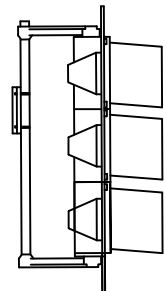
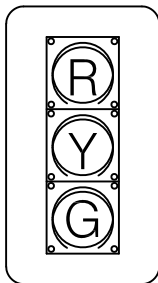
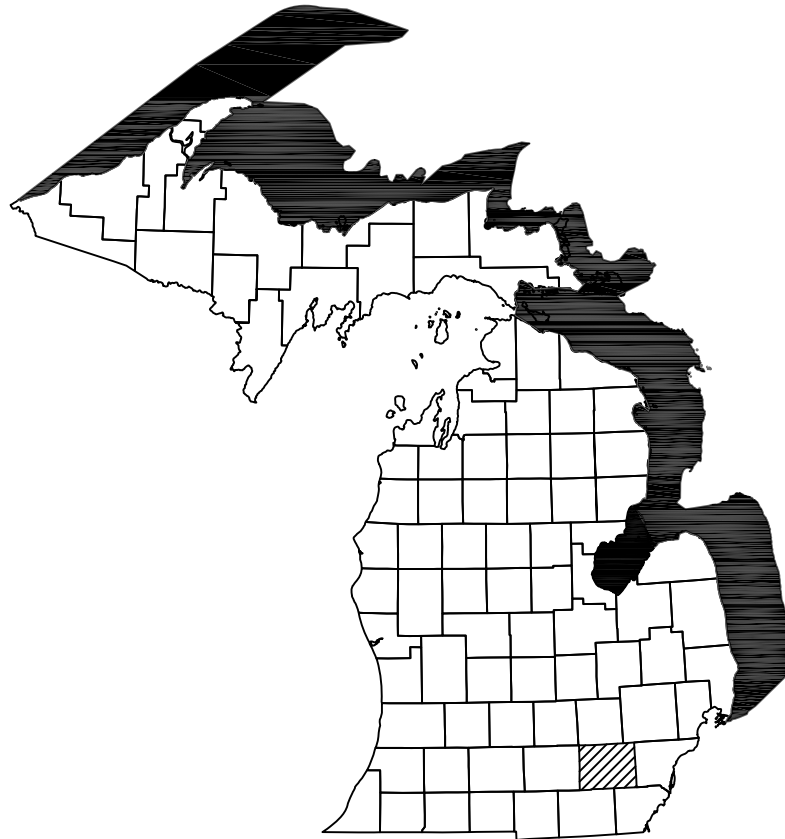
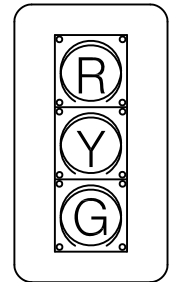
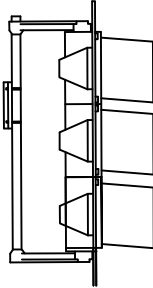



# WASHTENAW COUNTY ROAD COMMISSION TRAFFIC SIGNAL DETAILS



## SHEETS INDEX

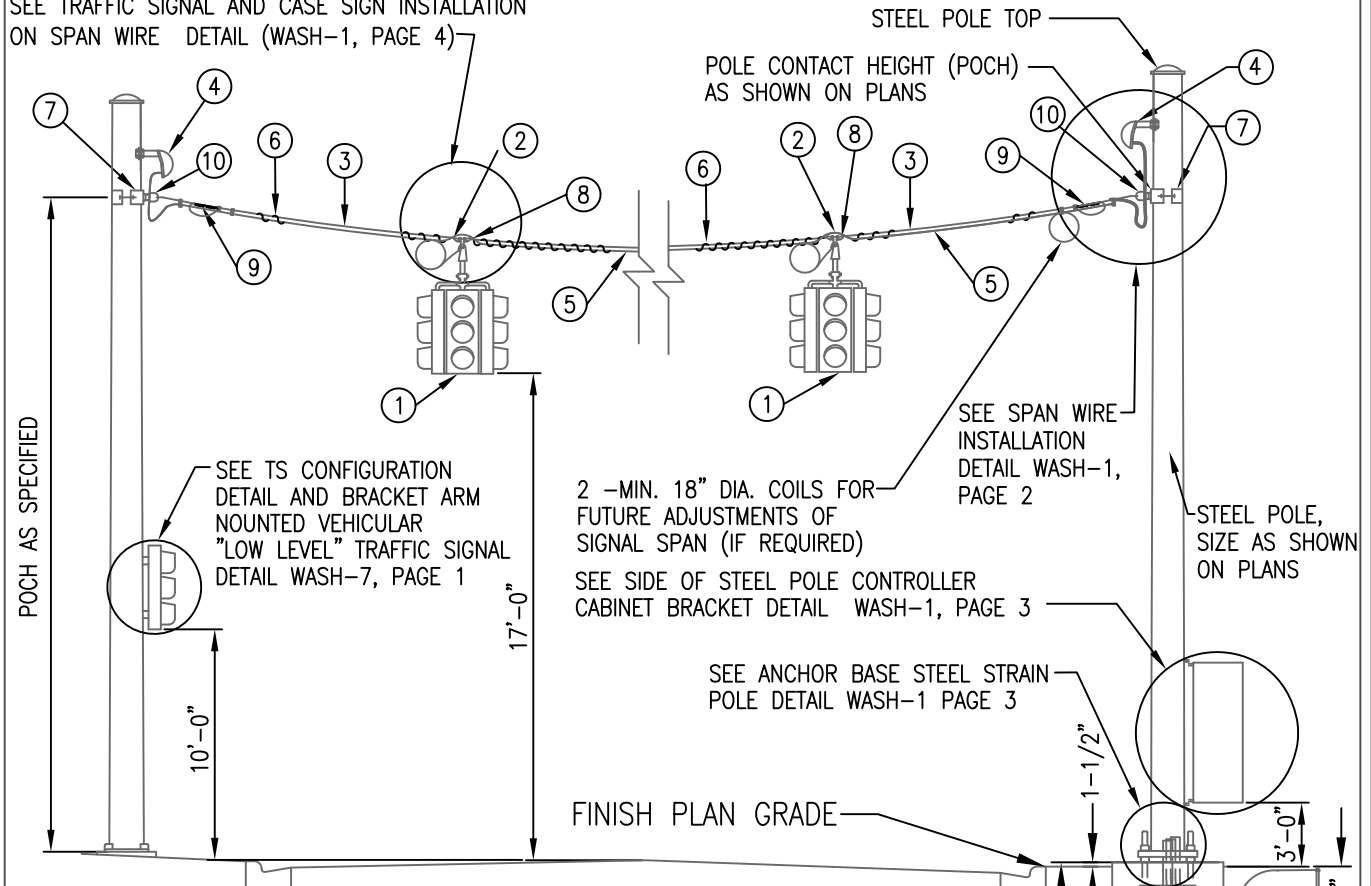
- COVER SHEET (THIS SHEET)
- WASH TSN - TRAFFIC SIGNAL NOTES (1 PAGE)
- WASH 1 - SPAN WIRE TRAFFIC SIGNAL INSTALLATION ON STEEL POLES (4)
- WASH 2 - SINGLE SPAN WIRE TRAFFIC SIGNAL INSTALLATION ON WOOD POLES (2)
- WASH 3 - SECONDARY SERVICE WOOD POLE WITH DISCONNECT BOX (1)
- WASH 4 - SINGLE (DOUBLE) TRAFFIC SIGNAL TO WOOD POLE FIT UP (1)
- WASH 5 - DOUBLE SPAN WIRE TRAFFIC SIGNAL ON WOOD POLES (2)
- WASH 6 - FLASHING BEACON SINGLE SPAN WIRE ON WOOD POLES (2)
- WASH 7 - TRAFFIC SIGNAL ANTENNA & CAMERA MOUNTING (2)
- WASH 8 - TERMINAL BLOCK WIRING CONNECTIONS (Color Coded) OF THE PEDESTRIAN AND VEHICULAR TRAFFIC SIGNAL (2)
- WASH 9 - PHASING DIAGRAM (1)
- WASH 10 - BASE MOUNTED TRAFFIC SIGNAL CONTROLLER FOUNDATION & CABINET/ SIDE OF POLE SIGNAL/DIGITAL LOOP DETECTOR/CONTROLLER CABINET (4)
- WASH 11 - TEMPORARY TRAFFIC SIGNAL CONTROLLER CABINET (1)
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- WASH 13 - TRAFFIC SIGNAL HANDHOLE (1)
- WASH 14 - CONDUIT TRENCH (1)
- WASH 15 - TRAFFIC SIGNAL LOOP (SAWCUT) (1)
- WASH 16 - TRAFFIC SIGNAL MAST ARM STANDARD & ARM DETAILS CATEGORY III (5)
- WASH 17 - MAST ARM FOUNDATION (4)
- WASH 18 - PEDESTRIAN PEDESTAL, FOUNDATION & BRACKETING (2)
- WASH 19 - RRFB WITH MAST ARM STD & PEDESTRIAN PEDESTAL
- WASH 20 - UNINTERRUPTIBLE POWER SUPPLY STANDARD WIRING DIAGRAM

APPROVED BY B.M.S.		
PLAN DATE: 11-25-2015	COVER SHEET	1 OF 1
MOST RECENT DETAIL UPDATE: FEBRUARY, 2019 WASH-1 TO 20		
		555 N. ZEEB RD. ANN ARBOR, MI 48103-1556 734-761-1500 Fax 734-761-3737

# SPAN WIRE TRAFFIC SIGNAL INSTALLATION TO STEEL POLES

NO SCALE

SEE TRAFFIC SIGNAL AND CASE SIGN INSTALLATION  
ON SPAN WIRE DETAIL (WASH-1, PAGE 4)



No.	ITEM
1.	TRAFFIC SIGNAL HEADS (No. & TYPE AS INDICATED)
2.	SPAN WIRE HANGER
3.	*5/16" EXTRA HIGH STRENGTH SPAN WIRE
4.	3" SERVICE CAP (WEATHER HEAD)
5.	P.J. TRAFFIC SIGNAL CABLE(S) (AS SPECIFIED)
6.	PREFORMED LASHING RODS
7.	SPAN WIRE CLAMP
8.	INSTALL SPAN WIRE PREFORMED (ARMOR ROD) UNDER EACH SPAN HANGER
9.	WIRE CLIPS OR PREFORMED GUY GRIP DEAD ENDS
10.	CARRIAGE BOLT, OVAL EYE NUT AND THIMBLE

## NOTES:

\* DIFFERENCE IN ELEVATIONS BETWEEN THE CENTER OF RED SIGNAL LENSES MUST BE LESS THAN SIX (6) INCHES.

\* DIFFERENT SIGNAL ARRANGEMENTS, SUCH AS FIVE SEPERATE HEADS W/CASE SIGN, MAY BE REQUIRED.  
SEE PLAN DETAILS FOR SPECIFIC ARRANGEMENTS.

\* ALL TRAFFIC SIGNAL INSTALLATION SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, OR AS DIRECTED BY THE ENGINEER.

\* ALL GROUNDS SHALL PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND

1-1/2" & 2-3" CONDUIT 90° SWEEP ON 36" RADIUS

ANCHOR BOLTS (TYPICAL)  
SEE DETAIL WASH-17

35S CONCRETE

BOLT TIE ROD (TYPICAL)  
SEE DETAIL WASH-17

ANCHORE BOLTS WITHIN  
3" TO 12" OF BOTTOM

3/4" X 10'-0"  
COPPER CLAD  
GROUND ROD(S)



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	FEB '10
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

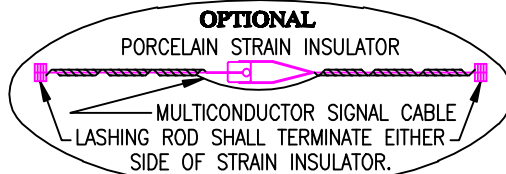
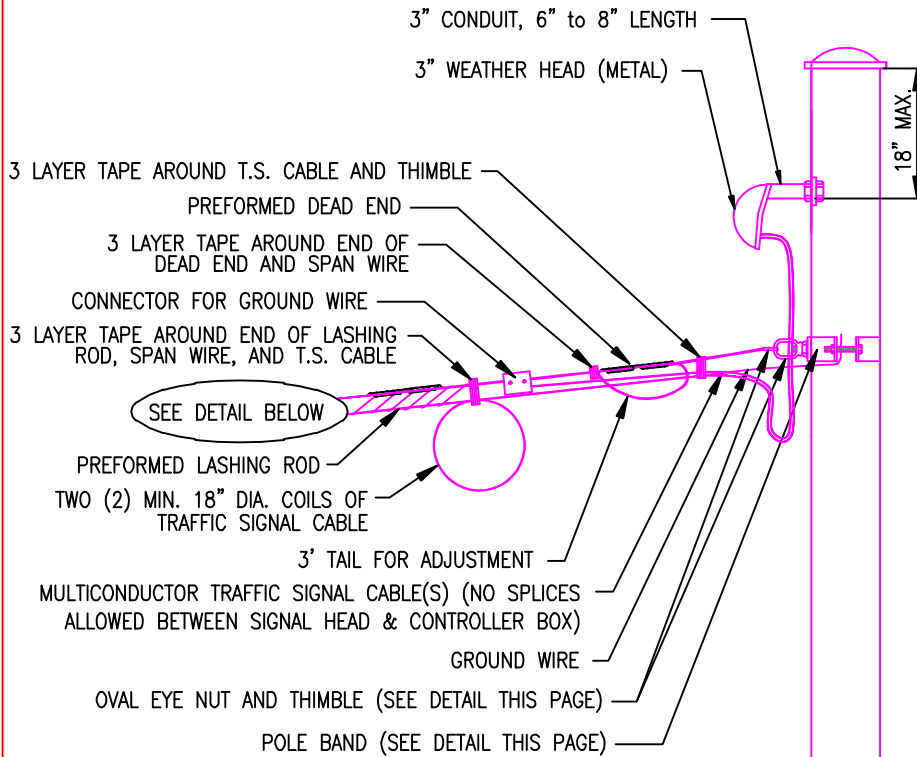
## SPAN WIRE TRAFFIC SIGNAL INSTALLATION TO STEEL POLES

PLAN DATE: 09-06-2006

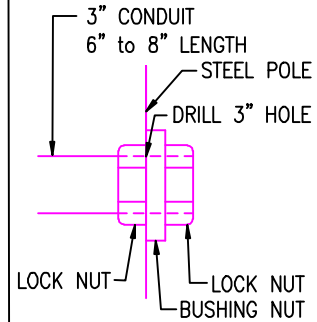
WASH-1

1 OF 4

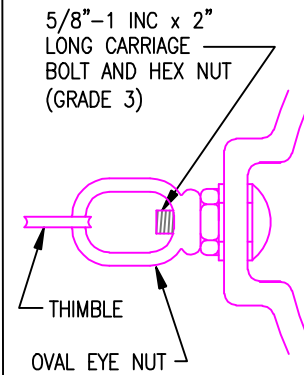
# **SPAN WIRE TRAFFIC SIGNAL AND WEATHER HEAD INSTALLATION TO STEEL POLES**



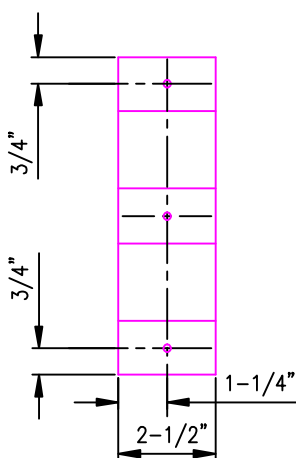
## **NO SCALE WEATHER HEAD CONDUIT MOUNTED TO POLE**



## **NO SCALE OVAL EYE NUT AND THIMBLE DETAIL**

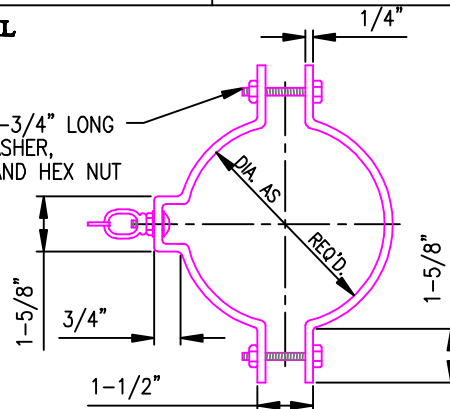


## **POLE BAND DETAIL (ASTM A36 STEEL)**



**ELEVATION**

TWO (2) 5/8"–1 INC x 2–3/4" LONG  
HEX HEAD BOLT, LOCK WASHER,  
FLAT WASHER AS REQ'D, AND HEX NUT  
(A325 GALVANIZED)



**PLAN**



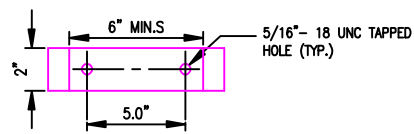
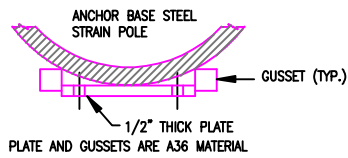
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734-761-1500  
Fax 734-761-3239

	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	FEB. '10
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

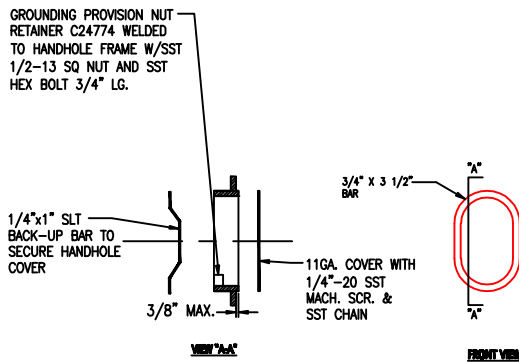
## **SPAN WIRE TRAFFIC SIGNAL AND WEATHER HEAD INSTALLATION TO STEEL POLES**

PLAN DATE: 08 29, 2006      WASH-1      2 OF 4

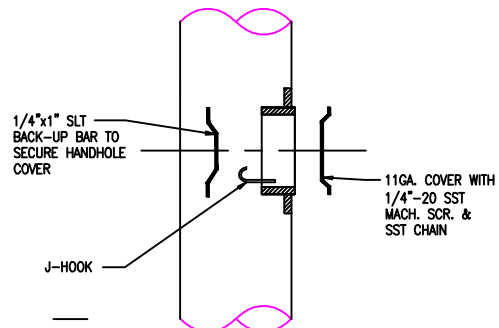
SPAN WIRE STEEL POLE HANDHOLE, CABINET BRACKET & POLE BASE DETAILS  
NO SCALE



**CABINET MOUNTING BRACKET DETAIL C**

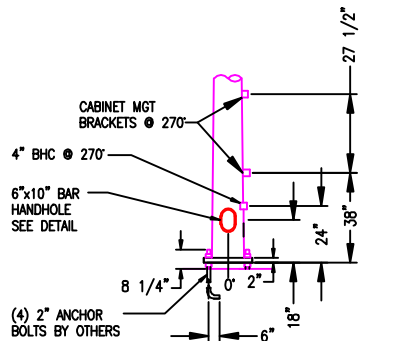


**6\"/>**

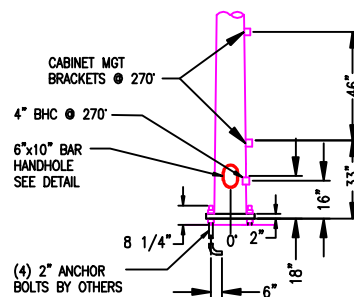


**4\"/>**

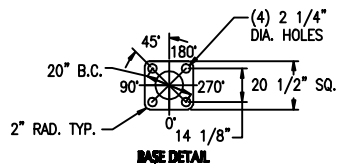
**DETAIL C**



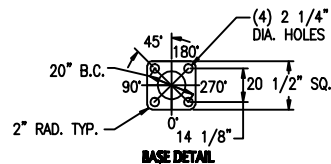
**BASE DETAIL WITH DETECTOR CABINET**



**BASE DETAIL WITH CONTROLLER CABINET**



**BASE DETAIL**



**BASE DETAIL**



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REVISED BY	J.S.W.	FEB. '10
CHECKED BY	N.N.H.	JULY '07
APPROVED BY	B.M.S.	JULY '07

**TRAFFIC SIGNAL AND CASE SIGN  
INSTALLATION ON SPAN WIRE**

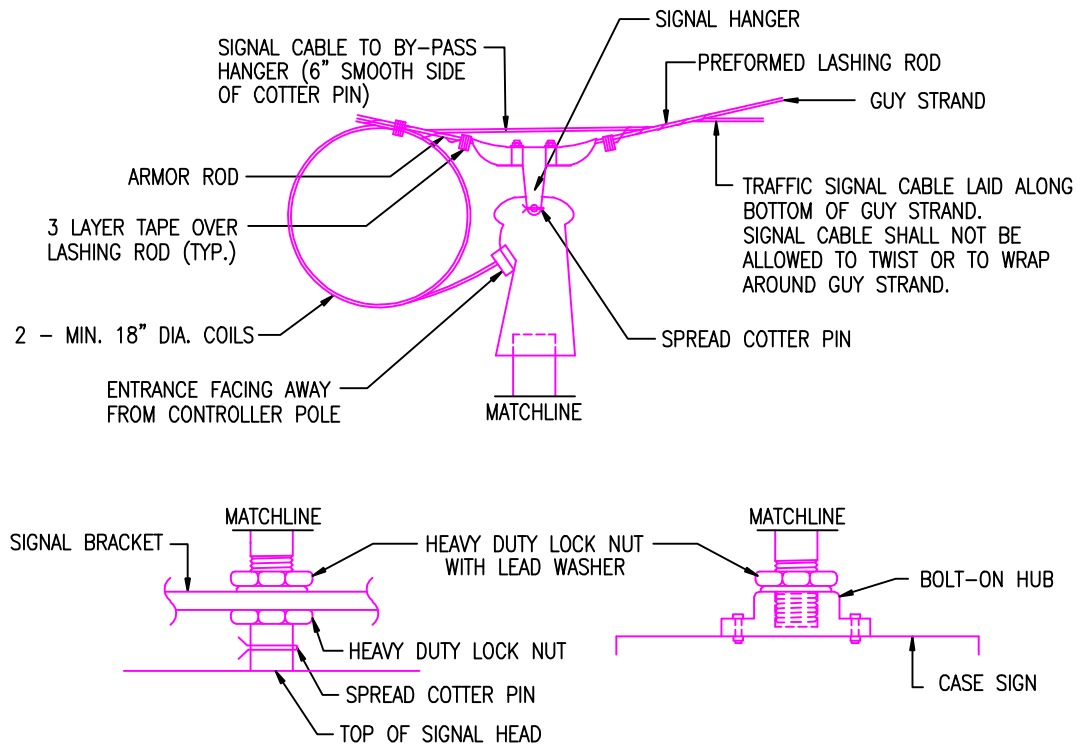
PLAN DATE: 07 27, 2007

WASH-1

3 OF 4

# TRAFFIC SIGNAL AND CASE SIGN INSTALLATION ON SPAN WIRE DETAIL

NO SCALE



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REVISED BY	J.S.W.	JAN. '09
CHECKED BY	N.N.H.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## TRAFFIC SIGNAL AND CASE SIGN INSTALLATION ON SPAN WIRE

PLAN DATE: 07 27, 2007

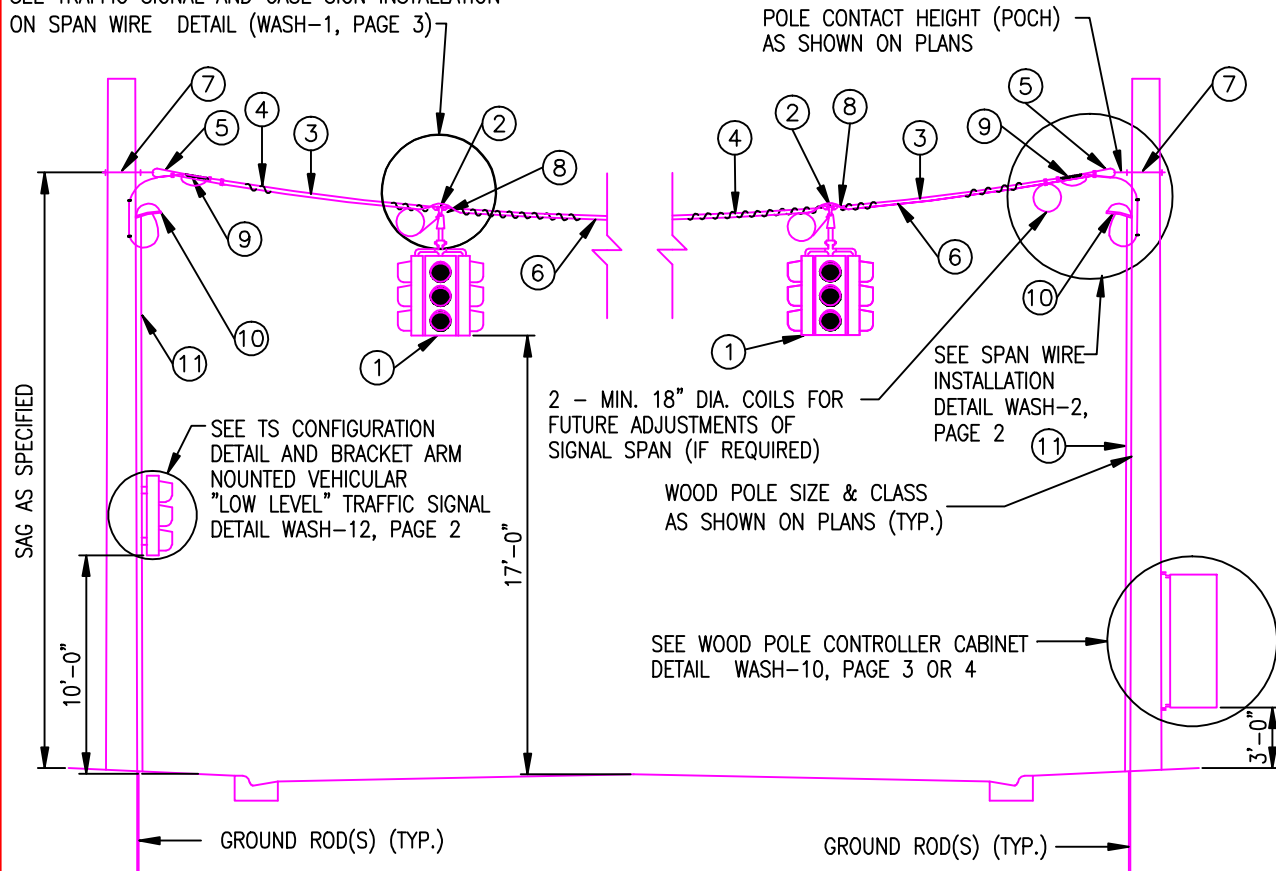
WASH-1

4 OF 4

# SPAN WIRE TRAFFIC SIGNAL INSTALLATION ON WOOD POLES

NO SCALE

SEE TRAFFIC SIGNAL AND CASE SIGN INSTALLATION  
ON SPAN WIRE DETAIL (WASH-1, PAGE 3)



No.	ITEM
1.	TRAFFIC SIGNAL HEADS (No. & TYPE AS INDICATED)
2.	SPAN WIRE HANGER
3.	*5/16" EXTRA HIGH STRENGTH SPAN WIRE
4.	PREFORMED LASHING RODS
5.	*GUY THIMBLE
6.	P.J. TRAFFIC SIGNAL CABLE (AS SPECIFIED)
7.	*5/8" EYEBOLT
8.	INSTALL SPAN WIRE PREFORMED (ARMOR ROD) UNDER EACH SPAN HANGER
9.	*PREFORMED GUY GRIP DEAD ENDS
10.	3" SERVICE CAP (WEATHER HEAD)
11.	3" PVC (SCHEDULE 80)

\* BY POWER COMPANY

## NOTES:

- \* DIFFERENCE IN ELEVATIONS BETWEEN THE CENTER OF RED SIGNAL LENSES SHALL BE LESS THAN SIX (6) INCHES.
- \* DIFFERENT SIGNAL ARRANGEMENTS, SUCH AS FIVE SEPERATE HEADS W/CASE SIGN, MAY BE REQUIRED.  
SEE PLAN DETAILS FOR SPECIFIC ARRANGEMENTS.
- \* ALL TRAFFIC SIGNAL INSTALLATION SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL  
DEVICES, OR AS DIRECTED BY THE ENGINEER.



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DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	Jan. '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	AUG. '06

## SPAN WIRE TRAFFIC INSTALLATION ON WOOD POLES

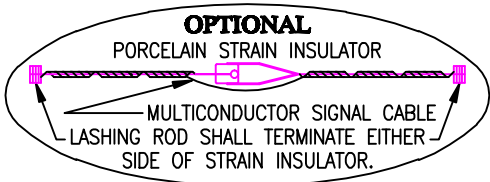
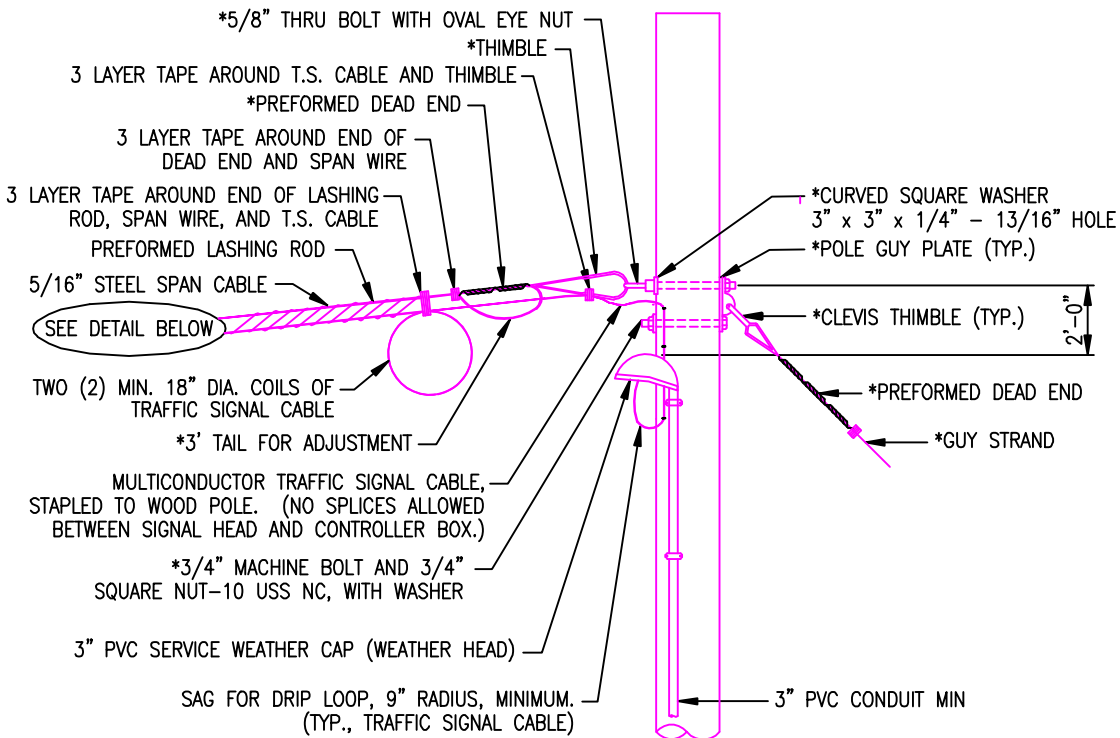
PLAN DATE: 09-06-2006

WASH-2

1 OF 2

## SPAN WIRE INSTALLATION ON WOOD POLE

NO SCALE



### NOTES:

ALL CONDUIT SHOWN SHALL BE SCHEDULE 80 PVC (POLYVINYLCHLORIDE), UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.

THERE IS NO GAP BETWEEN THE 5/16" STEEL CABLE SPAN AND THE MULTICONDUCTOR TRAFFIC SIGNAL CABLE. THE LASHING ROD MUST HOLD THE TWO TOGETHER.

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REVISED BY	J.S.W.	JAN '09
CHECKED BY	N.N.H.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## SPAN WIRE INSTALLATION ON WOOD POLE

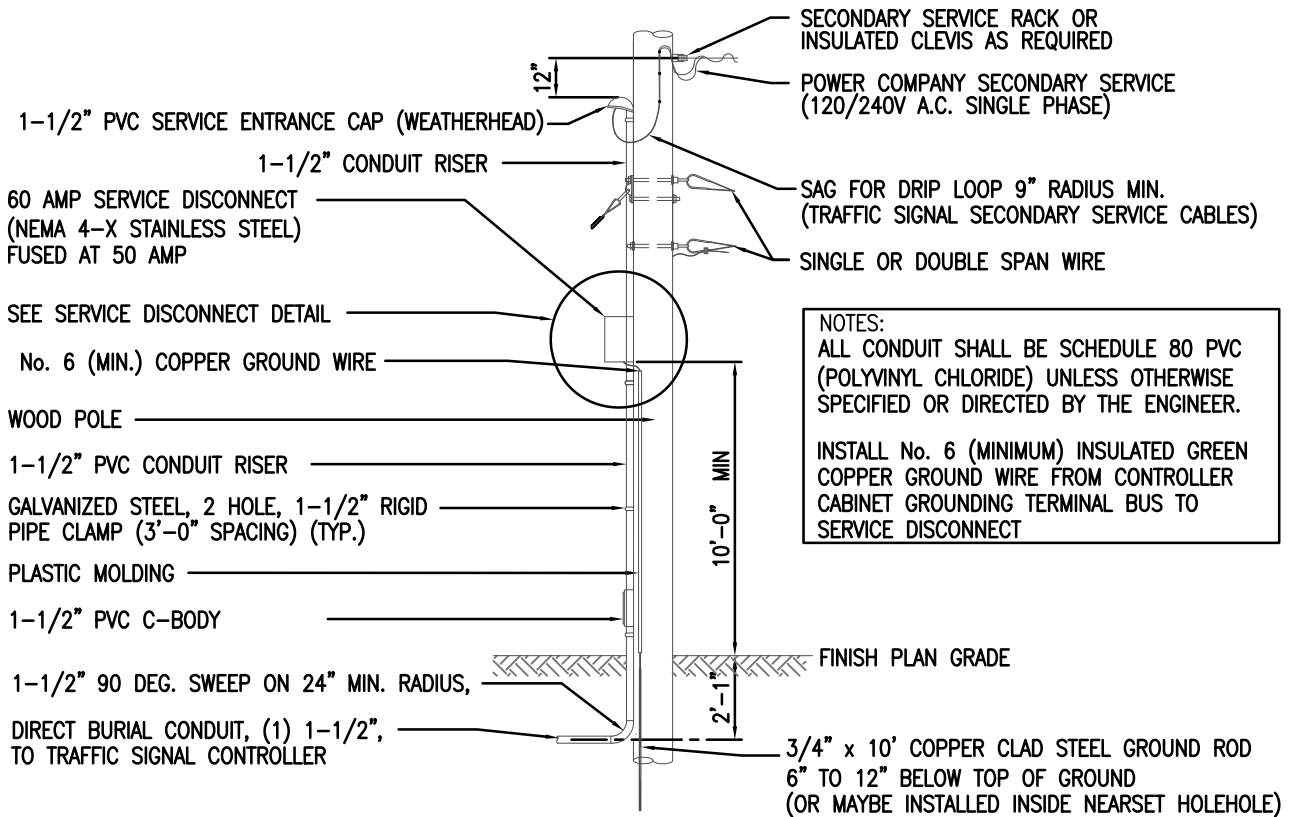
PLAN DATE: 08-29-2006

WASH-2

2 OF 2

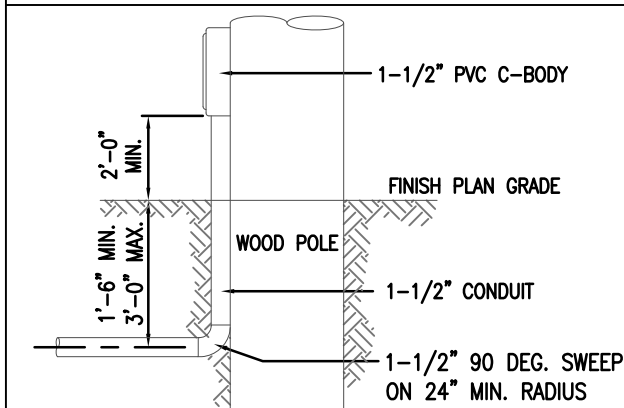
## SECONDARY SERVICE WOOD POLE WITH DISCONNECT BOX

NO SCALE



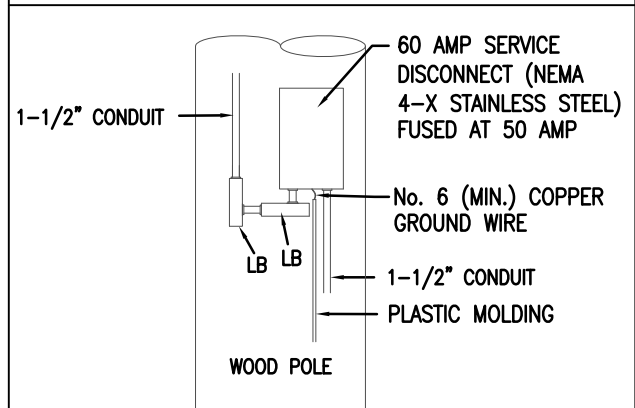
### CONDUIT AT WOOD POLE - DETAIL

NO SCALE



### SERVICE DISCONNECT - DETAIL

NO SCALE



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APPROVED BY	B.M.S.	JUNE '14

SECONDARY SERVICE WOOD POLE WITH  
DISCONNECT BOX,  
SINGLE OR DOUBLE SPAN WIRE

PLAN DATE: 09 27, 2006

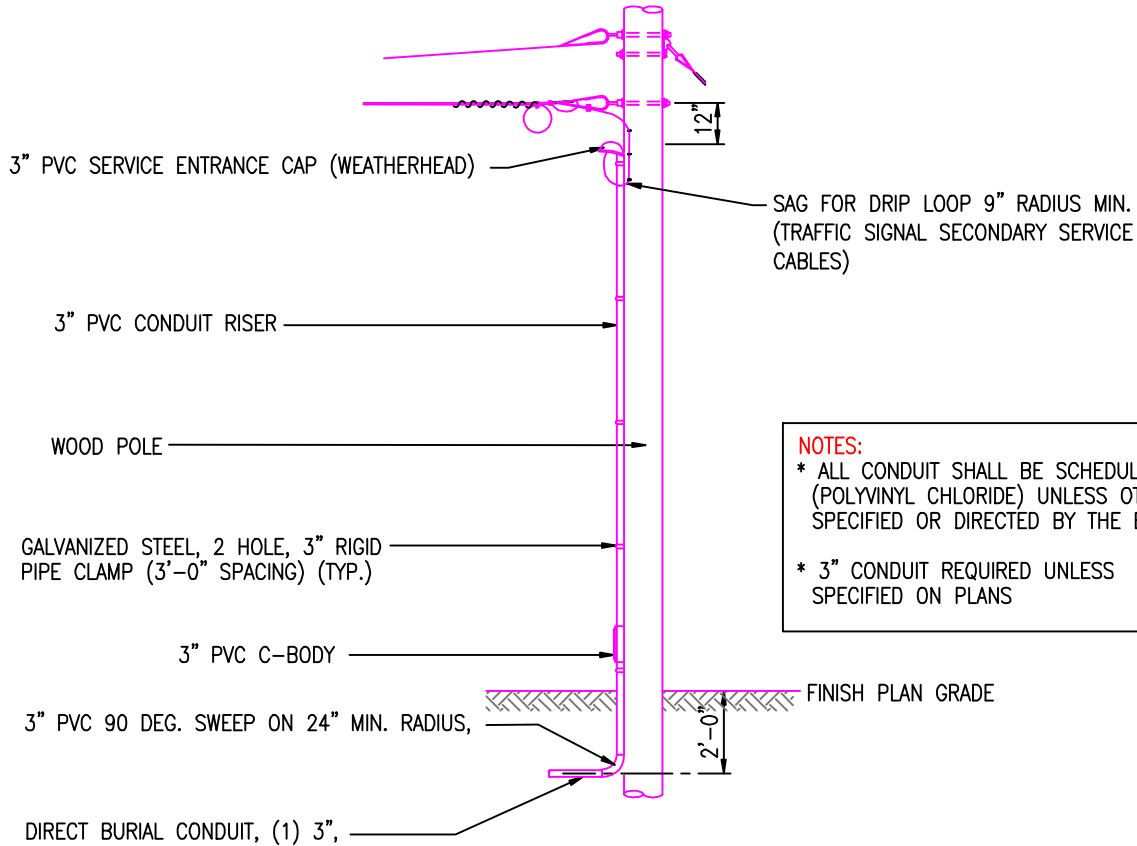
WASH-3

1 OF 1



## SINGLE OR DOUBLE SPAN TRAFFIC SIGNAL TO WOOD POLE FIT UP (DETAIL)

NO SCALE



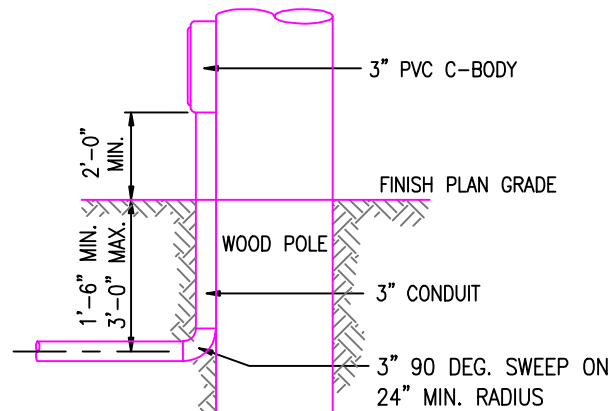
### NOTES:

\* ALL CONDUIT SHALL BE SCHEDULE 80 PVC (POLYVINYL CHLORIDE) UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.

\* 3" CONDUIT REQUIRED UNLESS SPECIFIED ON PLANS

## CONDUIT AT WOOD POLE - DETAIL

NO SCALE



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REVISED BY	J.S.W.	FEB. '09
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APPROVED BY	B.M.S.	JULY '07

## SINGLE OR DOUBLE TRAFFIC SIGNAL TO WOOD POLE FIT UP

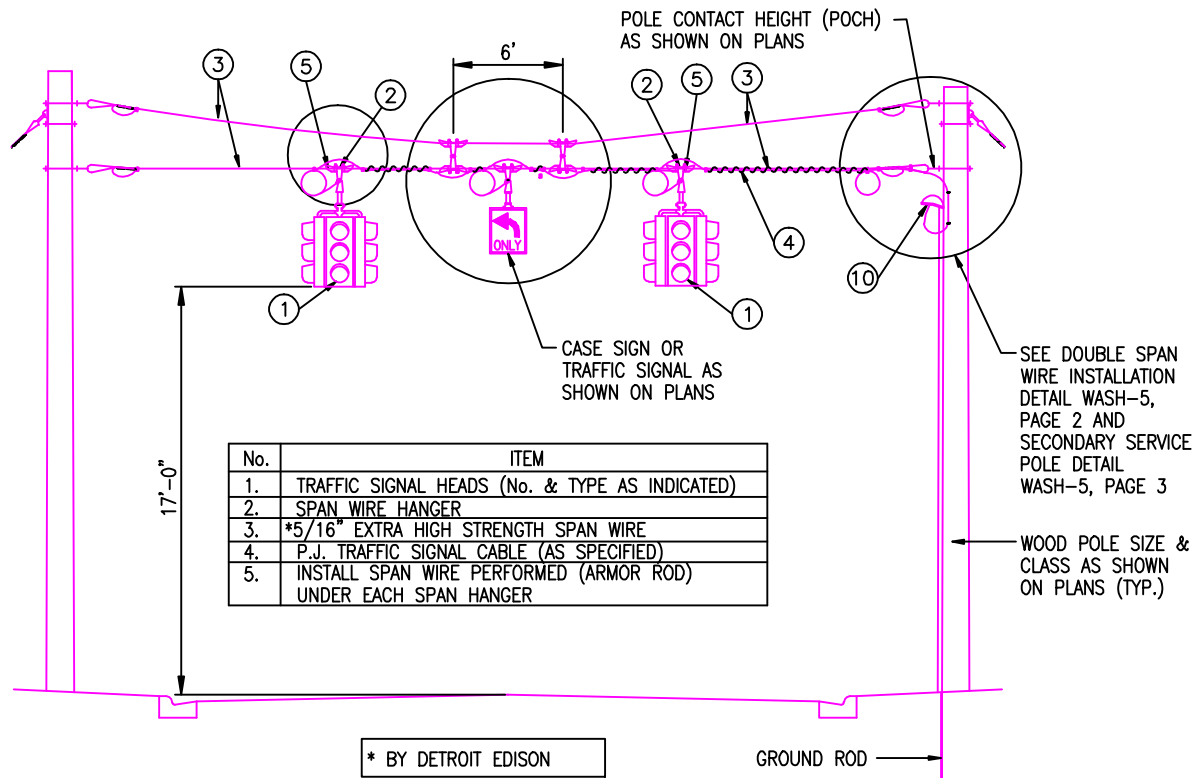
PLAN DATE: 09 27, 2006

WASH-4

1 OF 1

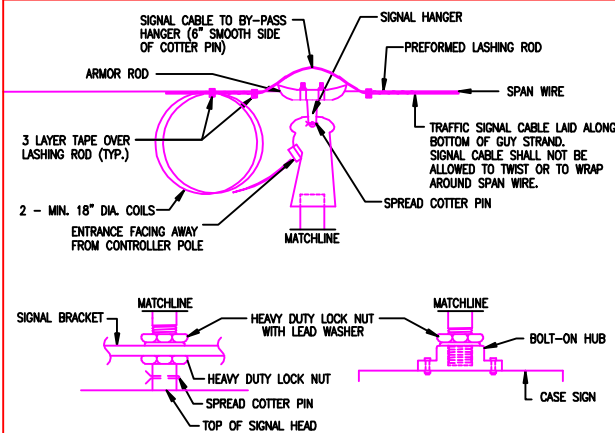
## DOUBLE SPAN WIRE TRAFFIC SIGNAL ON WOOD POLES - DETAIL

NO SCALE



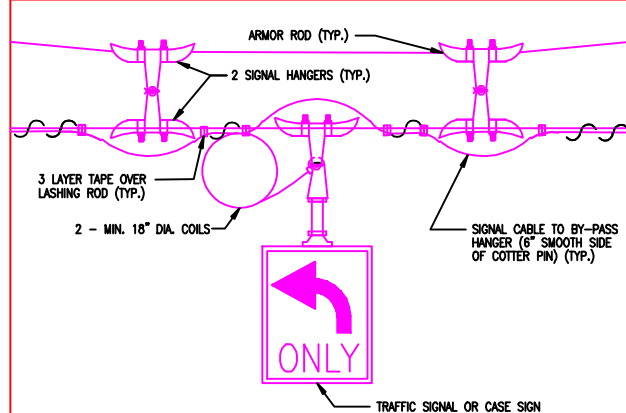
### TRAFFIC SIGNAL AND CASE SIGN INSTALLATION ON SPAN WIRE DETAIL

NO SCALE



### TRAFFIC SIGNAL AND CASE SIGN INSTALLATION ON DOUBLE SPAN WIRE DETAIL

NO SCALE



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REVISED BY	J.S.W.	FEB. '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## DOUBLE SPAN WIRE TRAFFIC SIGNAL ON WOOD POLES

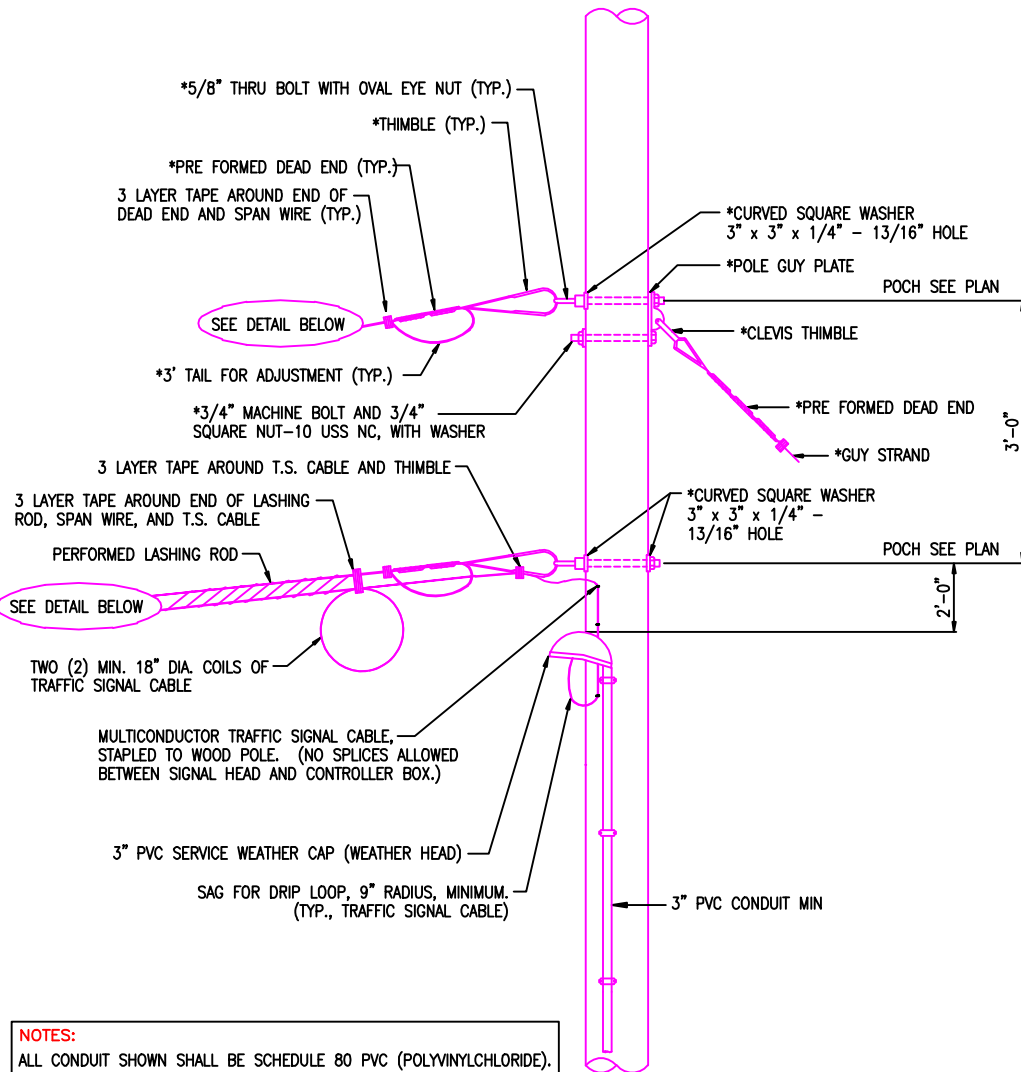
PLAN DATE: 09 27, 2006

WASH-5

1 OF 2

## DOUBLE SPAN WIRE INSTALLATION - DETAIL

NO SCALE



### NOTES:

ALL CONDUIT SHOWN SHALL BE SCHEDULE 80 PVC (POLYVINYLCHLORIDE), UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.

THERE IS NO GAP BETWEEN THE 5/16" STEEL CABLE SPAN AND THE MULTICONDUCTOR TRAFFIC SIGNAL CABLE. THE LASHING ROD MUST HOLD THE TWO TOGETHER.

\* BY POWER COMPANY

### OPTIONAL

\*PORCELAIN STRAIN INSULATOR

LASHING ROD SHALL TERMINATE EITHER SIDE OF STRAIN INSULATOR.



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REVISED BY	J.S.W.	FEB. '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## DOUBLE SPAN WIRE INSTALLATION

PLAN DATE: 09 27, 2006

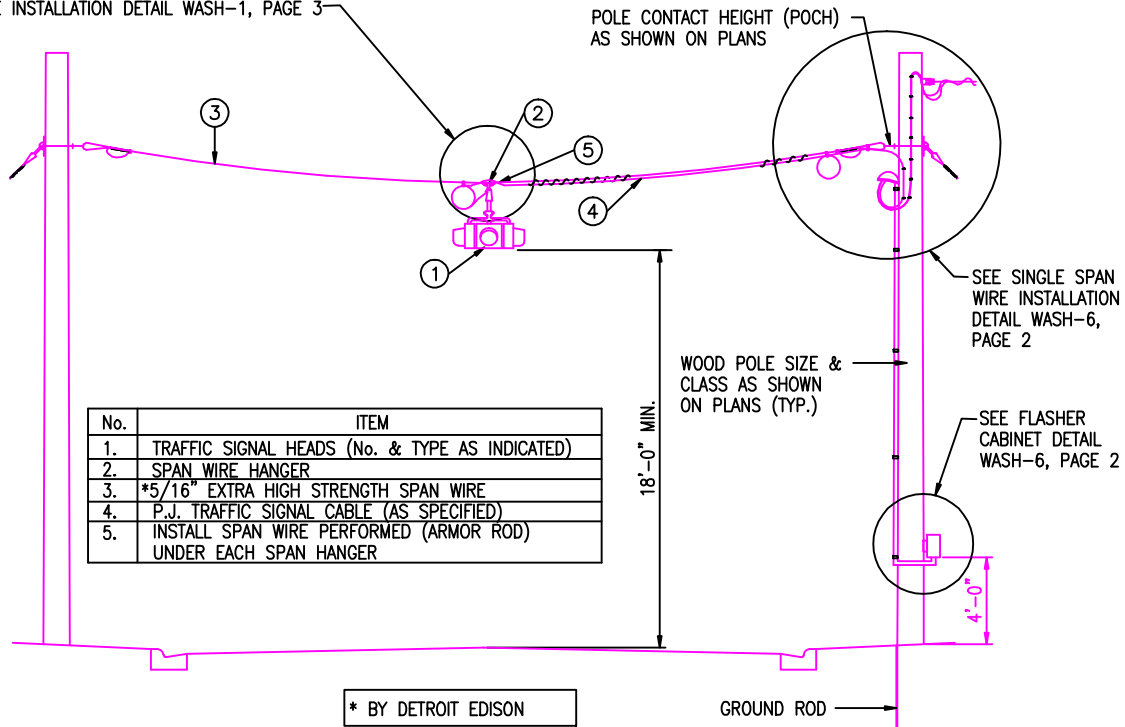
WASH-5

2 OF 2

## FLASHING BEACON ON WOOD POLES - DETAIL

NO SCALE

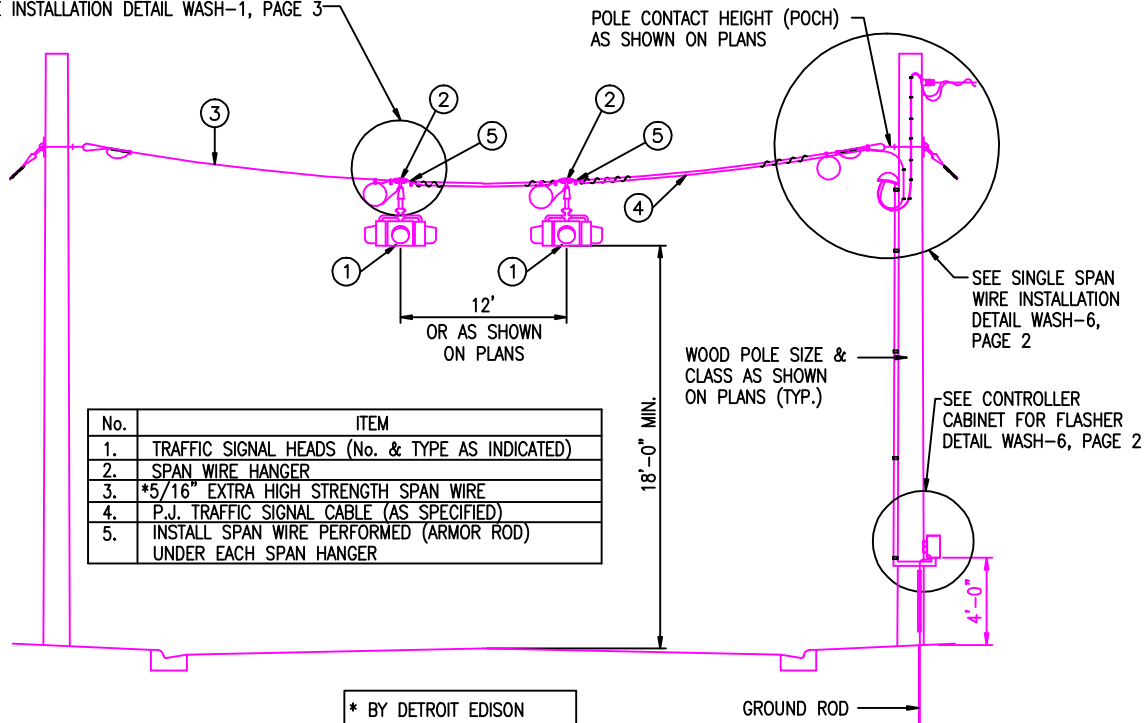
SEE INSTALLATION DETAIL WASH-1, PAGE 3



## TWO FLASHING BEACONS ON WOOD POLES - DETAIL

NO SCALE

SEE INSTALLATION DETAIL WASH-1, PAGE 3



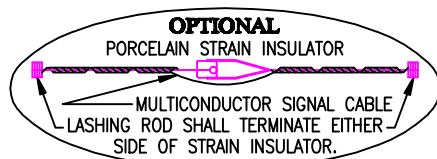
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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	FEB. '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## FLASHING BEACON INSTALLATION SINGLE SPAN WIRE ON WOOD POLES ONE SECTION TRAFFIC SIGNALS

PLAN DATE: 07 30, 2007 WASH-6 1 OF 2

NO SCALE



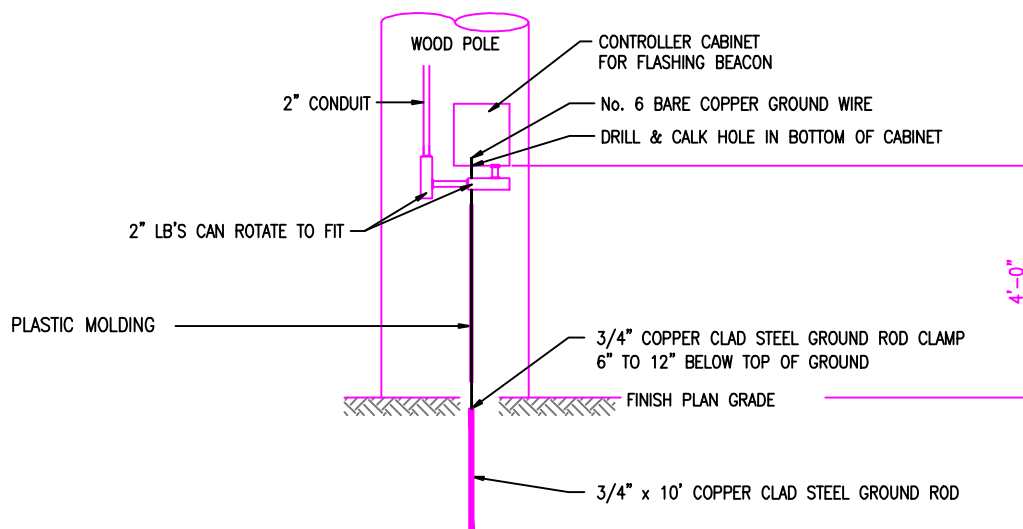
NOTES:

ALL CONDUIT SHOWN SHALL BE SCHEDULE 80 PVC (POLYVINYLCHLORIDE).  
UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.

THERE IS NO GAP BETWEEN THE 5/16" STEEL CABLE SPAN AND THE MULTICONDUCTOR TRAFFIC SIGNAL CABLE. THE LASHING ROD MUST HOLD THE TWO TOGETHER.

\* BY POWER COMPANY

NO SCALE



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	FEB. '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

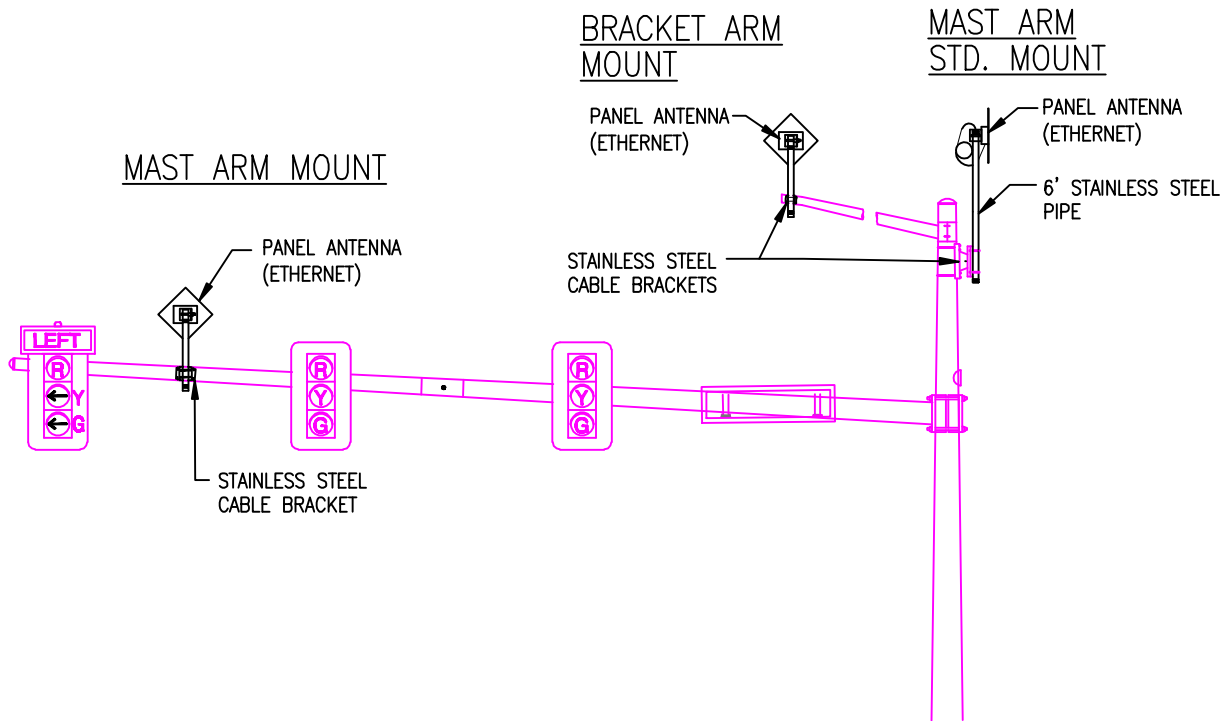
## FLASHING BEACON INSTALLATION SINGLE SPAN WIRE ON WOOD POLES CONTROLLER CABINET

PLAN DATE: 07 30, 2007

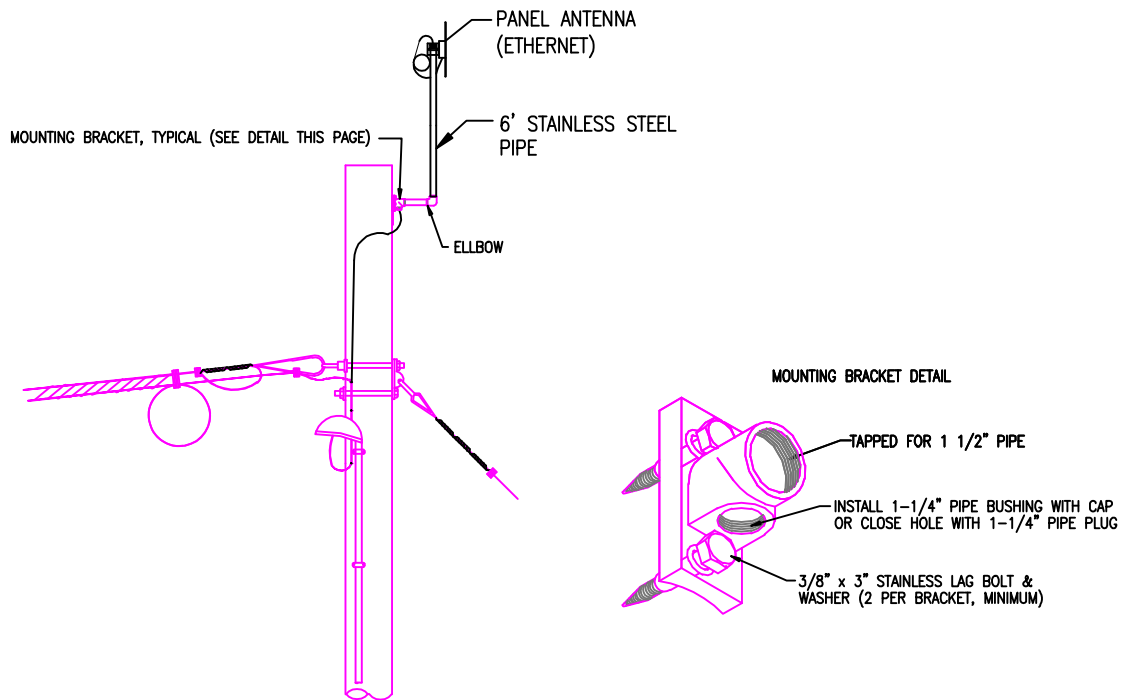
WASH-6

2 OF 2

## TRAFFIC SIGNAL STEEL POLE ANTENNA MOUNTINGS



## TRAFFIC SIGNAL WOOD POLE ANTENNA MOUNT



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DRAWN BY	J.S.W.	FEB. '10
REVISED BY		
CHECKED BY	B.M.S.	
APPROVED BY	B.M.S.	

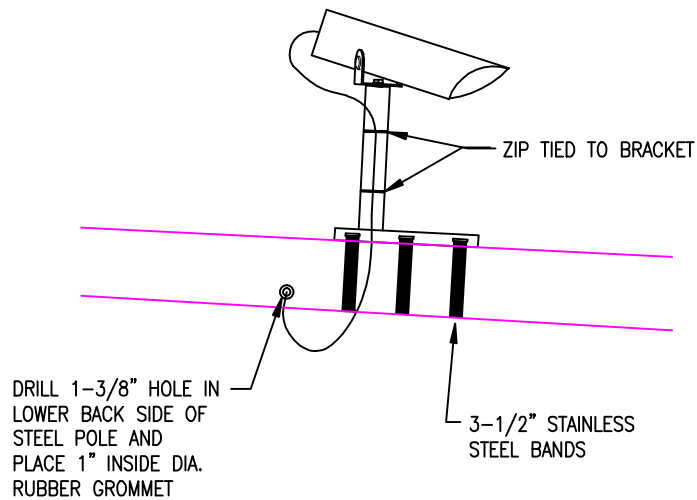
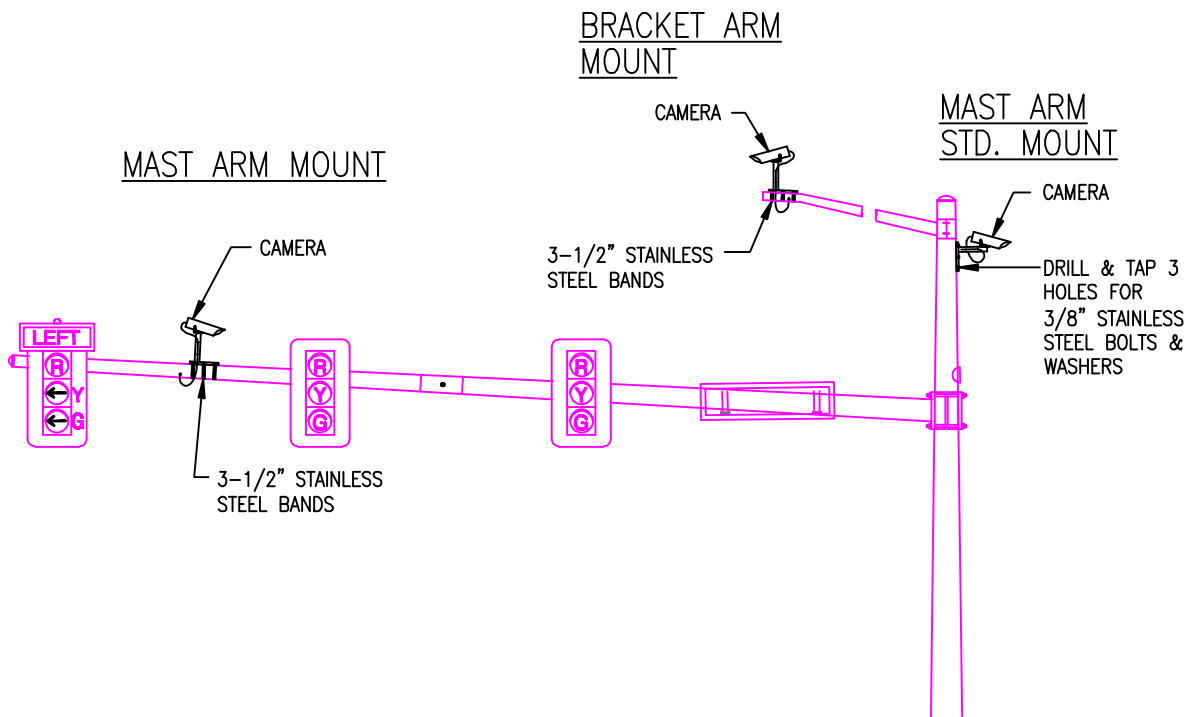
### TRAFFIC SIGNAL ANTENNA & CAMERA MOUNTING

PLAN DATE: 02-12-2010

WASH-7

1 OF 2

## TRAFFIC SIGNAL STEEL POLE CAMERA MOUNTINGS



555 N. ZEEB RD.  
ANN ARBOR, MI 48103-1556  
734-761-1500  
Fax 734-761-3239

	INITIALS	DATE
DRAWN BY	J.S.W.	FEB. '10
REVISED BY		
CHECKED BY	B.M.S.	
APPROVED BY	B.M.S.	

### TRAFFIC SIGNAL ANTENNA & CAMERA MOUNTING

PLAN DATE: 02-12-2010

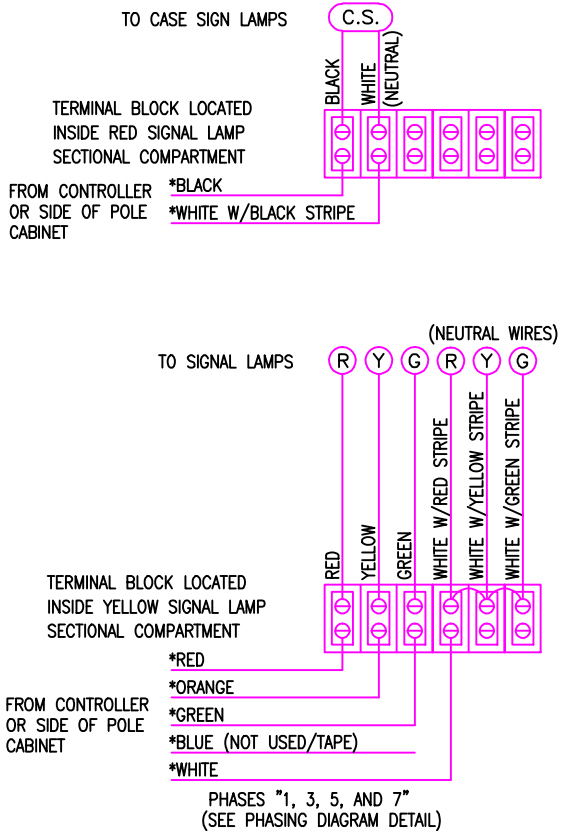
WASH-7

2 OF 2

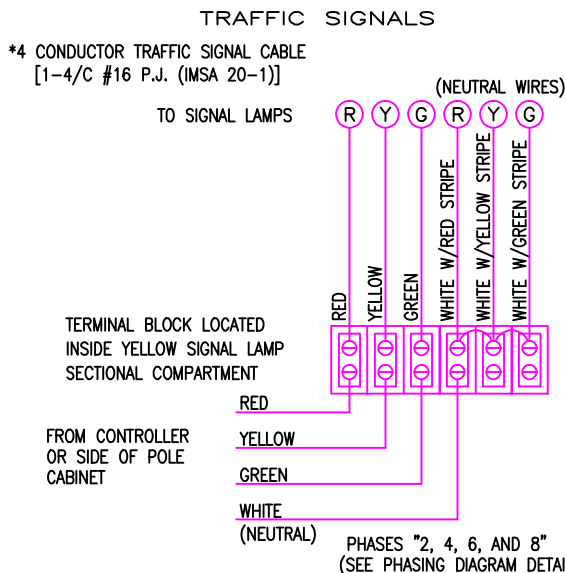
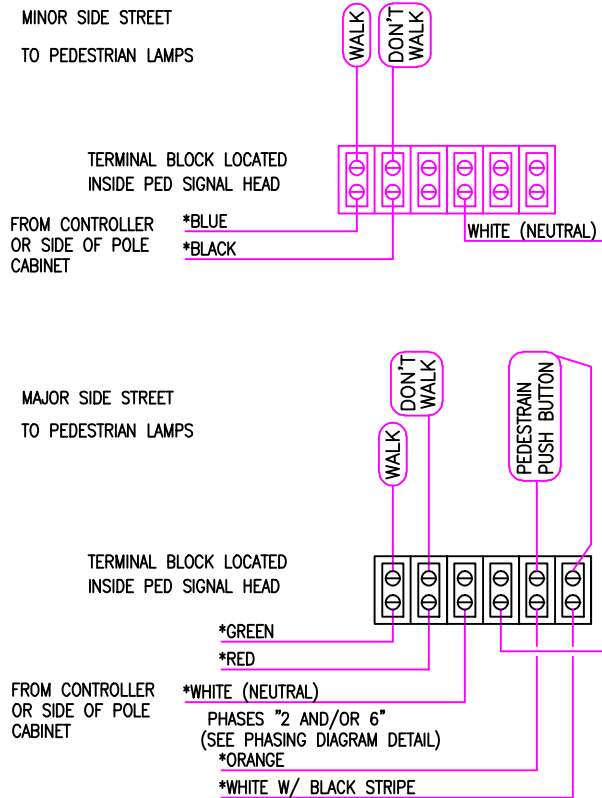
# **TERMINAL BLOCK WIRING CONNECTIONS (COLOR CODED) OF THE PEDESTRIAN AND VEHICULAR TRAFFIC SIGNAL AND CASE SIGN LAMPS WITH FIELD CABLES FROM THE TRAFFIC SIGNAL CONTROLLER OR SIDE OF POLE CABINET**

NO SCALE

**TRAFFIC SIGNALS  
WITH CASE SIGNS**  
\*7 CONDUCTOR TRAFFIC SIGNAL CABLE  
[1-7/C #16 P.J. (IMSA 20-1)]

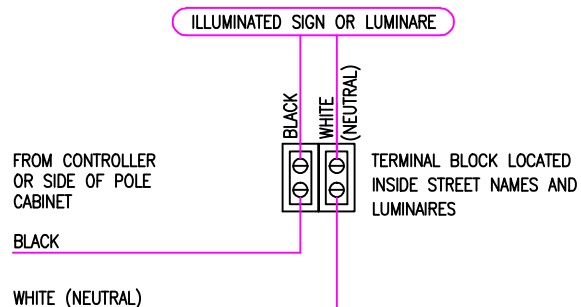


**PEDESTRIAN TRAFFIC SIGNALS**  
\*7 CONDUCTOR TRAFFIC SIGNAL CABLE  
[1-7/C #16 P.J. (IMSA 20-1)]



**ILLUMINATED STREET NAME SIGNS  
AND LUMINAIRES**

2 CONDUCTOR TRAFFIC SIGNAL CABLE  
[1-2/C #14 P.J. (IMSA 20-1)]



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Fax 734-761-3239

	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	MAR '09
CHECKED BY	B.M.S.	AUG '06
APPROVED BY	B.M.S.	AUG. '06

## **TERMINAL BLOCK WIRING CONNECTIONS (COLOR CODED) OF THE PEDESTRIAN AND VEHICULAR TRAFFIC SIGNAL**

PLAN DATE: 09-27-2006

WASH-8

1 OF 2



## CONTROLLER CABINET WITH SIDE OF POLE CABINETS

### 20 CONDUCTOR

	WIRE COLOR		
1	BLACK	CABINET POWER	
2	BLACK W/RED STRIPE	CASE SIGNS	
3	BLUE W/BLACK STRIPE	LUMINAIRES	
4	RED W/GREEN STRIPE	STREET NAME SIGNS	
5	WHITE	NEUTRAL	
6	WHITE W/BLACK STRIPE	NEUTRAL	
7	WHITE W/RED STRIPE	NEUTRAL	ALT. WHEN NEEDED RIGHT TURN RED
8	RED W/BLACK STRIPE	LEFT TURN RED	
9	ORANGE W/BLACK STRIPE	LEFT TURN YELLOW	
10	GREEN W/BLACK STRIPE	LEFT TURN GREEN	
11	RED	THRU RED	
12	ORANGE	THRU YELLOW	
13	GREEN	THRU GREEN	
(7)	WHITE W/RED STRIPE	RIGHT TURN RED	ALT. WHEN NEEDED RIGHT TURN RED
14	ORANGE W/RED STRIPE	RIGHT TURN YELLOW	
15	BLUE W/RED STRIPE	RIGHT TURN GREEN	
16	RED W/WHITE STRIPE	MAIN PED RED	
17	GREEN W/WHITE STRIPE	MAIN PED GREEN	
18	BLACK W/WHITE STRIPE	SIDE PED RED	
19	BLUE W/WHITE STRIPE	SIDE PED GREEN	
20	BLUE	STOP BAR RELAY	

### 10 CONDUCTOR

	WIRE COLOR		
1	RED	RELAY OUTPUTS - LFT	
2	GREEN	RELAY OUTPUTS -ADV	
3	RED W/BLACK STRIPE	RELAY OUTPUTS - ADV	
4	GREEN W/BLACK STRIP	RELAY OUTPUTS - ADV	
5	ORANGE	PED PUSH BUTTON	
6	WHITE W/BLACK STRIPE	PED PUSH BUTTON	
7	BLUE	LOG.GND	
8	ORANGE W/BLACK STRIPE	NOT USED	
9	WHITE	NOT USED	
10	BLACK	NOT USED	

NOTE: OPTIONAL WIRING AS DIRECTED BY ENGINEER



555 N. ZEEB RD.  
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	INITIALS	DATE
DRAWN BY	JSW	MARCH '09
REVISED BY	JSW	MARCH '09
CHECKED BY	B.M.S.	'09
APPROVED BY	B.M.S.	'09

### CONTROLLER CABINET WIRING CONNECTIONS (COLOR CODED) WITH SIDE POLE CABINETS

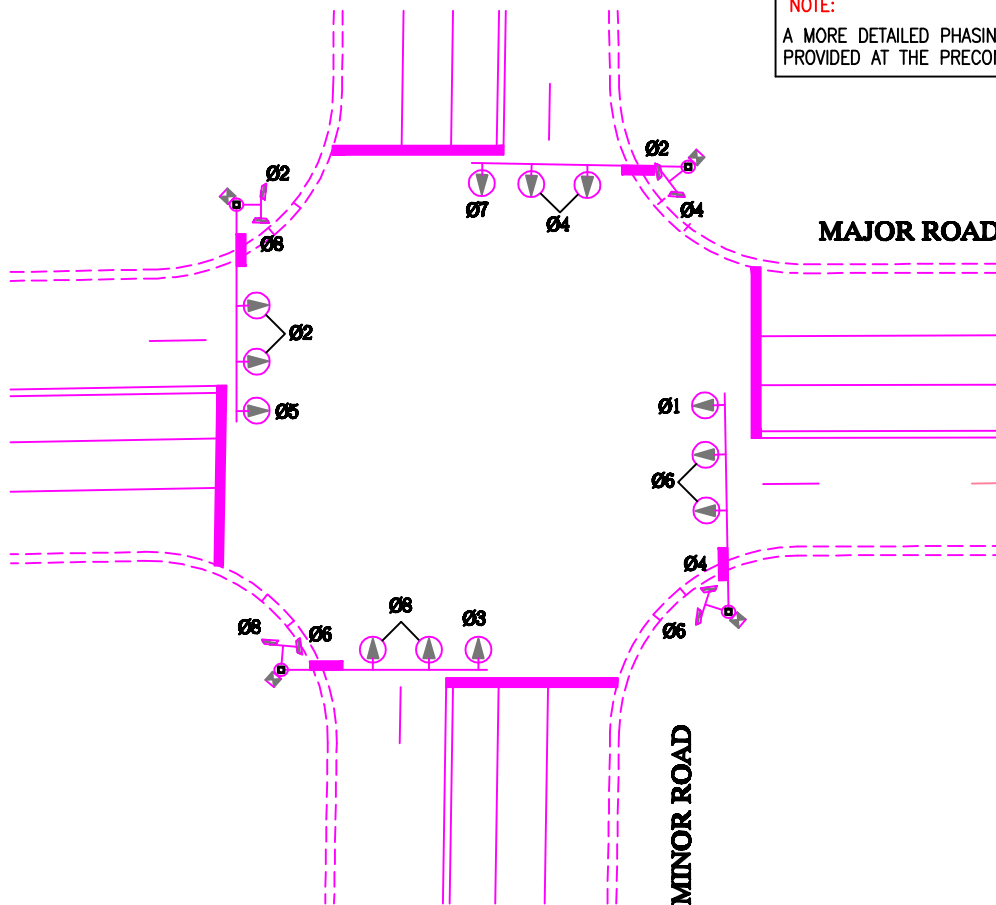
PLAN DATE: 03-9-2009      WASH-8      2 OF 2

## PHASING DIAGRAM (DETAIL)

NO SCALE

### NOTE:

A MORE DETAILED PHASING DIAGRAM WILL BE PROVIDED AT THE PRECONSTRUCTION MEETING



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	MAR '09
CHECKED BY	B.M.S.	AUG '06
APPROVED BY	B.M.S.	AUG. '06

## PHASING DIAGRAM

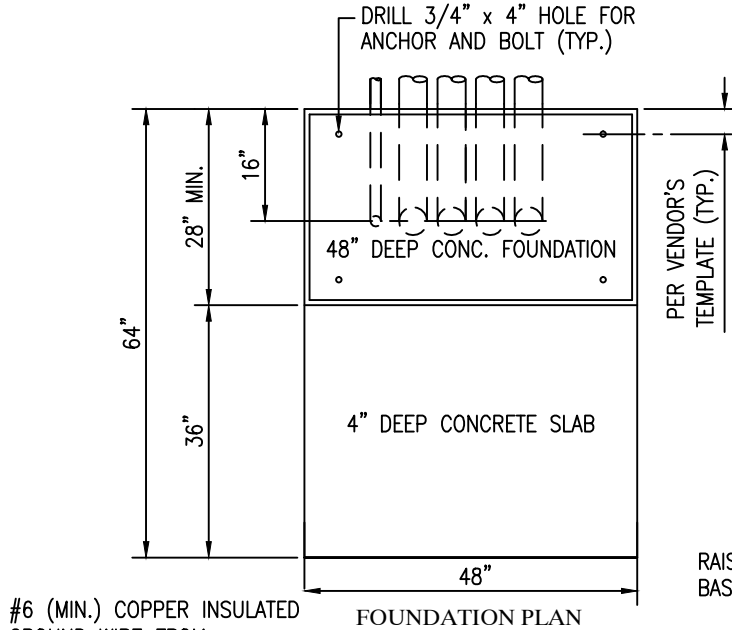
PLAN DATE: 09 27, 2006

WASH-9

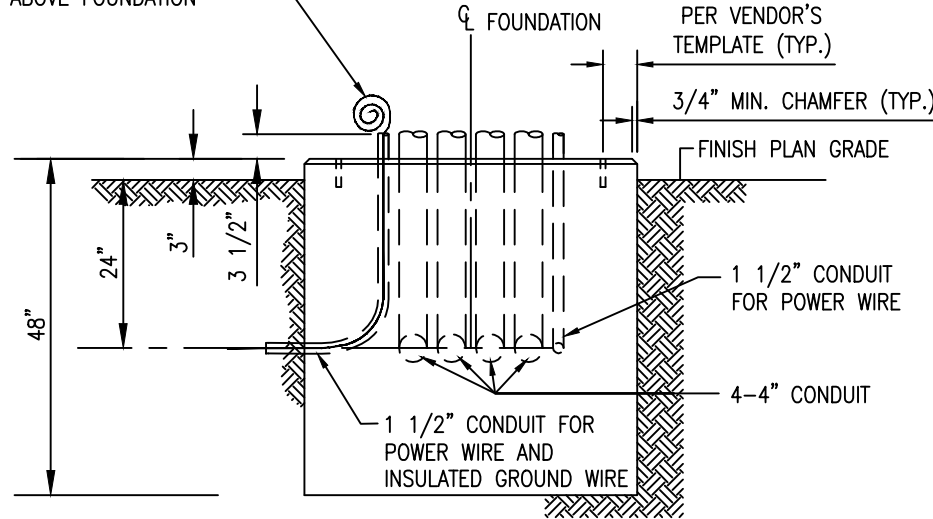
1 OF 1

# BASE MOUNTED TRAFFIC SIGNAL CONTROLLER FOUNDATION AND CABINET (DETAIL)

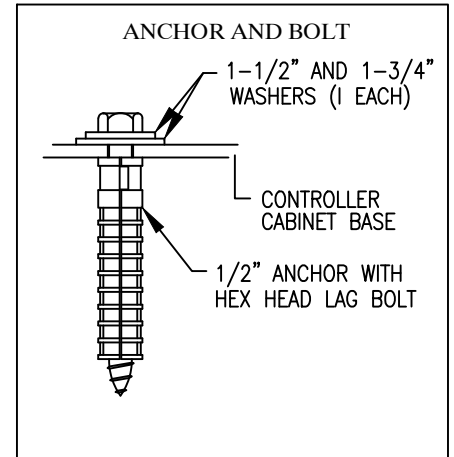
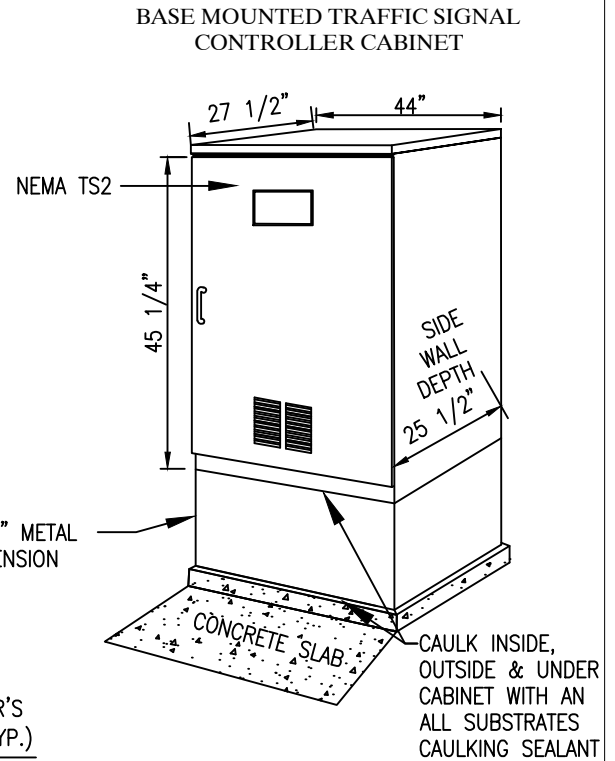
NO SCALE



#6 (MIN.) COPPER INSULATED GROUND WIRE FROM DISCONNECT TO CONTROLLER CABINET WITH 48" OF SLACK ABOVE FOUNDATION



FOUNDATION ELEVATION VIEW



## NOTES:

\*DIRECTION OF CONDUIT EXITING THE FOUNDATION IS NOT NECESSARILY AS SHOWN. CONSTRUCT CONDUIT TO EXIT THE FOUNDATION AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

\*ALL CONDUIT SHOWN SHALL BE SCHEDULE 80 PVC (POLYVINYL CHLORIDE) UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.

\*ALL GROUNDS SHALL PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND

\*CONDUIT SHALL HAVE 90° SWEEP ON 36" RADIUS



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	A.J.G.	JULY '07
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## BASE MOUNTED TRAFFIC SIGNAL CONTROLLER FOUNDATION & CABINET

PLAN DATE: 12-06-2006

WASH-10

1 OF 4

# SIDE OF STEEL POLE CONTROLLER CABINET

NO SCALE

## NOTES:

TRAFFIC SIGNAL CABLES SHALL BE FISHED THROUGH INSIDE OF STEEL STRAIN POLE FROM CABINET TO SIGNAL SPAN WIRE OR MAST ARM OR TO CONDUIT IN POLE FOUNDATION.

DRILL HOLES IN BACK OF CABINET TO MATCH CABINET MOUNTING BRACKET WELDED TO POLE

2 - 5/16" STAINLESS STEEL BOLT & WASHER

GROUND WIRE NO. 6 AWG MIN., COPPER  
CABINET GROUNDING TERMINAL BUS

2 - 5/16" STAINLESS STEEL BOLT & WASHER

LOCK NUT

4" GAVANIZED STEEL CONDUIT

4" ENTRANCE LB., GALVANIZED STEEL

4" GALVANIZED STEEL HALF  
COUPLING WELDED TO POLE

#6 (MIN.) COPPER INSULATED GROUND WIRE FROM  
DISCONNECT TO BUSBAR IN CONTROLLER CABINET

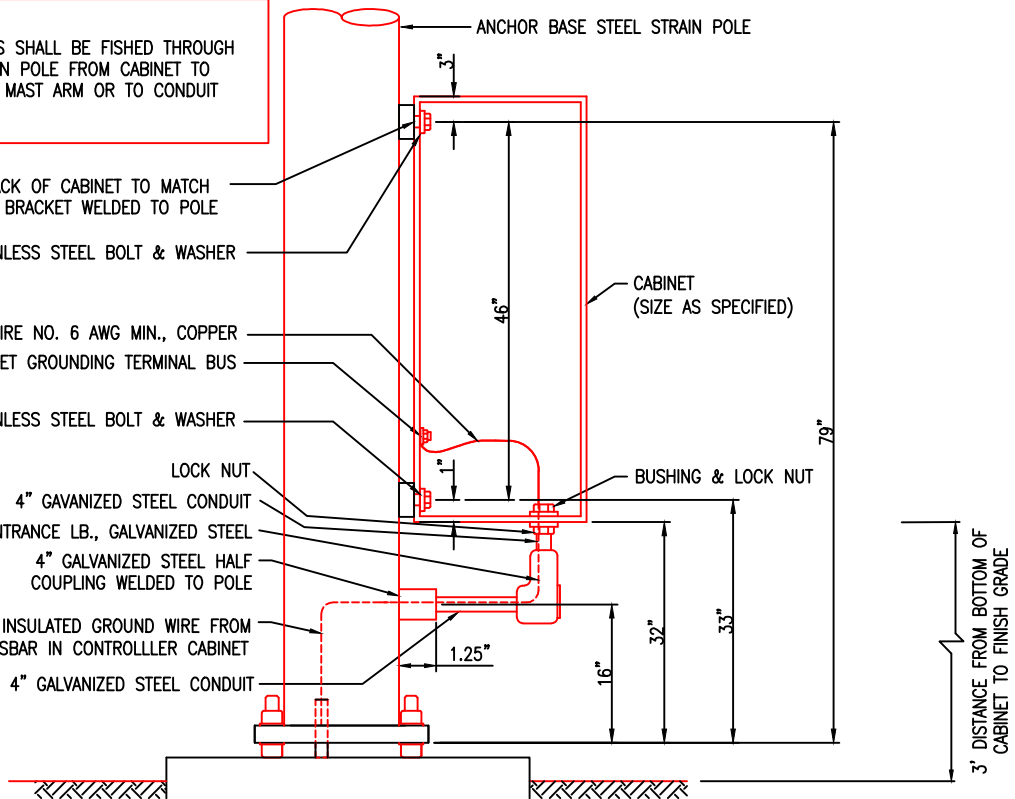
4" GALVANIZED STEEL CONDUIT

ANCHOR BASE STEEL STRAIN POLE

CABINET  
(SIZE AS SPECIFIED)

BUSHING & LOCK NUT

3' DISTANCE FROM BOTTOM OF  
CABINET TO FINISH GRADE



# SIDE OF POLE SIGNAL DETECTOR/VIDEO CABINET (DETAIL )

NO SCALE

## NOTES:

TRAFFIC SIGNAL CABLES SHALL BE FISHED THROUGH INSIDE OF STEEL STRAIN POLE FROM CABINET TO SIGNAL SPAN WIRE OR MAST ARM OR TO CONDUIT IN POLE FOUNDATION.

DRILL HOLES IN BACK OF CABINET TO MATCH CABINET MOUNTING BRACKET WELDED TO POLE

2 - 5/16" STAINLESS STEEL BOLT & WASHER

GROUND WIRE NO. 6 AWG MIN., COPPER  
CABINET GROUNDING TERMINAL BUS

2 - 5/16" STAINLESS STEEL BOLT & WASHER

LOCK NUT

4" GAVANIZED STEEL CONDUIT

4" ENTRANCE LB., GALVANIZED STEEL

4" GALVANIZED STEEL HALF  
COUPLING WELDED TO POLE

#6 (MIN.) COPPER INSULATED GROUND WIRE FROM  
BUSBAR IN CONTROLLER CABINET TO GROUND ROD

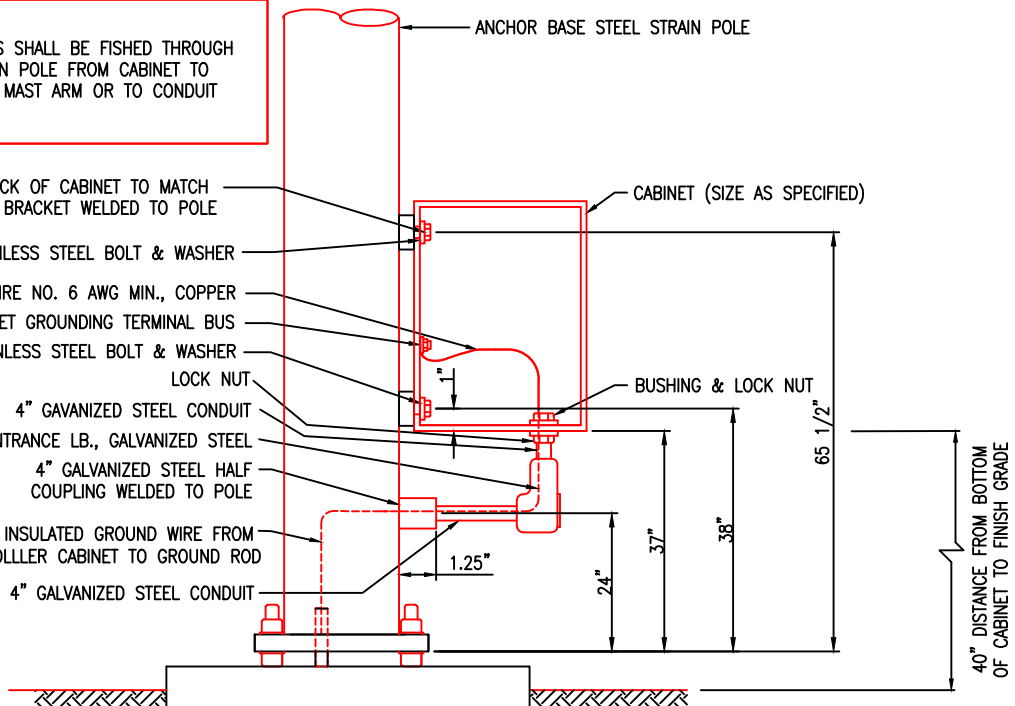
4" GALVANIZED STEEL CONDUIT

ANCHOR BASE STEEL STRAIN POLE

CABINET (SIZE AS SPECIFIED)

BUSHING & LOCK NUT

40" DISTANCE FROM BOTTOM  
OF CABINET TO FINISH GRADE



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	May '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

SIDE OF POLE SIGNAL/DIGITAL LOOP  
DETECTOR/CONTROLLER CABINET

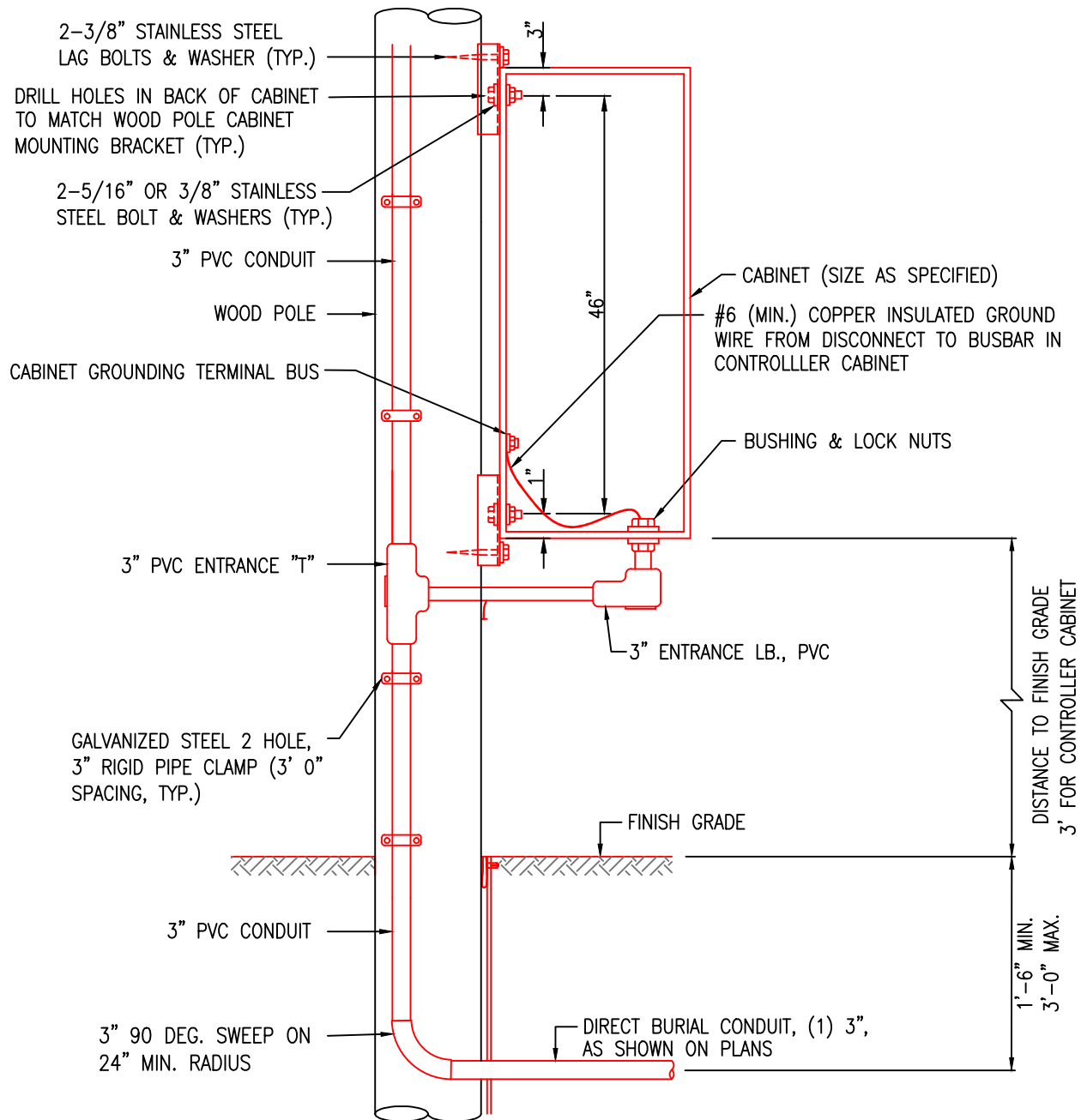
PLAN DATE: 08-29-2006

WASH-10

2 OF 4

# SIDE OF WOOD POLE SIGNAL CONTROLLER CABINET

NO SCALE



## NOTES:

USE CONDUIT SIZE SPECIFIED (MIN.) UNLESS CURRENT NATIONAL ELECTRIC CODE INDICATES A LARGER SIZE IS REQUIRED. ALL CONDUIT SHALL BE SCHEDULE 80 PVC (POLYVINYL CHLORIDE) UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.  
INSTALL No. 6 COPPER INSULATED GROUND WIRE FROM DISCONNECT TO CABINET GROUNDING TERMINAL BUS.



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	June '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## SIDE OF POLE SIGNAL CONTROLLER CABINET

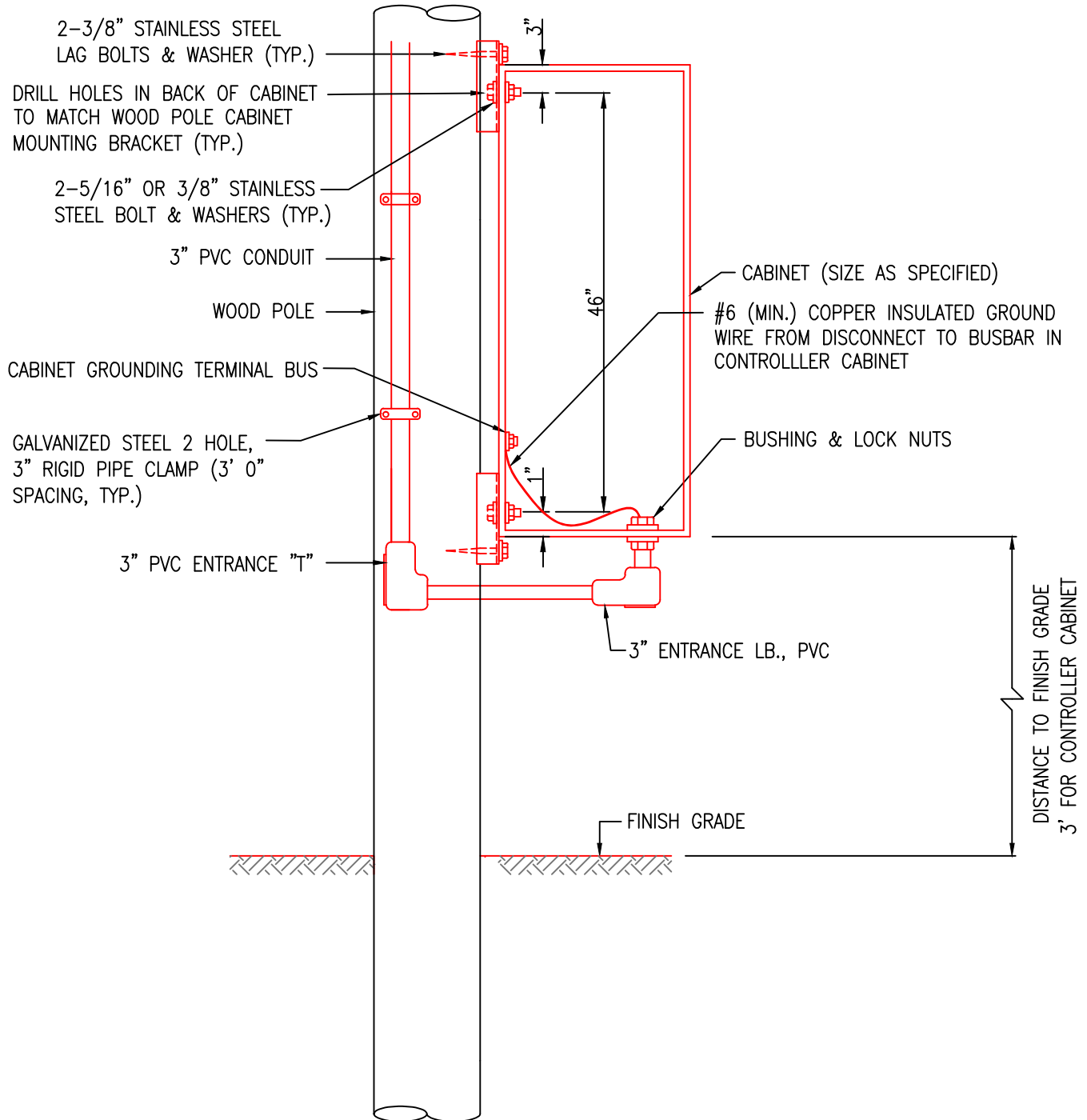
PLAN DATE: 08-29-2006

WASH-10

3 OF 4

# SIDE OF WOOD POLE SIGNAL CONTROLLER CABINET

NO SCALE



## NOTES:

USE CONDUIT SIZE SPECIFIED (MIN.) UNLESS CURRENT NATIONAL ELECTRIC CODE INDICATES A LARGER SIZE IS REQUIRED. ALL CONDUIT SHALL BE SCHEDULE 80 PVC (POLYVINYL CHLORIDE) UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.  
INSTALL No. 6 COPPER INSULATED GROUND WIRE FROM DISCONNECT TO CABINET GROUNDING TERMINAL BUS.



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REVISED BY	A.J.G.	JULY '07
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

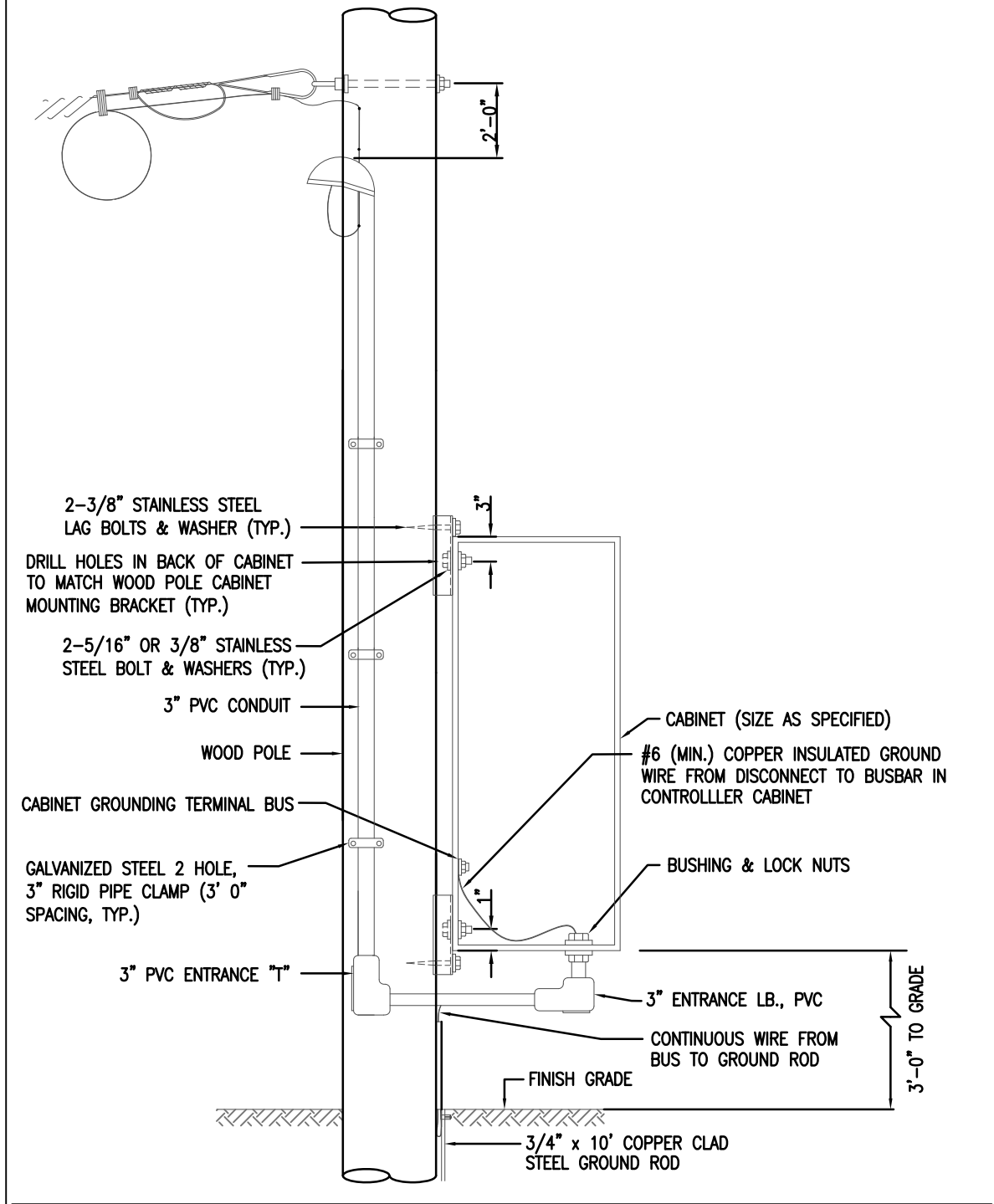
SIDE OF POLE SIGNAL CONTROLLER CABINET (NO GROUND CONDUIT)

PLAN DATE: 08-29-2006

WASH-10

4 OF 4

TEMPORARY SIDE OF WOOD POLE SIGNAL CONTROLLER CABINET  
NO SCALE



NOTES:  
USE CONDUIT SIZE SPECIFIED (MIN.) UNLESS CURRENT NATIONAL ELECTRIC CODE INDICATES A LARGER SIZE IS REQUIRED.  
ALL CONDUIT SHALL BE SCHEDULE 80 PVC (POLYVINYL CHLORIDE) UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER.  
INSTALL 3/4" x 10' COPPER CLAD GROUND ROD, AS REQUIRED, TO PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND.  
INSTALL No. 6 COPPER GROUND WIRE FROM GROUND ROD TO CABINET GROUNDING TERMINAL BUS.



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	INITIALS	DATE
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REVISED BY	J.S.W.	JUNE '09
CHECKED BY	B.M.S.	AUG '06
APPROVED BY	B.M.S.	AUG. '06

TEMPORARY TRAFFIC SIGNAL  
CONTROLLER CABINET

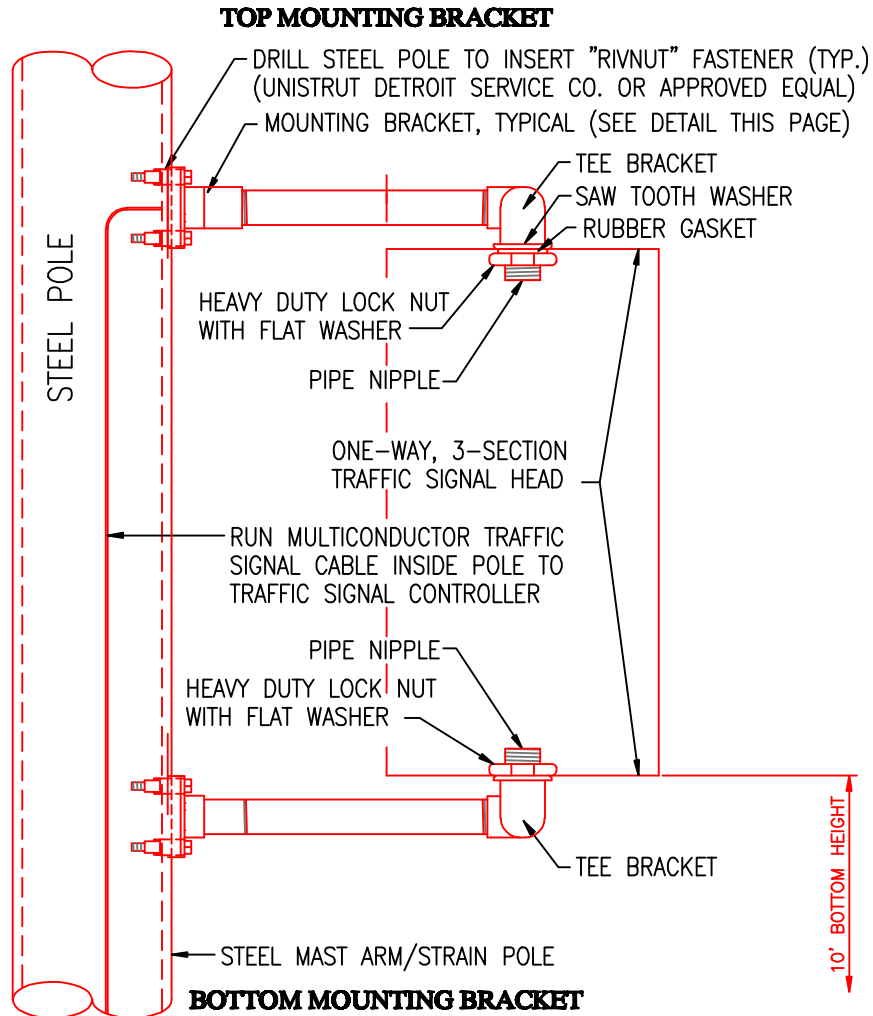
PLAN DATE: 08-29-2006

WASH-11

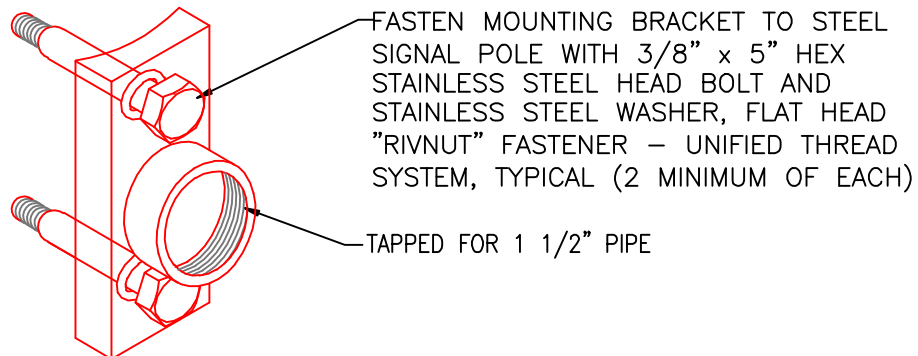
1 OF 1

# BRACKET ARM MOUNTED VEHICULAR TRAFFIC SIGNAL ( DETAIL )

NO SCALE



## MOUNTING BRACKET DETAIL



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	JUNE '09
CHECKED BY	N.N.H.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## BRACKET ARM MOUNTED VEHICULAR TRAFFIC SIGNAL STEEL POLE

PLAN DATE: 09-27-2006

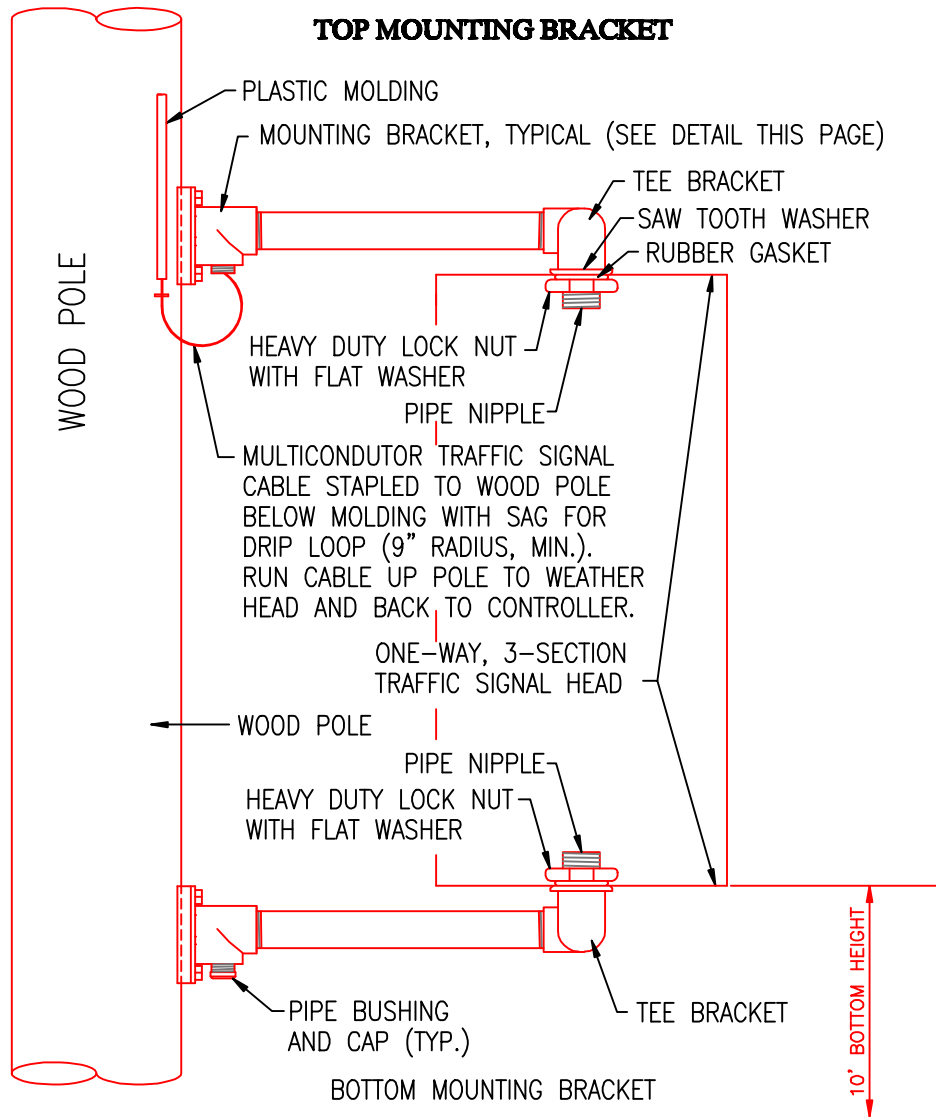
WASH-12

1 OF 4

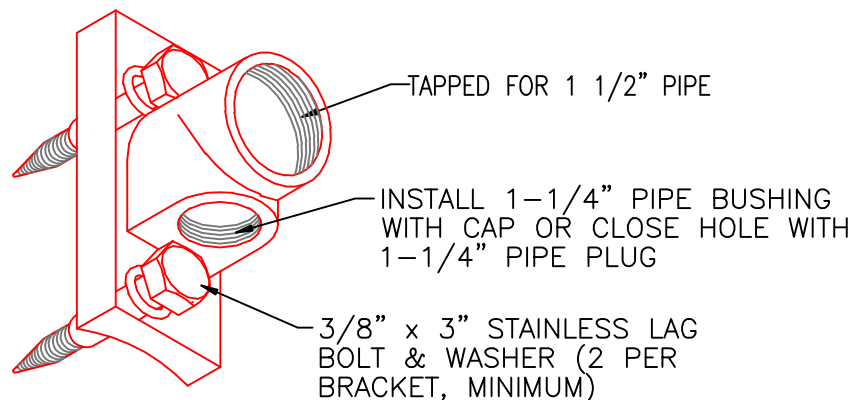


# BRACKET ARM MOUNTED VEHICULAR TRAFFIC SIGNAL (DETAIL )

NO SCALE



MOUNTING BRACKET DETAIL



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Fax 734-761-3239

	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	JUNE '09
CHECKED BY	N.N.H.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## BRACKET ARM MOUNTED VEHICULAR TRAFFIC SIGNAL WOOD POLE

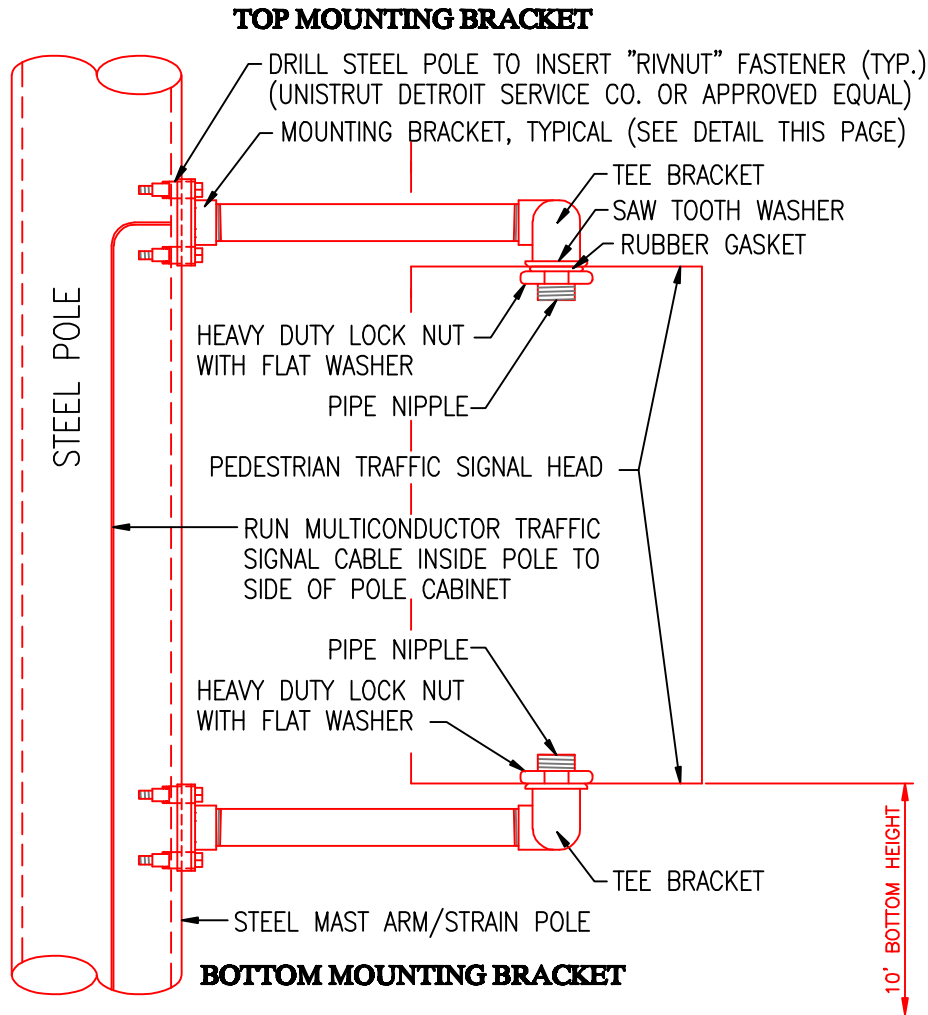
PLAN DATE: 09-27-2006

WASH-12

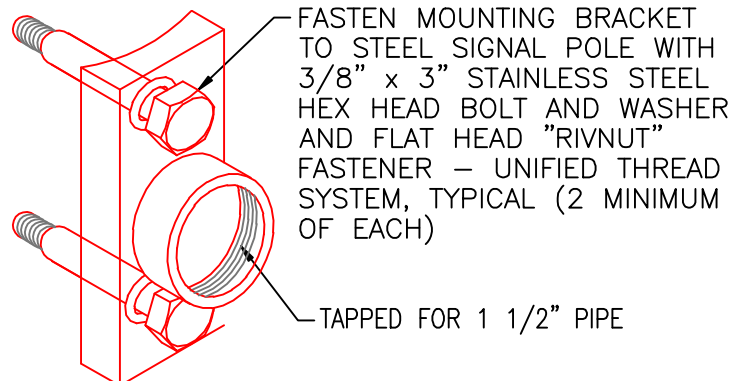
2 OF 4

# BRACKET ARM MOUNTED PEDESTRIAN TRAFFIC SIGNAL ( DETAIL )

NO SCALE



## MOUNTING BRACKET DETAIL



555 N. ZEEB RD.  
ANN ARBOR, MI 48103-1556  
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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	JUNE '09
CHECKED BY	N.N.H.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## BRACKET ARM MOUNTED PEDESTRIAN TRAFFIC SIGNAL STEEL POLE

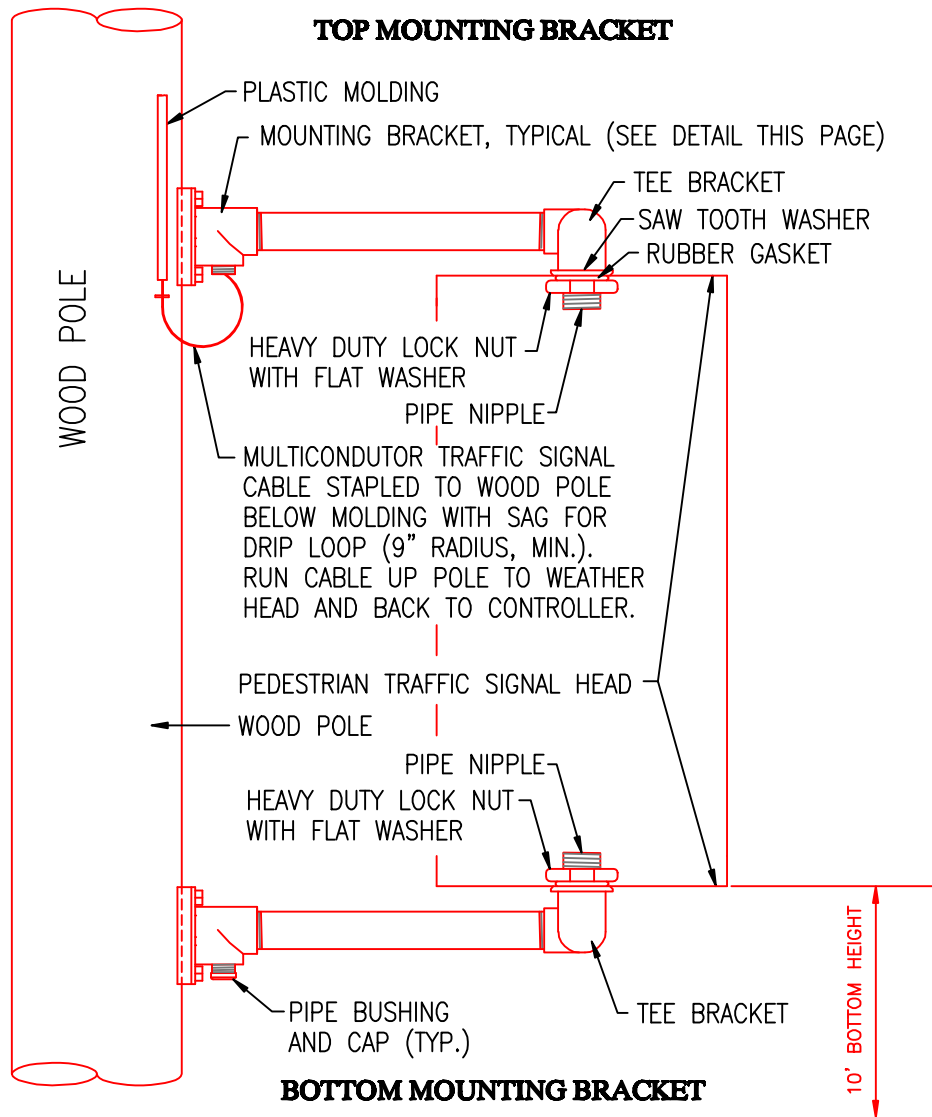
PLAN DATE: 09-27-2006

WASH-12

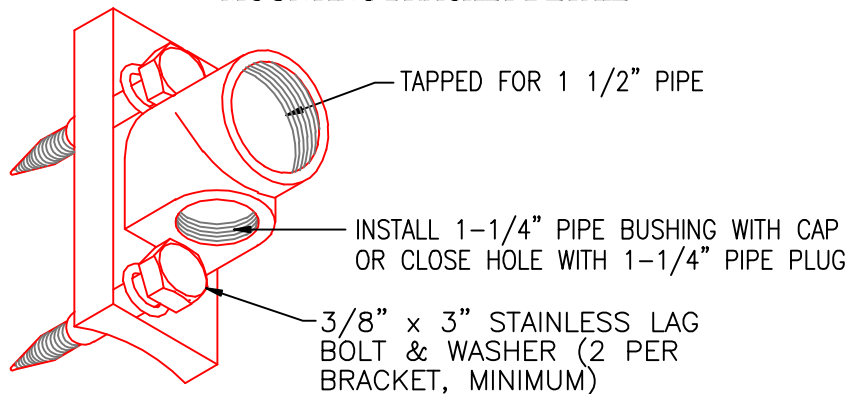
3 OF 4

# BRACKET ARM MOUNTED PEDESTRIAN TRAFFIC SIGNAL (DETAIL)

NO SCALE



## MOUNTING BRACKET DETAIL



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	A.J.G.	JULY '07
CHECKED BY	N.N.H.	JULY '07
APPROVED BY	B.M.S.	JULY '07

## BRACKET ARM MOUNTED PEDESTRIAN TRAFFIC SIGNAL WOOD POLE

PLAN DATE: 09-27-2006

WASH-12

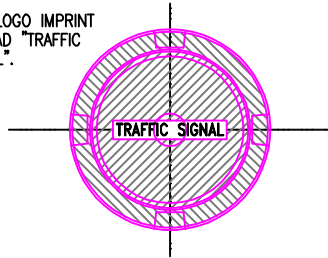
4 OF 4

## TRAFFIC SIGNAL HANDHOLE

NO SCALE

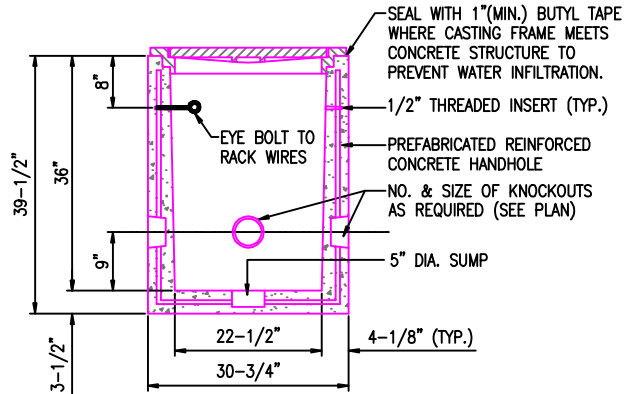
### HANDHOLE PLAN

COVER LOGO IMPRINT  
MAY READ "TRAFFIC  
CONTROL".

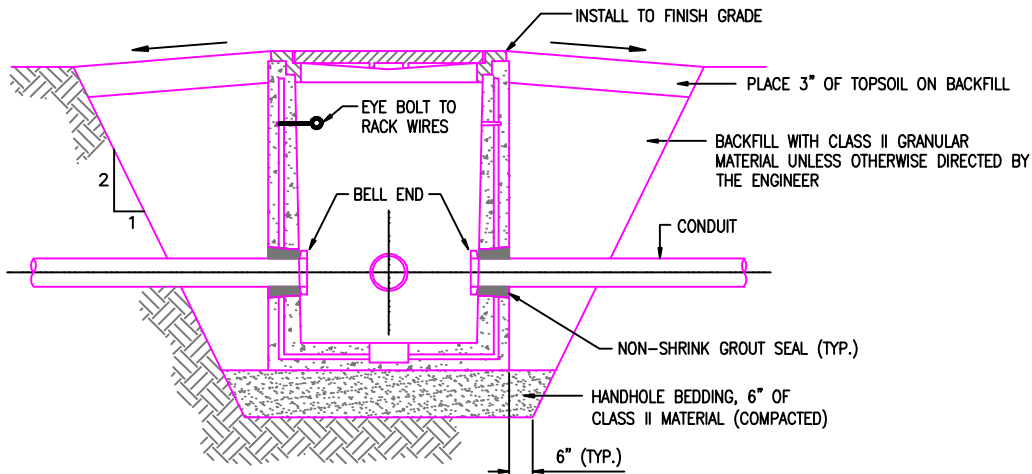


FRAME AND BOLT DOWN COVER SHALL BE  
EAST JORDAN IRON WORKS, #2860 PT  
(FRAME TYPE 1) OR AN APPROVED EQUAL.

### HANDHOLE ELEVATION



### INSTALLATION DETAIL



#### NOTES:

THE CONDUIT SHALL ONLY PROTRUDE THE REQUIRED AMOUNT OF DISTANCE TO INSTALL THE BELL END.

THE MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CURRENT M.D.O.T. STANDARD SPECIFICATIONS.

THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS No. 30 GRAY IRON CASTINGS. ALL CASTINGS SHALL BE CLEANED BY SAND BLASTING.

THE SEATING FACE OF THE COVER AND THE SEAT FOR THE SAME ON THE FRAME, IF REQUIRED, SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON THE SEAT TO PREVENT ROCKING OR TILTING.

THE CASTINGS SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED, AND SHALL BE COATED WITH TAR PITCH VARNISH.

NUMBER AND SIZE OF CONDUIT OPENING(S) SHALL BE PROVIDED AS REQUIRED, SEE PLANS.

CONDUIT ARRANGEMENT SHOWN ON PLANS MAY BE MODIFIED WITH APPROVAL BY THE ENGINEER.

PLUG ALL UNUSED ENTRANCE HOLES AND SEAL AROUND HOLES ENTERED.

SIZE, QUANTITY, AND TYPE OF PVC CONDUIT SHALL BE AS SHOWN ON THE PLANS. METHOD OF PVC CONDUIT INSTALLATION SHALL BE AS SHOWN ON THE PLANS, AS SPECIFIED IN THE PROPOSAL, OR AS DIRECTED BY THE ENGINEER.

THE NON-SHRINK GROUT SHALL BE PLACED INSIDE AND OUTSIDE OF THE CONCRETE HANDHOLE.



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	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	JUNE '09
CHECKED BY	B.M.S.	AUG '06
APPROVED BY	B.M.S.	AUG. '06

## TRAFFIC SIGNAL HANDHOLE

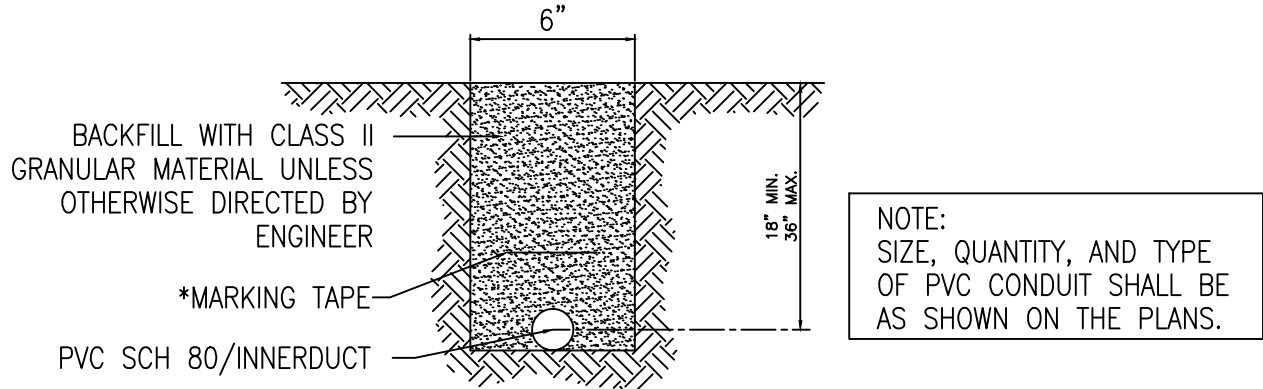
PLAN DATE: 09-27-2006

WASH-13

1 OF 1

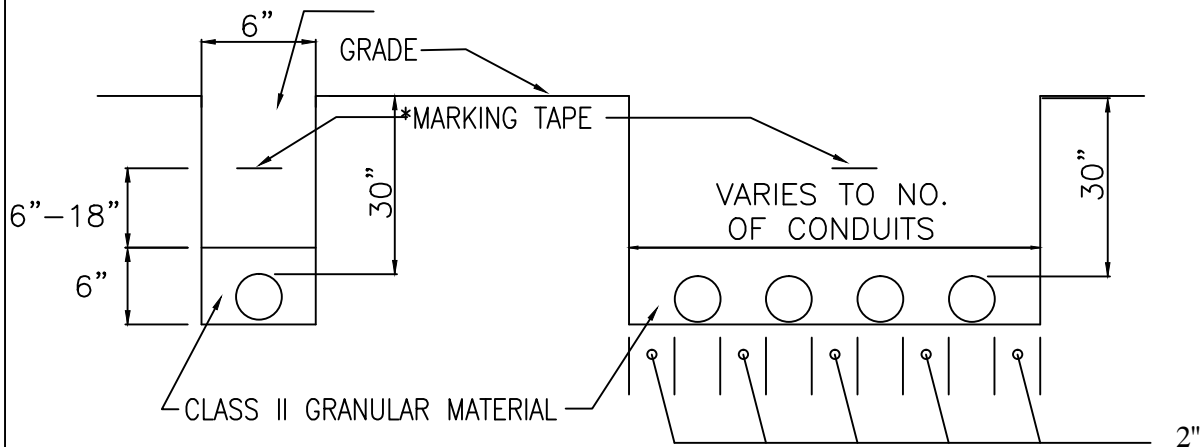
## CONDUIT TRENCH NOT UNDER ROADWAY

NO SCALE



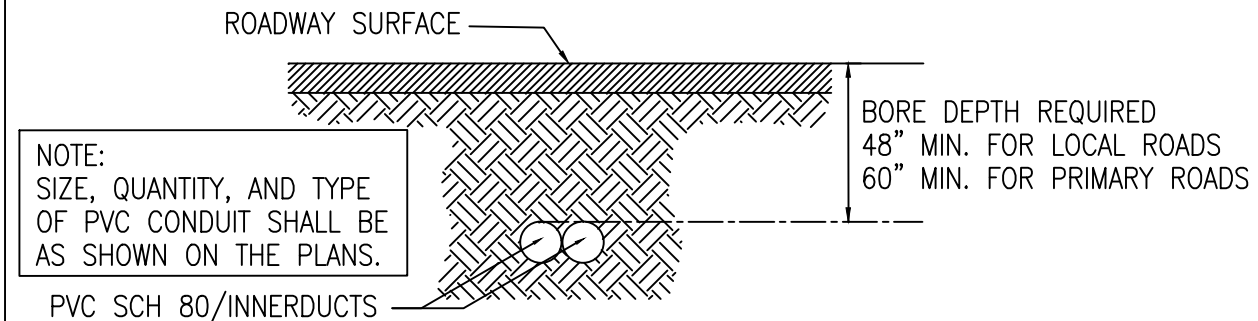
## CONDUIT TRENCH IN THE INFLUENCE OF ROADWAY

NO SCALE



## CONDUIT/INNERDUCT BORES UNDER ROADWAY

NO SCALE



\*NOTE:

MARKING TAPE SHALL HAVE PROPER LOGO AS SUPPLIED BY THE ENGINEER AND INSTALLED BY THE CONTRACTOR.



555 N. ZEEB RD.  
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	INITIALS	DATE
DRAWN BY	J.S.W.	JUNE. '09
REVISED BY	J.S.W.	NOV. '12
CHECKED BY	B.M.S.	NOV. '12
APPROVED BY	B.M.S.	NOV. '12

CONDUIT TRENCH  
DIRECT BURIAL  
DIRECTIONAL/JACK BORES

PLAN DATE: 11-28-2012

WASH-14

1 OF 1



555 N. ZEEB RD.  
ANN ARBOR, MI 48103-1556  
734-761-1500  
Fax 734-761-3239

	INITIALS	DATE
DRAWN BY	J.D.M	Sept '03
REVISED BY	J.S.W.	JULY '09
CHECKED BY	B.M.S.	JANUARY '08
APPROVED BY	B.M.S.	JANUARY '08

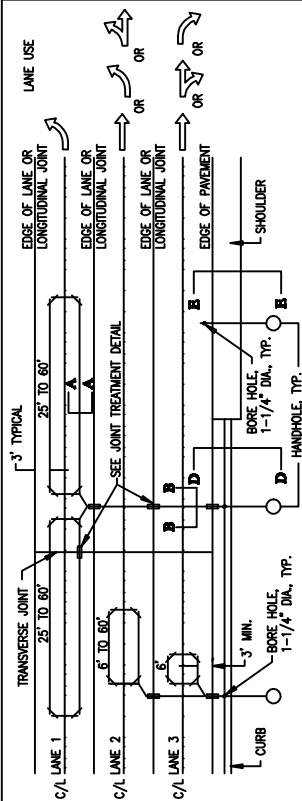
## TRAFFIC SIGNAL LOOP (SAWED IN)

PLAN DATE: 01-16-2008

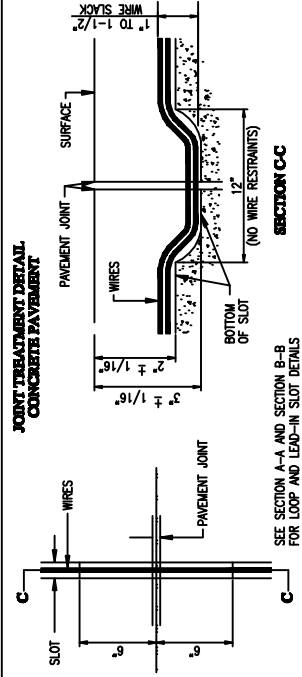
WASH-15

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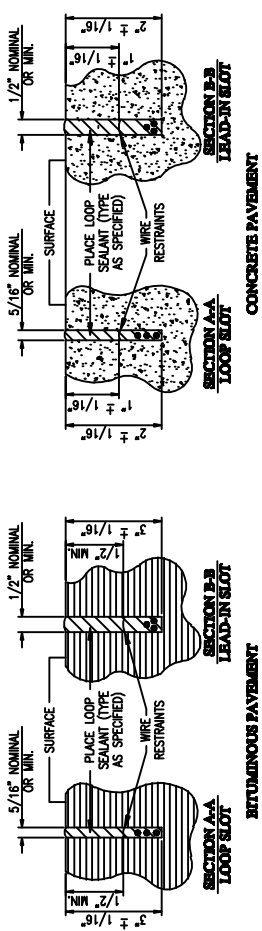
### TRAFFIC LOOP INSTALLATION (DETAIL) NO SCALE



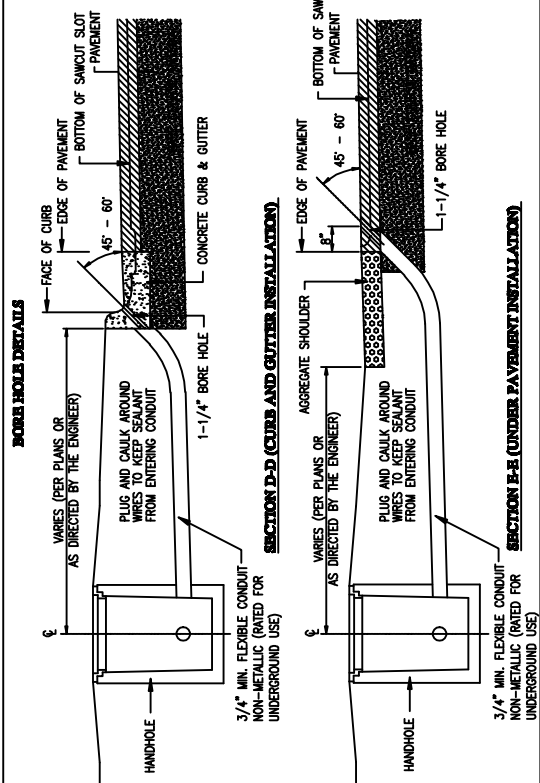
**TYPICAL SAWCUT SLOT CROSS SECTIONS**



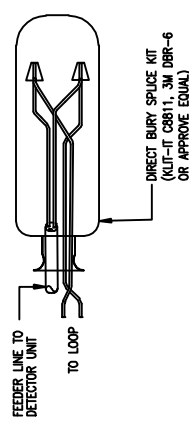
- NOTES:**
1. TURNS OF WIRE PER LOOP SHALL BE AS SPECIFIED IN THE PROJECT SPECIAL PROVISIONS. WIRES SHALL NOT BE TWISTED IN THE LOOP SLOT.
  2. LEAD-IN WIRES SHALL BE TWISTED IN THE LEAD-IN SLOTS.
  3. LEAD-IN SLOT MAY BE ON EITHER NEAR OR FAR SIDE OF LOOP APPROACH AS DIRECTED BY THE ENGINEER.
  4. LEAD-IN SAW CUT SHALL PROVIDE ACCESS TO NO MORE THAN TWO DETECTOR LOOPS.
  5. SIZE, QUANTITY, AND TYPE OF RIGID CONDUIT SHALL BE AS SHOWN ON THE PLANS.
  6. METHOD OF RIGID CONDUIT INSTALLATION SHALL BE AS SHOWN ON THE PLANS, AS SPECIFIED IN THE PROPOSAL, OR AS DIRECTED BY THE ENGINEER.



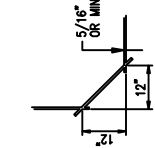
**TYPICAL SAWCUT SLOT CROSS SECTIONS**



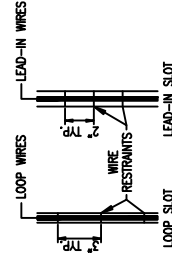
**HANDHOLE STUDS**



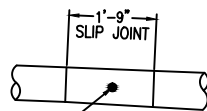
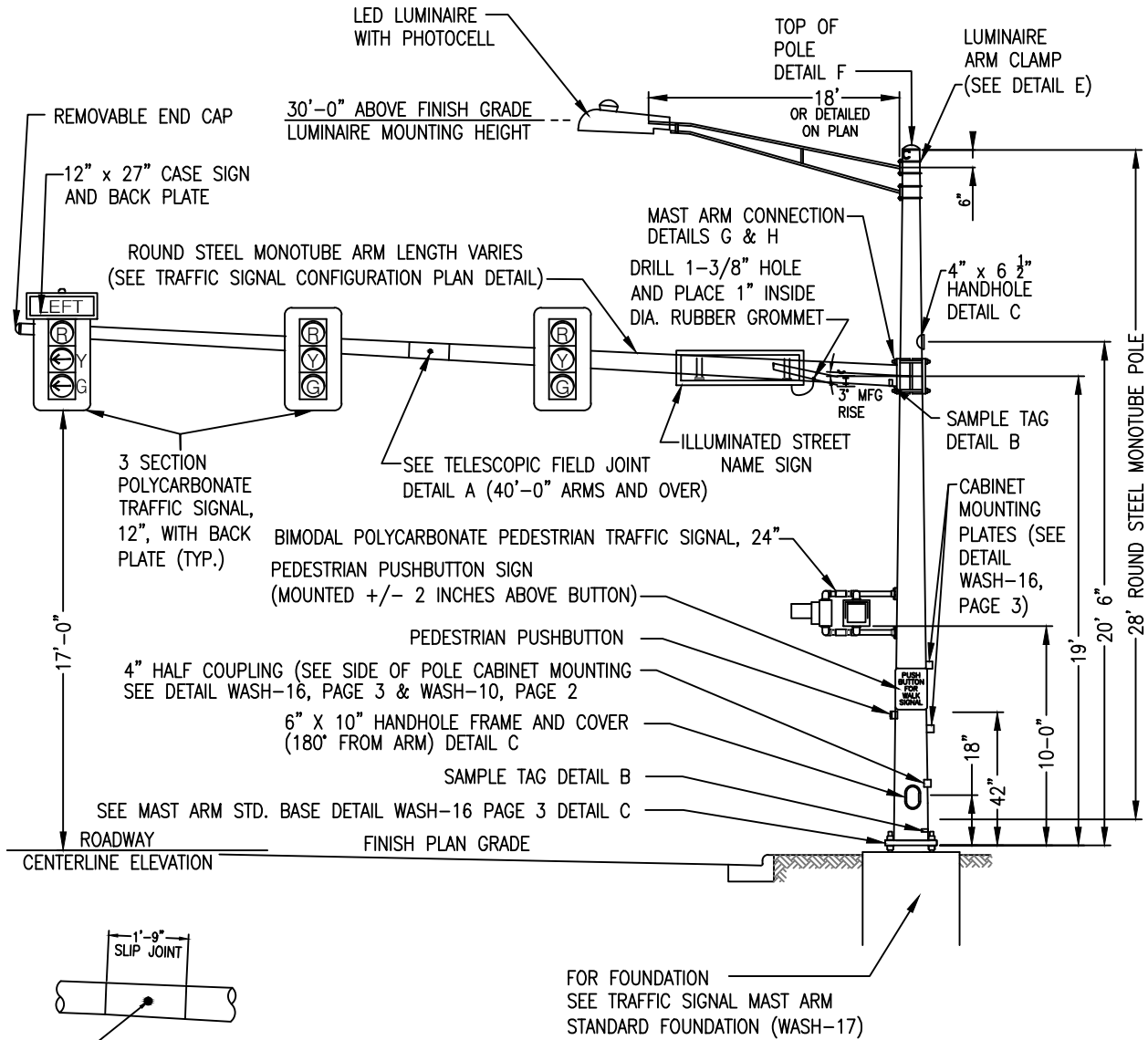
**LOOP CORNER CUT DETAIL**



**WIRES RESTRAINT PLACEMENT DETAIL**



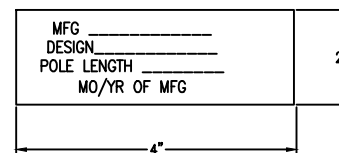
STEEL MAST ARM POLE FOUNDATION, TYPE III MAST ARM POLE, MAST ARM, AND LUMINAIRE  
NO SCALE



**TELESCOPIC FIELD JOINT DETAIL A**

5/8" DIA. GALV. STUD WITH (2) "ANCO" LOCK NUTS.  
3/4" DIA. HOLE FACTORY DRILLED IN OUTBOARD TUBE.  
FIELD DRILL INBOARD TUBE TO ASSURE SNUG FIT.  
(ORIENTATION SHALL BE HORIZONTAL)

FOR FOUNDATION  
SEE TRAFFIC SIGNAL MAST ARM  
STANDARD FOUNDATION (WASH-17)



**SAMPLE POLE & ARM TAGS DETAIL B**

TO BE ATTACHED TO POLE OR ARM 4" FROM  
BASE OF TUBE (STAMPED IN 3/8" CHARACTERS)  
ATTACHED TO POLE/ARM WITH (4) #8x3/8 SS  
TYPE U DRIVE SCREWS EACH

NOTE: TRAFFIC SIGNALS SHALL BE MOUNTED TO THE MAST ARM. TRAFFIC  
SIGNAL FACES SHALL BE DIRECTED PARALLEL TO THE CENTERLINE OF THE  
ROAD THAT THEY CONTROL, AND MOUNTED IN THE CENTER OF THE LANE  
THEY CONTROL ON MULTI LANE ROADWAYS.



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REVISED BY	J.S.W.	JUNE '09
CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

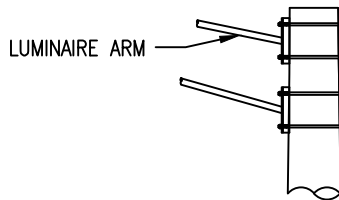
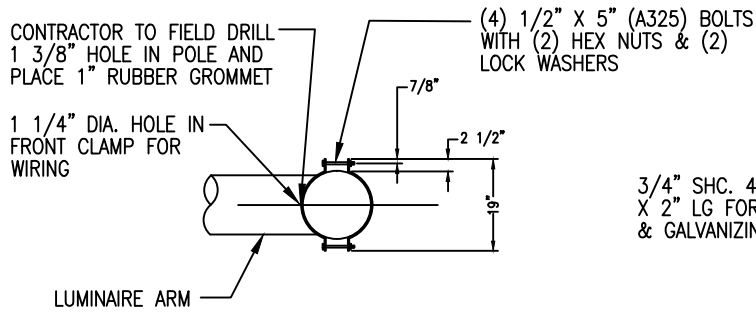
**TRAFFIC SIGNAL MAST ARM POLE AND  
MAST ARM DETAILS - CATEGORY III**

PLAN DATE: 09-27-2006

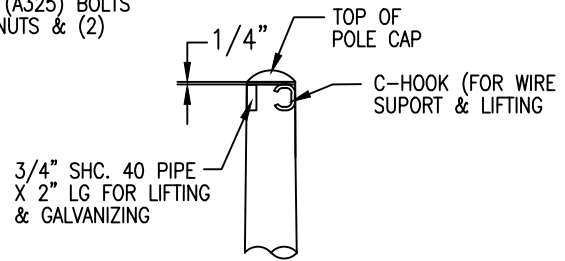
WASH-16

1 OF 5

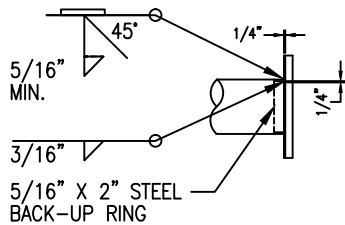
STEEL MAST ARM POLE FOUNDATION ANCHOR BOLTS DETAILS AND MOUNTING DETAILS  
NO SCALE



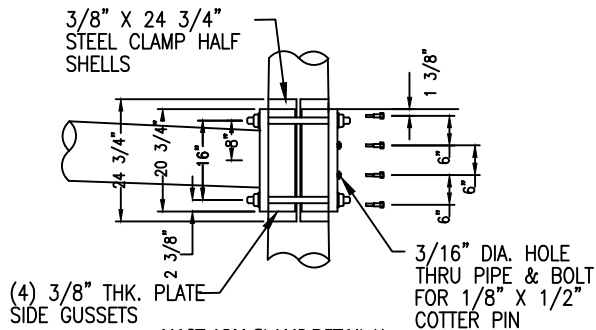
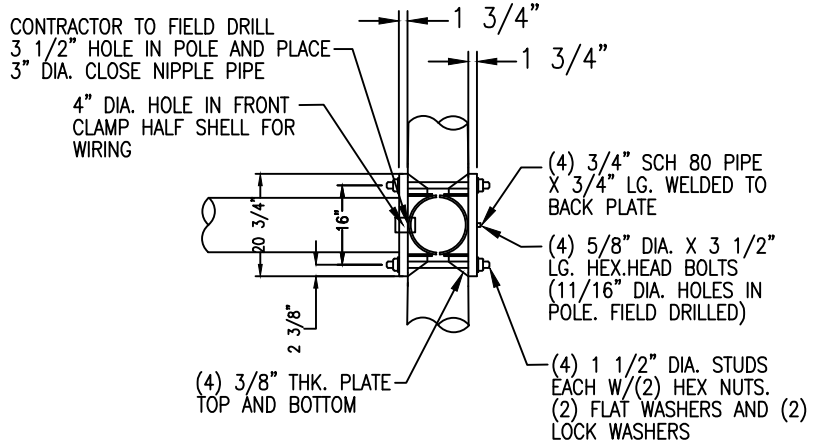
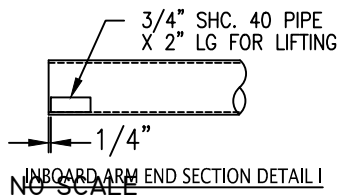
LUMINAIRE CLAMP DETAIL E



ORIENTATION OF PIPE 180° FROM H. HOLE AT BASE  
& C-HOOK OPPOSITE PIPE  
NOTE SEAM WELDS SHOULD BE 90° ± FROM HANDHOLE AT BASE  
TOP OF POLE DETAIL F



ARM WELD DETAIL G



MAST ARM CLAMP DETAIL H



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MAST ARM BASE AND CLAMPS  
DETAIL

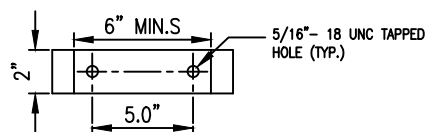
PLAN DATE: 08-29-2006

WASH-16

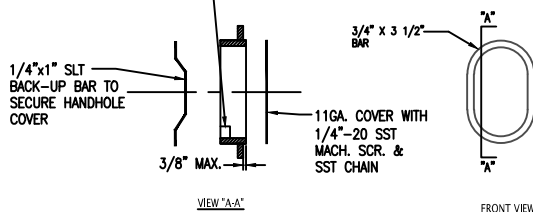
2 OF 5



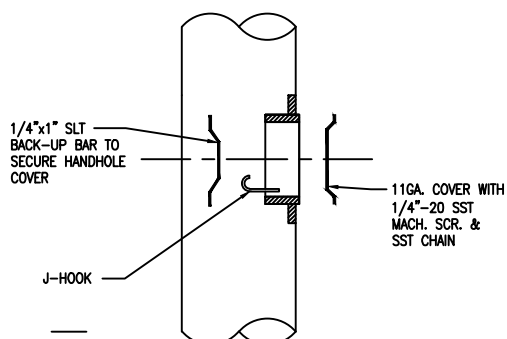
Diagram illustrating the cross-section of the anchor base steel strain pole assembly. The assembly consists of a curved anchor base steel strain pole (hatched area) supported by a 1/2" thick plate (hatched area) and gussets (hatched area). The plate and gussets are labeled as A36 material. The gusset is labeled as "GUSSET (TYP.)".



GROUNDING PROVISION NUT -  
RETAINER C24774 WELDED  
TO HANDHOLE FRAME W/SST  
1/2-13 SQ NUT AND SST  
HEX BOLT 3/4" LG.

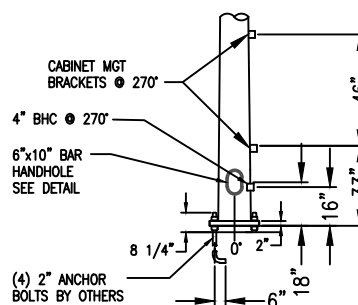
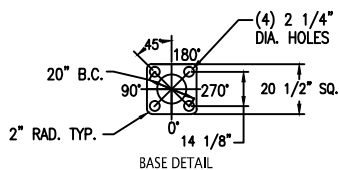


### 6" x10" BAR HANDHOLE DETAIL

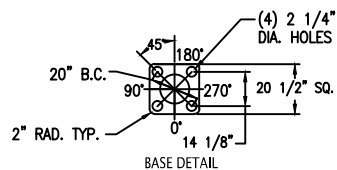


4" x 6 1/2" BAR HANDHOLE DETAIL

### BASE DETAIL WITH DETECTOR CABINET



### BASE DETAIL WITH CONTROLLER CABINET



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STEEL POLE HAND HOLE, CABINET  
BRACKET & POLE BASE DETAIL

PLAN DATE: 10-11-2006

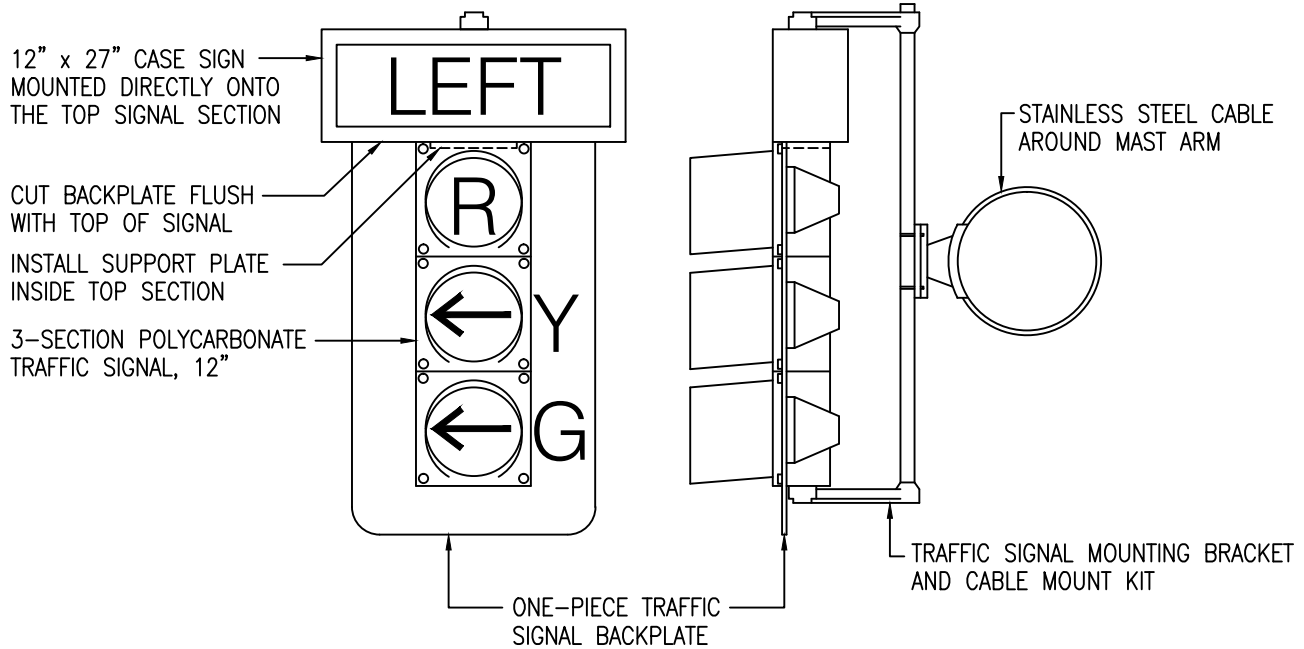
WASH-16

3 OF 5

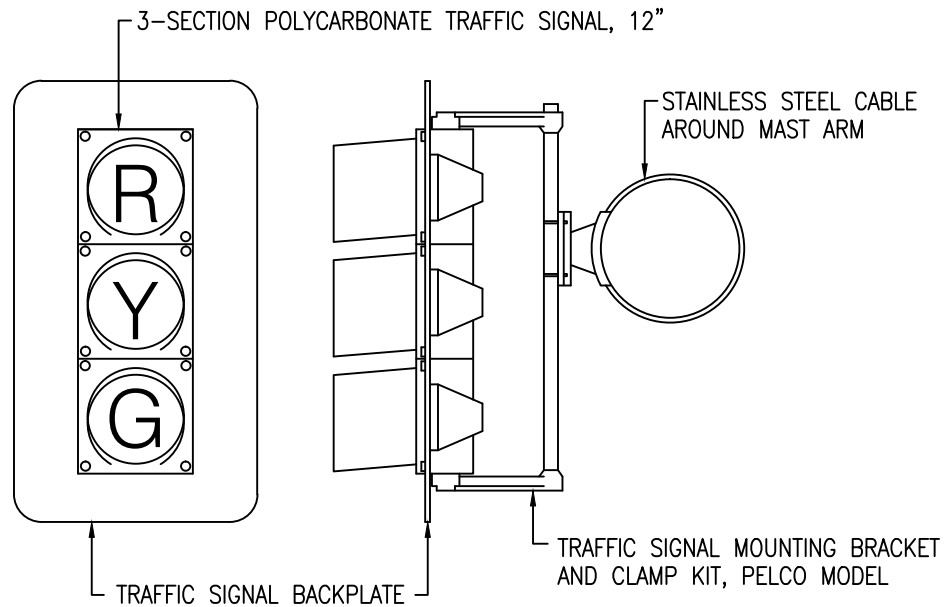
# TRAFFIC SIGNAL INSTALLATION ON MAST ARM (DETAIL )

NO SCALE

## 3-SECTION TRAFFIC SIGNAL, 12", WITH 12"x 27" CASE SIGN



## 3-SECTION TRAFFIC SIGNAL, 12"



### NOTE:

\* FASTEN BACKPLATE TO THE SIGNAL HEAD WITH HEX HEAD SELF-TAPPING SCREWS AND WASHERS, USING THE PERFORMED HOLES ON THE BACK OF EACH SIGNAL SECTION (4 SCREWS PER SECTION).

\* SEE MANUFACTURER RECOMMENDATION FOR TORQUE SETTING ON CABLE MOUNT CLAMP KITS



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APPROVED BY	B.M.S.	JULY '07

## TRAFFIC SIGNAL INSTALLATION ON MAST ARM

PLAN DATE: 09-28-2006

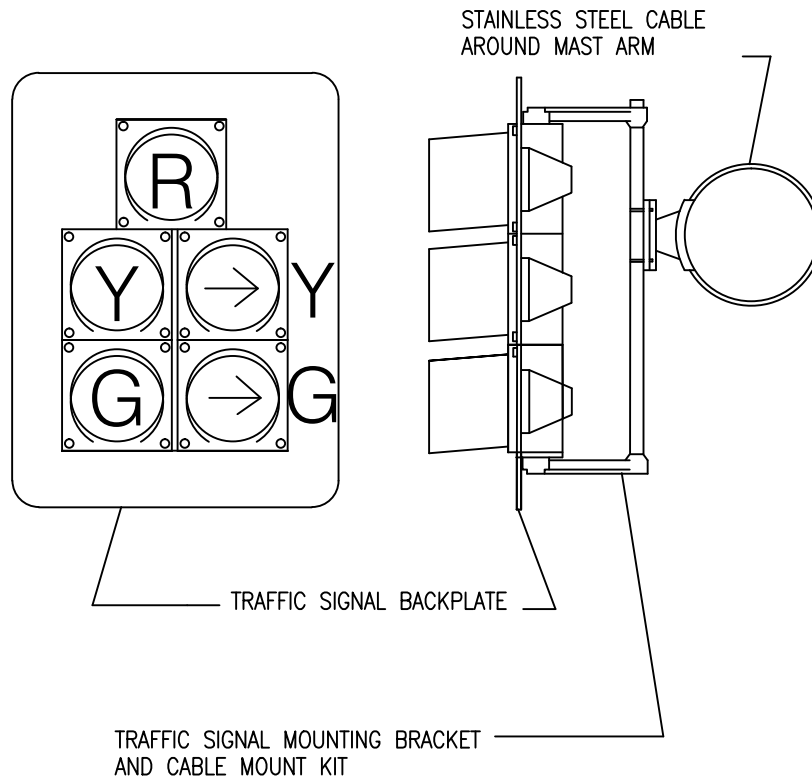
WASH-16

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# TRAFFIC SIGNAL INSTALLATION ON MAST ARM (DETAIL )

NO SCALE

## 5 SECTION TRAFFIC SIGNAL



### NOTE:

\* FASTEN BACKPLATE TO THE SIGNAL HEAD WITH HEX HEAD SELF-TAPPING SCREWS AND WASHERS, USING THE PERFORMED HOLES ON THE BACK OF EACH SIGNAL SECTION (4 SCREWS PER SECTION).

\* SEE MANUFACTURER RECOMMENDATION FOR TORQUE SETTING ON CABLE MOUNT CLAMP KITS



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### TRAFFIC SIGNAL INSTALLATION ON MAST ARM (5 SECTION HEAD)

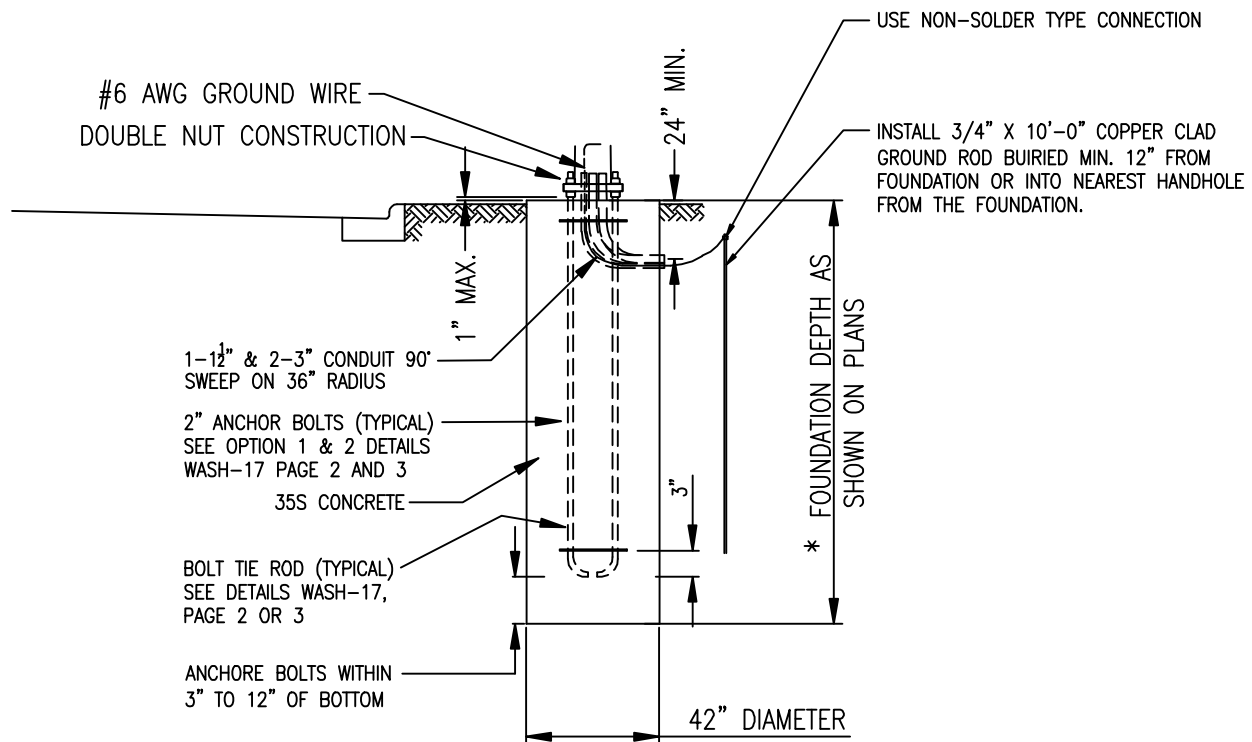
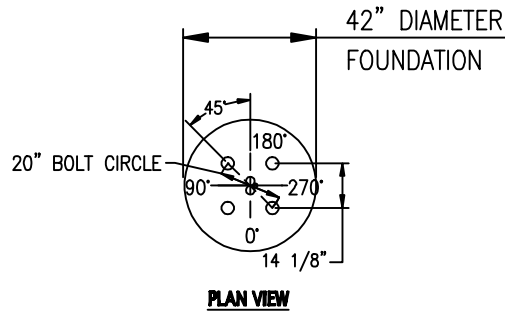
PLAN DATE: 09-28-2006

WASH-16

5 OF 5

# STEEL MAST ARM POLE FOUNDATION

NO SCALE



## NOTES:

\* FOUNDATION DEPTH FOR SINGLE MAST ARM USE 16.0' MIN.

\* FOUNDATION DEPTH FOR DOUBLE MAST ARM USE 18.5' MIN.

ALTERNATE 42" DIAMETER FOUNDATION DEPTHS CAN BE DESIGNED BASED ON MDOT SIG-280-A FOUNDATION DEPTH AND SOIL TABLE AND SUBMITTED FOR EVALUATION AND APPROVAL OF THE ENGINEER.

ALL GROUNDS SHALL PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND



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APPROVED BY	B.M.S.	JULY '07

## MAST ARM FOUNDATION

PLAN DATE: 07-01-2009

WASH-17

1 OF 4

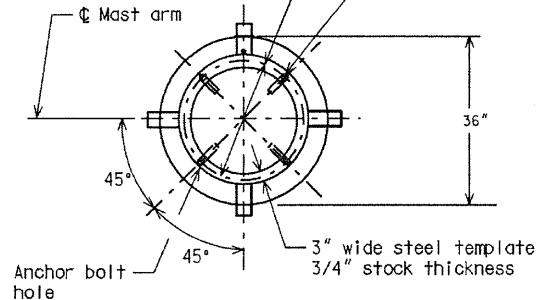
**Notes:**

1. Anchor bolts shall be set and held vertical at the correct location and at the proper elevation with a 3/4" steel (or approved equal) template a minimum of 24 hours after the concrete placement has been completed. Each set of four bolts shall be tied together by welding into a basket with #6 bar circle or approved equal. This is in addition to the steel template.

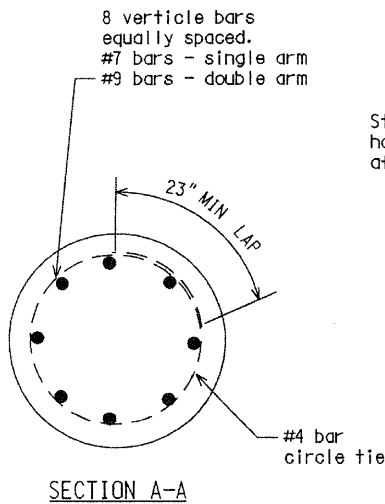
2. (4)- Anchor bolts with (2) Hex nuts.  
(2) washers per bolt with threaded end galvanized a minimum 20" per ASTM A153

**Anchor bolts - 2" dia. equally spaced at 90° on a 20" dia. bolt circle.**

**20" dia. bolt circle (typ.)**

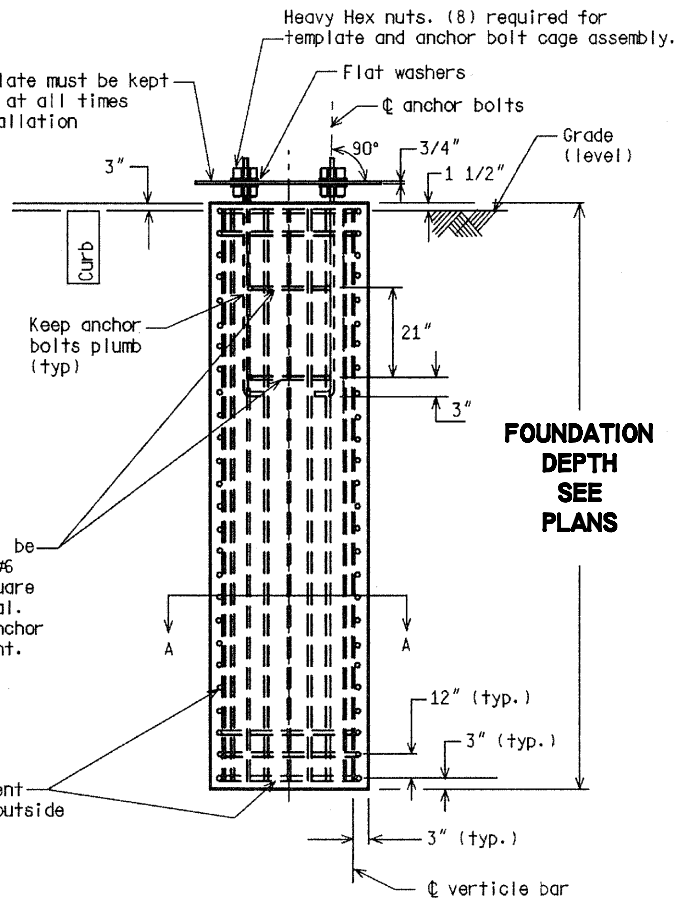


**PLAN VIEW**



**SECTION A-A**

Steel template must be kept horizontal at all times after installation



**ELEVATION**

**MAST ARM FOUNDATION (OPTION 1: WITH CAGE)**

**NO SCALE**



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APPROVED BY	B.M.S.	JULY '07

**MAST ARM FOUNDATION  
(OPTION 1 WITH CAGE)**

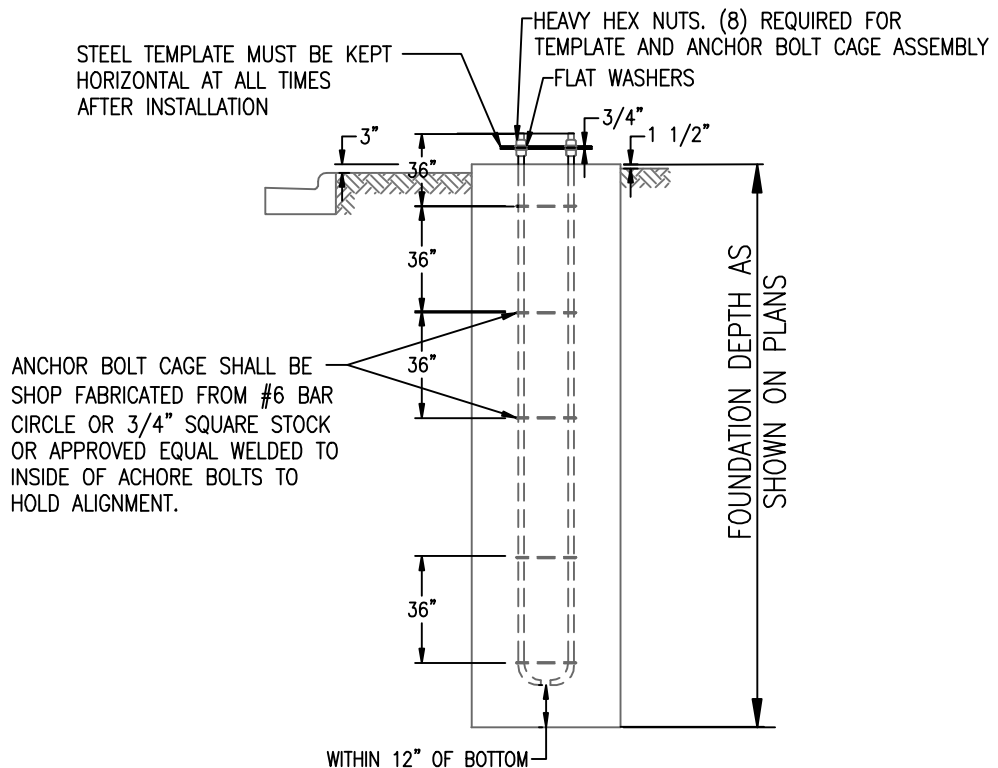
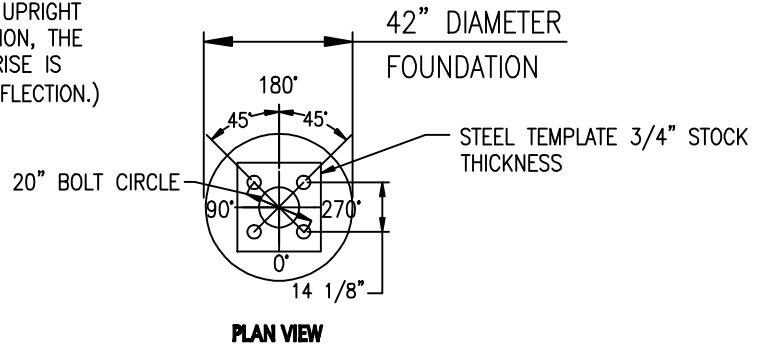
PLAN DATE: 07-01-2009

WASH-17

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NOTES:

1. ANCHOR BOLTS SHALL BE SET AND HELD VERTICAL AT THE CORRECT LOCATION AND AT THE PROPER ELEVATION WITH A 3/4" STEEL (OR APPROVED EQUAL) TEMPLATE A MINIMUM OF 24 HOURS AFTER THE CONCRETE PLACEMENT HAS BEEN COMPLETED. EACH SET OF FOUR BOLTS SHALL BE TIED TOGETHER BY WELDING INTO A BASKET WITH #6 BAR CIRCLE OR APPROVED EQUAL. THIS IS IN ADDITION TO THE STEEL TEMPLATE.
2. (4)- ANCHOR BOLTS WITH (2) HEX NUTS. (2) WASHERS PER BOLT WITH THREAD END GALVANIZED A MINIMUM 20" PER ASTM A153 (NO BEVELED WASHERS NEEDED TO PROVIDE THE POLE UPRIGHT TILT BACK TO OFFSET ARM POLE DEFLECTION, THE ARM TO POLE UPRIGHT CONNECTION 3% RISE IS FABRICATED TO COMPENSATE FOR THIS DEFLECTION.)



**MAST ARM FOUNDATION  
(OPTION 2: WITHOUT CAGE)**



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CHECKED BY	B.M.S.	JULY '07
APPROVED BY	B.M.S.	JULY '07

**MAST ARM FOUNDATION  
(OPTION 2 WITHOUT CAGE)**

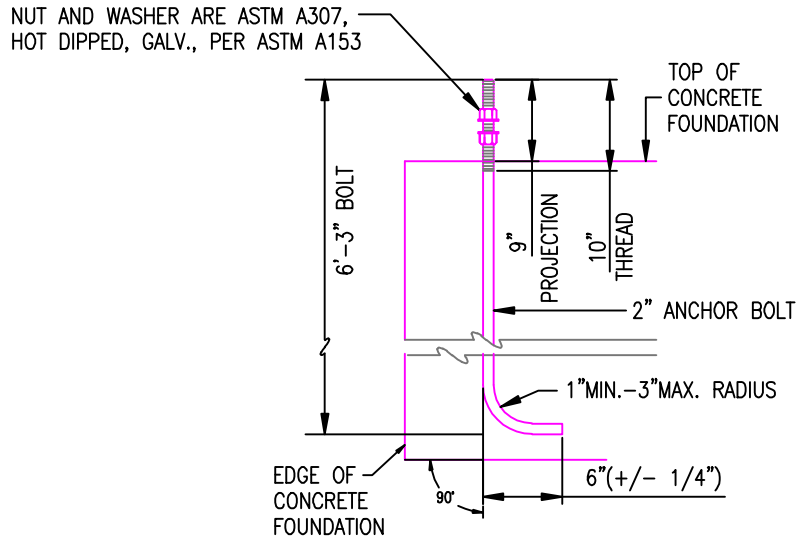
PLAN DATE: 07-01-2009

WASH-17

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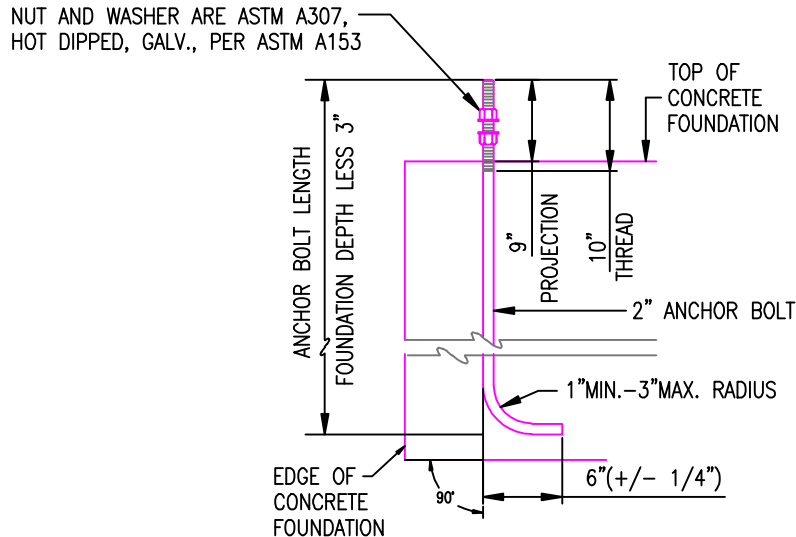
**STEEL MAST ARM POLE FOUNDATION ANCHOR BOLTS DETAILS**  
NO SCALE

**FOUNDATION ANCHOR BOLT DETAIL  
OPTION 1: WITH CAGE**



NOTE:  
ANCHOR BOLT MATERIAL REFER TO SECTION 908.15 A  
AND B OF THE MICHIGAN STANDARD SPECIFICATIONS FOR  
CONSTRUCTION

**FOUNDATION ANCHOR BOLT DETAIL  
OPTION 2: WITHOUT CAGE**



NOTE:  
ANCHOR BOLT MATERIAL REFER TO SECTION 908.15 A  
AND B OF THE MICHIGAN STANDARD SPECIFICATIONS FOR  
CONSTRUCTION



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APPROVED BY	B.M.S.	JULY '07

**MAST ARM FOUNDATION  
ANCHOR BOLT DETAIL**

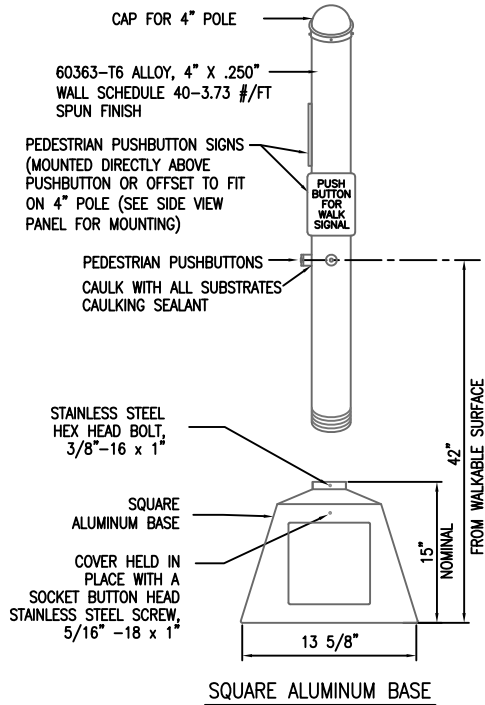
PLAN DATE: 7-01-2009

WASH-17

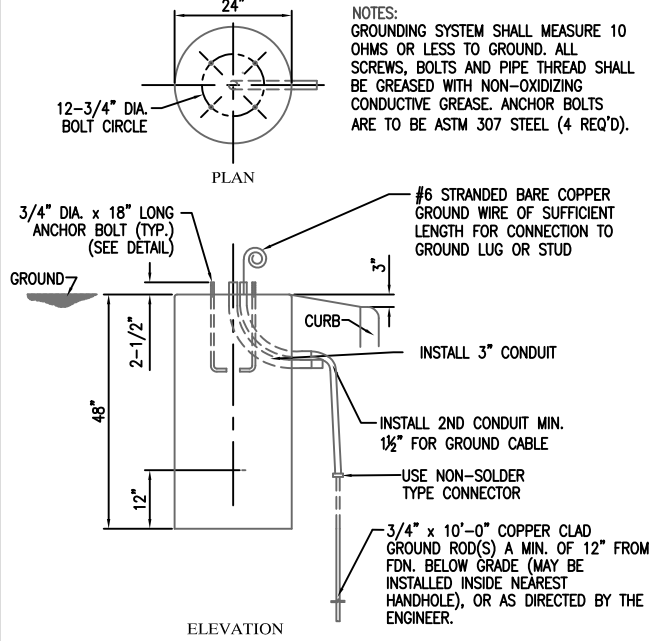
4 OF 4

**PEDESTRIAN PEDESTAL, FOUNDATION & BRACKETING**  
NO SCALE

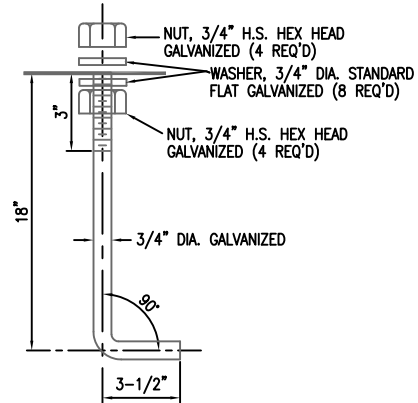
**PEDESTAL FOR PEDESTRIAN PUSH BUTTON**



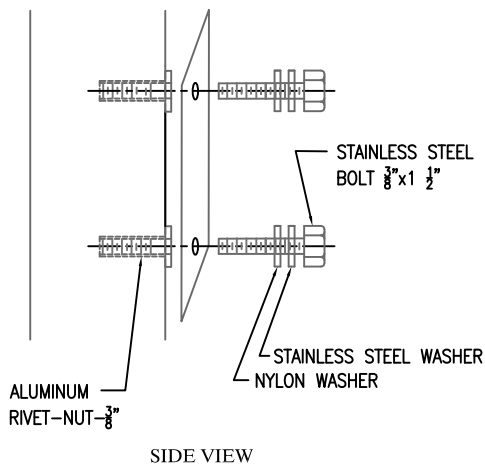
**PEDESTAL FOUNDATION**



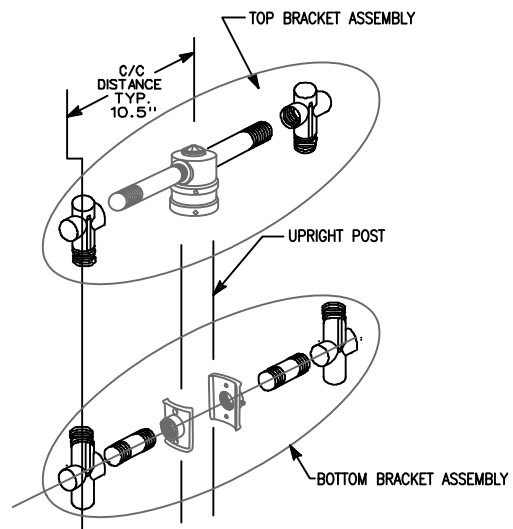
**ANCHOR BOLT DETAIL**



**PEDESTRIAN & PUSHBUTTON SIGNS (SIDE MOUNT DETAIL)**



**MOUNTING HARDWARE (ALTERNATE)**



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REVISED BY	B.L.H.	FEB. '19
CHECKED BY	B.M.S.	JUNE '14
APPROVED BY	J.P.Y.	FEB. '19

**PEDESTRIAN PEDESTAL, Foundation & BRACKETING**

PLAN DATE: 08-29-2006

WASH-18

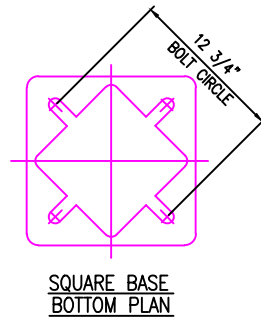
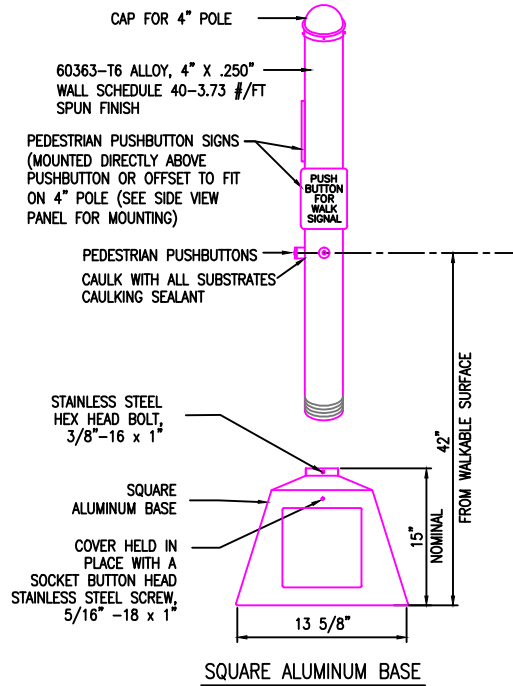
1 OF 2



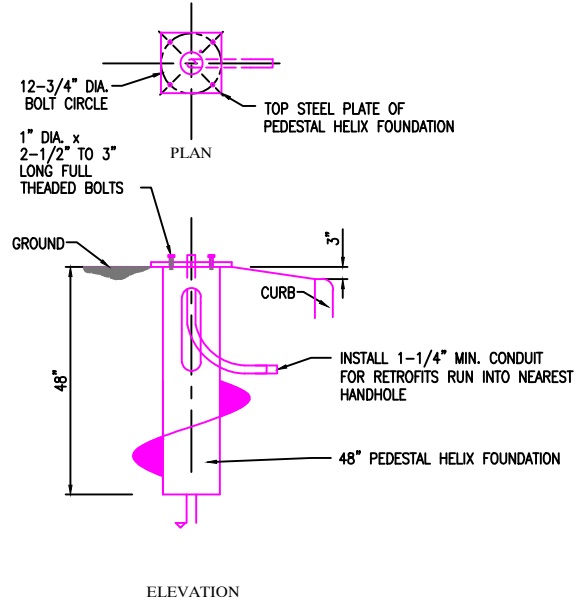
# PEDESTRIAN PEDESTAL FOR PUSHBUTTON AND FOUNDATION

NO SCALE

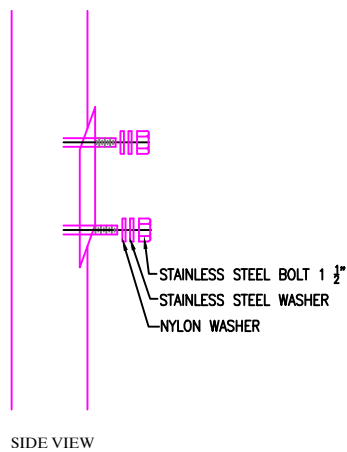
## PEDESTAL FOR PEDESTRIAN PUSH BUTTON



## PEDESTRIAN PUSH BUTTON FOUNDATION USING 48\" PEDESTAL HELIX FOUNDATION



## PEDESTRIAN PUSHBUTTON SIGN (SIDE MOUNT DETAIL)



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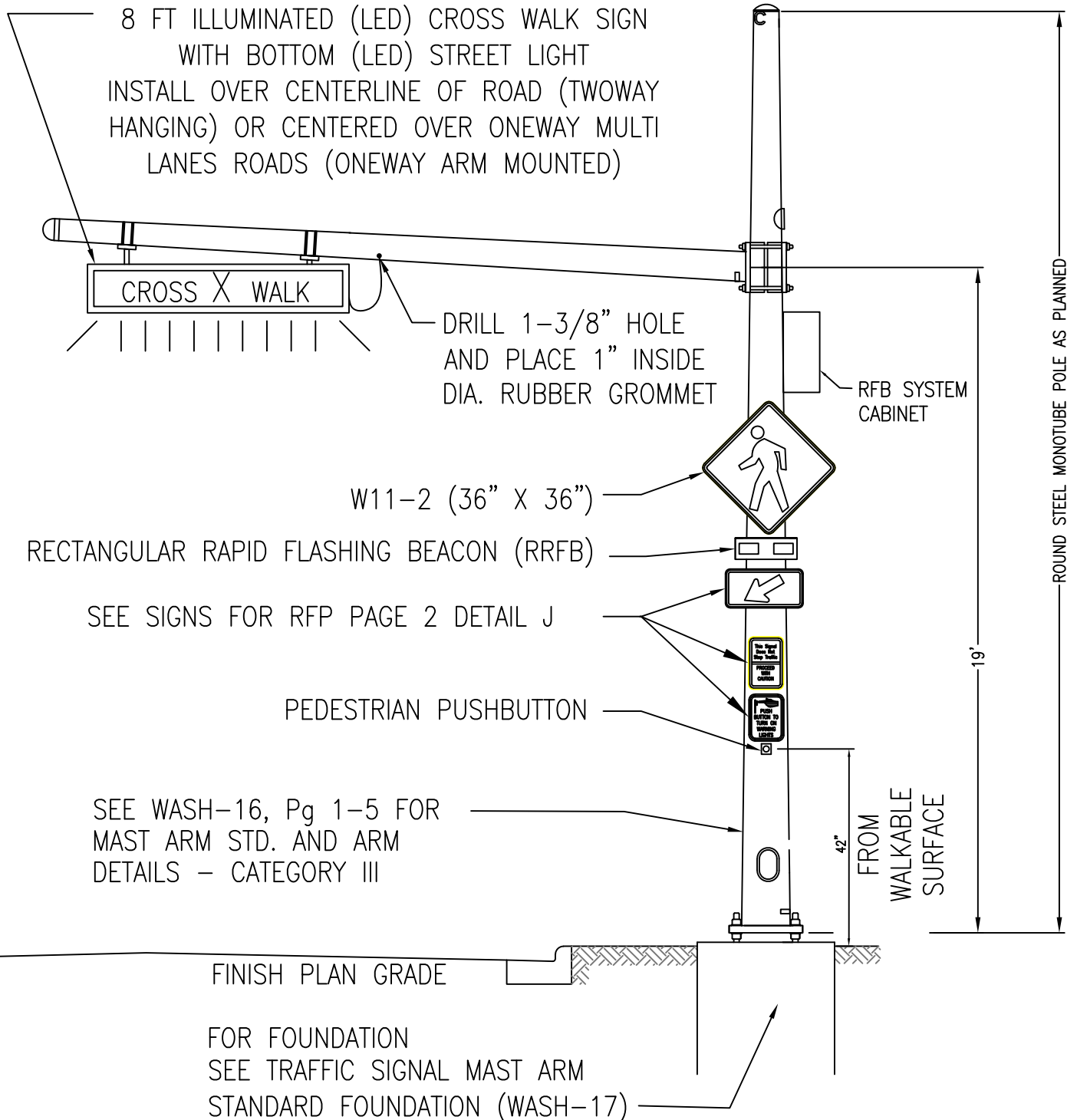
	INITIALS	DATE
DRAWN BY	J.S.W.	FEB. '10
REVISED BY	J.S.W.	NOV. '15
CHECKED BY		
APPROVED BY	B.M.S.	NOV. '15

## PEDESTRIAN PEDESTAL, FOUNDATION & BRACKETING

PLAN DATE: 02-16-2010 WASH-18 2 OF 2

# RECTANGULAR RAPID FLASHING BEACON

NO SCALE



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REVISED BY	J.S.W.	MAR '17
CHECKED BY	B.M.S.	MAR '17
APPROVED BY	B.M.S.	MAR '17

RRFB WITH MAST ARM POLE AND  
MAST ARM STD. - CATEGORY III

PLAN DATE: 01-28-2020

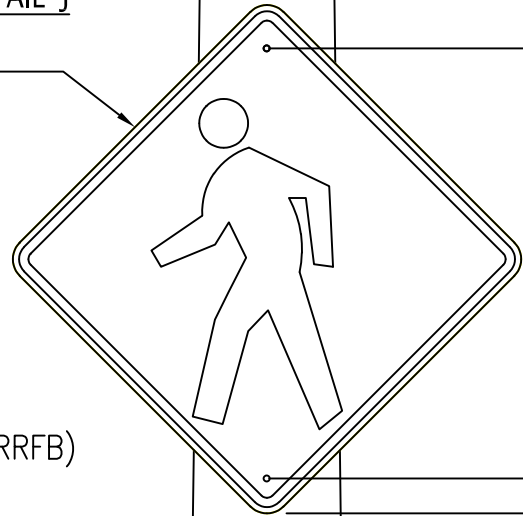
WASH-19

1 OF 3

RECTANGULAR RAPID FLASHING BEACON  
NO SCALE

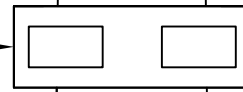
DETAIL J

Sign Code W11-2 (36"x36") y/g  
Include Sign Back Plate  
Between Sign and Pole  
Use MDOT typical for hole spacing

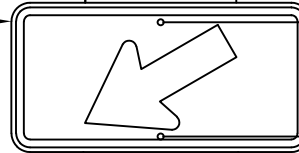


36" hole spacing

RECTANGULAR RAPID FLASHING BEACON (RRFB)



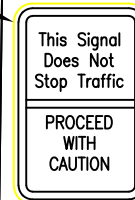
Sign Code W16-7PR (24"x12") y/g  
Include Sign Back Plate  
Between Sign and Pole  
Use MDOT typical for hole spacing



9" hole spacing

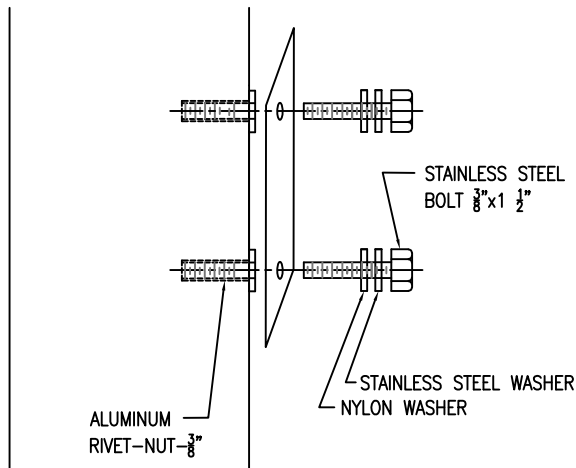
Sign Code Special (12"x18") y/g

Sign Code R10-25 (9"x12") w/b



7' MIN. BOTTOM HEIGHT

ALL PEDESTRIAN & PUSHBUTTON SIGNS  
(SIDE MOUNT DETAIL)



SIDE VIEW



PEDESTRIAN  
PUSHBUTTON

42"  
FROM WALKABLE  
SURFACE



555 N. ZEEB RD.  
ANN ARBOR, MI 48103-1556  
734-761-1500  
Fax 734-761-3737

	INITIALS	DATE
DRAWN BY	J.S.W.	MAR '16
REVISED BY	R.L.H.	JAN '20
CHECKED BY	B.M.S.	MAR '17
APPROVED BY	B.M.S.	MAR '17

RRFB With Signs on  
Mast Arm Pole

PLAN DATE: 01-28-2020

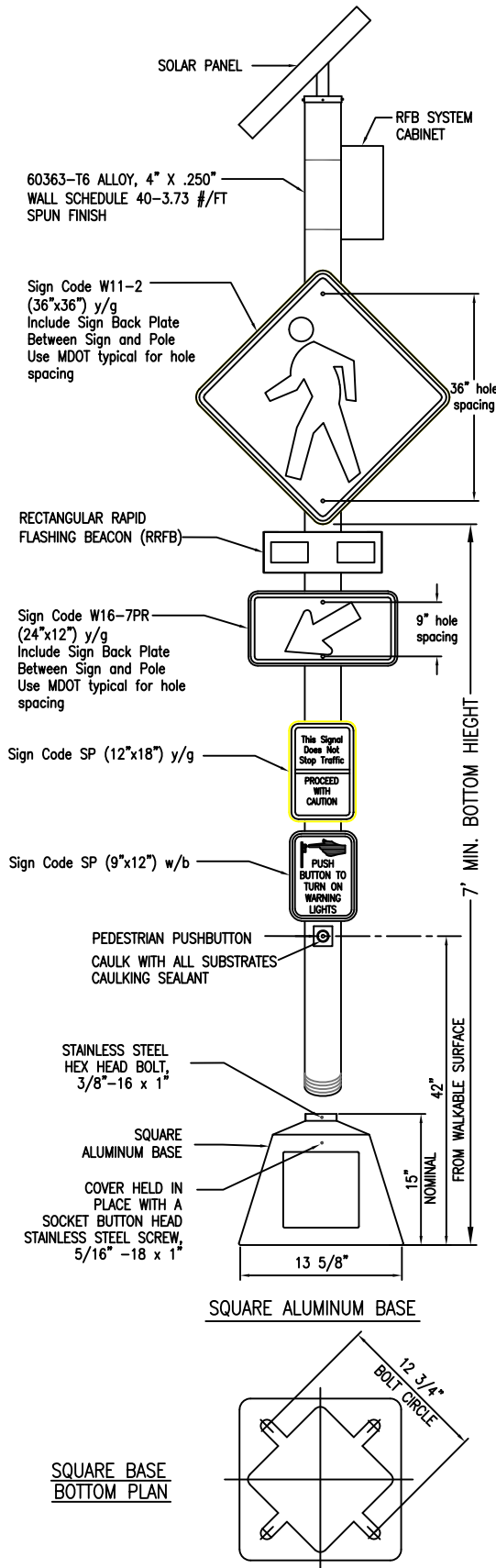
WASH-19

2 OF 3

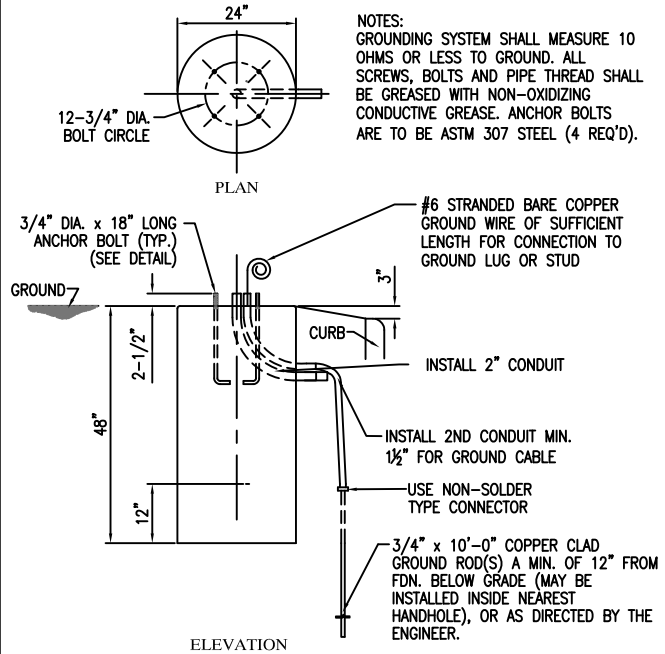
# RECTANGULAR RAPID FLASHING BEACON

NO SCALE

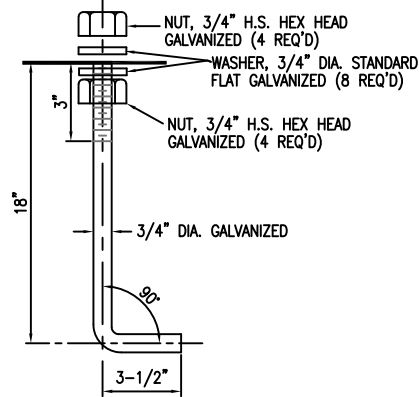
## PEDESTAL FOR PEDESTRIAN PUSH BUTTON



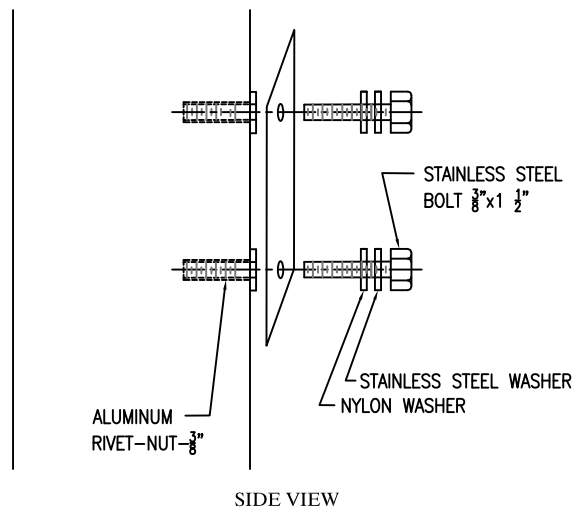
## PEDESTAL FOUNDATION



## ANCHOR BOLT DETAIL



## ALL PEDESTRIAN & PUSHBUTTON SIGNS (SIDE MOUNT DETAIL)



SIDE VIEW



555 N. ZEEB RD.  
ANN ARBOR, MI 48103-1556  
734-761-1500  
Fax 734-761-3737

	INITIALS	DATE
DRAWN BY	J.S.W.	FEB '10
REVISED BY	R.L.H.	JAN '20
CHECKED BY	B.M.S.	MAR '17
APPROVED BY	B.M.S.	MAR '17

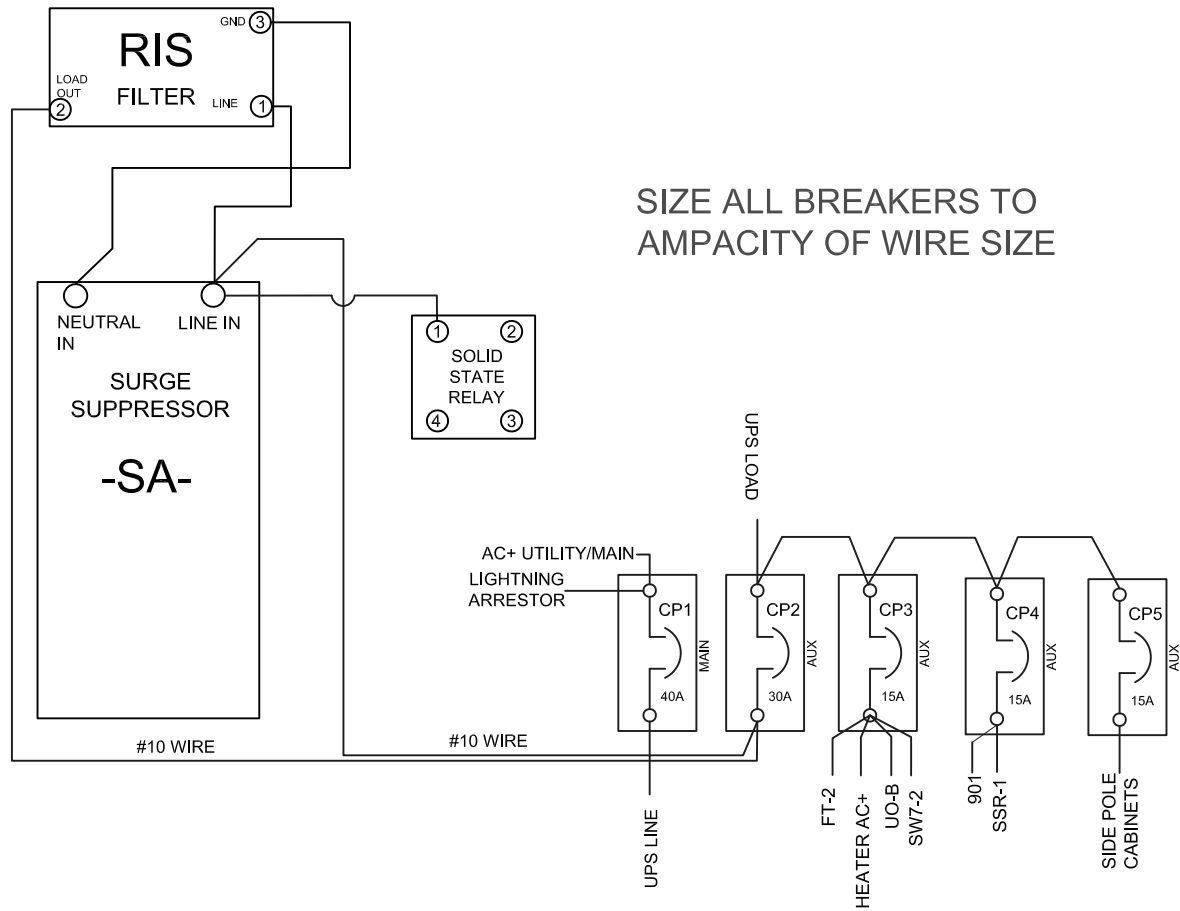
RRFB WITH PEDESTRIAN PEDESTAL

PLAN DATE: 01-28-2020

WASH-19

3 OF 3

**UNINTERRUPTIBLE POWER SUPPLY STANDARD WIRING DIAGRAM**  
NO SCALE



555 N. ZEEB RD.  
ANN ARBOR, MI 48103-1556  
734-761-1500  
Fax 734-761-3737

	INITIALS	DATE
DRAWN BY	B.L.H.	FEB '19
REVISED BY	XXX	XXX
CHECKED BY	J.P.Y.	FEB '19
APPROVED BY	J.P.Y.	FEB '19

**UNINTERRUPTIBLE POWER SUPPLY  
STANDARD WIRING DIAGRAM**

PLAN DATE: 02-15-2019

WASH-20

1 OF 1