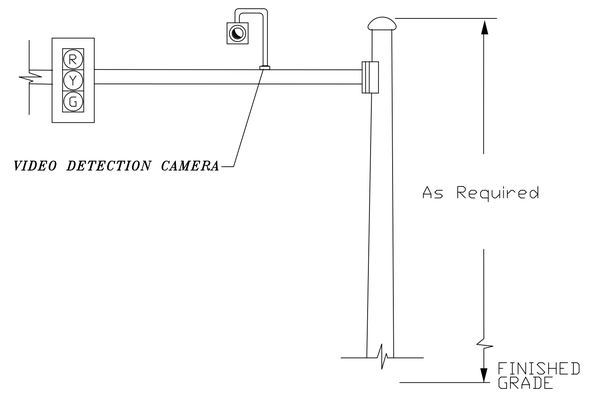
SHEET 1 OF 3

NOTES	10	7						27	6,26	6,26	9	26	26	26	11, 13, 26			28				29,12	12					16						
SHEET NO.	MOBILIZATION	MAINTAINANCE OF TRAFFIC	4" WHITE TYPE B CLASS I PAVEMENT MARKINGS	4" YELLOW TYPE B CLASS I PAVEMENT MARKINGS	12" WHITE TYPE B CLASS I PAVEMENT MARKINGS	24" WHITE TYPE B CLASS I PAVEMENT MARKINGS	TURN ARROW TYPE B CLASS 1 MARKINGS THERMO	MODIFY EXISTING CONTROLLER AND CABINET	FURNISH & INSTALL TRAFFIC SIGNAL HEAD ASSEMBLY W/BACKPLATE, 3 SECTION, 12", SM-3 MOUNT (BLACK)	FURNISH & INSTALL TRAFFIC SIGNAL HEAD ASSEMBLY W/BACKPLATE, 5 SECTION, 12", SM-3 MOUNT (BLACK)	FURNISH & INSTALL LED LIGHTS AND LENSES FOR SIGNAL HEADS	PEDESTRIAN SIGNAL HEAD (LED) ASSEMBLY, VDOT STD SP-4, SMB-2 MOUNT, (COUNT DOWN)	PEDESTRIAN SIGNAL HEAD (LED) ASSEMBLY, VDOT STD SP-4, SMB-3 MOUNT, (COUNT DOWN)	PEDESTRIAN PUSHBUTTON (PA-2) AND SIGN R10-3E	SIGNAL POLE, MP-1 – TWO ARM 25' AND 35'	SIGNAL POLE MP-1 – ONE ARM 30'	CONCRETE FOUNDATION FOR SIGNAL POLE PF-1	PEDESTRIAN POLE W/FOUNDATION (PF-2)	PEDESTRIAN POLE ON EXISTING FOUNDATION (PF-2)	REMOVE EXISTING SIGNAL POLE	EMERGENCY PRE-EMPTION OPTICOM SYSTEM TYPE III (3 DETECTORS)	EMERGENCY PRE-EMPTION DETECTOR CABLE	FURNISH & INSTALL VIDEO DETECTOR SYSTEM & COMPONENTS FOR 360 VIEW (ALDIS)	VIDEO DETECTION CABLES (FOR ALDIS SYSTEM)	14 AWG/2C CONDUCTOR CABLE	14 AWG/3C CONDUCTOR CABLE	14 AWG/5C CONDUCTOR CABLE	14 AWG/7C CONDUCTOR CABLE	3" CONDUIT (SCHEDULE 40 PVC) TRENCHED	DEMO EXISTING SIDEWALK/RAMPS FOR NEW HANDICAP RAMPS	CG-12 HANIDCAP RAMPS	TEST BORE	FURNISH & INSTALL MAST ARM MOUNT STREET NAME SIGNS	SIGN PANEL FURNISH AND INSTALL	REMOVE EXISTING POLE FOUNDATION 2' BELOW GRADE	POWER SERVICE VDOT SE-3	SYSTEM GROUND AT EXISTING JUNCTION BOXES
	LS	LS	LF	LF	LF	LF	EA	LS	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	LS	LF	LS	LF	LF	LF	LF	LF	SF	EA	EA	EA	EA	LS	LS	EA
3	1	1	1200	900	67	152	2	1	5	1	20	2	2	4	1	1	2	1	2	1	1	324	1	155	584	584	516	150	67	185	4	2	3	3	1	1	4
TOTALS	1	1	1200	900	67	152	2	1	5	1	20	2	2	4	1	1	2	1	2	1	1	324	1	155	584	584	516	150	67	185	4	2	3	3	1	1	4

GENERAL NOTES

1. All work shall be in accordance with the 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD, the 2007 edition of the VDOT Road and Bridge Specifications, the 2008 VDOT Road and Bridge Standards, 2011 Edition of the VA Work Area Protection Manual, 2011 Edition of the VA supplement to the MUTCD, and City of Lynchburg Specifications (Latest Edition) in effect at the time the signal plan is approved.
2. Mast arm pole shall conform to VDOT MP-1.
3. Mast arm pole foundation shall conform to VDOT PF-1.
4. Conductor cable, conduit, trench excavation, saw cut, and signal junction boxes shall conform to Virginia Department of Transportation (VDOT) Road and Bridge Standards Volume II.
5. The location of all existing underground utilities should be considered approximate. The Contractor shall be responsible for the definite location of each utility involved within the area of his excavation for work under this contract. The Contractor shall call MISS UTILITY (1-800-552-1007) before beginning work.
6. All signal heads shall be mounted in accordance with VDOT SM-3 and all signal heads shall include polycarbonate backplates. All traffic signal heads shall be 12" black and include visors.
7. It shall be the sole responsibility of the contractor to furnish and maintain, until the work has been accepted by the City, any and all signs, lights, barricades, flagmen, ect., necessary for the safety of the general public, including both vehicular and pedestrian traffic. All costs for the maintenance of traffic shall be included in the lump sum bid item. Maintenance of traffic shall be done according to the Virginia Work Area Protection Manual (latest edition).
8. All damages to existing structures, facilities, pavement, grassed areas, ect., shall be restored to existing condition by the contractor at his EXPENSE.
9. SIGNAL HEADS shall have LED indications. The LED display characteristics of LED balls shall present the appearance of incandescent type bulbs rather than discrete points of light. LED arrows shall be three-row type, not two-row. The preferred source is Dialite or approved equal.
10. The Contractor shall contact the City Department of Public Works (Adam Fick) at least 72 hours prior to beginning work, 434-455-4466.
11. Pole location shall be installed within 24" of the point as shown on the plan. Contractor shall stake and field verify with "MISS UTILITIY OF VIRGINIA" the pole location before ordering poles and arms. **The City Traffic Engineer or his designee shall approve staked pole location.**
12. Vehicle Detection shall be per the City's specifications for ALDIS equipment.
13. The pole supplier shall furnish to the City shop drawings and calculations for all poles and foundations.
14. This plan does not guarantee the existence or nonexistence of underground utilities. Prior to any construction, the Contractor shall verify the existence and location of, or the nonexistence of, underground or overhead utilities. Where conflicts occur, the Contractor shall contact the Engineer prior to beginning work.
15. The Contractor shall verify the elevations of all underground utilities to be crossed prior to jacking and boring conduits. The Contractor shall hand dig when crossing water lines, gas lines and sewer force mains.
16. All underground conduit shall be installed in accordance with Standard ECI-1.
17. All U-bolts, nuts, and washers shall be stainless steel. All plate material shall be galvanized.
18. Conduit entering junction boxes shall not extend over 3" maximum or 2" minimum and shall be fitted with bell ends or bushings.
19. Conductor(s). The proposed pole foundation shall be permanently marked to indicate the locations of all conduits cast in the foundation. The markings shall consist of an arrow, 4 to 6 inches long, and a letter designation as follows:
    (S) – spare conduit;
    (T) – conduit with signal or detector cables;
    (E) – conduit with electrical service conductors for traffic signal;
    (G) – conduit for grounding
20. System bond wire is required only if the conduit is non-metallic. Payment shall be incidental to conduit cost.
21. Lane closures shall not be permitted between 7 AM to 9 AM and 4 PM to 6 PM.
22. The Contractor will stub and cap two each 2- inch PVC conduits for future use from each mast arm pole.
23. All conduits stubbed from junction boxes and foundations must extend a minimum of six inches beyond the box or foundation and must be capped.
24. Conduit and Pull Boxes are shown in the plan may be shifted in location to accomodate field conditions. All equipment shall be placed within the right-of-way.
25. Finish shall be per VDOT specifications and shall be applied by the pole manufacturer.
26. All equipment, including pedestrian detectors, poles, mastarms, luminaires, U-bolts, hardware, signal heads, bands, visors, overhead detection cameras (and riser poles) shall be semigloss black.
27. Contractor shall modify existing controller and cabinet to add the ALDIS camera detection equipment, and make new conductor connections.
28. Contractor shall use existing bolt pattern at existing ped pole foundation and signal pole foundation when ordering the pedestrian pole assemblies.
29. The Aldis Gridmart camera system shall be used on this project. The pay item shall include the processor, camera, interface cable, brackets and mounting arm, software, and related items for a complete installation.
30. Existing conduits and Jboxes shall be re-used for this project except as shown in the plan.

TYPICAL SIGNAL POLE AND VIDEO DETECTION PLACEMENT DETAIL



NO.	DESCRIPTION	DATE	APP
1	UPDATED QUANTITIES PER REVISIONS ON SHEET 3	2/13/13	

CONTRACTOR SHALL CONTACT MISS UTILITY @ 1-800-552-7001 FOR LOCATION OF ALL UTILITIES, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

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SIGNAL DESIGN PLANS
FOR OAK LANE AT RIVERMONT AVENUE
LYNCHBURG, VIRGINIA

GENERAL NOTES AND QUANTITIES

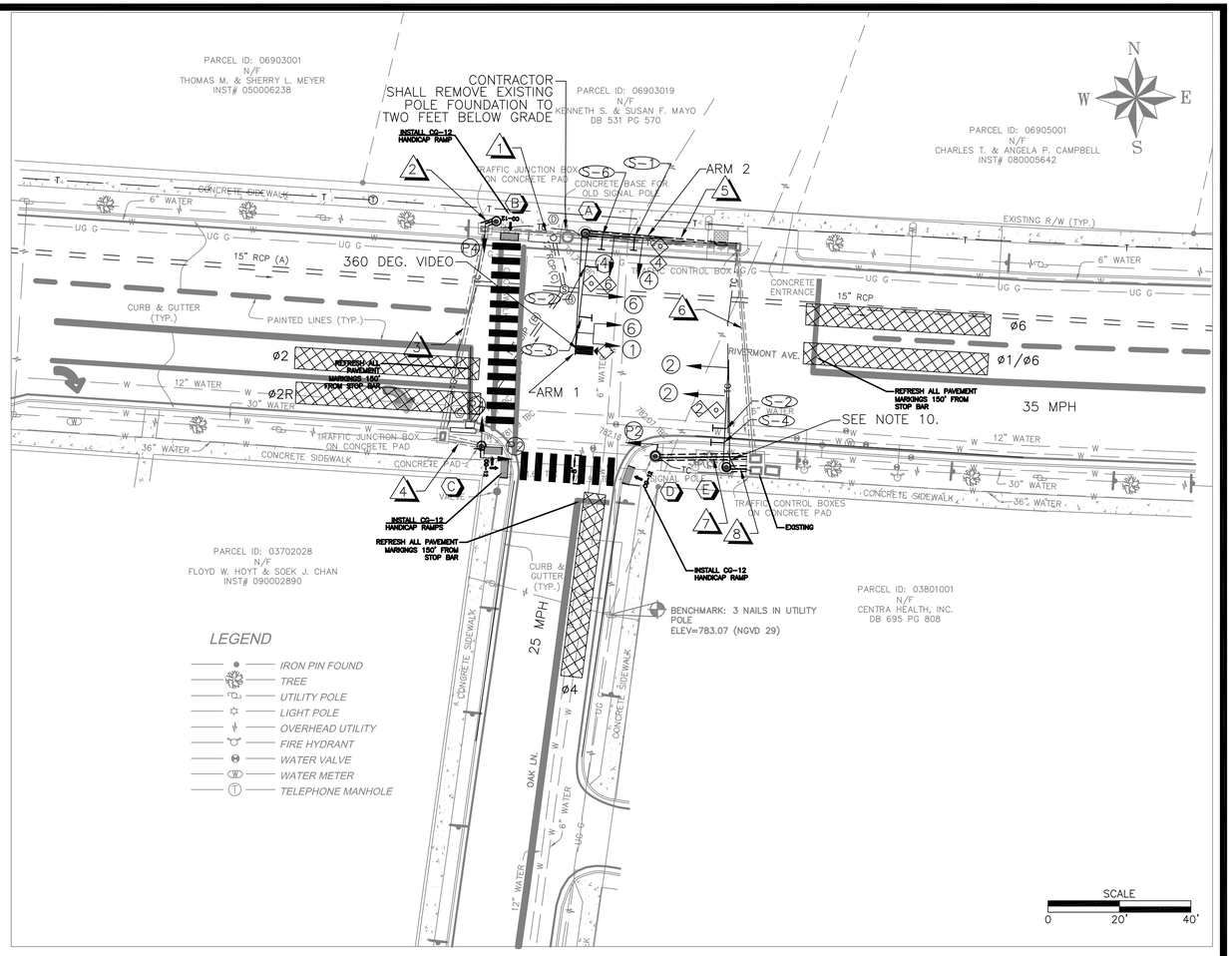
SHEET NO. S2

SIGNAL LEGEND

- CONDUIT
- NOTES
- (X) SIGNAL POLE IDENTIFIER
- (S-1) PROPOSED MAST ARM MOUNTED SIGNS
- PROPOSED CONTROLLER CABINET
- EXISTING JUNCTION BOX
- PROPOSED CONDUIT
- (X) PROPOSED SIGNAL HEAD
- PROPOSED MAST ARM AND FOUNDATION
- (PX) PEDESTRIAN SIGNAL HEAD
- PROPOSED EMERGENCY VEHICLE PRE-EMPTION DEVICE
- PROPOSED VIDEO DETECTION CAMERA
- DETECTION ZONE

CONSTRUCTION NOTES:

1. MULTIPLE CONFLICTS BETWEEN PROPOSED CONDUITS AND EXISTING UTILITIES MAY EXIST. CONTACT "MISS UTILITY" PRIOR TO EXCAVATION.
2. TOP OF POLE FOUNDATION ELEVATION SHALL BE FLUSH WITH THE ADJACENT SIDEWALK.
3. TRAFFIC SIGNAL HEADS, VISORS, LUMINAIRES AND HOUSINGS SHALL BE SEMI-GLOSS BLACK. BACKPLATES AND INSIDE OF VISORS SHALL BE SEMI-GLOSS BLACK. ALL SIGNAL HEADS SHALL BE POLYCARBONATE & HAVE POLYCARBONATE BACKPLATES. ALL POLES SHALL BE SEMI-GLOSS BLACK.
4. THE (S-5) SIGN SHALL BE POLE MOUNTED ADJACENT TO PEDESTRIAN DETECTOR. THE CONTRACTOR SHALL COORDINATE WITH THE CITY'S TRAFFIC STAFF FOR ORIENTATION OF THE SIGN ON THE POLE.
5. PEDESTRIAN POLES SHALL INCLUDE VDOT STANDARD PA-2 WITH SP-4, MODIFIED FOR COUNTDOWN HEADS.
6. REFRESH ALL PAVEMENT MARKINGS 150' FROM INTERSECTION.
7. CAMERA LOCATION FOR VIDEO DETECTION SHALL BE DECIDED AND DRILLED IN THE FIELD.
8. PEDESTRIAN POLE FOUNDATION AT POLES (C) AND EXISTING POLE FOUNDATION AT (D) SHALL BE REUSED. CONTRACTOR SHALL ORDER NEW POLE BASE/POLE ASSEMBLY TO BE CONSISTANT WITH THE EXISTING BOLT PATTERN IN THE EXISTING FOUNDATIONS.
9. EXISTING CONDUITS AND JBOXES SHALL BE UTILIZED EXCEPT WHERE NEW CONDUIT IS SHOWN. EXISTING CONDUCTORS SHALL BE REMOVED AND REPLACED WITH NEW CONDUCTORS PER THIS PLAN.
10. POLE FOUNDATION CONFLICTS WITH EXISTING CONDUIT RUNS. CONTRACTOR SHALL SPLICE INTO EXISTING CONDUITS AND REROUTE TO AROUND FOUNDATION.
11. EXISTING POWER SERVICE DROP TO BE CHANGED TO SE-3, METER TO BE MOUNTED ON MAST ARM POLE.
12. THE CITY WILL PROVIDE NEW SIGNAL TIMINGS TO THE CONTRACTOR.
13. EXISTING SIGNAL POLE IN SOUTHEAST CORNER SHALL BE REMOVED.
14. THE PROPOSED FOUNDATION FOR POLE SHALL NOT COME INTO CONTACT WITH EXISTING WATER LINES ON EITHER SIDE OF IT. DUE TO THE CLEARANCE BETWEEN THE WATER LINES IT MIGHT BE NECESSARY TO USE A 36" DIAMETER FOUNDATION. THIS SHOULD BE DETERMINED IN THE FIELD PRIOR TO FOUNDATION DESIGN.
15. POWER SERVICE DROP CAN BE VIA EXISTING VERIZON POLE THAT IS ADJACENT TO THE EXISTING SIGNAL POLE IN THE SOUTHEAST CORNER. CONTRACTOR SHALL RUN CONDUIT AND WEATHERHEAD UP THE VERIZON POLE FOR USE BY AEP.
16. THE ELEVATIONS OF EXISTING OVERHEAD LINES ARE APPROXIMATELY: 19.4' AT PROPOSED POLE (A) AND 19.2' AT PROPOSED POLE (E)
17. CONTRACTOR SHALL ADD SYSTEM GROUNDING AT EACH PULL BOX. THIS SHALL INCLUDE GROUND RODS AND #8 CONDUCTOR BOND WIRE FROM GROUND ROD TO GROUND ROD.



POLE SCHEDULE

NO.	STANDARD TYPE	POLE HEIGHT	MASTARM LENGTH	SIGNAL MOUNTING DISTANCE FROM POLE					CAMERA DISTANCE FROM POLE	EVP DISTANCE FROM POLE	TRAFFIC SIGN MOUNTING DISTANCE FROM POLE				POLE LOCATION A*	POLE LOCATION B*
(A)	MP-1 ARM 1	20'	35'	17'	29'	–	–	–	33'	–	13.5'	6'	23.5'	–	–	3.4'	–
	ARM 2		25'	8'	16.5'	–	–	–	–	–	21.5'	5'	13.0'	–	–	–	–
(B)	PA-2	10'	N/A	–	–	–	–	–	–	–	–	–	–	–	–	5.2'	–
(C)	PA-2	10'	N/A	–	–	–	–	–	–	–	–	–	–	–	–	4.6'	10'
(D)	PA-2	10'	N/A	–	–	–	–	–	–	–	–	–	–	–	–	4.8'	8.8'
(E)	MP-1	20'	30'	19.5	28'	–	–	–	–	–	15.5'	7.0'	11'	–	–	8.3'	28.8'

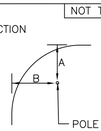
(MP-1) = VDOT STANDARD MAST ARM POLE
* SEE POLE LOCATION DETAIL

POLE LOCATION DETAIL

NOT TO SCALE

A=DISTANCE FROM PROJECTION OF TANGENT SECTION FACE OF CURB RIVERMONT AVE

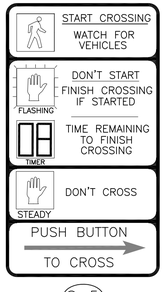
B=DISTANCE FROM PROJECTION OF TANGENT SECTION FACE OF CURB OAK LANE



CONDUCTOR SCHEDULE

CONDUIT			RUN NO. 1	2	3	4	5	6	7	8	9	10
SIZE			3"	3"	E	E	3"	E	3"	3"		
TYPE			P	P	E	E	E	E	P	P	–	–
AWG	#6	2C	–	–	–	–	–	–	–	–	–	–
	#14	2C PUSH BUTTON	3	1	2	2	–	3	1	–	–	–
		3C PED HEAD	3	1	2	2	–	3	1	–	–	–
		5C	–	–	–	–	3	3	–	2	–	–
		7C	–	–	–	–	1	1	–	–	–	–
POWER/VIDEO CABLE**			–	–	–	–	1	1	–	–	–	–
EVP CABLE			–	–	–	–	2	2	–	1	–	–

(E) = EXISTING
(P) = PVC (SCHEDULE 40)
EVP = EMERGENCY VEHICLE PRE-EMPTION CABLE
** = PER ALDIS SPECIFICATIONS



(S-5)
R10-3E
9"X12"
SEE NOTE 5

A fluorescent yellow-green background color shall be used for this sign.

(S-6)
R10-15L
30"X30"
1 REQUIRED

LEFT TURN YIELD ON GREEN

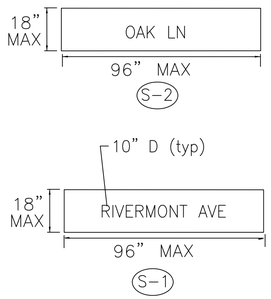
(S-3)
R10-12
24"X30"
1 REQUIRED

A fluorescent yellow-green background color shall be used for this sign.

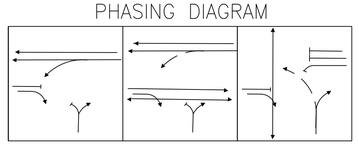
(S-4)
R10-15R
30"X30"
1 REQUIRED

DETECTOR NOTES:

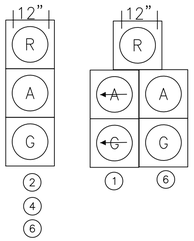
ø2R SHALL HAVE A 10s DELAY

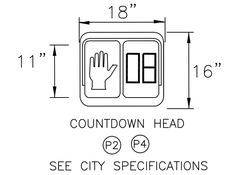


PHASING DIAGRAM



PROPOSED SIGNAL HEADS





NO.	DESCRIPTION	DATE	APP
1	CHANGED SERVICE FROM SE-5 TO SE-3 MAST POLE MOUNT.	2/13/13	
2	CHANGED ** NOTE TO ALDIS SPECIFICATIONS.	2/13/13	
3	ADDED CONSTRUCTION NOTE 17	2/13/13	
4	REVISED NOTE 5 AND NOTE 9.	2/13/13	

CONTRACTOR SHALL CONTACT MISS UTILITY @ 1-800-552-7001 FOR LOCATION OF ALL UTILITIES, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

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SIGNAL DESIGN PLAN
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LYNCHBURG, VIRGINIA

INTERSECTION PLAN SHEET

SHEET NO. S3
SHEET 3 OF 3