

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0030	RRT	1 OF 5
RADNOR TOWNSHIP				
REVISION NUMBER	REVISIONS		DATE	BY
2	ADDENDUM 2		11/02/20	JRD

TRAFFIC SIGNAL NOTES
 DO NOT MODIFY INSTALLATION WITHOUT PRIOR WRITTEN APPROVAL.
 ALL SIGNS AND PAVEMENT MARKINGS INDICATED ARE PART OF THE PERMIT. INSTALL AND MAINTAIN IN ACCORDANCE WITH PUBLICATION 212 AND PUBLICATION 236.

POST MOUNTED SIGNALS: INSTALL WITH A MINIMUM SIGNAL HEAD CLEARANCE OF 2 FEET BEHIND FACE OF CURB OR EDGE OF SHOULDER; AND 8 FEET ABOVE SIDEWALK OR PAVEMENT GRADE.

OVERHEAD SIGNALS: INSTALL WITH A MINIMUM SIGNAL HEAD CLEARANCE OF 2 FEET BEHIND FACE OF CURB OR EDGE OF SHOULDER. PROVIDE A MINIMUM SIGNAL HEAD CLEARANCE OF 16 FEET ABOVE ROADWAY; RIGIDLY MOUNT, TOP AND BOTTOM; AND EQUIP WITH BACKPLATES. PROVIDE A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN SIGNALS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

DETERMINE WITH A PENNOT REPRESENTATIVE, THE EXACT LOCATION OF DETECTORS PRIOR TO INSTALLATION.

CONSULT WITH LOCAL OFFICIALS AND UTILITIES TO RESOLVE CONFLICTS PRIOR TO CONSTRUCTION.

COMPLY WITH PROVISIONS OF ACT 287 FOR PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES.

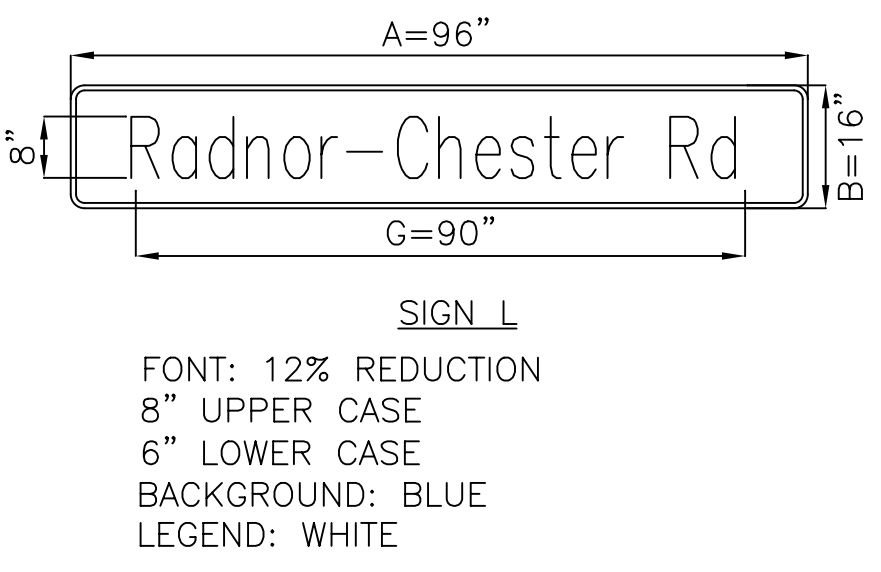
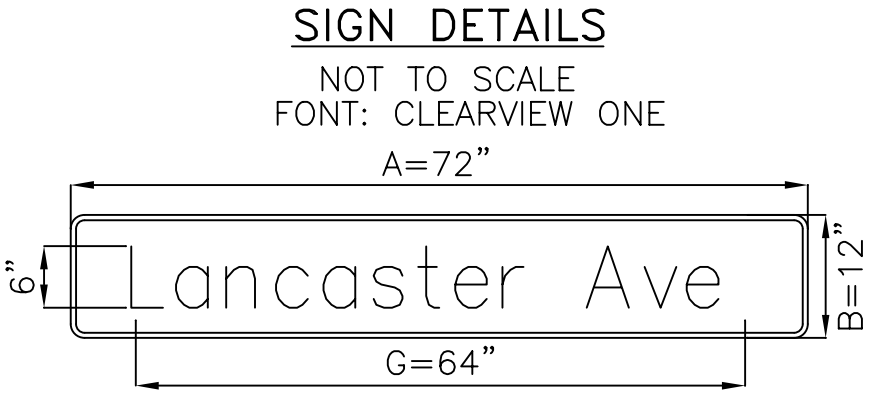
EXISTING		PROPOSED		
	25' MA		25' MA	MAST ARM/ IDENTIFYING LENGTH
				SIGNAL HEAD/BACKPLATE/TUNNEL VISOR/IDENTIFYING NUMBER
				PEDESTRIAN SIGNAL HEAD W/ IDENTIFYING NUMBER
				PEDESTRIAN PUSHBUTTON W/ IDENTIFYING NUMBER
				SIGN/ IDENTIFYING LETTER
				ZONE OF DETECTION
				CURB RAMP
				EMERGENCY PRE-EMPTION DETECTOR
				EMERGENCY PRE-EMPTION FLASHING BEACON
				CONTROLLER CABINET
				JUNCTION BOX
				CONDUIT
				DEPRESSED CURB
				LUMINAIRE/ IDENTIFYING LENGTH
				MICROWAVE DETECTOR/ IDENTIFYING NUMBER
				VIDEO DETECTOR/ IDENTIFYING NUMBER
				4" WIDTH / DOUBLE YELLOW LINE
				4" WIDTH / SOLID YELLOW LINE
				4" WIDTH / BROKEN YELLOW LINE
				4" WIDTH / BROKEN WHITE LINE
				4" WIDTH / DASHED WHITE LINE
				4" WIDTH / SOLID WHITE LINE
				6" WIDTH / BROKEN WHITE LINE
				6" WIDTH / SOLID WHITE LINE
				24" WIDTH / SOLID WHITE LINE
				24" WIDTH / SOLID YELLOW LINE
				FENCE
				GUIDE RAIL
				PHASE NUMBER
				UTILITY POLE

COUNTY: DELAWARE
 MUNICIPALITY: RADNOR TOWNSHIP
 INTERSECTION: LANCASTER AVENUE (SR 0030) AND RADNOR-CHESTER ROAD (SR 1021)

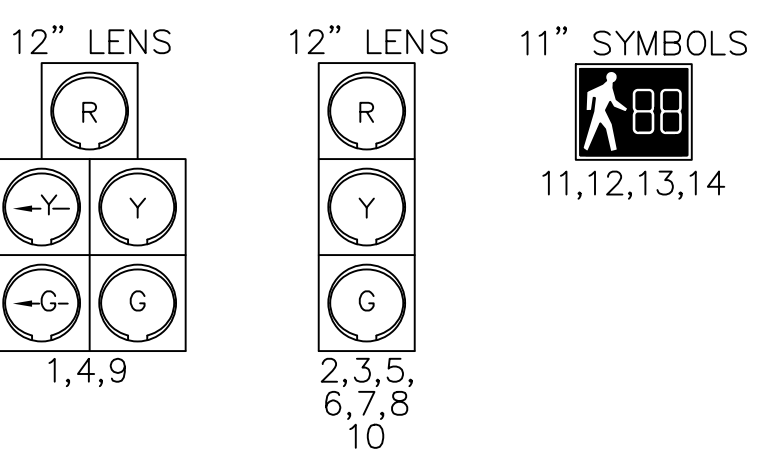
REVIEWED: _____ DATE 6/30/2020
 MUNICIPAL OFFICIAL _____ DATE _____
 RECOMMENDED: **Paul M. Lutz** Digitally signed by Paul M. Lutz Date: 2020.06.30 08:17:07 -0400
 Ashwin B. Patel, P.E. Digitally signed by Ashwin B. Patel, P.E. Date: 2020.06.30 11:07:27 -0400
 DISTRICT TRAFFIC ENGINEER _____ DATE _____



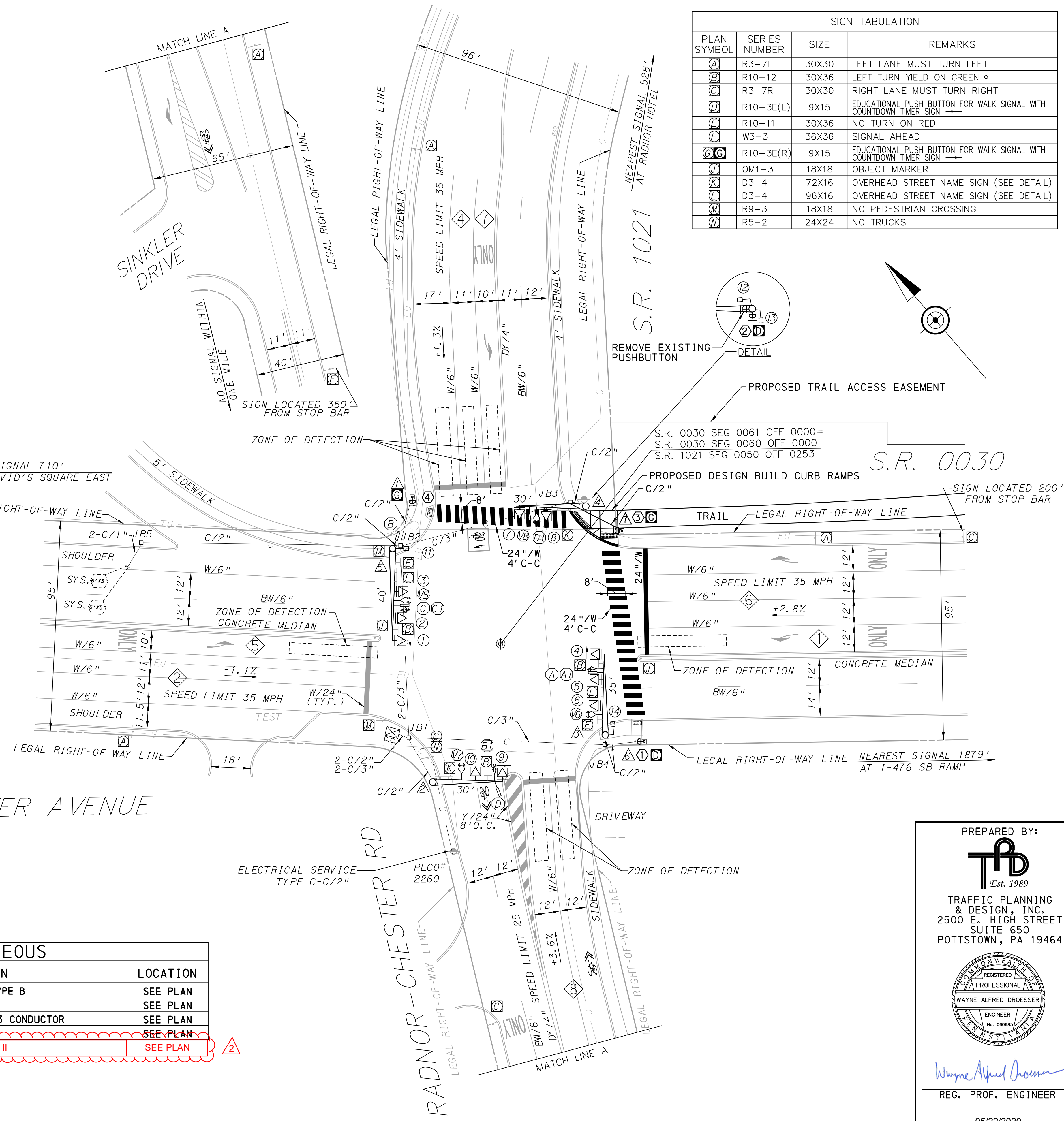
SIGN TABULATION			
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
	R3-7L	30X30	LEFT LANE MUST TURN LEFT
	R10-12	30X36	LEFT TURN YIELD ON GREEN
	R3-7R	30X30	RIGHT LANE MUST TURN RIGHT
	R10-3E(L)	9X15	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER SIGN
	R10-11	30X36	NO TURN ON RED
	W3-3	36X36	SIGNAL AHEAD
	R10-3E(R)	9X15	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER SIGN
	OM1-3	18X18	OBJECT MARKER
	D3-4	72X16	OVERHEAD STREET NAME SIGN (SEE DETAIL)
	D3-4	96X16	OVERHEAD STREET NAME SIGN (SEE DETAIL)
	R9-3	18X18	NO PEDESTRIAN CROSSING
	R5-2	24X24	NO TRUCKS



SIGNAL INDICATIONS



MISCELLANEOUS				
ITEM NO.	QUAN.	UNIT	DESCRIPTION	LOCATION
0951-4022	1	EACH	PEDESTRIAN STUB POLE, TYPE B	SEE PLAN
0954-0012	26	LF	2 INCH CONDUIT	SEE PLAN
0954-0201	34	LF	SIGNAL CABLE, 14 AWG, 3 CONDUCTOR	SEE PLAN
0956-0500	4	EACH	PEDESTRIAN PUSHBUTTON	SEE PLAN
0954-0152	26	LF	TRENCH AND BACKFILL, TYPE II	SEE PLAN



PREPARED BY:

 TRAFFIC PLANNING & DESIGN, INC.
 2500 E. HIGH STREET
 SUITE 650
 POTTSTOWN, PA 19464

Wayne Alfred Droesser
 REG. PROF. ENGINEER
 05/22/2020
 DATE

c:\pwork\proj\proj\elect\13125\06const - Lancaster Ave and Radnor Chester Rd.dgn
 5/22/2020 10:44:10 AM d:\dev\ Traffic Planning and Design, Inc.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0030	RRT	2 OF 5
RADNOR TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	

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COMPLY WITH PROVISIONS OF ACT 287 FOR PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES.

LEGEND

EXISTING	PROPOSED	
25' MA	25' MA	MAST ARM/ IDENTIFYING LENGTH
④	④	SIGNAL HEAD/ IDENTIFYING NUMBER
④	④	PEDESTRIAN SIGNAL HEAD W/ IDENTIFYING NUMBER
④	④	PEDESTRIAN PUSHBUTTON W/ IDENTIFYING NUMBER
④	④	SIGN/ IDENTIFYING LETTER
④ 6' X 20'	④ 6' X 40'	LOOP SENSOR/ SIZE
④	④	CURB RAMP
④	④	EMERGENCY PRE-EMPTION DETECTOR
④	④	EMERGENCY PRE-EMPTION FLASHING BEACON
JB4	JB4	CONTROLLER CABINET
④	④	JUNCTION BOX
C	C	CONDUIT
DC	DC	DEPRESSED CURB
20' LA	20' LA	LUMINAIRE/ IDENTIFYING LENGTH
④	④	MICROWAVE DETECTOR/ IDENTIFYING NUMBER
④	④	VIDEO DETECTOR/ IDENTIFYING NUMBER
4"/DY	4"/DY	4" WIDTH / DOUBLE YELLOW LINE
4"/Y	4"/Y	4" WIDTH / SOLID YELLOW LINE
4"/BY	4"/BY	4" WIDTH / BROKEN YELLOW LINE
4"/BW	4"/BW	4" WIDTH / BROKEN WHITE LINE
4"/DW	4"/DW	4" WIDTH / DASHED WHITE LINE
4"/W	4"/W	4" WIDTH / SOLID WHITE LINE
6"/BW	6"/BW	6" WIDTH / BROKEN WHITE LINE
6"/W	6"/W	6" WIDTH / SOLID WHITE LINE
24"/W	24"/W	24" WIDTH / SOLID WHITE LINE
24"/Y	24"/Y	24" WIDTH / SOLID YELLOW LINE
X	X	FENCE
X	X	GUIDE RAIL
④	④	PHASE NUMBER
④	④	UTILITY POLE

COUNTY: DELAWARE
 MUNICIPALITY: RADNOR TOWNSHIP
 INTERSECTION: LANCASTER AVENUE (SR 0030) AND RADNOR-CHESTER ROAD (SR 1021)

REVIEWED: DATE 6/30/2020
 MUNICIPAL OFFICIAL
 RECOMMENDED: Paul M. Lutz Digitally signed by Paul M. Lutz Date: 2020.06.30 08:17:41 -0400
 Ashwin B. Patel, P.E. Digitally signed by Ashwin B. Patel, P.E. Date: 2020.06.30 11:07:50 -0400
 DISTRICT TRAFFIC ENGINEER DATE



EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NORTHBOUND & SOUTHBOUND APPROACHES OF RADNOR-CHESTER RD AND THE EASTBOUND & WESTBOUND APPROACHES OF LANCASTER AVENUE WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
- THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY. THEN THE GREEN INTERVAL FOR THE PRE-EMPTED PHASE SHALL FOLLOW.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- IF SIGNAL HAS BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON AND THE SIGNAL IS PRE-EMPTED, THE PEDESTRIAN TIME SHALL BE SPLIT BETWEEN "PED WALK" AND "PED CLEAR". THE "PED WALK" INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "PED CLEAR" INTERVAL. THIS INTERVAL SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PRE-EMPTION.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION, PHASE 2,4,6 OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 12 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.

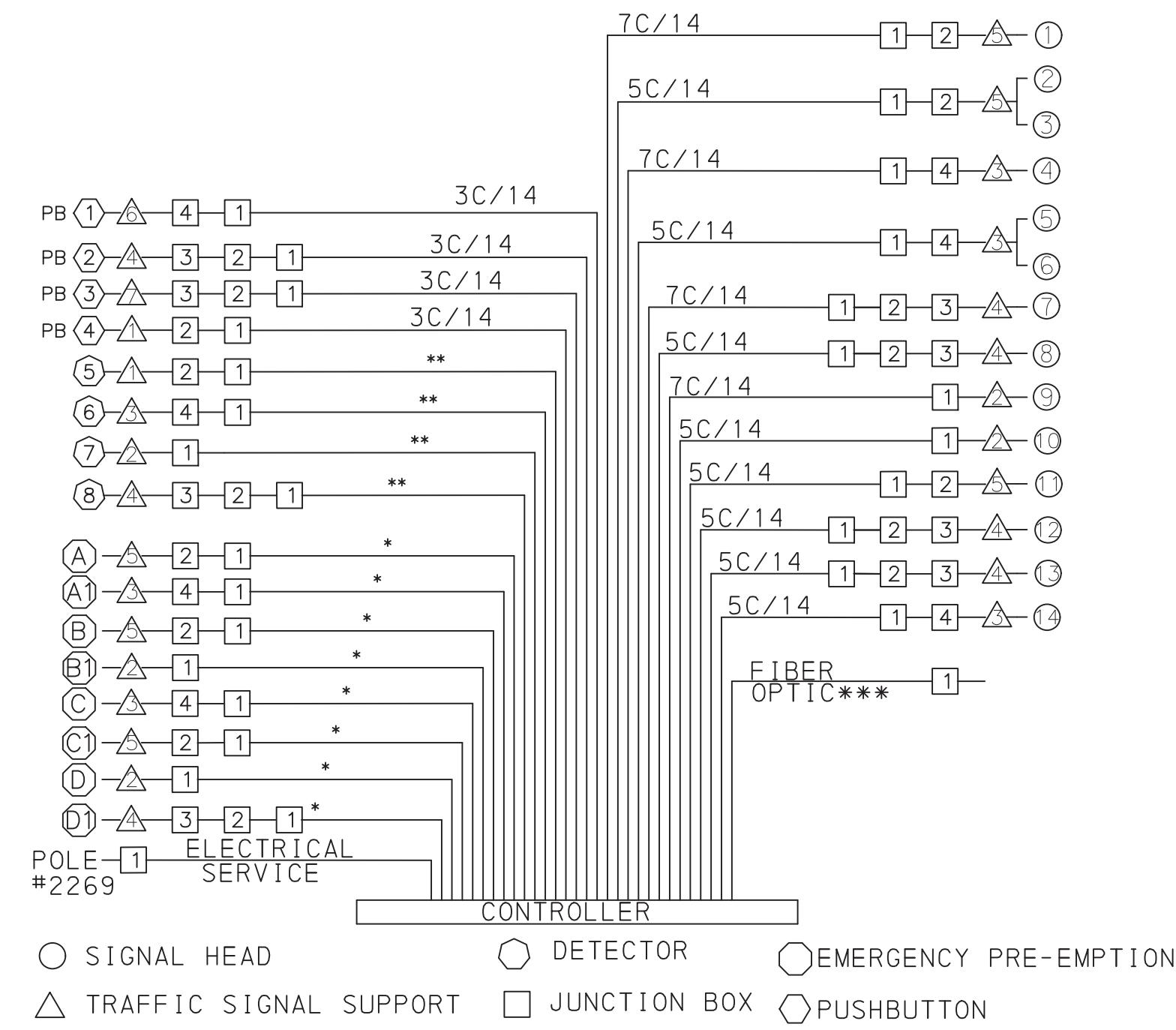
EMERGENCY PRE-EMPTION PHASING MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2	4	6	8
1	R R R	R R R	G Y R	R R R
2,3	R R R	R R R	G Y R	R R R
4	G Y R	R R R	R R R	R R R
5,6	G Y R	R R R	R R R	R R R
7,8	R R R	R R R	R R R	G Y R
9	R R R	G Y R	R R R	R R R
10	R R R	G Y R	R R R	R R R
11,12	H H H	H H H	H H H	H H H
13,14	H H H	H H H	H H H	H H H
FIXED	** 4 2	** 4 2	** 4 2	** 4 2

** FOR DURATION OF PRE-EMPTION

NOTE:
 IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

④ G/Y WHEN RETURNING TO NORMAL OPERATION
 ⑥ G WHEN RETURNING TO NORMAL OPERATION



WIRING DIAGRAM

○ SIGNAL HEAD ○ DETECTOR ○ EMERGENCY PRE-EMPTION
 △ TRAFFIC SIGNAL SUPPORT □ JUNCTION BOX ◊ PUSHBUTTON

* FOR CONDUIT FILL CALCULATION ONLY. INCIDENTAL TO PREEMPTION SYSTEM ITEM. SIZE CABLE AS RECOMMENDED BY MANUFACTURER OF PREEMPTION SYSTEM.

**FOR CONDUIT FILL CALCULATION ONLY. INCIDENTAL TO VIDEO DETECTION ITEM. SIZE CABLE AS RECOMMENDED BY MANUFACTURER OF VIDEO DETECTION SYSTEM.

***FIBER PULLED INTO CABINET BY OTHERS

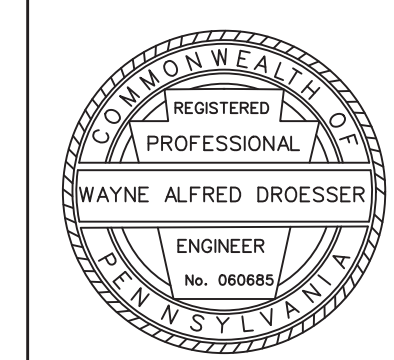
MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1+5	1+6	2+5	2+6	4+7	4+8
1	R G R R	G G G Y	R R R R	R R R R	G G Y R	R R R R
2,3	R R R R	G G Y R	R R R R	R R R R	G G Y R	R R R R
4	R G R R	R R R R	G G G Y	G G Y R	R R R R	R R R R
5,6	R R R R	R R R R	G G Y R	G G Y R	R R R R	R R R R
7,8	R R R R	R R R R	R R R R	R R R R	R R R R	G G Y R
9	R R R R	R R R R	R R R R	R R R R	G G Y R	R R R R
10	R R R R	R R R R	R R R R	R R R R	G Y R R	G G Y R
11,12*	H H H	M FH H	H H H	H H H	M FH H	H H H
13,14*	H H H	H H H	H H H	H H H	H H H	M FH H

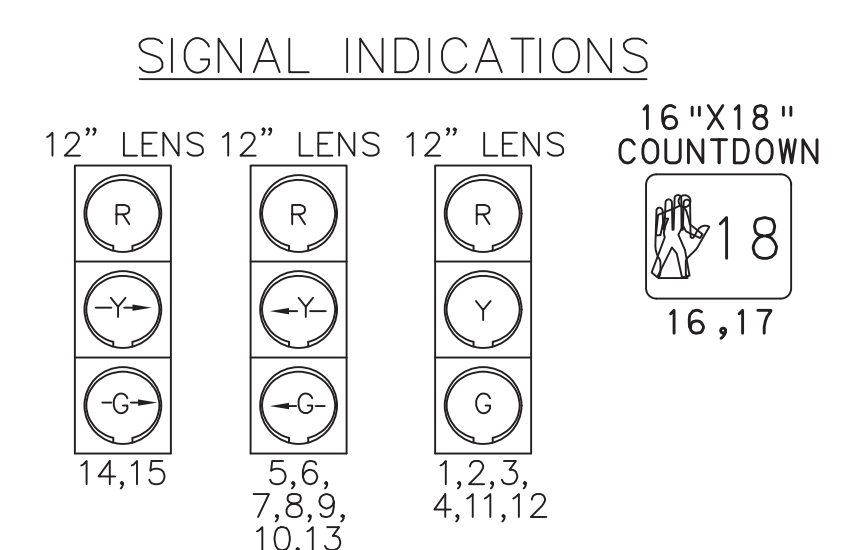
FIXED	4	2	3	4	2	3	4	2	3	4	2
MINIMUM	3		3	3		24	3		3	3	
PASSAGE	3		3	3			3		3	3	
MAXIMUM 1	14		14	14		54	13		39	44	
MAXIMUM 2	19		19	19		59	18		44	26	
PEDESTRIAN*			⑧	⑧		7 19			7 26		
MEMORY	NL		NL	NL		MX			NL		

OPERATION NOTES:

- ① R/G IF FOLLOWED BY 1+6
 - ② R/G IF FOLLOWED BY 2+5
 - ③ G/Y IF FOLLOWED BY 2+6
 - ④ G IF FOLLOWED BY 2+6
 - ⑤ G/Y IF FOLLOWED BY 4+8
 - ⑥ G IF FOLLOWED BY 4+8
 - ⑦ M IF FOLLOWED BY 2+6
 - ⑧ TIMING TO BE AS SHOWN IN PHASE 2+6. TIMING MAY TIME OUT IN THIS PHASE OR MAY BE COMPLETED IN PHASE 2+6.
- SIGNAL TO DWELL IN PHASE 2+6, UNTIL ACTUATED BY PHASE 4,7 OR 8.
 - PED RECYCLE FOR PHASE 2+6



- OPERATION NOTES:
- ① G IF FOLLOWED BY 2+5
 - ② ⊖ IF FOLLOWED BY 3+8
 - ③ ⊖ IF FOLLOWED BY 4+7
 - ④ G IF FOLLOWED BY 4+8
 - ⑤ ⊖ IF FOLLOWED BY 2+5 OR 4+8
 - ⑥ ⊖ IF FOLLOWED BY 2+5
 - ⑦ ⊖ IF FOLLOWED BY 2+6



SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS & LOUVERS ON RED INDICATIONS ONLY 5,6,7,8,9,10,13,14,15

SIGN TABULATION

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
Ⓐ	R3-3	36X36	NO TURNS
Ⓑ	R3-3	24X24	NO TURNS
Ⓒ	R10-10L	30X36	LEFT TURN SIGNAL
Ⓓ	R10-11	30X36	NO TURN ON RED
Ⓔ	R10-10R	30X36	RIGHT TURN SIGNAL
Ⓕ	R3-7L	30X30	LEFT LANE MUST TURN LEFT
Ⓖ	R9-3	18X18	NO PEDESTRIAN CROSSING
Ⓜ	W11-2	36X36	PEDESTRIAN CROSSING
Ⓝ	W16-7P	24X12	DIAGONAL DOWNWARD POINTING ARROW
Ⓛ	R3-5L	30X36	LEFT TURN
Ⓜ	R3-5R	30X36	RIGHT TURN
Ⓟ	R1-2	36X36	YIELD
Ⓡ	R5-1	48X48	DO NOT ENTER
Ⓢ	R6-1R	36X12	HORIZONTAL RIGHT ONE WAY
Ⓣ	R6-1L	36X12	HORIZONTAL LEFT ONE WAY
Ⓤ	R3-7R	30X30	RIGHT LANE MUST TURN RIGHT
Ⓥ	D3-4	90X16	OVERHEAD STREET NAME SIGN (SEE DETAIL)
Ⓦ	D3-4	96X16	OVERHEAD STREET NAME SIGN (SEE DETAIL)
Ⓧ	D3-4	96X16	OVERHEAD STREET NAME SIGN (SEE DETAIL)
Ⓨ	R10-3E(L)	9X15	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER SIGN
Ⓩ	R10-3E(R)	9X15	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER SIGN
ⓐ	R5-1A	48X36	WRONG WAY

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0030	RRT	3 OF 5

RADNOR TOWNSHIP

REVISION NUMBER	REVISIONS	DATE	BY

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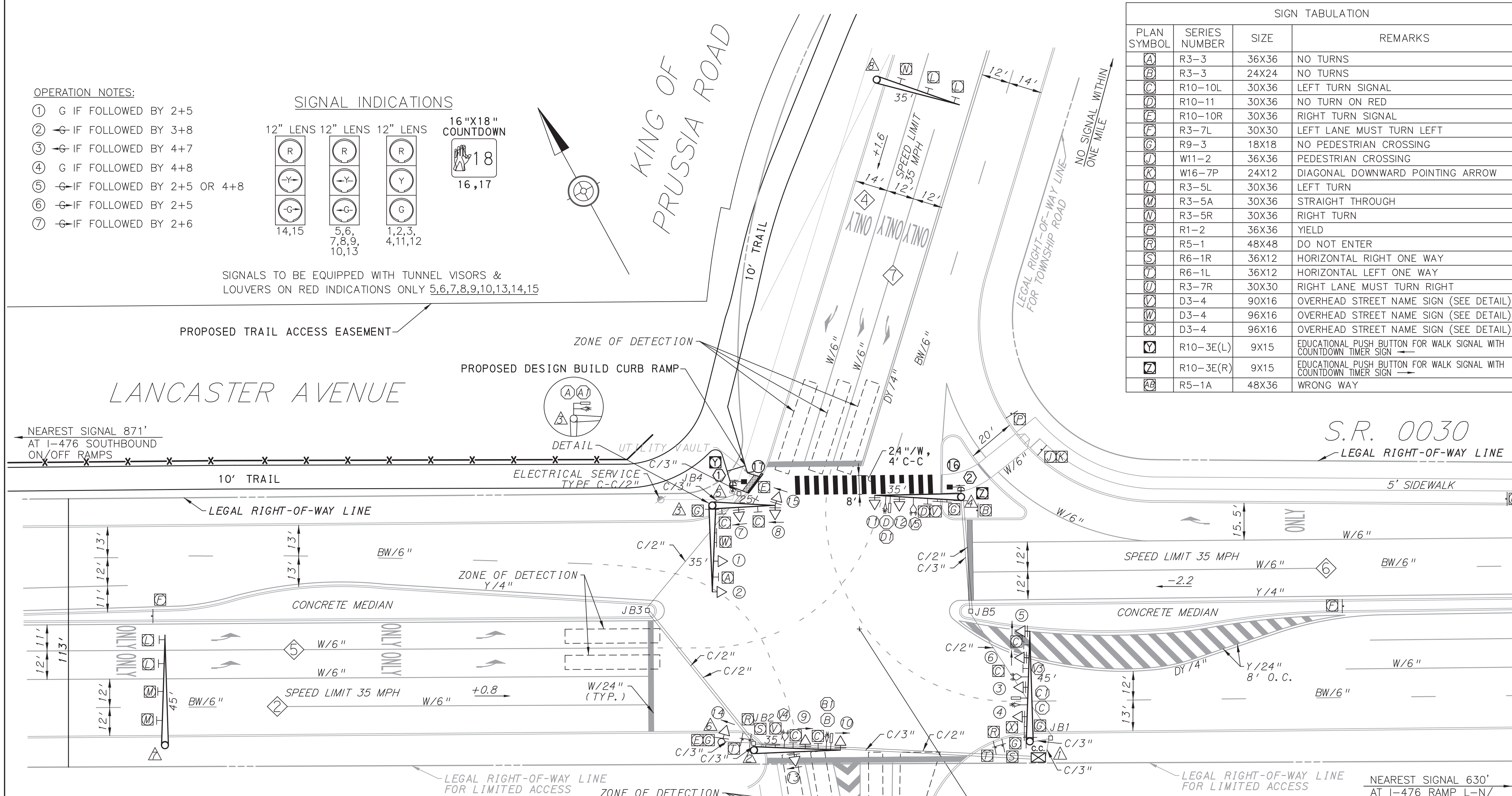
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LEGEND

EXISTING	PROPOSED	DESCRIPTION
Ⓐ 25' MA	Ⓐ 25' MA	MAST ARM/ IDENTIFYING LENGTH
→ ④	→ ④	SIGNAL HEAD/ IDENTIFYING NUMBER
⊖ ④	⊖ ④	PEDESTRIAN SIGNAL HEAD W/ IDENTIFYING NUMBER
⊕ ④	⊕ ④	PEDESTRIAN PUSHBUTTON W/ IDENTIFYING NUMBER
Ⓐ ④	Ⓐ ④	SIGN/ IDENTIFYING LETTER
Ⓜ	Ⓜ	ZONE OF DETECTION
Ⓟ	Ⓟ	CURB RAMP
Ⓐ ①	Ⓐ ①	EMERGENCY PRE-EMPTION DETECTOR
Ⓐ ①	Ⓐ ①	EMERGENCY PRE-EMPTION FLASHING BEACON
Ⓜ	Ⓜ	CONTROLLER CABINET
Ⓜ	Ⓜ	JUNCTION BOX
— C —	— C/1 —	CONDUIT
DC	DC	DEPRESSED CURB
20' LA	20' LA	LUMINAIRE/ IDENTIFYING LENGTH
Ⓜ	Ⓜ	MICROWAVE DETECTOR/ IDENTIFYING NUMBER
Ⓜ	Ⓜ	VIDEO DETECTOR/ IDENTIFYING NUMBER
4"/DY	4"/DY	4" WIDTH / DOUBLE YELLOW LINE
4"/Y	4"/Y	4" WIDTH / SOLID YELLOW LINE
4"/BY	4"/BY	4" WIDTH / BROKEN YELLOW LINE
4"/BW	4"/BW	4" WIDTH / BROKEN WHITE LINE
4"/DW	4"/DW	4" WIDTH / DASHED WHITE LINE
4"/W	4"/W	4" WIDTH / SOLID WHITE LINE
6"/BW	6"/BW	6" WIDTH / BROKEN WHITE LINE
6"/W	6"/W	6" WIDTH / SOLID WHITE LINE
24"/W	24"/W	24" WIDTH / SOLID WHITE LINE
24"/Y	24"/Y	24" WIDTH / SOLID YELLOW LINE
— X —	— X —	FENCE
— X —	— X —	GUIDE RAIL
Ⓜ	Ⓜ	PHASE NUMBER
Ⓜ	Ⓜ	UTILITY POLE



MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2+5						2+6				3+7				3+8				4+7				4+8				FLASH
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1,2	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y		
3,4	G	Y	Ⓜ	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y		
5,6	⊖	⊖	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	OFF		
7,8,13	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		
9,10	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		
11,12	R	R	R	R	R	R	R	R	R	R	G	Y	Ⓜ	R	R	R	R	R	R	R	G	Y	R	R	R		
14,15	⊖	⊖	R	R	R	R	R	R	R	R	R	R	R	⊖	⊖	Ⓜ	⊖	⊖	Ⓜ	⊖	⊖	Ⓜ	⊖	OFF			
16,17*	H	H	H	M	FH	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	OFF			

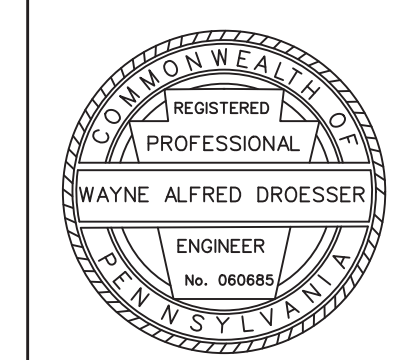
FIXED	4	2	4	2	4	2	4	2	4	2	4	2
MINIMUM	3		7		3		3		3		3	
PASSAGE	3				3		3		3		3	
MAXIMUM 1	28		28		25		25		25		25	
MAXIMUM 2	20		58		29		48		29		48	
PEDESTRIAN			7	22								
MEMORY	NL		MX		NL		NL		NL		NL	

* MAN SYMBOL UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE HAND SYMBOL AT ALL TIMES.

- REFER TO SYSTEM PERMIT #1-0071 FOR PROGRAM TIMES AND TIME-OF-DAY OPERATION.
- PED RECYCLE FOR PHASE 2+6
- PEDESTRIAN COUNTDOWN TIMER TO COUNT DOWN DURING FLASHING HAND INTERVAL.

MISCELLANEOUS

ITEM NO.	QUAN.	UNIT	DESCRIPTION	LOCATION
0955-3722	2	EACH	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, TYPE A	SEE PLAN
0956-0500	2	EACH	PEDESTRIAN PUSHBUTTON	SEE PLAN



COUNTY: DELAWARE

MUNICIPALITY: RADNOR TOWNSHIP

INTERSECTION: LANCASTER AVENUE (SR 0030) AND KING OF PRUSSIA ROAD

REVIEWED: _____ DATE 6/30/2020

MUNICIPAL OFFICIAL _____ DATE _____

RECOMMENDED: **Paul M. Lutz** Digitally signed by Paul M. Lutz, Date: 2020.06.30 11:09:48 -0400

Ashwin B. Patel, P.E.
Date: 2020.06.30 11:09:48 -0400

DISTRICT TRAFFIC ENGINEER _____ DATE _____

FILE # 2530

25' 0' 25' 50'

SCALE IN FEET

c:\pwork\proj\project\13125\06const - Lancaster Ave and King of Prussia Road.dgn
 5/22/2020 10:35:19 AM [dev]le

c:\pwork\proj\project\se\1\doyle\13125\06const - Lancaster Ave and King of Prussia Road.dgn 5/22/2020 10:35:41 AM doyle

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0030	RRT	4 OF 5
RADNOR TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	

TRAFFIC SIGNAL NOTES

DO NOT MODIFY INSTALLATION WITHOUT PRIOR WRITTEN APPROVAL.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ARE PART OF THE PERMIT. INSTALL AND MAINTAIN IN ACCORDANCE WITH PUBLICATION 212 AND PUBLICATION 236.

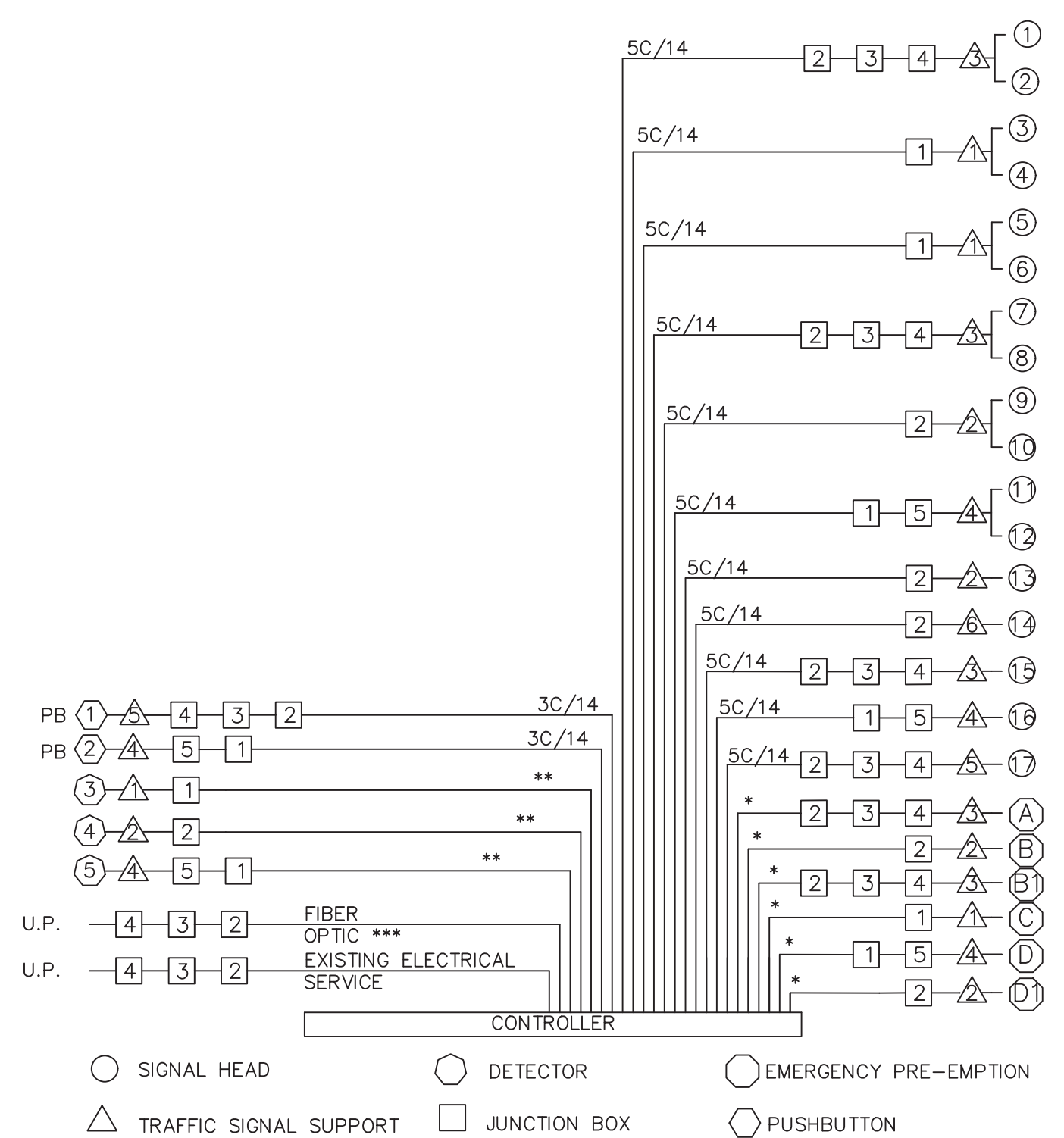
POST MOUNTED SIGNALS: INSTALL WITH A MINIMUM SIGNAL HEAD CLEARANCE OF 2 FEET BEHIND FACE OF CURB OR EDGE OF SHOULDER; AND 8 FEET ABOVE SIDEWALK OR PAVEMENT GRADE.

OVERHEAD SIGNALS: INSTALL WITH A MINIMUM SIGNAL HEAD CLEARANCE OF 2 FEET BEHIND FACE OF CURB OR EDGE OF SHOULDER. PROVIDE A MINIMUM SIGNAL HEAD CLEARANCE OF 16 FEET ABOVE ROADWAY; RIGIDLY MOUNT, TOP AND BOTTOM; AND EQUIP WITH BACKPLATES. PROVIDE A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN SIGNALS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

DETERMINE WITH A PENNDOT REPRESENTATIVE, THE EXACT LOCATION OF DETECTORS PRIOR TO INSTALLATION.

CONSULT WITH LOCAL OFFICIALS AND UTILITIES TO RESOLVE CONFLICTS PRIOR TO CONSTRUCTION.

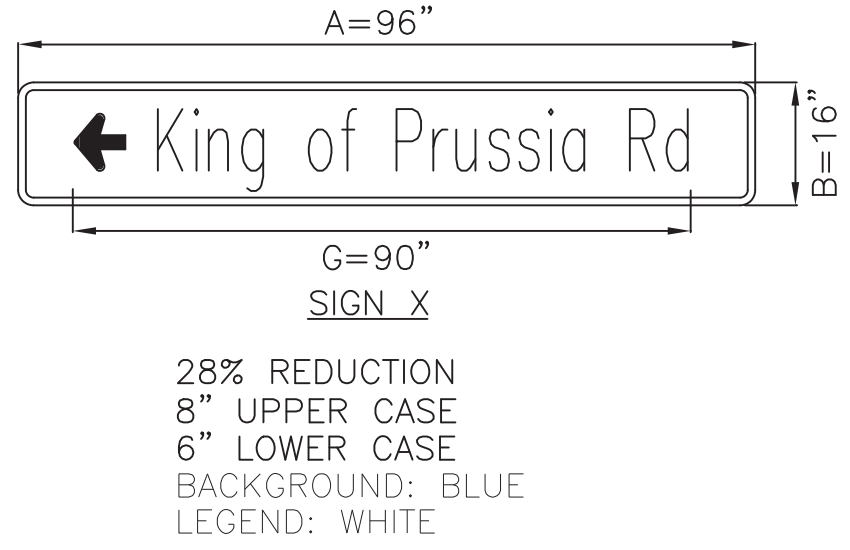
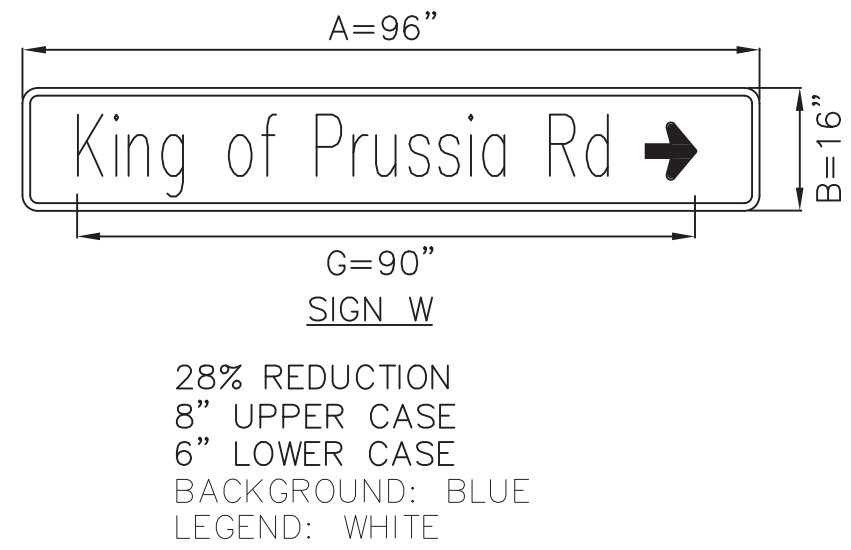
COMPLY WITH PROVISIONS OF ACT 287 FOR PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES.



WIRING DIAGRAM
 * FOR CONDUIT FILL CALCULATION ONLY. INCIDENTAL TO PREEMPTION SYSTEM ITEM. SIZE CABLE AS RECOMMENDED BY MANUFACTURER OF PREEMPTION SYSTEM.

** FOR CONDUIT FILL CALCULATION ONLY. INCIDENTAL TO VIDEO DETECTION ITEM. SIZE CABLE AS RECOMMENDED BY MANUFACTURER OF VIDEO DETECTION SYSTEM.

*** FIBER PULLED INTO CABINET BY OTHERS



EMERGENCY PRE-EMPTION PHASING MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2	4	6	8
INTERVAL	20	21 22	23 24 25	26 27 28 29 30 31
SIGNALS	R R R	G Y R	R R R	G Y R
1,2	R R R	R R R	R R R	R R R
3,4	G Y R	R R R	R R R	R R R
5,6	R R R	R R R	R R R	R R R
7,8,13	R R R	R R R	R R R	R R R
9,10	R R R	G Y R	R R R	R R R
11,12	R R R	R R R	R R R	G Y R
14,15	R R R	R R R	R R R	R R R
16,17	H H H	H H H	H H H	H H H
FIXED	** 4 2	** 4 2	** 4 2	** 4 2

** FOR DURATION OF PRE-EMPTION

NOTE:
 IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

⊙ G WHEN RETURNING TO NORMAL OPERATION

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE SOUTHBOUND APPROACH OF KING OF PRUSSIA ROAD AND THE NORTHBOUND APPROACH OF THE I-476 RAMP AND THE EASTBOUND & WESTBOUND APPROACHES OF LANCASTER AVE WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION. THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY. THEN THE GREEN INTERVAL FOR THE PRE-EMPTED PHASE SHALL FOLLOW.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION, PHASE 2,4,6 OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED. PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.
- IF THE SIGNAL HAS BEEN ACTUATED BY A PEDESTRIAN PUSHBUTTON AND THE SIGNAL IS PRE-EMPTED, THE PED "WALK" (MAN) INTERVAL SHALL TERMINATE IMMEDIATELY AND THE PED "CLEAR" (FLASHING HAND AND COUNTDOWN TIMER) INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PREEMPTION.

LEGEND

EXISTING	PROPOSED	DESCRIPTION
△ 25' MA	△ 25' MA	MAST ARM/ IDENTIFYING LENGTH
→ 4	→ 4	SIGNAL HEAD/ IDENTIFYING NUMBER
□ 4	□ 4	PEDESTRIAN SIGNAL HEAD W/ IDENTIFYING NUMBER
⇨ 4	⇨ 4	PEDESTRIAN PUSHBUTTON W/ IDENTIFYING NUMBER
△ A	△ A	SIGN/ IDENTIFYING LETTER
⊙ 6' X 20'	⊙ 6' X 40'	LOOP SENSOR/ SIZE
▽	▽	CURB RAMP
⊙ A1	⊙ A1	EMERGENCY PRE-EMPTION DETECTOR
⊙ A	⊙ A	EMERGENCY PRE-EMPTION FLASHING BEACON
⊠ JB4	⊠ JB4	CONTROLLER CABINET JUNCTION BOX
- C -	- C -	CONDUIT
DC	DC	DEPRESSED CURB
20' LA	20' LA	LUMINAIRE/ IDENTIFYING LENGTH
⊙ M	⊙ M	MICROWAVE DETECTOR/ IDENTIFYING NUMBER
⊙ V	⊙ V	VIDEO DETECTOR/ IDENTIFYING NUMBER
4"/DY	4"/DY	4" WIDTH / DOUBLE YELLOW LINE
4"/Y	4"/Y	4" WIDTH / SOLID YELLOW LINE
4"/BY	4"/BY	4" WIDTH / BROKEN YELLOW LINE
4"/BW	4"/BW	4" WIDTH / BROKEN WHITE LINE
4"/DW	4"/DW	4" WIDTH / DASHED WHITE LINE
4"/W	4"/W	4" WIDTH / SOLID WHITE LINE
6"/BW	6"/BW	6" WIDTH / BROKEN WHITE LINE
6"/W	6"/W	6" WIDTH / SOLID WHITE LINE
24"/W	24"/W	24" WIDTH / SOLID WHITE LINE
24"/Y	24"/Y	24" WIDTH / SOLID YELLOW LINE
⊠	⊠	FENCE
⊠	⊠	GUIDE RAIL
⊠	⊠	PHASE NUMBER
⊠	⊠	UTILITY POLE

COUNTY: DELAWARE
 MUNICIPALITY: RADNOR TOWNSHIP
 INTERSECTION: LANCASTER AVENUE (SR 0030) AND KING OF PRUSSIA ROAD

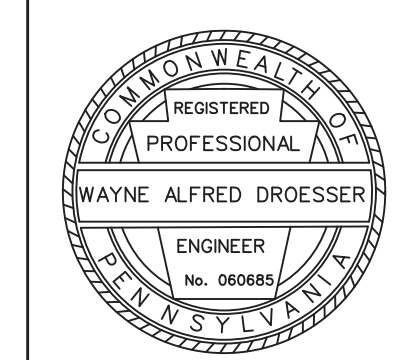
REVIEWED: _____ DATE: 6/30/2020

MUNICIPAL OFFICIAL: _____ DATE: _____

RECOMMENDED: **Paul M. Lutz** Digitally signed by Paul M. Lutz Date: 2020.06.30 08:19:32 -0400

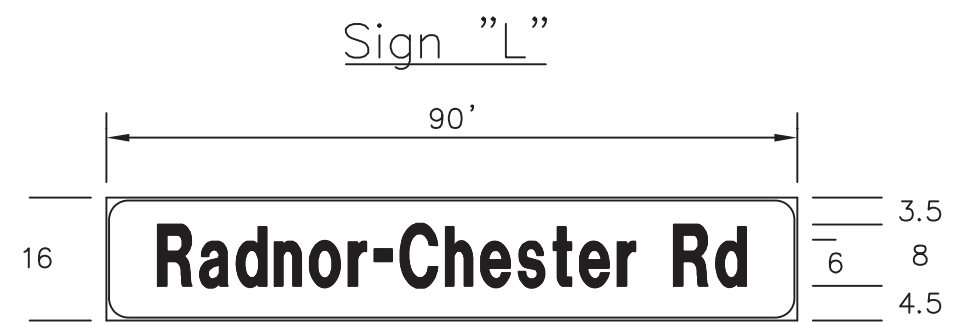
Ashwin B. Patel, P.E. Digitally signed by Ashwin B. Patel, P.E. Date: 2020.06.30 11:10:08 -0400

DISTRICT TRAFFIC ENGINEER: _____ DATE: _____

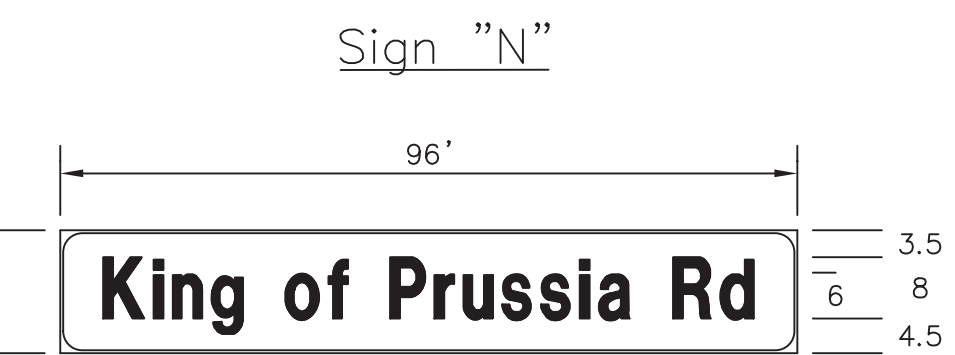


SIGN TABULATION					
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS		
(A)	R5-1	30"x30"	DO NOT ENTER		
(B)	R9-3	18"x18"	NO PEDESTRIAN CROSSING		
(C)	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT		
(D)	R3-7R	30"x30"	RIGHT LANE MUST TURN RIGHT		
(E)	R10-3E(L)	9"x15"	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER SIGN		
(F)	R3-8LSRB	30"x30"	LANE USE CONTROL		
(G)	R5-9	36"x24"	WRONG WAY		
(J)	OM1-3	18"x18"	OBJECT MARKER		
(L)	D3-4	90"x16"	RADNOR-CHESTER RD		
(M)	R1-2	36"x36"	YIELD		
(W)	D3-4	96"x16"	KING OF PRUSSIA RD		

MISCELLANEOUS					
ITEM NO.	QUAN.	UNIT	DESCRIPTION		LOCATION
0955-3722	4	EACH	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, TYPE A		SEE PLAN
0956-0500	4	EACH	PEDESTRIAN PUSHBUTTON		SEE PLAN



HELvetica BOLD (30% REDUCTION)
8" U.C.
6" L.C.



HELvetica BOLD (25% REDUCTION)
8" U.C.
6" L.C.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
6-0	DELAWARE	0030	RRT	5 OF 5	
RADNOR TOWNSHIP					
REVISION NUMBER	REVISIONS			DATE	BY

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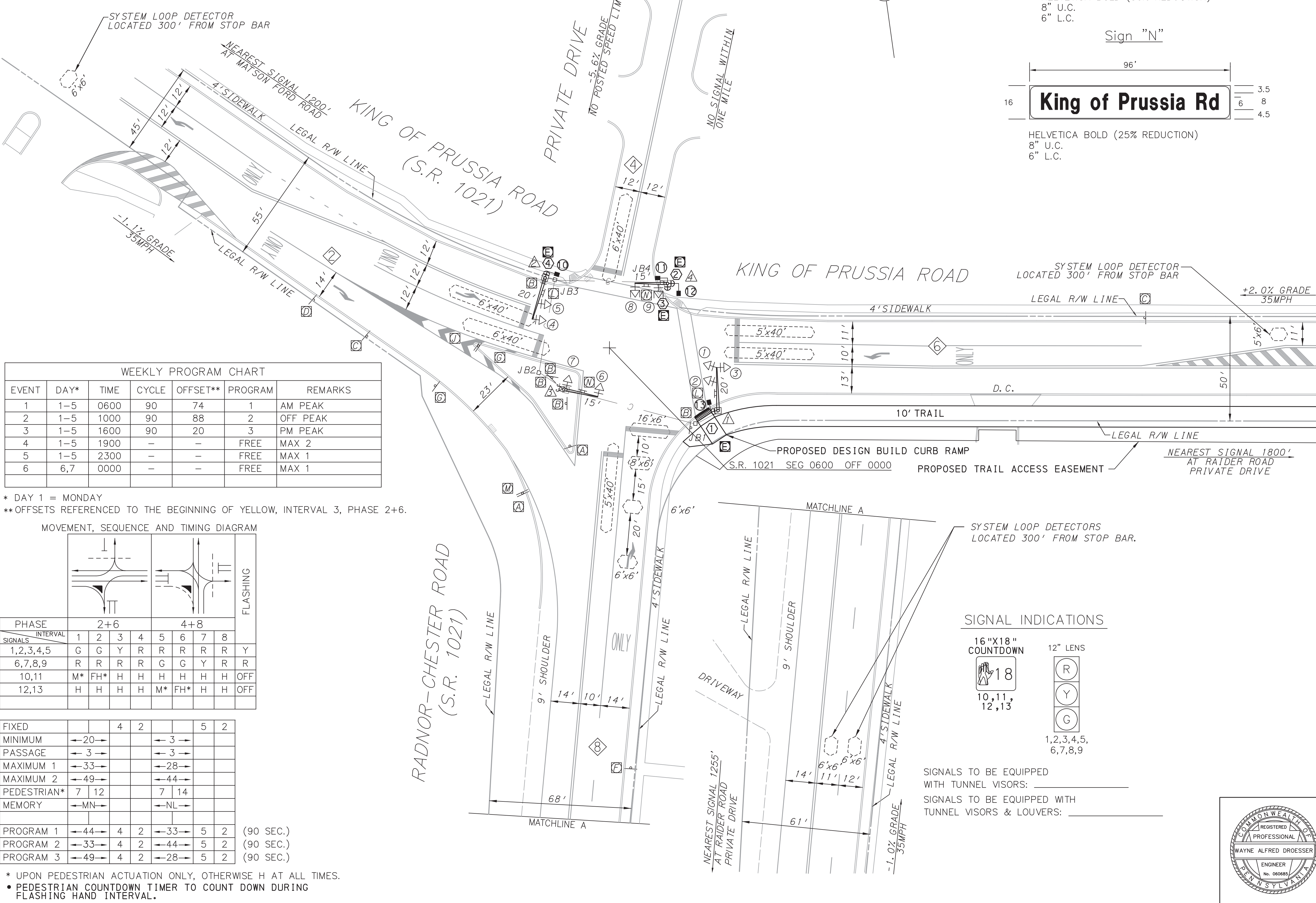
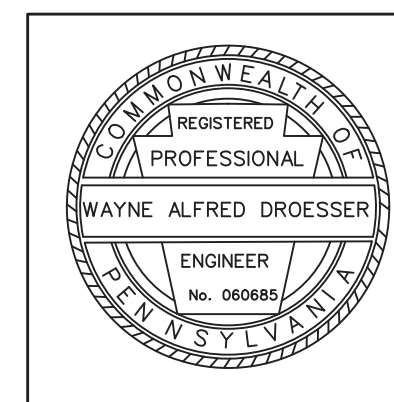
COMPLY WITH PROVISIONS OF ACT 287 FOR PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES.

LEGEND		
EXISTING	PROPOSED	
(A) 25' MA	(A) 25' MA	MAST ARM/IDENTIFYING LENGTH
➔ (A)	➔ (A)	SIGNAL HEAD/TUNNEL VISOR/IDENTIFYING NUMBER
➔ (A)	➔ (A)	PEDESTRIAN SIGNAL HEAD W/ IDENTIFYING NUMBER
➔ (A)	➔ (A)	PEDESTRIAN PUSHBUTTON W/ IDENTIFYING NUMBER
(A) (A)	(A) (A)	SIGN/IDENTIFYING LETTER
(A) (A)	(A) (A)	LOOP SENSOR/SIZE
(A)	(A)	CURB RAMP
(A)	(A)	EMERGENCY PRE-EMPTION DETECTOR
(A)	(A)	EMERGENCY PRE-EMPTION FLASHING BEACON
JB4	JB4	CONTROLLER CABINET
-C-	-C/1"	JUNCTION BOX
-DC-	-DC-	CONDUIT
20' LA	20' LA	DEPRESSED CURB
(LA)	(LA)	LUMINAIRE/IDENTIFYING LENGTH
(MA)	(MA)	MICROWAVE DETECTOR/IDENTIFYING NUMBER
(VA)	(VA)	VIDEO DETECTOR/IDENTIFYING NUMBER
4"/DY	4"/DY	4" WIDTH / DOUBLE YELLOW LINE
4"/Y	4"/Y	4" WIDTH / SOLID YELLOW LINE
4"/BY	4"/BY	4" WIDTH / BROKEN YELLOW LINE
4"/BW	4"/BW	4" WIDTH / BROKEN WHITE LINE
4"/DW	4"/DW	4" WIDTH / DASHED WHITE LINE
4"/W	4"/W	4" WIDTH / SOLID WHITE LINE
6"/BW	6"/BW	6" WIDTH / BROKEN WHITE LINE
6"/W	6"/W	6" WIDTH / SOLID WHITE LINE
24"/W	24"/W	24" WIDTH / SOLID WHITE LINE
24"/Y	24"/Y	24" WIDTH / SOLID YELLOW LINE
-x-x-	-x-x-	FENCE
-x-x-	-x-x-	GUIDE RAIL
		◇ PHASE NUMBER
		⊛ UTILITY POLE

COUNTY: DELAWARE
MUNICIPALITY: RADNOR TOWNSHIP
INTERSECTION: RADNOR CHESTER ROAD (SR 1021) AND KING OF PRUSSIA ROAD (SR 1021)

REVIEWED: _____ DATE 6/30/2020
MUNICIPAL OFFICIAL _____ DATE
RECOMMENDED: Paul M. Lutz
Ashwin B. Patel, P.E. Digitally signed by Ashwin B. Patel, P.E. DATE
DISTRICT TRAFFIC ENGINEER _____ DATE

FILE # 1800 SCALE IN FEET



WEEKLY PROGRAM CHART						
EVENT	DAY*	TIME	CYCLE	OFFSET**	PROGRAM	REMARKS
1	1-5	0600	90	74	1	AM PEAK
2	1-5	1000	90	88	2	OFF PEAK
3	1-5	1600	90	20	3	PM PEAK
4	1-5	1900	-	-	FREE	MAX 2
5	1-5	2300	-	-	FREE	MAX 1
6	6,7	0000	-	-	FREE	MAX 1

* DAY 1 = MONDAY
** OFFSETS REFERENCED TO THE BEGINNING OF YELLOW, INTERVAL 3, PHASE 2+6.

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2+6			4+8				FLASHING	
	1	2	3	4	5	6	7		8
SIGNALS	1,2,3,4,5	G	G	Y	R	R	R	R	Y
	6,7,8,9	R	R	R	R	G	G	Y	R
	10,11	M*	FH*	H	H	H	H	H	OFF
	12,13	H	H	H	H	M*	FH*	H	OFF

FIXED		4	2		5	2
MINIMUM	→-20→			→-3→		
PASSAGE	→-3→			→-3→		
MAXIMUM 1	→-33→			→-28→		
MAXIMUM 2	→-49→			→-44→		
PEDESTRIAN*	7 12			7 14		
MEMORY	→-MN→			→-NL→		
PROGRAM 1	→-44→	4	2	→-33→	5	2
PROGRAM 2	→-33→	4	2	→-44→	5	2
PROGRAM 3	→-49→	4	2	→-28→	5	2

* UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE H AT ALL TIMES.
• PEDESTRIAN COUNTDOWN TIMER TO COUNT DOWN DURING FLASHING HAND INTERVAL.