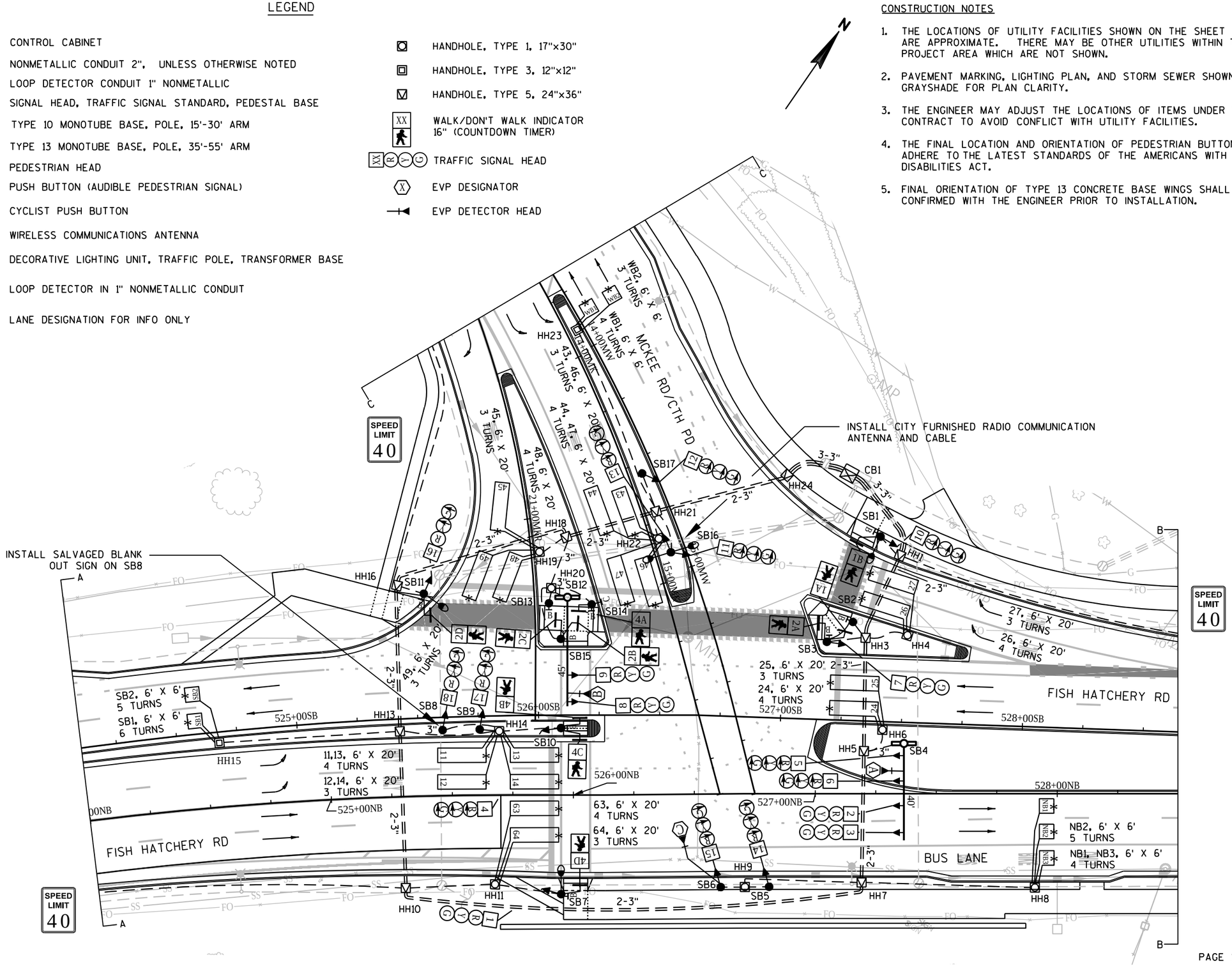
PLOT DATE : 10/28/2019 1:57 PM
PLOT BY : NATHAN GREUEL
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETS\PLAN\TRAFFIC SIGNALS\PERMANENT\MCKEE ROAD\KL_FHR_SIG_PROP - MCKEE RD.DWG

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) TYPE 10 MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) TYPE 13 MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD
- B PUSH BUTTON (AUDIBLE PEDESTRIAN SIGNAL)
- C CYCLIST PUSH BUTTON
- WIRELESS COMMUNICATIONS ANTENNA
- DECORATIVE LIGHTING UNIT, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY
- HANDHOLE, TYPE 1, 17"x30"
- HANDHOLE, TYPE 3, 12"x12"
- HANDHOLE, TYPE 5, 24"x36"
- XX WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- XX R Y G TRAFFIC SIGNAL HEAD
- X EVP DESIGNATOR
- EVP DETECTOR HEAD

CONSTRUCTION NOTES

1. THE LOCATIONS OF UTILITY FACILITIES SHOWN ON THE SHEET PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2. PAVEMENT MARKING, LIGHTING PLAN, AND STORM SEWER SHOWN IN GRAYSHADE FOR PLAN CLARITY.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH UTILITY FACILITIES.
4. THE FINAL LOCATION AND ORIENTATION OF PEDESTRIAN BUTTONS MUST ADHERE TO THE LATEST STANDARDS OF THE AMERICANS WITH DISABILITIES ACT.
5. FINAL ORIENTATION OF TYPE 13 CONCRETE BASE WINGS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALLATION.



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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & MCKEE RD (CTH PD)

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.
1 OF 30

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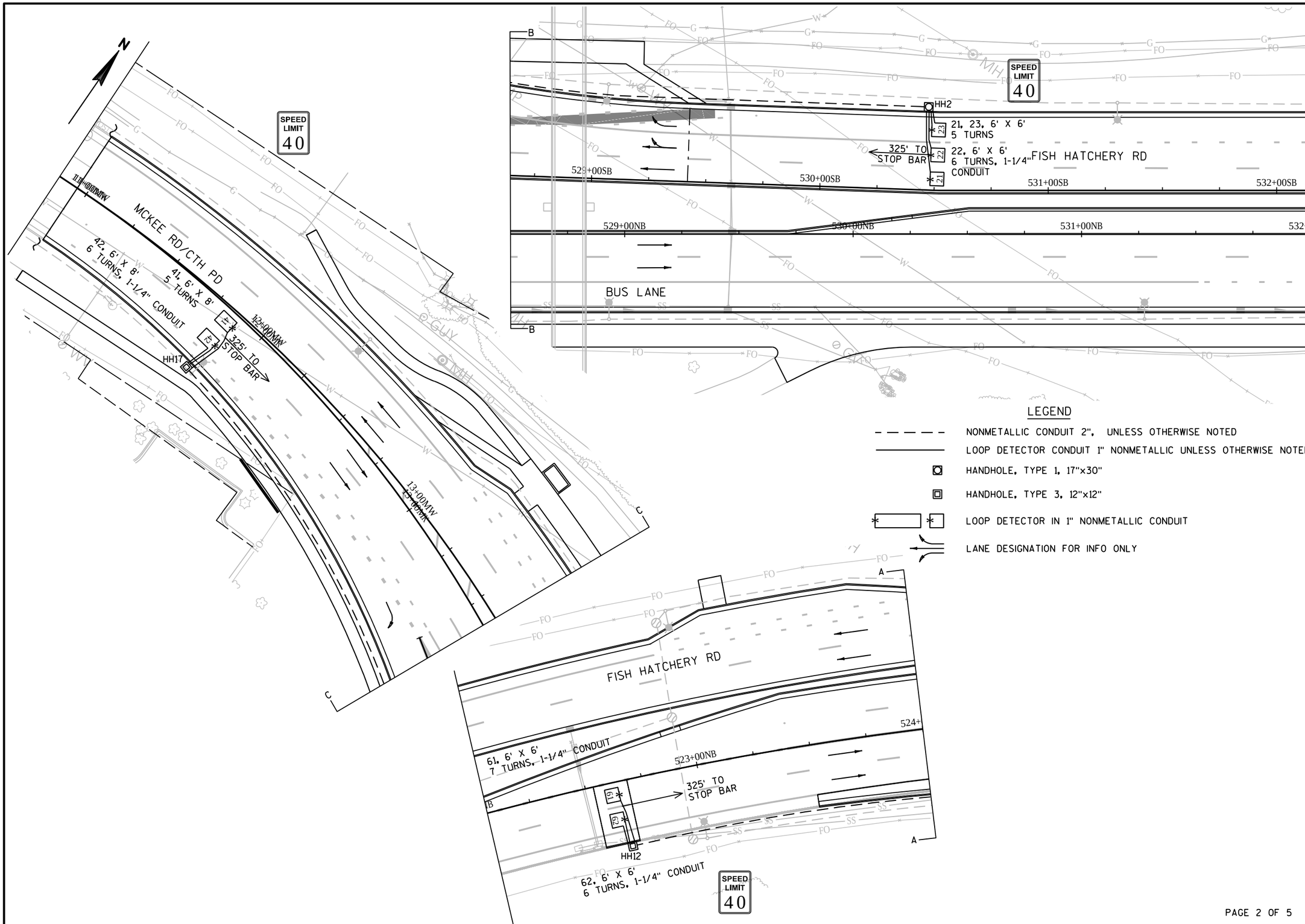

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC UNLESS OTHERWISE NOTED
- HANDHOLE, TYPE 1, 17"x30"
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HANDHOLE5				
HANDHOLE I.D.	STATION	OFF5ET		TYPE
HH1	527+47.1'5B'	68.9'	LT	5
HH2	530+46.4'5B'	36.4'	LT	1
HH3	527+34.0'5B'	34.3'	LT	5
HH4	527+51.2'5B'	36.0'	LT	1
HH5	527+34.9'5B'	12.4'	RT	5
HH6	527+42.3'5B'	3.4'	RT	1
HH7	527+19.1'NB'	36.6'	RT	5
HH8	527+90.7'NB'	38.8'	RT	1
HH9	526+70.9'NB'	38.5'	RT	1
HH10	525+29.6'NB'	37.7'	RT	5
HH11	525+67.5'NB'	36.9'	RT	1
HH12	522+64.9'NB'	29.0'	RT	3
HH13	525+29.2'NB'	27.0'	LT	5
HH14	525+69.4'NB'	26.4'	LT	1
HH15	524+67.4'5B'	4.5'	RT	3
HH16	525+44.0'5B'	55.1'	LT	5
HH17	11+84.4'MK'	32.2'	RT	3
HH18	526+11.4'5B'	73.5'	LT	5
HH19	526+00.8'5B'	67.4'	LT	1
HH20	526+05.4'5B'	52.5'	LT	1
HH21	526+48.6'5B'	84.1'	LT	5
HH22	526+49.6'5B'	72.9'	LT	1
HH23	526+15.9'5B'	159.3'	LT	3
HH24	526+99.2'5B'	100.2'	LT	5

CONCRETE BASES				
BASE I.D.	STATION	OFFSET		TYPE
CB1	S27+24.S'SB'	101.4'	LT	P
SB1	S27+38.7'SB'	76.3'	LT	LB-8*
SB2	S27+28.S'SB'	40.7'	LT	G
SB3	S27+18.1'SB'	32.1'	LT	G
SB4	S27+36.6'NB'	20.7'	LT	13
SB5	S26+80.9'NB'	38.4'	RT	G
SB6	S26+60.S'NB'	38.S'	RT	G
SB7	S2S+94.9'NB'	41.0'	RT	LB-8*
SB8	S2S+60.1'SB'	S.3'	RT	G
SB9	S2S+7S.S'SB'	S.S'	RT	G
SB10	S26+09.2'SB'	S.4'	RT	G
SB11	S2S+S4.4'SB'	S1.2'	LT	LB-8*
SB12	S26+11.9'SB'	48.6'	LT	13
SB13	S26+04.S'SB'	46.2'	LT	G
SB14	S26+21.9'SB'	4S.7'	LT	G
SB1S	S26+09.2'SB'	31.S'	LT	G
SB16	S26+S4.7'SB'	67.2'	LT	LB-8*
SB17	S26+42.8'SB'	99.8'	LT	G

*BASE SHALL BE CONSTRUCTED WITH 11.5" BOLT CIRCLE

ABOVE GROUND TRAFFIC SIGNAL EQUIPMENT							
BASE I.D.	MOUNTING BASE	POLE TYPE	SIGNAL ARM	PEDESTRIAN HEAD I.D.	PEDESTRIAN BUTTON (EA)	SIGNAL HEAD I.D.	LIGHTING UNIT (EA)
SB1	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	1B	1	10	1
SB2	PEDESTAL BASE	3.5-FT STD.	NONE	NONE	1	NONE	NONE
SB3	PEDESTAL BASE	13-FT STD.	NONE	1A,2A	1	7	NONE
SB4	NONE	TYPE 12 POLE	40-FT MONOTUBE ARM	NONE	NONE	2,3,5,6	NONE
SB5	PEDESTAL BASE	15-FT STD.	NONE	NONE	NONE	14	NONE
SB6	PEDESTAL BASE	15-FT STD.	NONE	NONE	NONE	15	NONE
SB7	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	4D	1	1	1
SB8	PEDESTAL BASE	13-FT STD.	NONE	NONE	NONE	18	NONE
SB9	PEDESTAL BASE	13-FT STD.	NONE	NONE	NONE	17	NONE
SB10	PEDESTAL BASE	13-FT STD.	NONE	4B,4C	1	4	NONE
SB11	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	2D	1	16	1
SB12	NONE	TYPE 12 POLE	45-FT MONOTUBE ARM	NONE	NONE	8,9	NONE
SB13	PEDESTAL BASE	3.5-FT STD.	NONE	NONE	1	NONE	NONE
SB14	PEDESTAL BASE	10-FT STD.	NONE	4A	2	NONE	NONE
SB15	PEDESTAL BASE	10-FT STD.	NONE	2B,2C	1	NONE	NONE
SB16	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	NONE	11,13	2
SB17	PEDESTAL BASE	13-FT STD.	NONE	NONE	NONE	12	NONE

PEDESTRIAN CROSSING SIGN SUMMARY		
BASE	SIGN CODE	SIGN TO FACE
SB1	R10-3ER	WEST
SB2	R10-3EL	WEST
SB3	R10-3ER	NORTHWEST
SB7	R10-3ER	NORTHEAST
SB10	R10-3ED	NORTHEAST
SB11	R10-3ER	SOUTH
SB13	R10-3EL	SOUTHEAST
SB14	R10-3ER	SOUTHEAST
SB14	R10-24	NORTHEAST
SB15	R10-3EL	NORTHEAST

TRAFFIC SIGNAL LOOP DETECTORS				
LOOP I.D.	STATION	OFFSET		INSTALLATION METHOD
11	S2S+64.1'NB'	16.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
12	S2S+64.0'NB'	S.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
13	S2S+94.0'NB'	16.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
14	S2S+94.0'NB'	S.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
21	S30+48.1'SB'	S.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
22	S30+48.1'SB'	1S.S'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
23	S30+48.1'SB'	26.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
24	S27+20.1'SB'	S.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
2S	S27+20.1'SB'	1S.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
26	S27+32.0'SB'	S0.7'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
27	S27+34.9'SB'	61.3'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
41	11+87.0'MK'	6.7'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
42	11+84.1'MK'	16.1'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
43	S26+39.8'SB'	74.7'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
44	S26+28.3'SB'	7S.1'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
4S	S2S+84.4'SB'	76.4'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
46	S26+48.3'SB'	4S.7'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
47	S2S+84.4'SB'	76.4'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
48	S2S+84.6'SB'	48.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
49	S2S+72.4'SB'	48.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
61	S22+64.0'NB'	S.S'	RT	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT
62	S22+63.9'NB'	16.S'	RT	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT
63	S2S+94.0'NB'	S.S'	RT	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT
64	S2S+94.0'NB'	16.S'	RT	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT
NB1	S27+98.6'NB'	S.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB2	S27+98.6'NB'	1S.S'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB3	S27+98.7'NB'	26.S'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
SB1	S24+SS.3'SB'	S.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
SB2	S24+SS.3'SB'	16.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
WB1	13+81.2'MK'	12.8'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
WB2	13+80.7'MK'	23.7'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & MCKEE RD (CTH PD)

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

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3 OF 30

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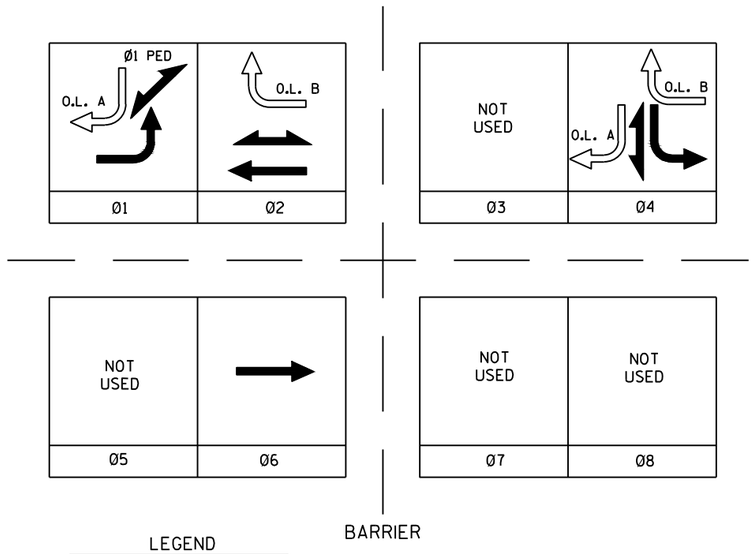
	HEAD NUMBERS	FLASH
Ø1	4-6	R
Ø2	7-9	R
Ø3		
Ø4	13-15	R
Ø5		
Ø6	1-3	R
Ø7		
Ø8		
Ø1 PED	1A,1B	
Ø2 PED	2A,2B,2C,2D	
Ø4 PED	4A,4B,4C,4D	

			O.L. ASSIGNMENTS
O.L. A	16-18	R	Ø1,Ø4
O.L. B	10-12	R	Ø2,Ø4



PREEMPTION ASSIGNMENTS				
PREEMPTION DESIGNATION	PREEMPTION TYPE	EVP CHANNEL	PHASE(S) CALLED	PREEMPTED APPROACH
1	RESERVED			
2	RESERVED			
3	EVP	A	1&6	NB
4	EVP	B	2&6	SB
5	EVP	C	4	EB
6	NOT USED			
7	NOT USED			
8	NOT USED			
9	NOT USED			
10	NOT USED			

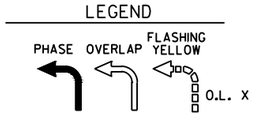
EVP NOTES:

1. AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6. AFTER PREEMPTION SEQUENCE C, CONTROLLER SHALL RETURN TO PHASE 4.

GENERAL NOTES:

1. NO RIGHT TURN BLANK OUT SIGN ON SB8 SHALL BE ILLUMINATED DURING PHASE 2 IF A CALL FOR THE PHASE 2 PEDESTRIAN INTERVAL WAS PLACED.

LEGEND



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W /Ø	PHASE RECALL	PHASE ACTIVE
1				X
2	X	6	MIN	X
3				
4				X
5				
6	X	2	MIN	X
7				
8				

TYPE OF REMOTE COMMUNICATION	
NONE	
FIBER	X
CELL MODEM	
PHONE	

TYPE OF INTERCONNECT	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR	
CLOSED LOOP FIBER OPTIC	X
RADIO	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC SIGNAL CABINET	X
IN SEPARATE CITY LIGHTING CABINET	X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	35	33	39	37	43	41	47	45	DETECTOR INPUT
DETECTOR #(S)	13	14	24	25	26	27	46	47	48	49		63	64				NB1	NB2	NB3	SB1	SB2	SB3	WB1	WB2	DETECTOR #(S)
PHASE CALLED	1	1	2	2	2	2	4	4	4	4		6	6												PHASE CALLED
PHASE EXTENDED	1	1	2	2	2	2	4	4	4	4		6	6												PHASE EXTENDED
DISCONNECT TIME																									DISCONNECT TIME
CALLING DELAY					10	10			10	10															CALLING DELAY
EXTENSION STRETCH																									EXTENSION STRETCH
LOOP FUNCTION																	SYS	SYS	SYS	SYS	SYS	SYS	SYS	SYS	LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	38	34	40	38	44	42	46	48	DETECTOR INPUT
DETECTOR #(S)	11	12	21	22	23		41	42	43	44	45	61	62												DETECTOR #(S)
PHASE CALLED	1	1	2	2	2		4	4	4	4	6	6	6												PHASE CALLED
PHASE EXTENDED	1	1	2	2	2		4	4	4	4	6	6	6												PHASE EXTENDED
DISCONNECT TIME																									DISCONNECT TIME
CALLING DELAY											10														CALLING DELAY
EXTENSION STRETCH																									EXTENSION STRETCH
LOOP FUNCTION																									LOOP FUNCTION

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PROJECT NO:	19-3488
INTERSECTION:	FISH HATCHERY RD & MCKEE RD

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE:	Oct-19

CB1 TO	AWG 14 # OF COND.	HEAD NO.	PHASE	SIGNAL INDICATION WIRE COLOR RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	DWALK	WALK	PED BUTTON	OTHER
SB1	9	10	O.L.B				RED	ORG		GRN				
		1B	1								BLK	BLU		
		BUTTON	1										WHT/BLK	
SB2	9	BUTTON	1										WHT/BLK	
SB3	12	7	2	RED	ORG	GRN								
		1A	1								RED/BLK	BLU/BLK		
		2A	2								BLK	BLU		
		BUTTON	2										WHT/BLK	
SB4	12	2	6	RED	ORG	GRN								
		3	6	RED	ORG	GRN								
		S	1				RED/BLK	ORG/BLK		GRN/BLK				
		6	1				RED/BLK	ORG/BLK		GRN/BLK				
SBS	9	14	4				RED	ORG		GRN				
SB6	9	1S	4				RED	ORG		GRN				
SB7	9	1	6	RED	ORG	GRN								
		4D	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB8	9	18	O.L. A	RED				ORG		GRN				
		BLANK OUT	N/A											WHT
SB9	9	17	O.L. A	RED				ORG		GRN				
SB10	12	4	6				RED	ORG		GRN				
		4B	4								BLK	BLU		
		4C	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB11	9	16	O.L. A	RED				ORG		GRN				
		2D	2								BLK	BLU		
		BUTTON	2										WHT/BLK	
SB12	9	8	2	RED	ORG	GRN								
		9	2	RED	ORG	GRN								
SB13	9	BUTTON	2										WHT/BLK	
SB14	9	4A	4								BLK	BLU		
		BUTTON	2										WHT/BLK	
SB1S	9	2B	2								BLK	BLU		
		2C	2								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB16	12	11	O.L. B				RED	ORG		GRN				
		13	4				RED/BLK	ORG/BLK		GRN/BLK				
SB17	9	12	O.L. B				RED	ORG		GRN				

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SBS
SBS	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	SB13
SB13	SB14
SB14	SB1S
SB1S	SB16
SB16	SB17
SB17	CB1

TRAFFIC SIGNAL EVP DETECTOR CABLE		
HEAD	FROM	TO
A	CB1	SB4
B	CB1	SB12
C	CB1	SB6

LIGHTING UF 10 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB7
CB1	SB16
SB16	SB11

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & MCKEE RD (CTH PD)

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.

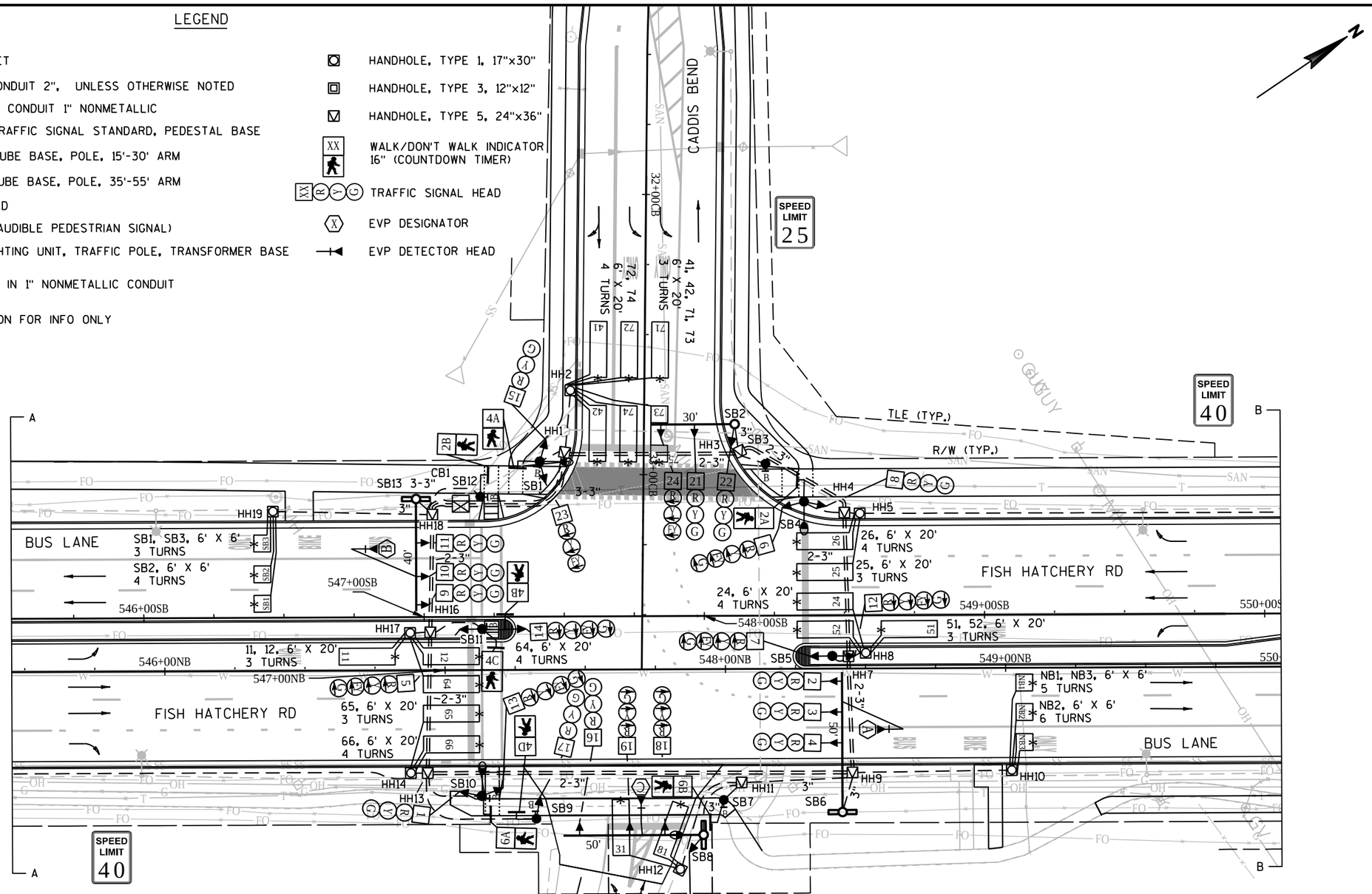
5 OF 30

PLOT DATE : 10/28/2019 4:08 PM
PLOT BY : KEVIN WEHNER
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\MCKEE ROAD\KL_FHR_SIG_PROP - MCKEE RD.DWG

PLOT DATE : 10/28/2019 1:59 PM
PLOT BY : NATHAN GREUEL
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\CADDIS BEND\KL_FHR_SIG_PROP - CADDIS BEND.DWG

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) TYPE 10 MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) TYPE 13 MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD
- PUSH BUTTON (AUDIBLE PEDESTRIAN SIGNAL)
- DECORATIVE LIGHTING UNIT, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY
- HANDHOLE, TYPE 1, 17"x30"
- HANDHOLE, TYPE 3, 12"x12"
- HANDHOLE, TYPE 5, 24"x36"
- XX WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- XX R Y G TRAFFIC SIGNAL HEAD
- X EVP DESIGNATOR
- EVP DETECTOR HEAD



CONSTRUCTION NOTES

1. THE LOCATIONS OF UTILITY FACILITIES SHOWN ON THE SHEET PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2. PAVEMENT MARKING, LIGHTING PLAN, AND STORM SEWER SHOWN IN GRAYSHADE FOR PLAN CLARITY.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH UTILITY FACILITIES.
4. THE FINAL LOCATION AND ORIENTATION OF PEDESTRIAN BUTTONS MUST ADHERE TO THE LATEST STANDARDS OF THE AMERICANS WITH DISABILITIES ACT.
5. FINAL ORIENTATION OF TYPE 13 CONCRETE BASE WINGS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALLATION.

PAGE 1 OF 5

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FISH HATCHERY RD & CADDIS BEND

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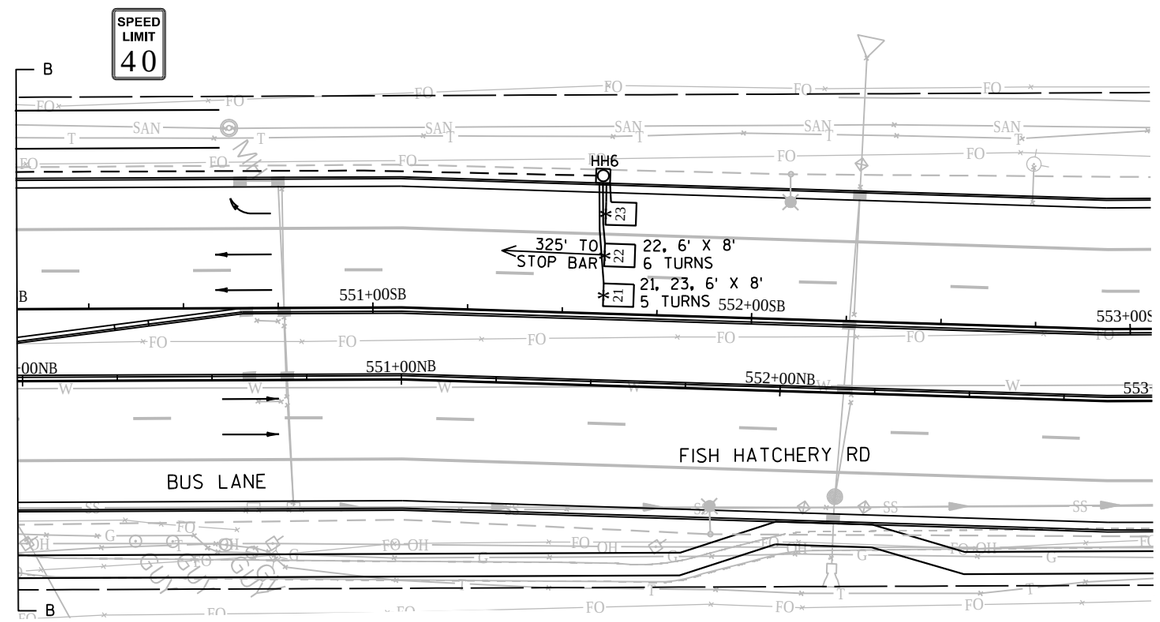
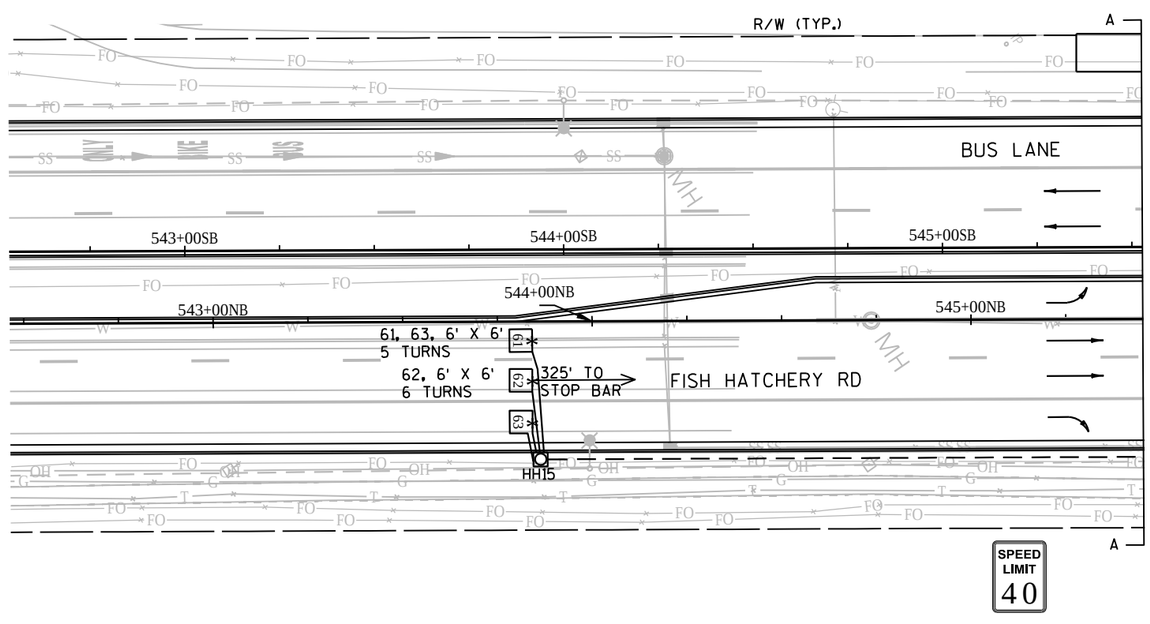
LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- HANDHOLE, TYPE 1, 17"x30"
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY





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HANDHOLES				
HANDHOLE I.D.	STATION	OFFSET		TYPE
HH1	547+50.4'SB'	58.6'	LT	5
HH2	547.52.5'5B'	80.7'	LT	1
HH3	548+12.9'SB'	58.7'	LT	5
HH4	548+50.1'5B'	36.7'	LT	5
HH5	548+55.6'SB'	36.4'	LT	1
HH6	551+59.7'5B'	36.4'	LT	1
HH7	548+51.4'SB'	14.6'	RT	5
HH8	548+57.5'5B'	13.4'	RT	1
HH9	548+45.2'NB'	37.1'	RT	5
HH10	549+02.1'NB'	36.5'	RT	1
HH11	548+05.7'NB'	40.5'	RT	5
HH12	547+83.6'NB'	71.4'	RT	1
HH13	546+93.7'NB'	36.7'	RT	5
HH14	546+87.6'NB'	36.7'	RT	1
HH15	543+86.3'NB'	36.4'	RT	1
HH16	546+94.8'NB'	13.5'	LT	5
HH17	546+87.5'NB'	13.4'	LT	1
HH18	547+03.1'SB'	36.3'	LT	5
HH19	546+46.2'5B'	37.9'	LT	1

CONCRETE BASES				
BASE I.D.	STATION	OFFSET		TYPE
CB1	S47+13.2'SB'	39.4'	LT	P
SB1	S47+41.S'SB'	SS.4'	LT	LB-8*
SB2	S48+11.1'SB'	68.4'	LT	10
SB3	S48+22.0'SB'	S4.2'	LT	G
SB4	S48+3S.7'SB'	40.6'	LT	LB-8*
SBS	S48+38.2'NB'	4.S'	LT	G
SB6	S48+41.6'NB'	S1.2'	RT	13
SB7	S47+99.2'NB'	46.7'	RT	G
SB8	S47+92.0'NB'	S9.2'	RT	13
SB9	S47+32.4'NB'	S3.2'	RT	G
SB10	S47+12.9'NB'	44.9'	RT	LB-8*
SB11	S47+13.2'NB'	14.6'	LT	G
SB12	S47+20.2'SB'	42.8'	LT	G
SB13	S46+97.2'SB'	42.1'	LT	13

*BASE SHALL BE CONSTRUCTED WITH 11.5" BOLT CIRCLE

ABOVE GROUND TRAFFIC SIGNAL EQUIPMENT							
BASE I.D.	MOUNTING BASE	POLE TYPE	SIGNAL ARM	PEDESTRIAN HEAD I.D.	PEDESTRIAN BUTTON (EA)	SIGNAL HEAD I.D.	LIGHTING UNIT (EA)
SB1	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	4A	1	1S,23	1
SB2	NONE	TYPE 9 POLE	30-FT MONOTUBE ARM	NONE	NONE	21,22,24	NONE
SB3	PEDESTAL BASE	3.5-FT STD.	NONE	NONE	1	NONE	NONE
SB4	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	2A	NONE	6,8	1
SBS	PEDESTAL BASE	1S-FT STD.	NONE	NONE	NONE	7,12	NONE
SB6	NONE	TYPE 12 POLE	S0-FT MONOTUBE ARM	NONE	NONE	2,3,4	NONE
SB7	PEDESTAL BASE	10-FT STD.	NONE	6B	1	NONE	NONE
SB8	NONE	TYPE 13 POLE	S0-FT MONOTUBE ARM	NONE	NONE	16,18,19,20	1
SB9	PEDESTAL BASE	13-FT STD.	NONE	4D	1	17	NONE
SB10	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	6A	1	1,13	1
SB11	PEDESTAL BASE	1S-FT STD.	NONE	4B,4C	1	S,14	NONE
SB12	PEDESTAL BASE	10-FT STD.	NONE	2B	1	NONE	NONE
SB13	NONE	TYPE 12 POLE	40-FT MONOTUBE ARM	NONE	NONE	9,10,11	NONE

PEDESTRIAN CROSSING SIGN SUMMARY		
BASE	SIGN CODE	SIGN TO FACE
SB1	R10-3ER	SOUTHEAST
SB3	R10-3EL	SOUTHEAST
SB7	R10-3EL	SOUTHEAST
SB9	R10-3EL	NORTHWEST
SB10	R10-3ER	NORTHEAST
SB11	R10-3ED	NORTHEAST
SB12	R10-3EL	NORTHEAST

TRAFFIC SIGNAL LOOP DETECTORS				
LOOP I.D.	STATION	OFFSET		INSTALLATION METHOD
11	546+82.2'NB'	S.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
12	547+12.2'NB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
21	S51+60.7'SB'	S.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
22	551+60.7'5B'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
23	551+60.7'SB'	26.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
24	548+33.1'5B'	S.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
25	548+33.1'5B'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
26	S48+33.1'SB'	26.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
31	547+62.4'NB'	46.4'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
41	S47+62.3'SB'	8S.3'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
42	547+62.1'SB'	55.2'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
51	548+63.1'SB'	S.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
S2	548+33.1'5B'	5.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
61	543+84.2'NB'	S.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
62	543+84.2'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
63	543+84.2'NB'	26.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
64	547+12.2'NB'	S.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
65	547+12.2'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
66	547+12.2'NB'	26.S'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
71	547+84.5'SB'	85.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
72	547+73.S'SB'	85.1'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
73	547+84.3'5B'	69.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
74	547+73.1'SB'	55.1'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
75	S47+84.1'SB'	SS.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
81	547+83.8'NB'	48.1'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB1	549+09.7'NB'	S.3'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
NB2	549+09.7'NB'	15.8'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
NB3	549+09.7'NB'	26.S'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
5B1	546+39.4'5B'	5.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB2	546+39.4'SB'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
5B3	546+39.4'5B'	26.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)

PAGE 3 OF 5

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FISH HATCHERY RD & CADDIS BEND

Project No: 19-3488
Date: OCT 2019
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Revisions:

SHEET NO.
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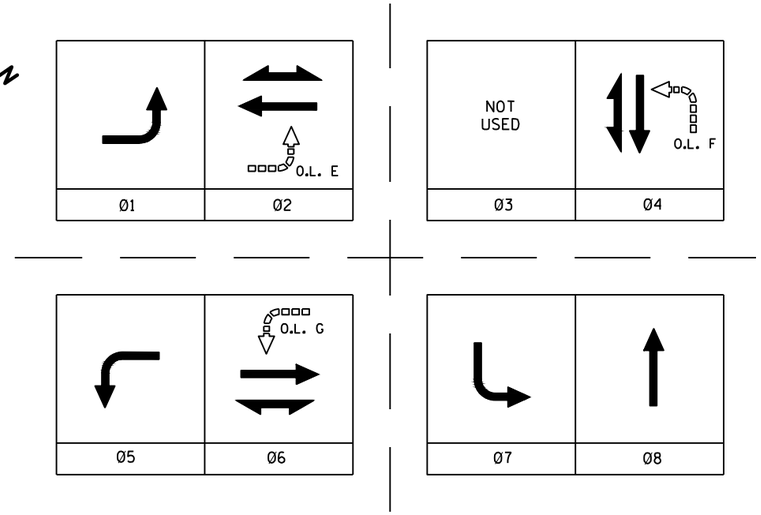
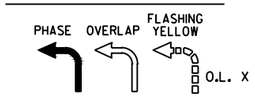
	HEAD NUMBERS	FLASH
Ø1	5-7	R
Ø2	8-11	R
Ø3		
Ø4	15-17	R
Ø5	12-14	R
Ø6	1-4	R
Ø7	18,19	R
Ø8	20-22	R
Ø2 PED	2A,2B	
Ø4 PED	4A,4B,4C,4D	
Ø6 PED	6A,6B	

			O.L. ASSIGNMENTS
O.L. E	5-7		Ø2
O.L. F	23-24	R	Ø4
O.L. G	12-14		Ø6



LEGEND



PREEMPTION ASSIGNMENTS				
PREEMPTION DESIGNATION	PREEMPTION TYPE	EVP CHANNEL	PHASE(S) CALLED	PREEMPTED APPROACH
1	RESERVED			
2	RESERVED			
3	EVP	A	1&6	NB
4	EVP	B	2&5	SB
5	EVP	C	4&7	EB
6	NOT USED			
7	NOT USED			
8	NOT USED			
9	NOT USED			
10	NOT USED			

EVP NOTES:

1. AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6. AFTER PREEMPTION SEQUENCE C, CONTROLLER SHALL RETURN TO PHASES 4+8.
2. FLASHING LEFT ARROW OVERLAPS SHALL BE OMITTED DURING ALL PREEMPTION SEQUENCES.

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W /Ø	PHASE RECALL	PHASE ACTIVE
1				X
2	X	6	MIN	X
3				
4		7		X
5				X
6	X	2	MIN	X
7		4		X
8				X

TYPE OF REMOTE COMMUNICATION	
NONE	
FIBER	X
CELL MODEM	
PHONE	

TYPE OF INTERCONNECT	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR	
CLOSED LOOP FIBER OPTIC	X
RADIO	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC SIGNAL CABINET	X
IN SEPARATE CITY LIGHTING CABINET	X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	12	24	25	26	31	42	52	
PHASE CALLED		2	2	2	4	4		
PHASE EXTENDED	1	2	2	2	4	4	5	
DISCONNECT TIME								
CALLING DELAY					2	10		
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29
64	65	66	73	74			
6	6	6	7	7			
6	6	6	7	7			
			2				

								DETECTOR INPUT
35	33	39	37	43	41	47	45	DETECTOR #(S)
SB1	SB2	SB3	NB1	NB2	NB3			PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
SYS	SYS	SYS	SYS	SYS	SYS			LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	11	21	22	23		41	51	
PHASE CALLED	1	2	2	2		4	5	
PHASE EXTENDED	1	2	2	2		4	5	
DISCONNECT TIME								
CALLING DELAY						10		
EXTENSION STRETCH								
LOOP FUNCTION								

20	18	24	22	28	26	32	30
61	62	63	71	72	81		
6	6	6	7	7	8		
6	6	6	7	7	8		
					15		

								DETECTOR INPUT
38	34	40	38	44	42	46	48	DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

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PROJECT NO:	19-3488
INTERSECTION:	FISH HATCHERY RD & CADDIS BEND

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE:	Oct-19

CB1 TO	AWG 14 # OF COND.	HEAD NO.	PHASE	SIGNAL INDICATION WIRE COLOR RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	DWALK	WALK	PED BUTTON	OTHER
SB1	12	1S	4	RED	ORG	GRN								
		23	O.L. F				RED/BLK	ORG/BLK	GRN/BLK					
		4A	4								BLK	BLU		
		BUTTON	2										WHT/BLK	
SB2	12	21	8	RED	ORG	GRN								
		22	8	RED	ORG	GRN								
		24	O.L. F				RED/BLK	ORG/BLK	GRN/BLK					
SB3	9	BUTTON	2										WHT/BLK	
SB4	12	6	1/O.L. E				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		8	2	RED	ORG	GRN								
		2A	2								BLK	BLU		
SB5	12	7	1/O.L. E				RED	ORG	BLU	GRN				
		12	5/O.L. G				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
SB6	9	2	6	RED	ORG	GRN								
		3	6	RED	ORG	GRN								
		4	6	RED	ORG	GRN								
SB7	9	6B	6								BLK	BLU		
		BUTTON	6										WHT/BLK	
SB8	12	16	4	RED	ORG	GRN								
		18	7				RED/BLK	ORG/BLK		GRN/BLK				
		19	7				RED/BLK	ORG/BLK		GRN/BLK				
		20	8	BLK	WHT/BLK	BLU								
SB9	9	17	4	RED	ORG	GRN								
		4D	4								BLK	BLU		
		BUTTON	6										WHT/BLK	
SB10	12	1	6	RED	ORG	BLK								
		13	S/O.L. G				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		6A	6								BLK	BLUE		
		BUTTON	4										WHT/BLK	
SB11	1S	5	1/O.L. E				RED	ORG	BLU/WHT	GRN				
		14	5/O.L. G				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		4B	4								BLK	BLU		
		4C	4								RED/WHT	GRN/WHT		
		BUTTON	4										WHT/BLK	
SB12	9	2B	2								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB13	9	9	2	RED	ORG	GRN								
		10	2	RED	ORG	GRN								
		11	2	RED	ORG	GRN								

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB10
SB10	SB9
SB9	SB11
SB11	SB12
SB12	SB13
SB13	CB1

TRAFFIC SIGNAL EVP DETECTOR CABLE		
HEAD	FROM	TO
A	CB1	SB6
B	CB1	SB13
C	CB1	SB8

LIGHTING UF 10 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB4
CB1	SB10

PAGE 5 OF 5

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & CADDIS BEND

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

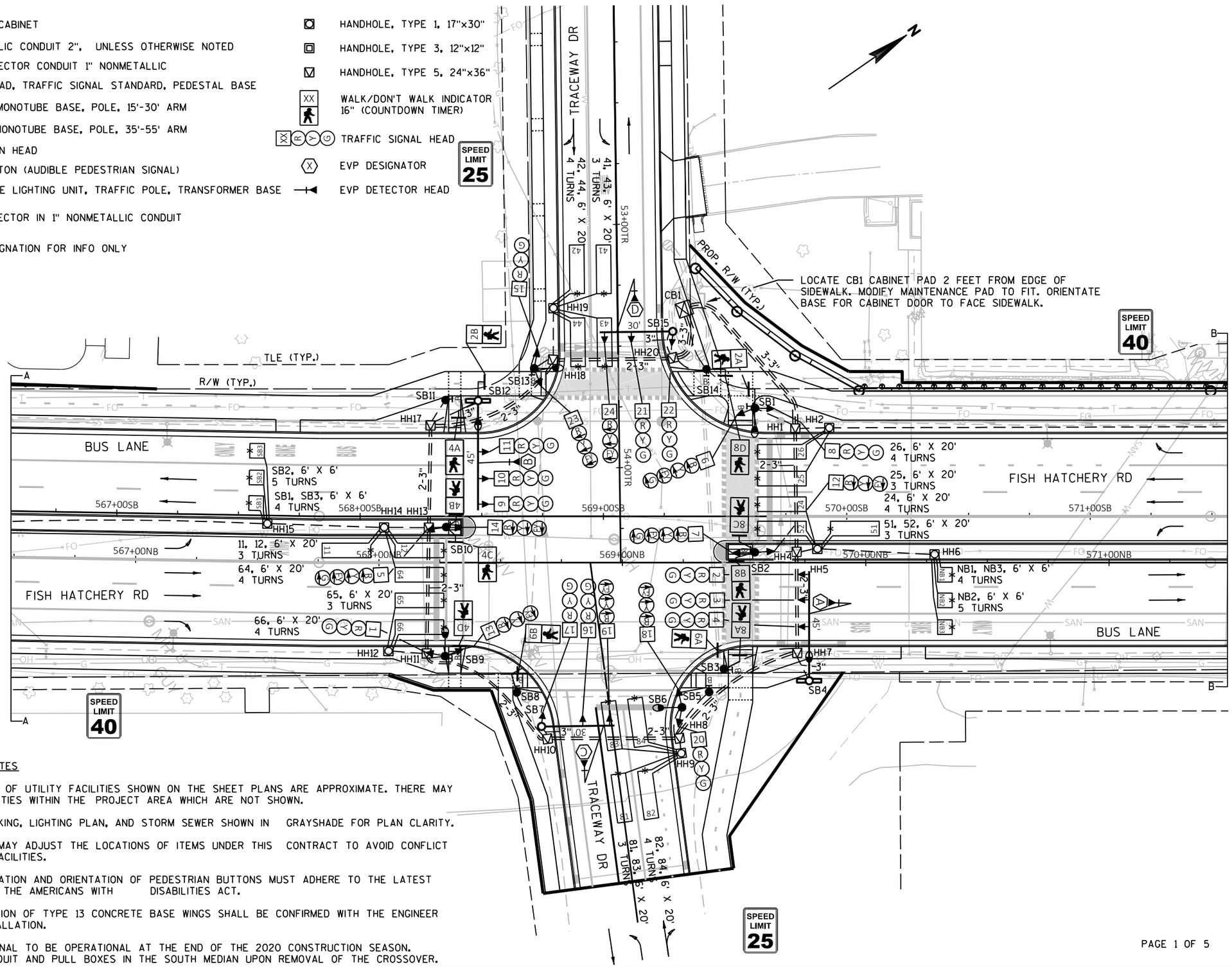
SHEET NO.

10 OF 30

PLOT DATE : 12/16/2019 10:17 AM
PLOT BY : JOSH WILBER
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\TRACEWAY DRIVE\KL_FHR_SIG_PROP - TRACEWAY DR.DWG

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) TYPE 10 MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) TYPE 13 MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD
- PUSH BUTTON (AUDIBLE PEDESTRIAN SIGNAL)
- DECORATIVE LIGHTING UNIT, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY
- HANDHOLE, TYPE 1, 17"x30"
- HANDHOLE, TYPE 3, 12"x12"
- HANDHOLE, TYPE 5, 24"x36"
- XX WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- XX R Y G TRAFFIC SIGNAL HEAD
- X EVP DESIGNATOR
- EVP DETECTOR HEAD



CONSTRUCTION NOTES

1. THE LOCATIONS OF UTILITY FACILITIES SHOWN ON THE SHEET PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2. PAVEMENT MARKING, LIGHTING PLAN, AND STORM SEWER SHOWN IN GRAYSHADE FOR PLAN CLARITY.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH UTILITY FACILITIES.
4. THE FINAL LOCATION AND ORIENTATION OF PEDESTRIAN BUTTONS MUST ADHERE TO THE LATEST STANDARDS OF THE AMERICANS WITH DISABILITIES ACT.
5. FINAL ORIENTATION OF TYPE 13 CONCRETE BASE WINGS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALLATION.
6. CONSTRUCT SIGNAL TO BE OPERATIONAL AT THE END OF THE 2020 CONSTRUCTION SEASON. COMPLETE CONDUIT AND PULL BOXES IN THE SOUTH MEDIAN UPON REMOVAL OF THE CROSSOVER.

PAGE 1 OF 5

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FISH HATCHERY RD & TRACEWAY DR

Project No:	19-3488
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Checked By:	MJR
Revisions:	12-16-2019

SHEET NO.
11 OF 30

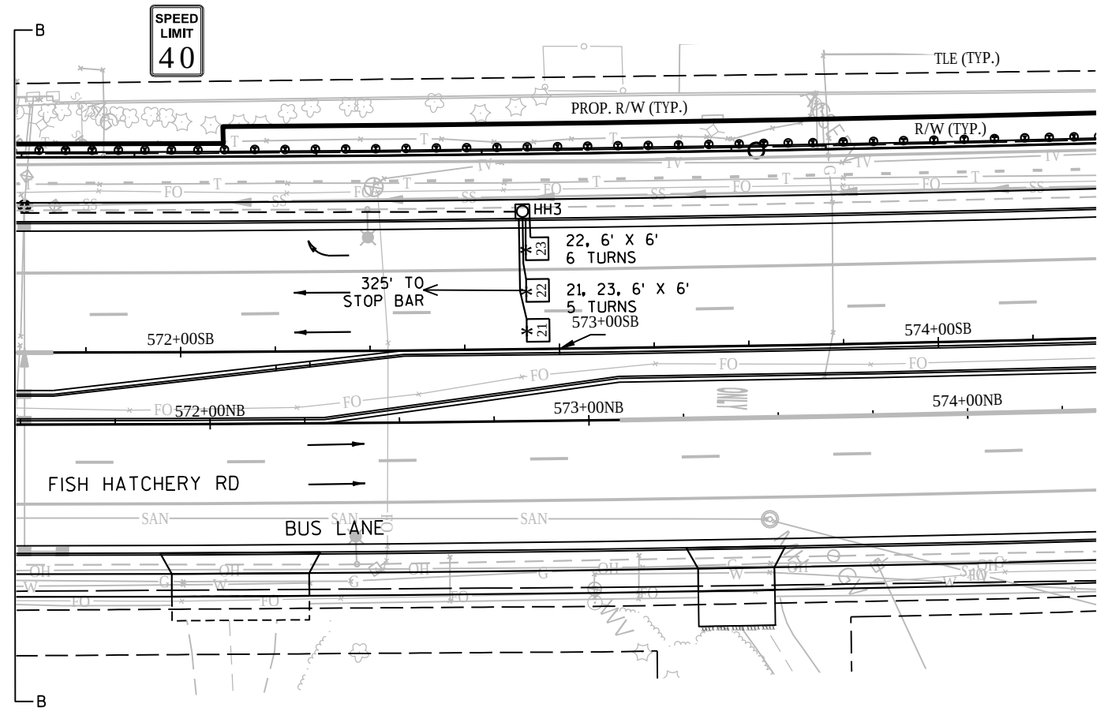
PLOT DATE : 10/28/2019 2:01 PM

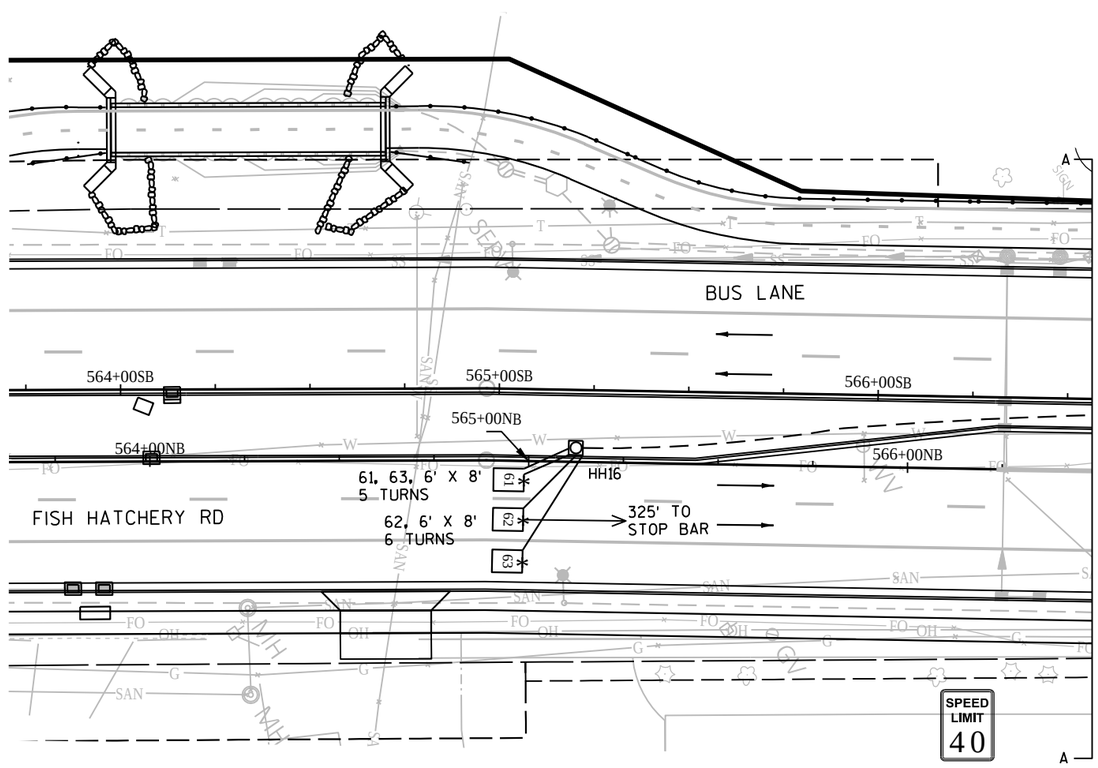
PLOT BY : NATHAN GREUEL

FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\TRACEWAY DRIVE\KL_FHR_SIG_PROP - TRACEWAY DR.DWG

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- HANDHOLE, TYPE 1, 17"x30"
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY





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12 OF 30

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HANDHOLES				
HANDHOLE I.D.	STATION	OFFSET		TYPE
HH1	569+78.8'SB'	36.3'	LT	5
HH2	569+92.8'SB'	36.4'	LT	1
HH3	572+90.7'SB'	36.4'	LT	1
HH4	569+79.4'SB'	14.6'	RT	5
HH5	569+87.9'SB'	13.4'	RT	1
HH6	570+28.3'NB'	3.4'	LT	1
HH7	569+71.9'NB'	37.1'	RT	5
HH8	569+23.5'NB'	72.2'	RT	5
HH9	569+24.2'NB'	78.4'	RT	1
HH10	568+69.3'NB'	72.5'	RT	5
HH11	568+19.6'NB'	37.4'	RT	5
HH12	568+03.9'NB'	36.4'	RT	1
HH13	568+20.5'NB'	14.4'	LT	5
HH14	568+02.1'NB'	14.5'	LT	1
HH15	567+61.9'SB'	3.4'	RT	1
HH16	565+12.4'NB'	3.7'	LT	1
HH17	568+29'SB'	37.4'	LT	5
HH18	568+79.2'SB'	64.4'	LT	5
HH19	568+79.4'SB'	85.6'	LT	1
HH20	569+28.6'SB'	65.2'	LT	5

CONCRETE BASES				
BASE I.D.	STATION	OFFSET		TYPE
CB1	569+32.3'SB'	84.9'	LT	P
SB1	569+62.2'SB'	44.5'	LT	LB-8*
SB2	569+54.4'NB'	4.2'	LT	G
SB3	569+41.7'NB'	43.7'	RT	LB-8*
SB4	569+76.8'NB'	48.6'	RT	13
SB5	569+35.7'NB'	53.2'	RT	G
SB6	569+24.5'NB'	59.5'	RT	LB-8*
SB7	568+66.8'NB'	67.4'	RT	10
SB8	568+56.6'NB'	53.4'	RT	G
SB9	568+27.1'NB'	38.5'	RT	LB-8*
SB10	568+35.4'SB'	4.4'	RT	G
SB11	568+35.1'SB'	47.8'	LT	G
SB12	568+48.4'SB'	47.5'	LT	13
SB13	568+71.5'SB'	60.8'	LT	LB-8*
SB14	569+42.3'SB'	60.5'	LT	G
SB15	569+28.4'SB'	76.0'	LT	10

*BASE SHALL BE CONSTRUCTED WITH 11.5" BOLT CIRCLE

ABOVE GROUND TRAFFIC SIGNAL EQUIPMENT							
BASE I.D.	MOUNTING BASE	POLE TYPE	SIGNAL ARM	PEDESTRIAN HEAD I.D.	PEDESTRIAN BUTTON (EA)	SIGNAL HEAD I.D.	LIGHTING UNIT (EA)
SB1	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	2A	1	6,8	1
SB2	PEDESTAL BASE	15-FT STD.	NONE	8B,8C	1	7,12	NONE
SB3	PEDESTAL BASE	10-FT STD.	NONE	6A,8A	1	NONE	NONE
SB4	NONE	TYPE 13 POLE	45-FT MONOTUBE ARM	NONE	NONE	2,3,4	1
SB5	PEDESTAL BASE	3.5-FT STD.	NONE	NONE	1	NONE	NONE
SB6	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	NONE	18,20	1
SB7	NONE	TYPE 9 POLE	30-FT MONOTUBE ARM	NONE	NONE	16,17,19	NONE
SB8	PEDESTAL BASE	10-FT STD.	NONE	6B	1	NONE	NONE
SB9	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	4D	1	1,13	1
SB10	PEDESTAL BASE	15-FT STD.	NONE	4B,4C	1	5,14	NONE
SB11	PEDESTAL BASE	3.5-FT STD.	NONE	NONE	1	NONE	NONE
SB12	NONE	TYPE 13 POLE	45-FT MONOTUBE ARM	2B,4A	NONE	9,10,11	1
SB13	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	1	15,23	1
SB14	PEDESTAL BASE	10-FT STD.	NONE	8D	1	NONE	NONE
SB15	NONE	TYPE 9 POLE	30-FT MONOTUBE ARM	NONE	NONE	21,22,24	NONE

PEDESTRIAN CROSSING SIGN SUMMARY		
BASE	SIGN CODE	SIGN TO FACE
SB1	R10-3ER	SOUTHWEST
SB2	R10-3ED	SOUTHWEST
SB3	R10-3ER	NORTHEAST
SB5	R10-3ER	NORTHWEST
SB8	R10-3EL	NORTHWEST
SB9	R10-3ER	NORTHEAST
SB10	R10-3ED	NORTHEAST
SB11	R10-3ER	NORTHEAST
SB13	R10-3ER	SOUTHEAST
SB14	R10-3EL	SOUTHEAST

TRAFFIC SIGNAL LOOP DETECTORS				
LOOP I.D.	STATION	OFFSET		INSTALLATION METHOD
11	567+96.6'NB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
12	568+26.6'NB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
21	572+91.4'SB'	5.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
22	572+91.4'SB'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
23	572+91.4'SB'	26.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
24	569+63.3'SB'	5.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
25	569+63.3'SB'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
26	569+63.3'SB'	26.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
41	569+00.2'SB'	91.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
42	568+89.2'SB'	91.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
43	569+00.6'SB'	61.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
44	568+89.6'SB'	61.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
51	569+93.3'SB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
52	569+63.3'SB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
61	564+98.8'NB'	5.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
62	564+98.8'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
63	564+98.8'NB'	26.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
64	568+26.6'NB'	5.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
65	568+26.6'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
66	568+26.6'NB'	26.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
81	568+98.3'NB'	86.9'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
82	569+09.3'NB'	85.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
83	568+94.3'NB'	57.1'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
84	569+05.2'NB'	55.8'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB1	570+35.5'NB'	5.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB2	570+35.5'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
NB3	570+35.5'NB'	26.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB1	567+54.2'SB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
SB2	567+54.2'SB'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB3	567+54.2'SB'	26.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & TRACEWAY DR

Project No: 19-3488
Date: OCT 2019
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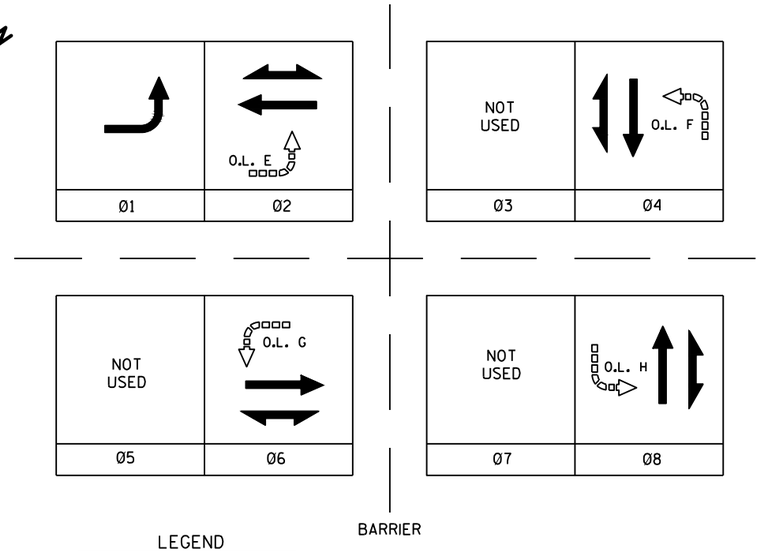
Drafted By: JMB
Checked By: MJR

Revisions: 12-16-2019

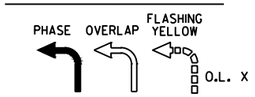
SHEET NO.
13 OF 30

	HEAD NUMBERS	FLASH
Ø1	5-7	R
Ø2	8-11	R
Ø3		
Ø4	15-17	R
Ø5		
Ø6	1-4	R
Ø7		
Ø8	20-22	R
Ø2 PED	2A,2B	
Ø4 PED	4A,4B,4C,4D	
Ø6 PED	6A,6B	
Ø8 PED	8A,8B,8C,8D	

O.L. ASSIGNMENTS		
O.L. E	5-7	-	Ø2
O.L. F	23,24	R	Ø4
O.L. G	12-14	R	Ø6
O.L. H	18,19	R	Ø8



LEGEND



PREEMPTION ASSIGNMENTS				
PREEMPTION DESIGNATION	PREEMPTION TYPE	EVP CHANNEL	PHASE(S) CALLED	PREEMPTED APPROACH
1	RESERVED			
2	RESERVED			
3	EVP	A	1&6	NB
4	EVP	B	2&6	SB
5	EVP	C	4&8	EB
6	EVP	D	4&8	WB
7	NOT USED			
8	NOT USED			
9	NOT USED			
10	NOT USED			

EVP NOTES:

1. AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6. AFTER PREEMPTION SEQUENCE C OR D, CONTROLLER SHALL RETURN TO PHASES 4+8.
2. FLASHING LEFT ARROW OVERLAPS SHALL BE OMITTED DURING PREEMPTION SEQUENCE A.

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W /Ø	PHASE RECALL	PHASE ACTIVE
1				X
2	X	6	MIN	X
3				
4		8		X
5				
6	X	2	MIN	X
7				
8		4		X

TYPE OF REMOTE COMMUNICATION	
NONE	
FIBER	X
CELL MODEM	
PHONE	

TYPE OF INTERCONNECT	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR	
CLOSED LOOP FIBER OPTIC	X
RADIO	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC SIGNAL CABINET	X
IN SEPARATE CITY LIGHTING CABINET	X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	35	33	39	37	43	41	47	45	DETECTOR INPUT
DETECTOR #(S)	12	24	25	26	43	44	52		64	65	66	83	84				NB1	NB2	NB3	SB1	SB2	SB3			DETECTOR #(S)
PHASE CALLED		2	2	2	4	4	2		6	6	6	8	8												PHASE CALLED
PHASE EXTENDED	1	2	2	2	4	4	2		6	6	6	8	8												PHASE EXTENDED
DISCONNECT TIME																									DISCONNECT TIME
CALLING DELAY					2							2													CALLING DELAY
EXTENSION STRETCH																									EXTENSION STRETCH
LOOP FUNCTION																	SYS	SYS	SYS	SYS	SYS	SYS			LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	38	34	40	38	44	42	46	48	DETECTOR INPUT
DETECTOR #(S)	11	21	22	23	41	42	51		61	62	63	81	82												DETECTOR #(S)
PHASE CALLED	1	2	2	2	4	4	2		6	6	6	8	8												PHASE CALLED
PHASE EXTENDED	1	2	2	2	4	4	2		6	6	6	8	8												PHASE EXTENDED
DISCONNECT TIME																									DISCONNECT TIME
CALLING DELAY																									CALLING DELAY
EXTENSION STRETCH																									EXTENSION STRETCH
LOOP FUNCTION																									LOOP FUNCTION

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PROJECT NO:	19-3488
INTERSECTION:	FISH HATCHERY RD & TRACEWAY DR

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE:	Oct-19

CB1 TO	AWG 14 # OF COND.	HEAD NO.	PHASE	SIGNAL INDICATION WIRE COLOR RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	DWALK	WALK	PED BUTTON	OTHER
SB1	12	6	1/O.L. E				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		8	2	RED	ORG	GRN								
		2A	2								BLK	BLU		
		BUTTON	8										WHT/BLK	
SB2	1S	7	1/O.L. E				RED	ORG	BLK/WHT	GRN				
		12	O.L. G				RED/BLK	ORG/BLK	BLU/WHT					
		8B	8								BLK	BLU		
		8C	8								BLK	BLU		
		BUTTON	8										WHT/BLK	
SB3	9	8A	8								BLK	BLU		
		6A	6								RED	GRN		
		BUTTON	8										WHT/BLK	
SB4	9	2	6	RED	ORG	GRN								
		3	6	RED	ORG	GRN								
		4	6	RED	ORG	GRN								
SB5	9	BUTTON	6										WHT/BLK	
SB6	12	18	O.L. H				RED/BLK	ORG/BLK	BLK/WHT					
		20	8	RED	ORG	GRN								
SB7	12	16	4	RED	ORG	GRN								
		17	4	RED	ORG	GRN								
		19	O.L. H				RED/BLK	ORG/BLK	BLK/WHT					
SB8	9	6B	6								BLK	BLU		
		BUTTON	6										WHT/BLK	
SB9	1S	1	6	RED	ORG	GRN								
		13	O.L. G				RED/BLK	ORG/BLK	BLK/WHT					
		4D	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB10	1S	5	1/O.L. E				RED	ORG	BLK/WHT	GRN				
		14	O.L. G				RED/BLK	ORG/BLK	BLU/WHT					
		4B	4								BLK	BLU		
		4C	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB11	9	BUTTON	4										WHT/BLK	
SB12	1S	9	6	RED	ORG	GRN								
		10	6	RED	ORG	GRN								
		11	6	RED	ORG	GRN								
		2B	2								BLK	BLU		
		4A	4								RED/WHT	GRN/WHT		
SB13	12	15	4	RED	ORG	GRN								
		23	O.L. H				RED/BLK	ORG/BLK	BLK/WHT					
		BUTTON	2										WHT/BLK	
SB14	9	8D	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB1S	12	21	8	RED	ORG	GRN								
		22	8	RED	ORG	GRN								
		24	O.L. H				RED/BLK	ORG/BLK	BLK/WHT					

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	SB13
SB13	SB14
SB14	SB1S
SB1S	CB1

TRAFFIC SIGNAL EVP DETECTOR CABLE		
HEAD	FROM	TO
A	CB1	SB4
B	CB1	SB12
C	CB1	SB7
D	CB1	SB1S

LIGHTING UF 10 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB4
SB4	SB6
CB1	SB13
SB13	SB12
SB12	SB9

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & TRACEWAY DR

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.

15 OF 30

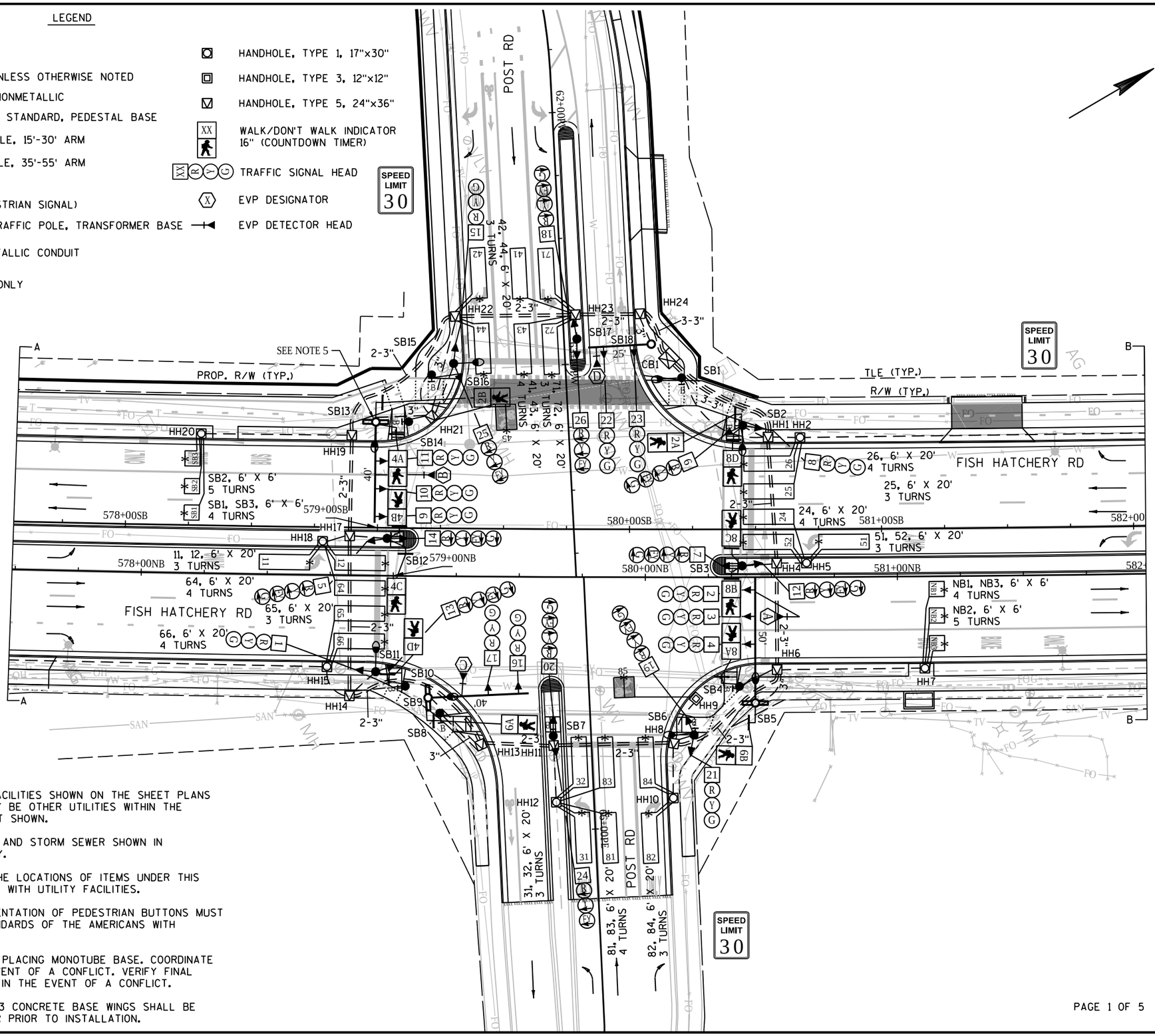
PLOT DATE : 10/28/2019 2:01 PM
PLOT BY : NATHAN GREUEL
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\TRACEWAY DRIVE\KL_FHR_SIG_PROP - TRACEWAY DR.DWG

PLOT DATE : 10/28/2019 2:02 PM

PLOT BY : NATHAN GREUEL

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) TYPE 10 MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) TYPE 13 MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD
- PUSH BUTTON (AUDIBLE PEDESTRIAN SIGNAL)
- DECORATIVE LIGHTING UNIT, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY
- HANDHOLE, TYPE 1, 17"x30"
- HANDHOLE, TYPE 3, 12"x12"
- HANDHOLE, TYPE 5, 24"x36"
- XX WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- XX TRAFFIC SIGNAL HEAD
- X EVP DESIGNATOR
- EVP DETECTOR HEAD



CONSTRUCTION NOTES

1. THE LOCATIONS OF UTILITY FACILITIES SHOWN ON THE SHEET PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2. PAVEMENT MARKING, LIGHTING, AND STORM SEWER SHOWN IN GRAYSHADE FOR PLAN CLARITY.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH UTILITY FACILITIES.
4. THE FINAL LOCATION AND ORIENTATION OF PEDESTRIAN BUTTONS MUST ADHERE TO THE LATEST STANDARDS OF THE AMERICANS WITH DISABILITIES ACT.
5. EXPOSE AT&T VAULT BEFORE PLACING MONOTUBE BASE. COORDINATE WITH THE ENGINEER IN THE EVENT OF A CONFLICT. VERIFY FINAL LOCATION WITH THE ENGINEER IN THE EVENT OF A CONFLICT.
6. FINAL ORIENTATION OF TYPE 13 CONCRETE BASE WINGS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALLATION.

PAGE 1 OF 5

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & POST RD

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.

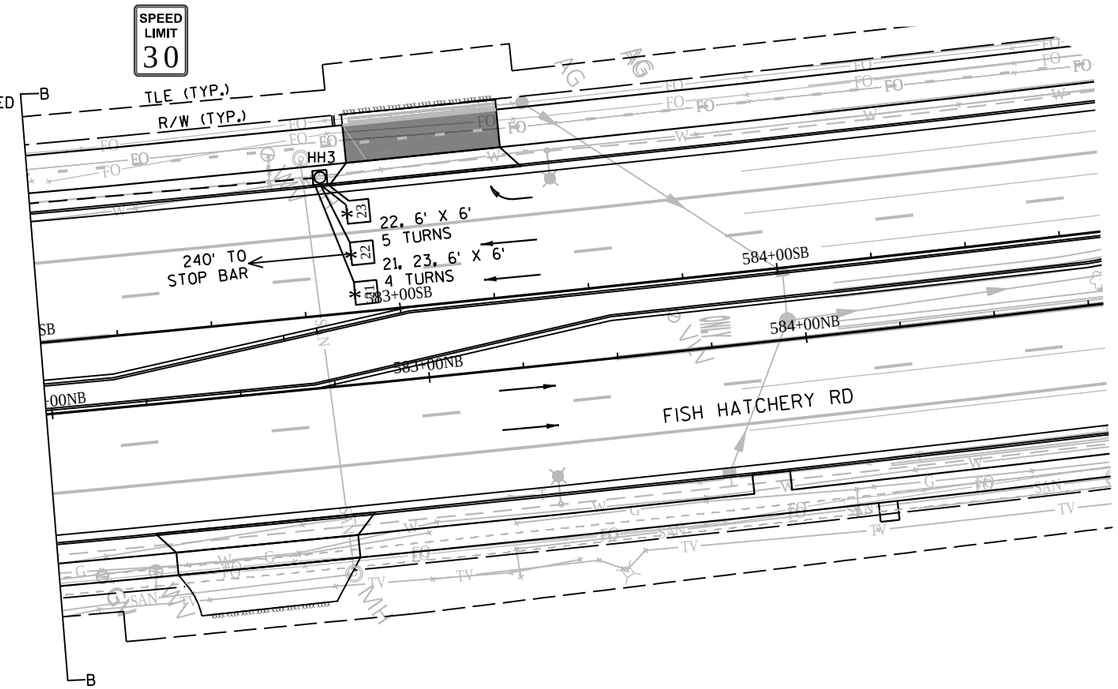
16 OF 30

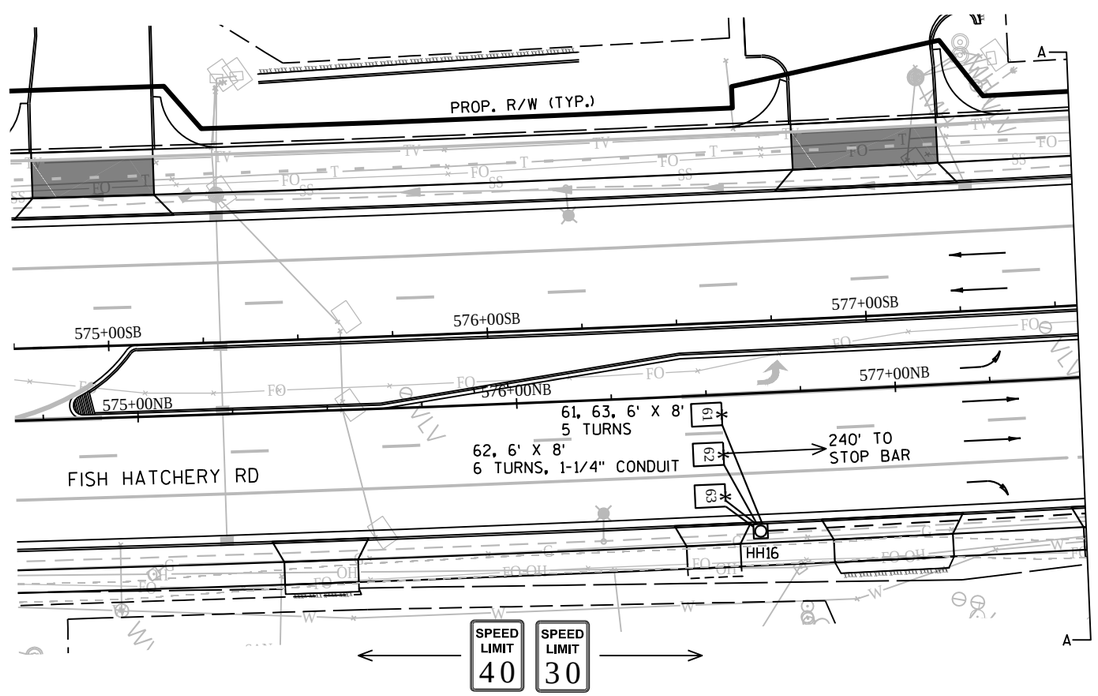
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\POST ROAD\KL_FHR_SIG_PROP - POST RD.DWG

PLOT DATE : 10/28/2019 2:02 PM
PLOT BY : NATHAN GREUEL
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\POST ROAD\KL_FHR_SIG_PROP - POST RD.DWG

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC, UNLESS OTHERWISE NOTED
- HANDHOLE, TYPE 1, 17"x30"
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY





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HANDHOLES				
HANDHOLE I.D.	STATION	OFFSET		TYPE
HH1	580+55.1'SB'	36.6'	LT	5
HH2	S80+67.8'SB'	36.4'	LT	1
HH3	582+82.3'SB'	36.4'	LT	1
HH4	S80+S8.4'SB'	12.6'	RT	S
HH5	580+70.2'SB'	13.4'	RT	1
HH6	S80+S2.2'NB'	36.7'	RT	S
HH7	S81+10.6'NB'	36.4'	RT	1
HH8	580+11.4'NB'	65.9'	RT	5
HH9	S80+20.1'NB'	48.1'	RT	3
HH10	580+11.2'NB'	87.6'	RT	1
HH11	S79+64.0'NB'	66.8'	RT	S
HH12	579+65.1'NB'	89.3'	RT	1
HH13	S79+3S.2'NB'	66.7'	RT	S
HH14	578+83.2'NB'	47.8'	RT	5
HH15	578+74.1'NB'	36.4'	RT	1
HH16	S76+62.8'NB'	36.4'	RT	1
HH17	578+89.0'SB'	2.6'	RT	S
HH18	S78+71.8'NB'	13.4'	LT	1
HH19	578+89.4'5B'	36.6'	LT	5
HH20	578+29.S'SB'	36.4'	LT	1
HH21	579+21.1'5B'	44.3'	LT	5
HH22	579+30.2'SB'	84.1'	LT	S
HH23	579+78.3'5B'	85.1'	LT	5
HH24	S80+04.0'SB'	8S.S'	LT	S

CONCRETE BASES				
BASE I.D.	STATION	OFFSET		TYPE
CB1	580+15.0'5B'	67.2'	LT	P
5B1	580+20.7'5B'	60.1'	LT	LB-8*
5B2	580+44.9'5B'	41.2'	LT	LB-8*
5B3	580+38.4'NB'	4.5'	LT	G
5B4	580+37.3'NB'	43.3'	RT	G
5B5	580+43.6'NB'	49.9'	RT	13
5B6	580+19.3'NB'	62.5'	RT	LB-8*
5B7	579+63.8'NB'	63.0'	RT	G
5B8	579+18.9'NB'	54.3'	RT	G
5B9	579+14.2'NB'	48.3'	RT	13
5B10	579+05.2'NB'	43.7'	RT	G
5B11	578+93.4'NB'	38.1'	RT	LB-8*
5B12	579+03.9'5B'	4.2'	RT	G
5B13	578+98.9'5B'	42.0'	LT	13
5B14	579+12.0'5B'	42.2'	LT	G
5B15	579+21.0'5B'	60.9'	LT	G
5B16	579+29.7'5B'	65.4'	LT	LB-8*
5B17	579+78.8'5B'	75.5'	LT	G
5B18	580+08.5'5B'	73.5'	LT	10

*BASE SHALL BE CONSTRUCTED WITH 11.5" BOLT CIRCLE

ABOVE GROUND TRAFFIC SIGNAL EQUIPMENT							
BASE I.D.	MOUNTING BASE	POLE TYPE	SIGNAL ARM	PEDESTRIAN HEAD I.D.	PEDESTRIAN BUTTON (EA)	SIGNAL HEAD I.D.	LIGHTING UNIT (EA)
5B1	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	1	NONE	1
SB2	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	2A,8D	1	6,8	1
SB3	PEDESTAL BASE	1S-FT STD.	NONE	8B,8C	1	7,12	NONE
5B4	PEDESTAL BASE	10-FT STD.	NONE	8A	1	NONE	NONE
SBS	NONE	TYPE 13 POLE	S0-FT MONOTUBE ARM	6B	NONE	2,3,4	1
SB6	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	1	19,21	1
SB7	PEDESTAL BASE	15-FT STD.	NONE	NONE	1	20,24	NONE
SB8	PEDESTAL BASE	3.5-FT STD.	NONE	NONE	1	NONE	NONE
5B9	NONE	TYPE 13 POLE	40-FT MONOTUBE ARM	6A	NONE	16,17	1
SB10	PEDESTAL BASE	10-FT STD.	NONE	4D	1	NONE	NONE
5B11	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	NONE	1,13	1
SB12	PEDESTAL BASE	15-FT STD.	NONE	4B,4C	1	5,14	NONE
5B13	NONE	TYPE 13 POLE	40-FT MONOTUBE ARM	2B,4A	NONE	9,10,11	1
SB14	PEDESTAL BASE	3.S-FT STD.	NONE	NONE	1	NONE	NONE
SB1S	PEDESTAL BASE	3.S-FT STD.	NONE	NONE	1	NONE	NONE
5B16	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	NONE	15,25	1
SB17	PEDESTAL BASE	1S-FT STD.	NONE	NONE	NONE	18,26	NONE
5B18	NONE	TYPE 9 POLE	25-FT MONOTUBE ARM	NONE	NONE	22,23	NONE

PEDESTRIAN CROSSING SIGN SUMMARY		
BASE	SIGN CODE	SIGN TO FACE
SB1	R10-3EL	SOUTHEAST
SB2	R10-3ER	SOUTHWEST
SB3	R10-3ED	SOUTHWEST
SB4	R10-3EL	SOUTHWEST
SB6	R10-3ER	NORTHWEST
SB7	R10-3EL	NORTHWEST
SB8	R10-3ER	SOUTHEAST
SB10	R10-3EL	SOUTHWEST
SB12	R10-3ED	NORTHEAST
SB14	R10-3ER	SOUTHWEST
SB15	R10-3ER	SOUTHEAST

TRAFFIC SIGNAL LOOP DETECTORS				
LOOP I.D.	STATION	OFFSET		INSTALLATION METHOD
11	S78+66.8'NB'	S.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
12	S78+96.8'NB'	S.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
21	S82+88.S'SB'	S.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
22	S82+88.S'SB'	1S.S'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
23	S82+88.S'SB'	26.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
24	S80+4S.2'SB'	S.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
2S	S80+4S.3'SB'	1S.S'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
26	S80+4S.4'SB'	26.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
31	S79+7S.2'NB'	93.4'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
32	S79+73.8'NB'	63.4'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
41	S79+S6.1'SB'	91.4'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
42	S79+40.0'SB'	91.4'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
43	S79+S7.9'SB'	61.S'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
44	S79+41.7'SB'	61.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
4S	S79+S1.0'SB'	39.3'	LT	BICYCLE DETECTION LOOP
S1	S80+7S.1'SB'	S.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
S2	S80+4S.1'SB'	S.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
61	S76+S3.9'NB'	S.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
62	S76+S3.9'NB'	1S.S'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
63	S76+S3.9'NB'	26.S'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
64	S78+96.8'NB'	S.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
6S	S78+96.8'NB'	1S.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
66	S78+96.8'NB'	26.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
71	S79+67.2'SB'	91.4'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
72	S79+68.9'SB'	61.4'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
81	S79+92.0'SB'	112.4'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
82	S80+07.9'SB'	112.4'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
83	S79+90.6'SB'	82.4'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
84	S80+06.S'SB'	82.4'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
8S	S79+91.S'NB'	39.6'	RT	BICYCLE DETECTION LOOP
NB1	S81+18.S'NB'	S.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
NB2	S81+18.S'NB'	1S.S'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
NB3	S81+18.S'NB'	26.S'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
SB1	S78+23.2'SB'	S.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB2	S78+23.2'SB'	1S.S'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB3	S78+23.2'SB'	26.S'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)

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TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & POST RD

Project No: 19-3488
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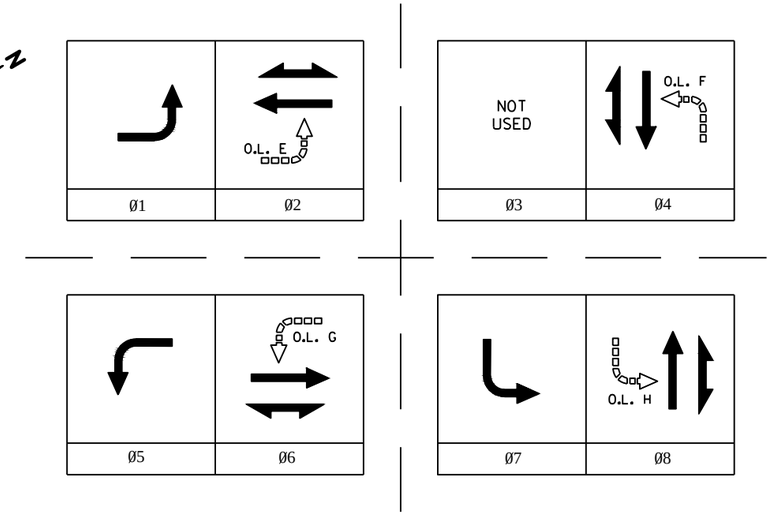
	HEAD NUMBERS	FLASH
Ø1	5-7	R
Ø2	8-11	R
Ø3		
Ø4	15-17	R
Ø5	12-14	R
Ø6	1-4	R
Ø7	18-20	R
Ø8	21-23	R
Ø2 PED	2A,2B	
Ø4 PED	4A,4B,4C,4D	
Ø6 PED	6A,6B	
Ø8 PED	8A,8B,8C,8D	

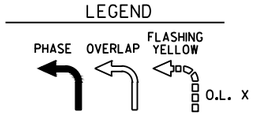
			O.L. ASSIGNMENTS
O.L.E	5-7	-	Ø2
O.L.F	24-26	R	Ø4
O.L.G	12-14	-	Ø6
O.L.H	18-20	-	Ø8



GENERAL NOTES:

1. HEADS PROVIDED FOR FUTURE PHASE 3.

LEGEND



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W /Ø	PHASE RECALL	PHASE ACTIVE
1				X
2	X	6	MIN	X
3				
4		8		X
5				X
6	X	2	MIN	X
7				X
8		4		X

PREEMPTION ASSIGNMENTS

PREEMPTION DESIGNATION	PREEMPTION TYPE	EVP CHANNEL	PHASE(S) CALLED	PREEMPTED APPROACH
1	RESERVED			
2	RESERVED			
3	EVP	A	1&6	NB
4	EVP	B	2&5	SB
5	EVP	C	4&7	EB
6	EVP	D	4&8	WB
7	NOT USED			
8	NOT USED			
9	NOT USED			
10	NOT USED			

EVP NOTES:

1. AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6. AFTER PREEMPTION SEQUENCE C OR D, CONTROLLER SHALL RETURN TO PHASES 4+8.
2. FLASHING LEFT ARROW OVERLAPS SHALL BE OMITTED DURING ALL PREEMPTION SEQUENCES.

TYPE OF REMOTE COMMUNICATION	
NONE	
FIBER	X
CELL MODEM	
PHONE	

TYPE OF INTERCONNECT	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR	
CLOSED LOOP FIBER OPTIC	X
RADIO	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC SIGNAL CABINET	X
IN SEPARATE CITY LIGHTING CABINET	X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	35	33	39	37	43	41	47	45
DETECTOR #(S)	12	24	25	26	32	43	44	52	64	65	66	72	83	84			NB1	NB2	NB3	SB1	SB2	SB3		
PHASE CALLED		2	2	2	4	4	4		6	6	6	7	8	8										
PHASE EXTENDED	1	2	2	2	4	4	4	5	6	6	6	7	8	8										
DISCONNECT TIME																								
CALLING DELAY							10							10										
EXTENSION STRETCH																								
LOOP FUNCTION																	SYS	SYS	SYS	SYS	SYS	SYS		

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	38	34	40	38	44	42	46	48
DETECTOR #(S)	11	21	22	23	31	41	42	51	61	62	63	71	81	82										
PHASE CALLED	1	2	2	2	4	4	4	5	6	6	6	7	8	8										
PHASE EXTENDED	1	2	2	2	4	4	4	5	6	6	6	7	8	8										
DISCONNECT TIME																								
CALLING DELAY							10							10										
EXTENSION STRETCH																								
LOOP FUNCTION																								

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PROJECT NO:	19-3488
INTERSECTION:	FISH HATCHERY RD & POST RD

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE:	Oct-19

CB1 TO	AWG 14 # OF COND.	HEAD NO.	PHASE	SIGNAL INDICATION WIRE COLOR RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	DWALK	WALK	PED BUTTON	OTHER
SB1	9	BUTTON	2										WHT/BLK	
SB2	1S	6	1/O.L. E				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		8	2	RED	ORG	GRN								
		2A	2								RED/WHT	GRN/WHT		
		8D	8								BLK	BLU		
		BUTTON	8										WHT/BLK	
SB3	1S	7	1/O.L. E				RED	ORG	BLU/WHT	GRN				
		12	S/O.L. G				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		8B	8								RED/WHT	GRN/WHT		
		8C	8								BLK	BLU		
		BUTTON	8										WHT/BLK	
SB4	9	8A	8								BLK	BLU		
		BUTTON	8										WHT/BLK	
SBS	9	2	6	RED	ORG	GRN								
		3	6	RED	ORG	GRN								
		4	6	RED	ORG	GRN								
		6B	6								BLK	BLU		
SB6	12	19	7/O.L. H				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		21	8	RED	ORG	GRN								
		BUTTON	6										WHT/BLK	
SB7	12	20	7/O.L. H				RED	ORG	BLU	GRN				
		24	3/O.L. F				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
SB8	9	BUTTON	6										WHT/BLK	
SB9	9	16	4	RED	ORG	GRN								
		17	4	RED	ORG	GRN								
		6A	6								BLK	BLU		
SB10	9	4D	4											
		BUTTON	4								BLK	BLU		
													WHT/BLK	
SB11	12	1	6	RED	ORG	GRN								
		13	S/O.L. G				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
SB12	1S	S	1/O.L. E				RED	ORG	BLU/WHT	GRN				
		14	S/O.L. G				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		4B	4								RED/WHT	GRN/WHT		
		4C	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB13	12	9	2	RED	ORG	GRN								
		10	2	RED	ORG	GRN								
		11	2	RED	ORG	GRN								
		2B	2								BLK	BLU		
		4A	4								RED/BLK	GRN/BLK		
SB14	9	BUTTON	4										WHT/BLK	
SB1S	9	BUTTON	2										WHT/BLK	
SB16	12	1S	4	RED	ORG	GRN								
		25	3/O.L. F				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
SB17	12	18	7/O.L. H				RED	ORG	BLU	GRN				
		26	3/O.L. F				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
SB18	9	22	8	RED	ORG	GRN								
		23	8	RED	ORG	GRN								

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SBS
SBS	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	SB13
SB13	SB14
SB14	SB15
SB15	SB16
SB16	SB17
SB17	SB18
SB18	CB1

TRAFFIC SIGNAL EVP DETECTOR CABLE		
HEAD	FROM	TO
A	CB1	SB5
B	CB1	SB13
C	CB1	SB9
D	CB1	SB18

LIGHTING UF 10 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SBS
SBS	SB6
CB1	SB16
SB16	SB13
SB13	SB11
SB11	SB9

PAGE 5 OF 5

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & POST RD

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.

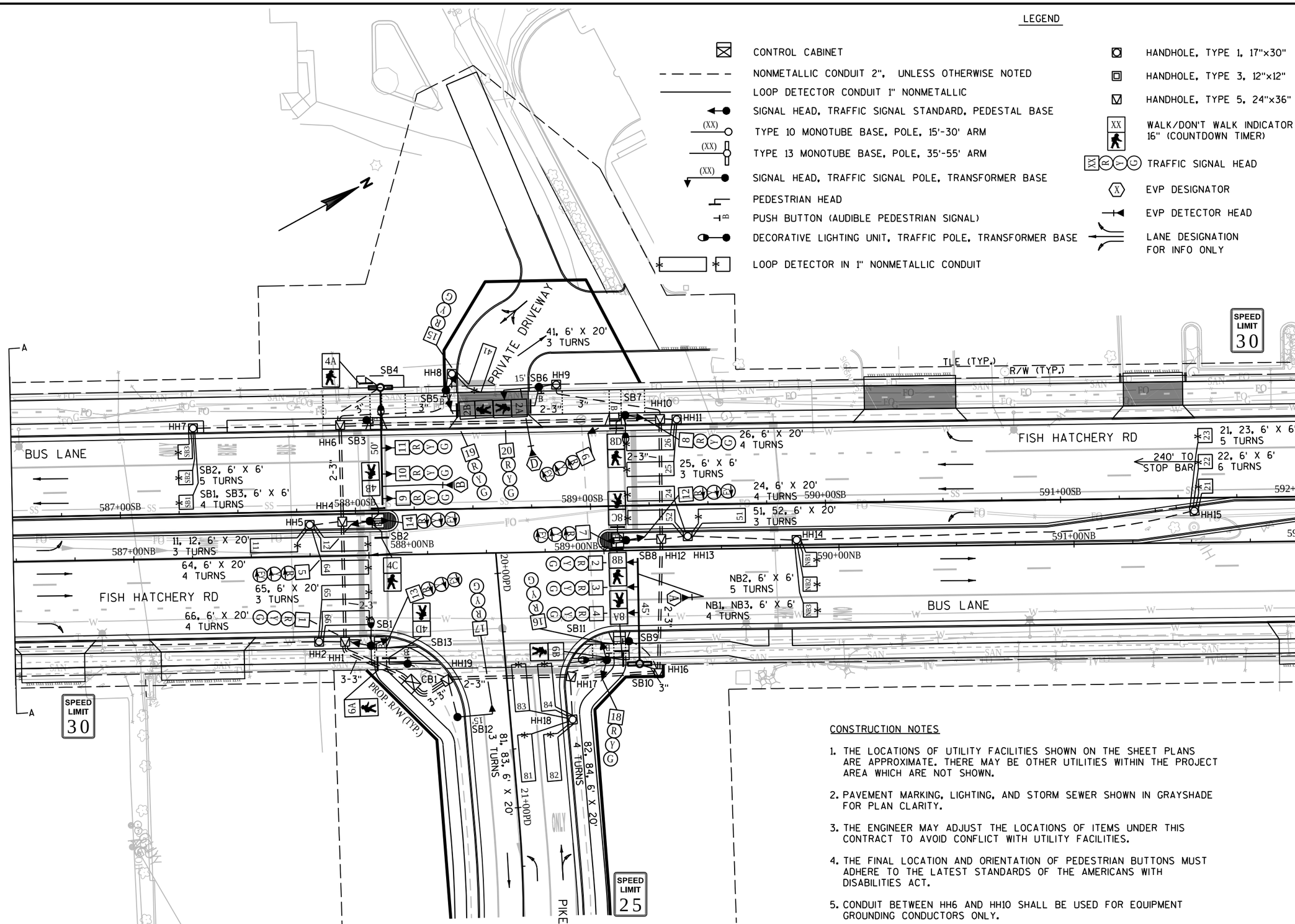
20 OF 30

PLOT DATE : 10/28/2019 2:02 PM
PLOT BY : NATHAN GREUEL
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\POST ROAD\KL_FHR_SIG_PROP - POST RD.DWG

PLOT DATE : 10/28/2019 2:34 PM

PLOT BY : NATHAN GREUEL

FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETS\PLAN\TRAFFIC SIGNALS\PERMANENT\PIKE DRIVE\KL_FHR_SIG_PROP - PIKE DR.DWG



CONSTRUCTION NOTES

1. THE LOCATIONS OF UTILITY FACILITIES SHOWN ON THE SHEET PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2. PAVEMENT MARKING, LIGHTING, AND STORM SEWER SHOWN IN GRAYSHADE FOR PLAN CLARITY.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH UTILITY FACILITIES.
4. THE FINAL LOCATION AND ORIENTATION OF PEDESTRIAN BUTTONS MUST ADHERE TO THE LATEST STANDARDS OF THE AMERICANS WITH DISABILITIES ACT.
5. CONDUIT BETWEEN HH6 AND HH10 SHALL BE USED FOR EQUIPMENT GROUNDING CONDUCTORS ONLY.
6. FINAL ORIENTATION OF TYPE 13 CONCRETE BASE WINGS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALLATION.

PAGE 1 OF 5

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & PIKE DR

Project No:	19-3488
Date:	OCT 2019
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Drafted By:	JMB
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SHEET NO.

21 OF 30

PLOT DATE : 10/28/2019 2:04 PM
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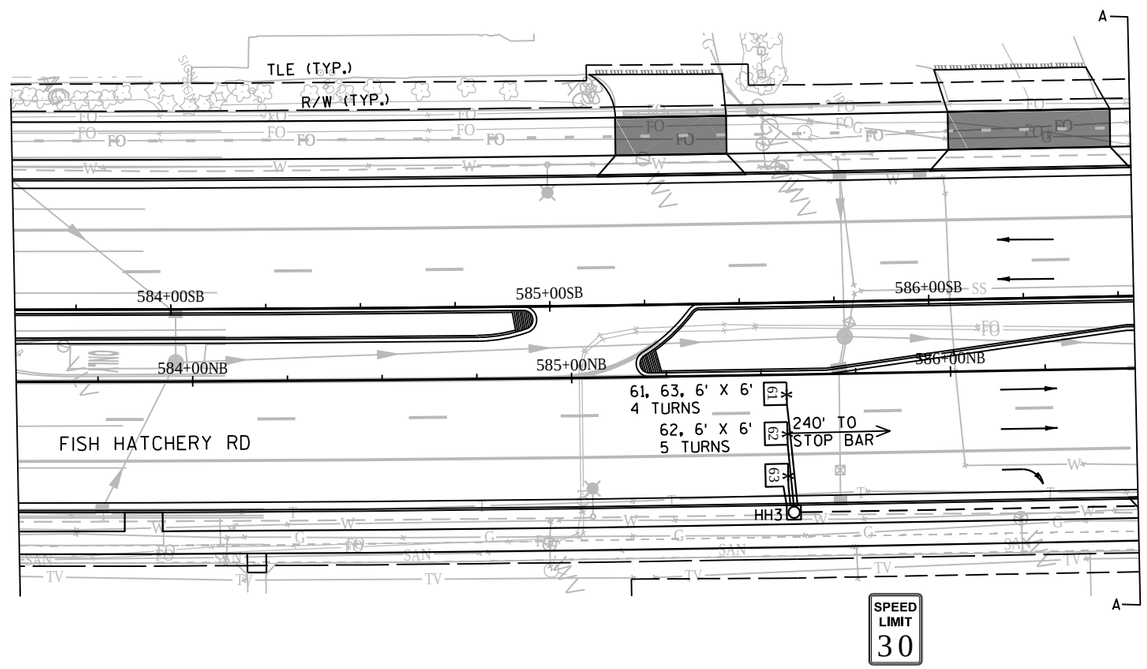
LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- HANDHOLE, TYPE 1, 17"x30"
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY



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22 OF 30

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HANDHOLES				
HANDHOLE I.D.	STATION	OFFSET		TYPE
HH1	587+89.2'NB'	36.6'	RT	5
HH2	587+78.1'NB'	36.4'	RT	1
HH3	585+58.0'NB'	36.4'	RT	1
HH4	587+89.0'NB'	14.5'	LT	5
HH5	587+75.0'NB'	12.4	LT	1
HH6	587+94.2'SB'	36.6'	LT	5
HH7	587+31.6'SB'	36.4'	LT	1
HH8	588+42.1'SB'	57.5'	LT	1
HH9	588+86.4'SB'	52.1'	LT	1
HH10	589+30.3'SB'	36.7'	LT	5
HH11	589+37.4'SB'	36.4'	LT	1
HH12	589+29.9'SB'	14.3'	RT	5
HH13	589+41.1'SB'	13.4'	RT	1
HH14	589+82.0'NB'	3.4'	LT	1
HH15	591+56.8'SB'	5.5'	RT	1
HH16	589+22.3'NB'	52.3'	RT	5
HH17	588+85.1'NB'	53.2'	RT	5
HH18	588+85.4'NB'	71.5'	RT	1
HH19	588+32.1'NB'	53.8'	RT	5

CONCRETE BASES				
BASE I.D.	STATION	OFFSET		TYPE
CB1	588+17.7'NB'	54.4'	RT	P
SB1	588+00.2'NB'	38.5'	RT	LB-8*
SB2	588+06.0'SB'	4.5'	RT	G
SB3	588+05.5'SB'	38.5'	LT	G
SB4	588+11.6'SB'	52.3'	LT	13
SB5	588+39.5'SB'	50.5'	LT	G
SB6	588+79.0'SB'	51.2'	LT	LB-8*
SB7	589+15.5'SB'	38.6'	LT	LB-8*
SB8	589+09.4'NB'	4.3'	LT	G
SB9	589+09.9'NB'	38.6'	RT	G
SB10	589+14.3'NB'	48.3'	RT	13
SB11	589+00.3'NB'	46.4'	RT	LB-8*
SB12	588+36.4'NB'	69.5'	RT	LB-8*
SB13	588+15.6'NB'	46.5'	RT	G

*BASE SHALL BE CONSTRUCTED WITH 11.5" BOLT CIRCLE

ABOVE GROUND TRAFFIC SIGNAL EQUIPMENT							
BASE I.D.	MOUNTING BASE	POLE TYPE	SIGNAL ARM	PEDESTRIAN HEAD I.D.	PEDESTRIAN BUTTON (EA)	SIGNAL HEAD I.D.	LIGHTING UNIT (EA)
SB1	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	6A	1	1,13	1
SB2	PEDESTAL BASE	15-FT STD.	NONE	4B,4C	1	5,14	NONE
SB3	PEDESTAL BASE	35-FT STD.	NONE	NONE	1	NONE	NONE
SB4	NONE	TYPE 12 POLE	50-FT MONOTUBE ARM	4A	NONE	9,10,11	NONE
SB5	PEDESTAL BASE	13-FT STD.	NONE	2B	1	15,19	1
SB6	TRANSFORMER BASE	20-FT SIGNAL POLE	15-FT TROMBONE ARM	2A	1	20	NONE
SB7	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	8D	1	6,8	1
SB8	PEDESTAL BASE	15-FT STD.	NONE	8B,8C	1	7,12	NONE
SB9	PEDESTAL BASE	10-FT STD.	NONE	6B	1	NONE	NONE
SB10	NONE	TYPE 12 POLE	45-FT MONOTUBE ARM	NONE	NONE	2,3,4	NONE
SB11	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	8A	1	16,18	1
SB12	TRANSFORMER BASE	20-FT SIGNAL POLE	15-FT TROMBONE ARM	NONE	NONE	17	NONE
SB13	PEDESTAL BASE	10-FT STD.	NONE	4D	1	NONE	NONE

PEDESTRIAN CROSSING SIGN SUMMARY		
BASE	SIGN CODE	SIGN TO FACE
SB1	R10-3ER	NORTHEAST
SB2	R10-3ED	NORTHEAST
SB3	R10-3EL	NORTHEAST
SB5	R10-3ER	SOUTHEAST
SB6	R10-3EL	SOUTHEAST
SB7	R10-3ER	SOUTHWEST
SB8	R10-3ED	SOUTHWEST
SB9	R10-3EL	SOUTHWEST
SB11	R10-3ER	NORTHWEST
SB13	R10-3EL	NORTHWEST

TRAFFIC SIGNAL LOOP DETECTORS				
LOOP I.D.	STATION	OFFSET		INSTALLATION METHOD
11	587+69.7'NB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
12	587+99.7'NB'	5.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
21	591+58.8'SB'	4.9'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
22	591+58.8'SB'	15.4'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
23	591+58.8'SB'	26.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
24	589+15.8'SB'	5.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
25	589+15.8'SB'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
26	589+15.8'SB'	26.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
41	588+51.5'SB'	50.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
51	589+45.8'SB'	5.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
52	589+15.8'SB'	5.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
61	585+56.7'NB'	5.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
62	585+56.7'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
63	585+56.7'NB'	26.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
64	587+99.7'NB'	5.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
65	587+99.7'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
66	587+99.7'NB'	26.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
81	588+64.8'NB'	77.4'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
82	588+75.9'NB'	77.4'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
83	588+62.8'NB'	47.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
84	588+73.8'NB'	47.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB1	589+90.5'NB'	5.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB2	589+90.5'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
NB3	589+90.5'NB'	26.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB1	587+25.1'SB'	5.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB2	587+25.1'SB'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB3	587+25.1'SB'	26.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)

PAGE 3 OF 5

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & PIKE DR

Project No: 19-3488
Date: OCT 2019
Designed By: KCW
Drafted By: JMB
Checked By: MJR

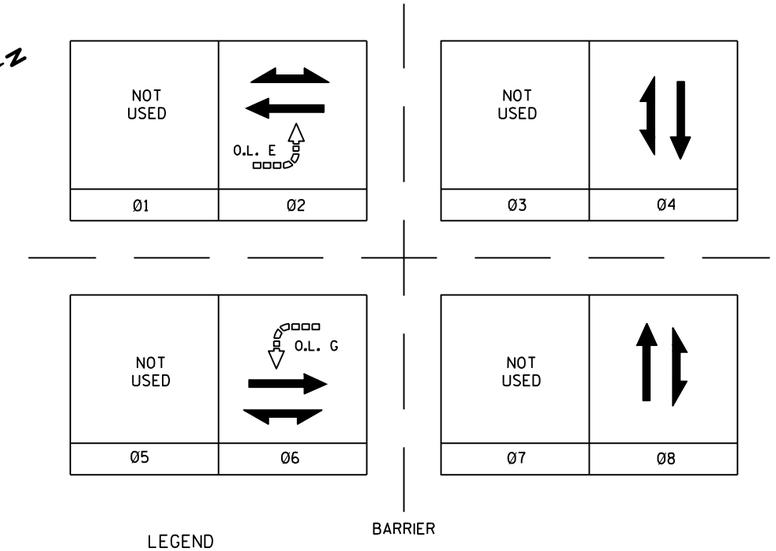
Revisions:

SHEET NO.
23 OF 30

PLOT DATE : 10/28/2019 2:04 PM
PLOT BY : NATHAN GREUEL
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\PIKE DRIVE\KL_FHR_SIG_PROP - PIKE DR.DWG

	HEAD NUMBERS	FLASH
Ø1		R
Ø2	8-11	R
Ø3		
Ø4	15-17	R
Ø5		R
Ø6	1-4	R
Ø7		
Ø8	18-20	R
Ø2 PED	2A,2B	
Ø4 PED	4A,4B,4C,4D	
Ø6 PED	6A,6B	
Ø8 PED	8A,8B,8C,8D	
O.L. E	5-7	R
O.L. F		
O.L. G	12-14	R
O.L. A		

O.L. ASSIGNMENTS
Ø2
Ø6



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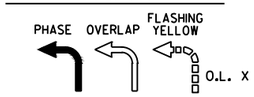

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W/Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				
4		8		X
5				
6	X	2	MIN	X
7				
8		4		X

PREEMPTION ASSIGNMENTS

PREEMPTION DESIGNATION	PREEMPTION TYPE	EVP CHANNEL	PHASE(S) CALLED	PREEMPTED APPROACH
1	RESERVED			
2	RESERVED			
3	EVP	A	6	NB
4	EVP	B	2	SB
5	NOT USED			
6	EVP	D	4&8	WB
7	NOT USED			
8	NOT USED			
9	NOT USED			
10	NOT USED			

EVP NOTES:

1. AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6. AFTER PREEMPTION SEQUENCE D, CONTROLLER SHALL RETURN TO PHASES 4+8.
2. FLASHING LEFT ARROW OVERLAPS SHALL BE OMITTED DURING ALL PREEMPTION SEQUENCES.

TYPE OF REMOTE COMMUNICATION	
NONE	
FIBER	X
CELL MODEM	
PHONE	

TYPE OF INTERCONNECT	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR	
CLOSED LOOP FIBER OPTIC	X
RADIO	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC SIGNAL CABINET	X
IN SEPARATE CITY LIGHTING CABINET	X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	35	33	39	37	43	41	47	45
DETECTOR #(S)	12	24	25	26	41	52	61	62	63	83	84						SB1	SB2	SB3	NB1	NB2	NB3		
PHASE CALLED	2	2	2	2	4	6	6	6	6	8	8													
PHASE EXTENDED	2	2	2	2	4	6	6	6	6	8	8													
DISCONNECT TIME																								
CALLING DELAY					15					2	10													
EXTENSION STRETCH																								
LOOP FUNCTION																	SYS	SYS	SYS	SYS	SYS	SYS		

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	38	34	40	38	44	42	46	48
DETECTOR #(S)	11	21	22	23		51	64	65	66	81	82													
PHASE CALLED	2	2	2	2		6	6	6	6	8	8													
PHASE EXTENDED	2	2	2	2		6	6	6	6	8	8													
DISCONNECT TIME																								
CALLING DELAY											10													
EXTENSION STRETCH																								
LOOP FUNCTION																								

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & PIKE DR

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.

24 OF 30

PLOT DATE : 10/28/2019 2:04 PM

PLOT BY : NATHAN GREUEL

FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\PIKE DRIVE\KL_FHR_SIG_PROP - PIKE DR.DWG

PROJECT NO:	19-3488
INTERSECTION:	FISH HATCHERY RD & PIKE DR

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE:	Oct-19

CB1 TO	AWG 14 # OF COND.	HEAD NO.	PHASE	SIGNAL INDICATION WIRE COLOR RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	DWALK	WALK	PED BUTTON	OTHER
SB1	12	1	6	RED	ORG	GRN								
		13	O.L. G				RED/BLK	ORG/BLK	BLK/WHT					
		6A	6								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB2	1S	5	O.L. E				RED	ORG	BLU/WHT					
		14	O.L. G				RED/BLK	ORG/BLK	BLK/WHT					
		4B	4								RED/WHT	GRN/WHT		
		4C	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB3	9	BUTTON	4										WHT/BLK	
SB4	9	9	2	RED	ORG	GRN								
		10	2	RED	ORG	GRN								
		11	2	RED	ORG	GRN								
		4A	4								BLK	BLU		
													WHT/BLK	
SB5	12	1S	4	RED	ORG	GRN								
		19	8	RED/BLK	ORG/BLK	GRN/BLK								
		2B	2								BLK	BLU		
		BUTTON	2										WHT/BLK	
SB6	9	20	8	RED	ORG	GRN								
		2A	2								BLK	BLU		
		BUTTON	2										WHT/BLK	
SB7	12	6	O.L. E				RED/BLK	ORG/BLK	BLK/WHT					
		8	2	RED	ORG	GRN								
		8D	8								BLK	BLU		
		BUTTON	8										WHT/BLK	
SB8	1S	7	O.L. E				RED	ORG	BLU/WHT					
		12	O.L. G				RED/BLK	ORG/BLK	BLK/WHT					
		8B	8								RED/WHT	GRN/WHT		
		8C	8								BLK	BLU		
		BUTTON	8										WHT/BLK	
SB9	9	6B	6								BLK	BLU		
		BUTTON	8										WHT/BLK	
SB10	9	2	6	RED	ORG	GRN								
		3	6	RED	ORG	GRN								
		4	6	RED	ORG	GRN								
SB11	12	16	4	RED/BLK	ORG/BLK	GRN/BLK								
		18	8	RED	ORG	GRN								
		8A	8								BLK	BLU		
		BUTTON	6										WHT/BLK	
SB12	9	17	4	RED	ORG	GRN								
SB13	9	4D	4								BLK	BLU		
		BUTTON	6										WHT/BLK	

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	SB13
SB13	CB1

TRAFFIC SIGNAL EVP DETECTOR CABLE		
HEAD	FROM	TO
A	CB1	SB10
B	CB1	SB4
D	CB1	SB6

LIGHTING UF 10 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB4
CB1	SB11
SB11	SB7

PAGE 5 OF 5

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & PIKE DR

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.

25 OF 30

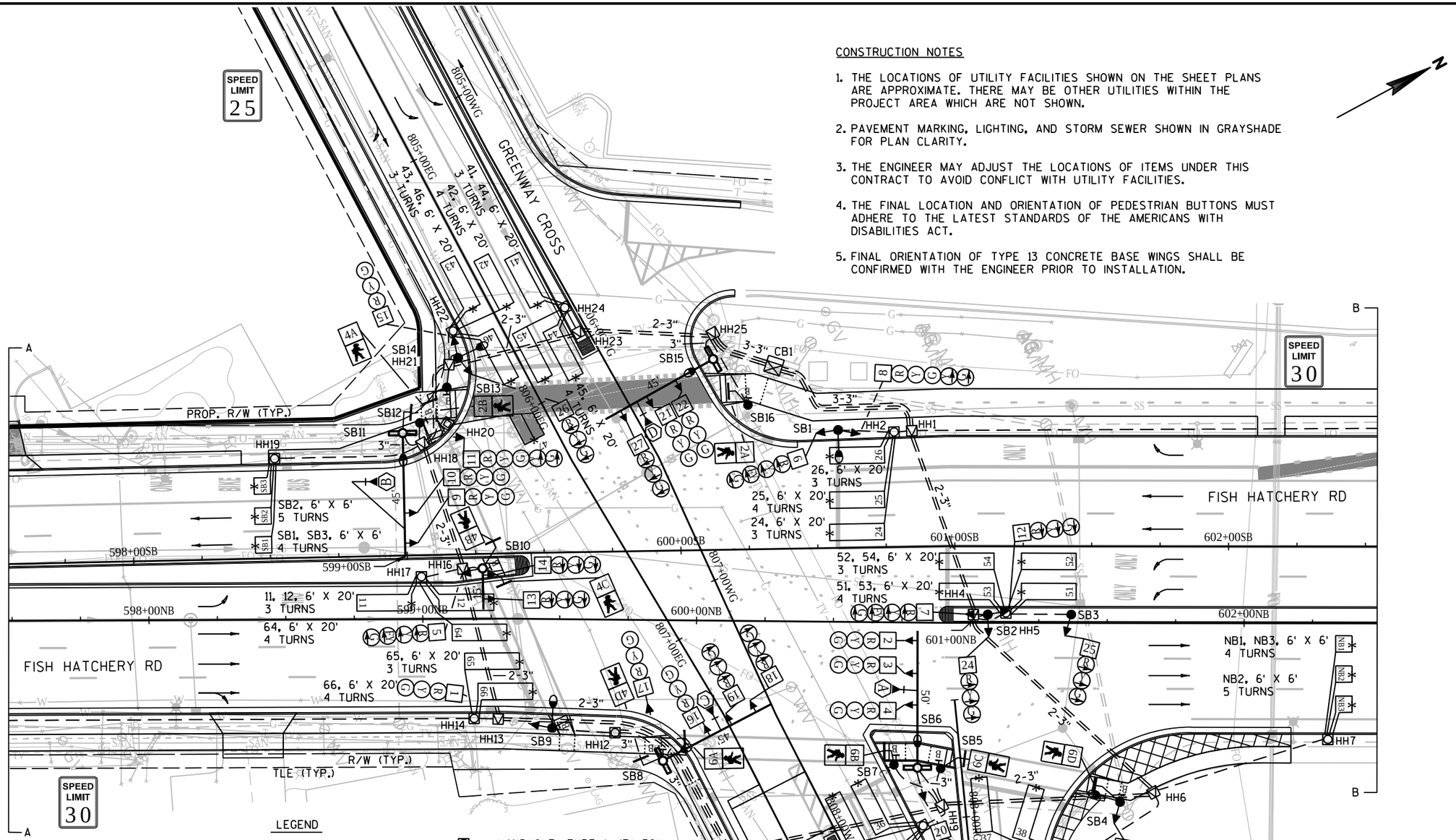
PLOT DATE : 10/28/2019 2:04 PM

PLOT BY : NATHAN GREUEL

FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETSPLAN\TRAFFIC SIGNALS\PERMANENT\GREENWAY CROSS\KL_FHR_SIG_PROP - GREENWAY CROSS.DWG

CONSTRUCTION NOTES

1. THE LOCATIONS OF UTILITY FACILITIES SHOWN ON THE SHEET PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2. PAVEMENT MARKING, LIGHTING, AND STORM SEWER SHOWN IN GRAYSHADE FOR PLAN CLARITY.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH UTILITY FACILITIES.
4. THE FINAL LOCATION AND ORIENTATION OF PEDESTRIAN BUTTONS MUST ADHERE TO THE LATEST STANDARDS OF THE AMERICANS WITH DISABILITIES ACT.
5. FINAL ORIENTATION OF TYPE 13 CONCRETE BASE WINGS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALLATION.



LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) TYPE 10 MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) TYPE 13 MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD
- B PUSH BUTTON (AUDIBLE PEDESTRIAN SIGNAL)
- C CYCLIST PUSH BUTTON
- DECORATIVE LIGHTING UNIT, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- HANDHOLE, TYPE 1, 17"x30"
- HANDHOLE, TYPE 3, 12"x12"
- HANDHOLE, TYPE 5, 24"x36"
- XX WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- XX R Y G TRAFFIC SIGNAL HEAD
- X EVP DESIGNATOR
- EVP DETECTOR HEAD
- LANE DESIGNATION FOR INFO ONLY

PAGE 1 OF 5

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FISH HATCHERY RD & GREENWAY CROSS

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26 OF 30

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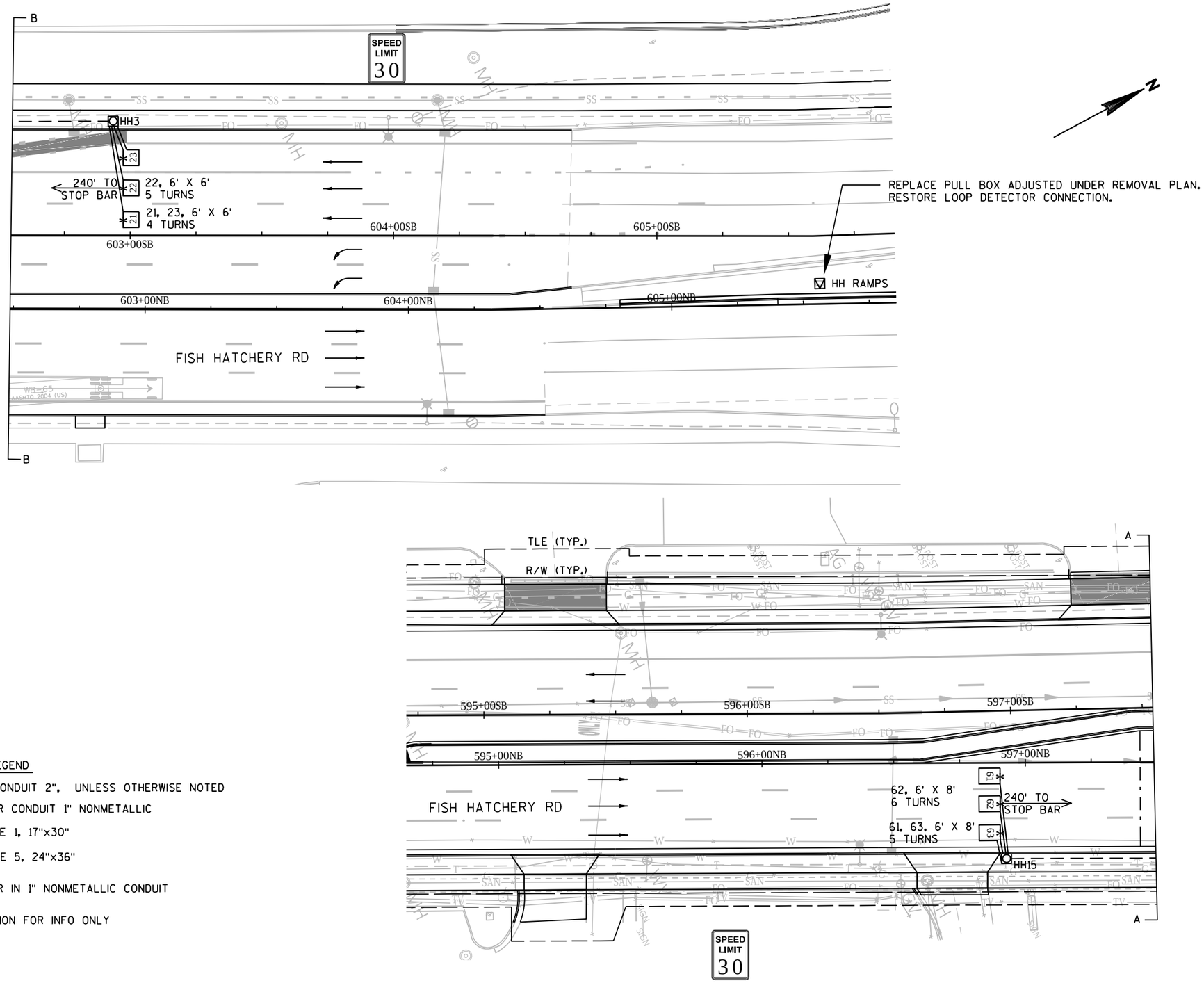

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- HANDHOLE, TYPE 1, 17"x30"
- HANDHOLE, TYPE 5, 24"x36"
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LANE DESIGNATION FOR INFO ONLY

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HANDHOLES				
HANDHOLE I.D.	STATION	OFFSET		TYPE
HH1	600+85.0'SB'	42.4'	LT	5
HH2	600+78.5'SB'	42.0'	LT	1
HH3	602+93.6'SB'	43.4'	LT	1
HH4	601+06.9'SB'	25.0'	RT	5
HH5	601+18.7'SB'	24.4'	RT	1
HH6	601+67.0'NB'	62.0'	RT	5
HH7	602+30.7'NB'	42.4'	RT	1
HH8	601+35.1'NB'	84.9'	RT	1
HH9	600+90.3'NB'	66.9'	RT	5
HH10	600+83.5'NB'	74.2'	RT	1
HH11	600+13.3'NB'	84.6'	RT	5
HH12	599+70.6'NB'	41.3'	RT	1
HH13	599+27.4'NB'	36.6'	RT	5
HH14	599+18.6'NB'	36.4'	RT	1
HH15	596+92.7'NB'	36.4'	RT	1
HH16	599+14.7'NB'	18.3'	LT	5
HH17	598+99.6'NB'	15.4'	LT	1
HH18	599+06.3'SB'	40.9'	LT	5
HH19	598+52.2'SB'	36.4'	LT	1
HH20	599+15.7'SB'	47.8'	LT	3
HH21	599+16.7'SB'	69.3'	LT	5
HH22	599+18.4'SB'	81.5'	LT	1
HH23	599+63.8'SB'	80.2'	LT	5
HH24	599+58.9'SB'	89.3'	LT	1
HH25	600+12.9'SB'	79.1'	LT	5
HH RAMPS	605+56.4'NB'	8.0'	LT	5

PEDESTRIAN CROSSING SIGN SUMMARY		
BASE	SIGN CODE	SIGN TO FACE
SB4	R10-3EL	NORTHWEST
SB5	R10-3EL	NORTHWEST
SB7	R10-3ER	NORTHWEST
SB7	R10-24	SOUTH
SB8	R10-3EL	NORTHWEST
SB9	R10-3ER	NORTH
SB10	R10-3ED	NORTH
SB12	R10-3EL	NORTH
SB13	R10-3ER	SOUTHEAST
SB16	R10-3EL	NORTHWEST

CONCRETE BASES				
BASE I.D.	STATION	OFFSET		TYPE
CB1	600+34.7'SB'	66.0'	LT	P
SB1	600+58.0'SB'	43.1'	LT	LB-8*
SB2	601+06.3'NB'	3.0'	LT	G
SB3	601+36.9'NB'	3.1'	LT	G
SB4	601+54.8'NB'	65.4'	RT	LB-8*
SB5	600+89.7'NB'	53.2'	RT	G
SB6	600+81.2'NB'	55.4'	RT	13
SB7	600+72.6'NB'	52.1'	RT	G
SB8	599+88.2'NB'	51.3'	RT	13
SB9	599+47.6'NB'	39.8'	RT	LB-8*
SB10	599+27.4'SB'	5.3'	RT	10
SB11	598+99.2'SB'	44.7'	LT	13
SB12	599+05.6'SB'	48.3'	LT	G
SB13	599+15.7'SB'	61.0'	LT	G
SB14	599+20.0'SB'	71.7'	LT	LB-8*
SB15	600+12.8'SB'	69.7'	LT	13
SB16	600+25.2'SB'	52.7'	LT	G

*BASE SHALL BE CONSTRUCTED WITH 11.5" BOLT CIRCLE

ABOVE GROUND TRAFFIC SIGNAL EQUIPMENT							
BASE I.D.	MOUNTING BASE	POLE TYPE	SIGNAL ARM	PEDESTRIAN HEAD I.D.	PEDESTRIAN BUTTON (EA)	SIGNAL HEAD I.D.	LIGHTING UNIT (EA)
SB1	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	NONE	6,8	1
SB2	PEDESTAL BASE	15-FT STD.	NONE	NONE	NONE	7,12,24	NONE
SB3	PEDESTAL BASE	15-FT STD.	NONE	NONE	NONE	25	NONE
SB4	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	6D	1	23	1
SB5	PEDESTAL BASE	10-FT STD.	NONE	6C	1	NONE	NONE
SB6	NONE	TYPE 13 POLE	50-FT MONOTUBE ARM	NONE	NONE	2,3,4,20	1
SB7	PEDESTAL BASE	10-FT STD.	NONE	6B	1	NONE	NONE
SB8	NONE	TYPE 13 POLE	45-FT MONOTUBE ARM	4D,6A	1	16,17,18,19	1
SB9	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	1	1	1
SB10	NONE	TYPE 9 POLE	15-FT MONOTUBE ARM	4B,4C	1	5,13,14	NONE
SB11	NONE	TYPE 13 POLE	45-FT MONTOUBE ARM	2B	NONE	9,10,11	1
SB12	PEDESTAL BASE	35-FT STD.	NONE	NONE	1	NONE	NONE
SB13	PEDESTAL BASE	10-FT STD.	NONE	4A	1	NONE	NONE
SB14	TRANSFORMER BASE	30-FT SIGNAL POLE	NONE	NONE	NONE	15,26	1
SB15	NONE	TYPE 13 POLE	45-FT MONTOUBE ARM	NONE	NONE	21,22,27	1
SB16	PEDESTAL BASE	10-FT STD.	NONE	2A	1	NONE	NONE

TRAFFIC SIGNAL LOOP DETECTORS				
LOOP I.D.	STATION	OFFSET		INSTALLATION METHOD
11	598+96.0'NB'	6.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
12	599+26.0'NB'	6.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
21	602+97.3'SB'	6.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
22	602+97.3'SB'	18.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
23	602+97.3'SB'	29.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
24	600+54.4'SB'	5.7'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
25	600+54.6'SB'	17.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
26	600+54.9'SB'	33.7'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
31	600+64.2'NB'	90.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
32	600+73.5'NB'	85.2'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
33	600+06.2'NB'	86.4'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
34	601+18.5'NB'	88.7'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
35	600+50.3'NB'	63.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
36	600+59.6'NB'	58.6'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
37	601+03.2'NB'	56.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
38	601+24.2'NB'	60.0'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
41	599+49.0'SB'	90.6'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
42	599+38.2'SB'	90.2'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
43	599+25.9'SB'	89.8'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
44	599+62.6'SB'	63.9'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
45	599+51.3'SB'	63.4'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
46	599+39.2'SB'	63.0'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
47	599+47.1'SB'	41.4'	LT	BICYCLE DETECTION LOOP
S1	601+24.3'SB'	16.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
S2	601+24.3'SB'	5.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
S3	600+94.1'SB'	16.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
S4	600+94.3'SB'	5.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
61	596+90.4'NB'	5.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
62	596+90.4'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
63	596+90.4'NB'	26.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
64	599+30.8'NB'	5.0'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
65	599+35.5'NB'	15.5'	RT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
66	599+40.4'NB'	26.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB1	602+39.5'NB'	7.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB2	602+39.5'NB'	18.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
NB3	602+39.5'NB'	29.5'	RT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
SB1	598+44.6'SB'	5.0'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB2	598+44.6'SB'	15.5'	LT	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
SB3	598+44.6'SB'	26.5'	LT	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)

PAGE 3 OF 5

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & GREENWAY CROSS

Project No:	19-3488
Date:	OCT 2019
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Drafted By:	JMB
Checked By:	MJR

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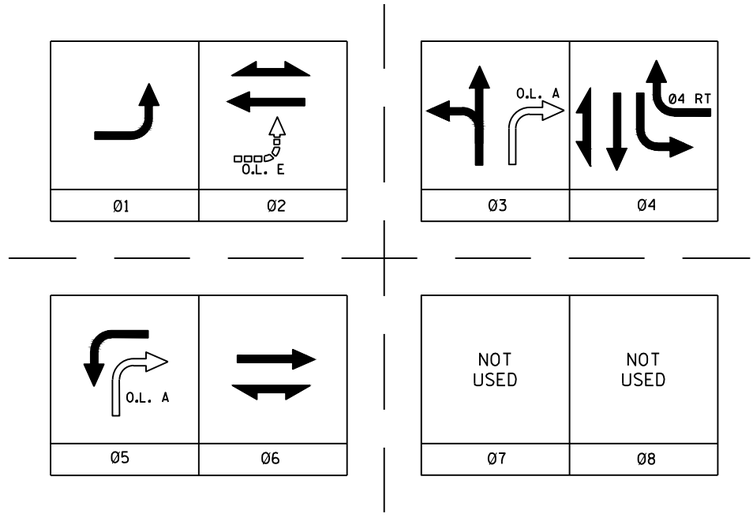
28 OF 30

	HEAD NUMBERS	FLASH
Ø1	5-7	R
Ø2	8-11	R
Ø3	20-22,26,27	R/R
Ø4	8,11,15-19	R/R
Ø5	12-14	R
Ø6	1-4	R
Ø7		
Ø8		
Ø2 PED	2A,2B	
Ø4 PED	4A,4B,4C,4D	
Ø6 PED	6A,6B,6C,6D	

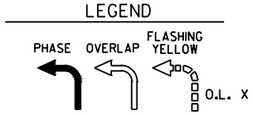
			O.L. ASSIGNMENTS
O.L. A	23-25	R	Ø3,Ø5
O.L. E	5-7	-	Ø2



GENERAL NOTES

1. PHASE 3 SHALL TIME FOLLOWING PHASE 4.

LEGEND



PREEMPTION ASSIGNMENTS

PREEMPTION DESIGNATION	PREEMPTION TYPE	EVP CHANNEL	PHASE(S) CALLED	PREEMPTED APPROACH
1	RESERVED			
2	RESERVED			
3	EVP	A	1&6	NB
4	EVP	B	2&5	SB
5	EVP	C	4	EB
6	EVP	D	3	WB
7	NOT USED			
8	NOT USED			
9	NOT USED			
10	NOT USED			

EVP NOTES:

1. AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6. AFTER PREEMPTION SEQUENCE C CONTROLLER SHALL RETURN TO PHASE 4. AFTER PREEMPTION SEQUENCE D CONTROLLER SHALL RETURN TO PHASE 3.
2. FLASHING LEFT ARROW OVERLAPS SHALL BE OMITTED DURING ALL PREEMPTION SEQUENCES.

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W/Ø	PHASE RECALL	PHASE ACTIVE
1				X
2	X	6	MIN	X
3				X
4				X
5				X
6	X	2	MIN	X
7				
8				

TYPE OF REMOTE COMMUNICATION	
NONE	
FIBER	X
CELL MODEM	
PHONE	

TYPE OF INTERCONNECT	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR	
CLOSED LOOP FIBER OPTIC	X
RADIO	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC SIGNAL CABINET	X
IN SEPARATE CITY LIGHTING CABINET	X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	35	33	39	37	43	41	47	45	DETECTOR INPUT
DETECTOR #(S)	12	24	25	26	35	36	37	38	44	45	46	53	54	64	65	66	SB1	SB2	SB3						DETECTOR #(S)
PHASE CALLED		2	2	2	3	3	3	3	4	4	4	5	5	6	6	6									PHASE CALLED
PHASE EXTENDED	1	2	2	2	3	3	3	3	4	4	4	5	5	6	6	6									PHASE EXTENDED
DISCONNECT TIME																									DISCONNECT TIME
CALLING DELAY								10																	CALLING DELAY
EXTENSION STRETCH																									EXTENSION STRETCH
LOOP FUNCTION																	SYS	SYS	SYS						LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	38	34	40	38	44	42	46	48	DETECTOR INPUT
DETECTOR #(S)	11	21	22	23	31	32	33	34	41	42	43	51	52	61	62	63	NB1	NB2	NB3						DETECTOR #(S)
PHASE CALLED	1	2	2	2	3	3	3	3	4	4	4	5	5	6	6	6									PHASE CALLED
PHASE EXTENDED	1	2	2	2	3	3	3	3	4	4	4	5	5	6	6	6									PHASE EXTENDED
DISCONNECT TIME																									DISCONNECT TIME
CALLING DELAY								10																	CALLING DELAY
EXTENSION STRETCH																									EXTENSION STRETCH
LOOP FUNCTION																	SYS	SYS	SYS						LOOP FUNCTION

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PLOT BY : NATHAN GREUEL
PLOT DATE : 10/28/2019 2:05 PM

PROJECT NO:	19-3488
INTERSECTION:	FISH HATCHERY RD & GREENWAY CROSS

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE:	Oct-19

CB1 TO	AWG 14	HEAD NO.	PHASE	SIGNAL INDICATION WIRE COLOR									PED	OTHER
				RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	DWALK	WALK		
SB1	1S	6	1/O.L. E				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		8	2/4	RED	ORG	GRN		BLU/BLK		BLU				
SB2	1S	7	1/O.L. E				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		12	S				RED	ORG		GRN				
		24	O.L. A				RED/WHT	BLU/WHT		GRN/WHT				
SB3	9	2S	O.L. A				RED	ORG		GRN				
SB4	9	6D	6								BLK	BLU		
		BUTTON	6										WHT/BLK	
		23	O.L. A				RED	ORG		GRN				
SBS	9	6C	6								BLK	BLU		
		BUTTON	6										WHT/BLK	
SB6	12	2	6	RED	ORG	GRN								
		3	6	RED	ORG	GRN								
		4	6	RED	ORG	GRN								
		20	3	RED/BLK	ORG/BLK	GRN/BLK								
SB7	9	6B	6								BLK	BLU		
		BUTTON	6										WHT/BLK	
		BUTTON	3										GRN	
SB8	1S	16	4	RED	ORG	GRN								
		17	4	RED	ORG	GRN								
		18	4				RED/BLK	ORG/BLK	BLK/WHT					
		19	4				RED/BLK	ORG/BLK	BLK/WHT					
		4D	4								RED/WHT	GRN/WHT		
		6A	6								BLK	BLU		
		BUTTON	6										WHT/BLK	
SB9	9	1	6	RED	ORG	GRN								
		BUTTON	4										WHT/BLK	
SB10	15	5	1/O.L. E				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK				
		13	S				RED	ORG		GRN				
		14	S				RED	ORG		GRN				
		4B	4								RED/WHT	GRN/WHT		
		4C	4								BLK	BLU		
		BUTTON	4										WHT/BLK	
SB11	12	9	2	RED	ORG	GRN								
		10	2	RED	ORG	GRN								
		11	2/4	RED	ORG	GRN		ORG/BLK		GRN/BLK				
		2B	2								BLK	BLU		
SB12	9	BUTTON	4										WHT/BLK	
SB13	9	4A	4								BLK	BLU		
		BUTTON	2										WHT/BLK	
SB14	12	1S	4	RED	ORG	GRN								
		26	3				RED/BLK	ORG/BLK		GRN/BLK				
SB1S	12	21	3	RED	ORG	GRN								
		22	3	RED	ORG	GRN								
		27	3				RED/BLK	ORG/BLK		GRN/BLK				
SB16	9	2A	2								BLK	BLU		
		BUTTON	2										WHT/BLK	

EQUIPMENT GROUNDING	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SBS
SB5	SB7
SB7	SB6
SB6	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	SB13
SB13	SB14
SB14	SB1S
SB1S	SB16
SB16	CB1

TRAFFIC SIGNAL EVP DETECTOR CABLE		
HEAD	FROM	TO
A	CB1	SB6
B	CB1	SB11
C	CB1	SB8
D	CB1	SB1S

LIGHTING UF 10 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB4
SB4	SB6
SB6	SB8
SB8	SB9
CB1	SB1S
SB1S	SB14
SB14	SB11

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CITY OF FITCHBURG

TRAFFIC SIGNAL PLAN
FISH HATCHERY RD & GREENWAY CROSS

Project No:	19-3488
Date:	OCT 2019
Designed By:	KCW
Drafted By:	JMB
Checked By:	MJR

Revisions:

SHEET NO.

30 OF 30

PLOT DATE : 10/28/2019 2:05 PM
PLOT BY : NATHAN GREUEL
FILE NAME : G:\FITCHBRG\18013-000\CIVIL3D\SHEETS\PLAN\TRAFFIC SIGNALS\PERMANENT\GREENWAY CROSS\KL_FHR_SIG_PROP - GREENWAY CROSS.DWG