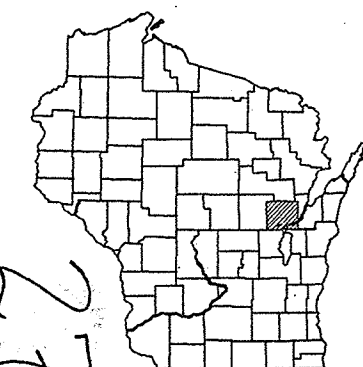


Sheet No. 1	Title
Sheet No. 2.1 - 2.10	Typical Sections and Details
Sheet No. 3.1 - 3.2	Estimate of Quantities
Sheet No. 3A	Miscellaneous Quantities
Sheet No. -	Right of Way Plat
Sheet No. 5.1 - 5.3	Plan and Profile
Sheet No. 6.1 - 6.14	Standard Detail Drawings
Sheet No. -	Sign Plates
Sheet No. -	Structure Plans
Sheet No. -	Computer Earthwork Data
Sheet No. -	Cross Sections

TOTAL SHEETS = 31

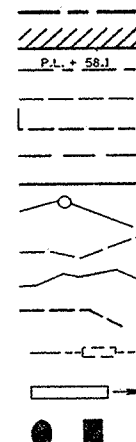


A.D.T.	(1996)	=	5545
A.D.T.	(2010)	=	15,900
D.H.V.		=	1590
D.		=	60-40
T.		=	10.0%
DESIGN SPEED		=	45 MPH
ESALS		=	

COUNTY LINE
CORPORATE LIMITS
PROPERTY LINE
LOT LINE
LIMITED EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE
SURVEY LINE

SLOPE INTERCEPT
ORIGINAL GROUND
MARSH OR ROCK PROFILE

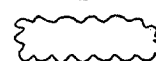
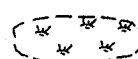
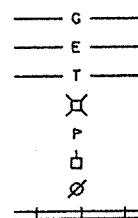
EXISTING CULVERT
PROPOSED CULVERT
(Box or Pipe)
CULVERT (Profile View)



UNDERGROUND UTILITIES
GAS
ELECTRIC
TELEPHONE OR TELEGRAPH
SERVICE PEDESTAL
CABLE MARKER
POWER POLE
TELEPHONE POLE
RAILROAD
MARSH AREA

MARSH AREA

WOODED OR SHRUB AREA

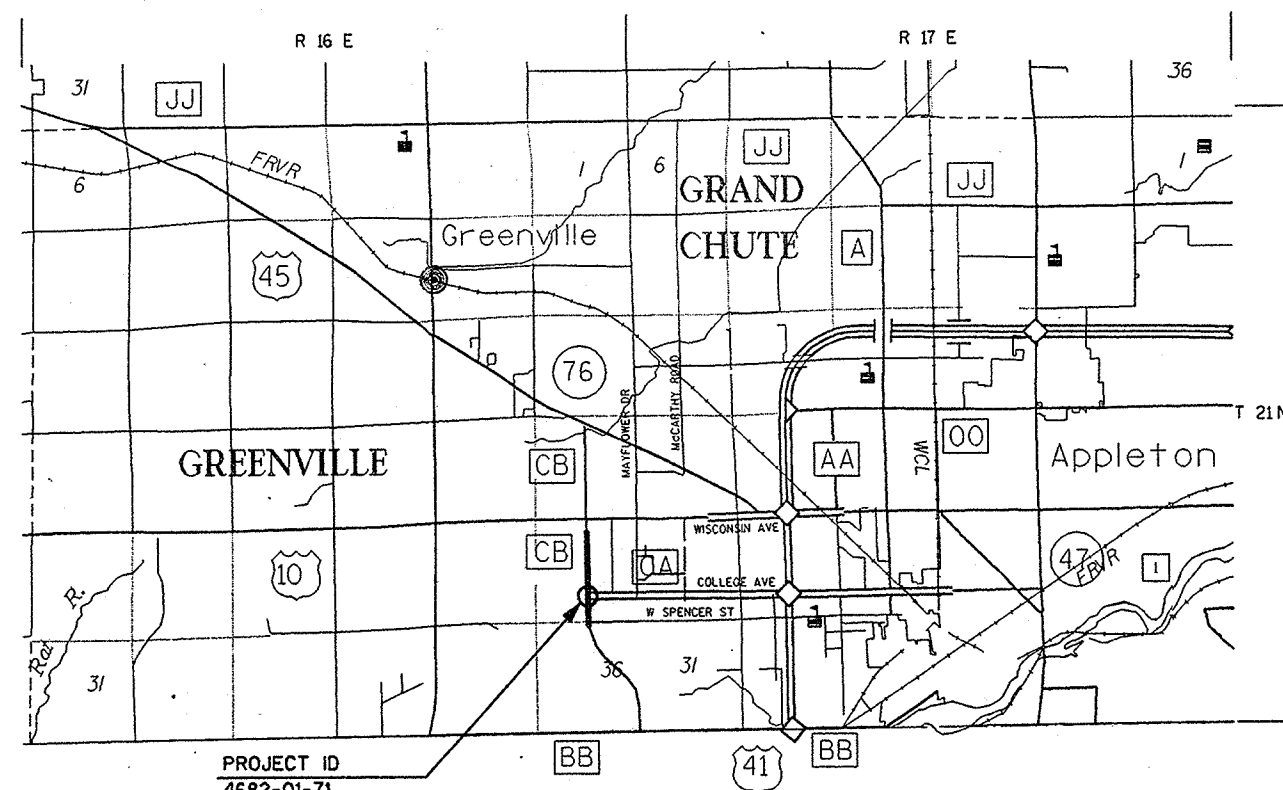


PLAN OF PROPOSED IMPROVEMENT

CTH CB & CTH CA INTERSECTION
CTH CB

OUTAGAMIE COUNTY

STATE PROJECT NUMBER
4682-01-71



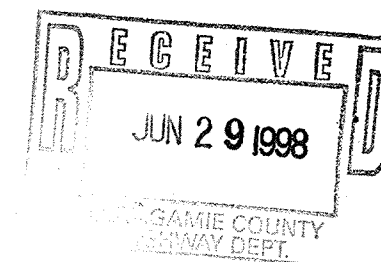
PROJECT ID
4682-01-71

LAYOUT

SCALE 0 1 Mi.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI. (SIGNALS)

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4682-01-71	STP 1998 580	1



0.2

ACCEPTED FOR
OUTAGAMIE COUNTY
3/19/98 (Date) *M. L. M...* (Signature)

ORIGINAL PLANS PREPARED BY



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	OMNNI ASSOCIATES
Designer	OMNNI ASSOCIATES
District Examiner	
District Supervisor	J. LAMERS
Proj. Dev. Engineer	
C.O. Examiner	J. GOODMAN

APPROVED FOR DISTRICT OFFICE
DATE: 3/27/98 James James (Signature)

APPROVED FOR CENTRAL OFFICE TRAFFIC
DATE: 5/8/98 [Signature]
(Signature)

CR-9

STANDARD DETAIL DRAWINGS

- 9B2-6 CONDUIT
- 9B4-3 PULL BOX
- 9C2-2 CONCRETE BASES, TYPES 1,2, AND 5
- 9C3-2 TRANSFORMER/PEDESTAL BASE
- 9C5-2 CONCRETE CONTROL CABINET BASES
- 9D1-2 CABINET SERVICE INSTALLATION
- 9E1-2a POLE MOUNTINGS FOR TRAFFIC SIGNALS, TYPE 2
- 9E1-2b POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHT UNITS, TYPE 3
- 9E1-2c POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 4
- 9E1-2f HARDWARE DETAILS FOR POLE MOUNTINGS
- 9E6-1 TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTING (TYPICAL) 13 FEET OR 15 FEET
- 9F1-2 DETAILS FOR THE INSTALLATION OF TRAFFIC SIGNAL AND TRAFFIC COUNTER
- 9F1-2 LOOP DETECTOR WIRES IN PAVEMENT IN PLACE
- 9F8-2 LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
- 15C12-2 TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

UTILITIES

- ELECTRIC
WISCONSIN ELECTRIC POWER COMPANY
P.O. BOX 1639
APPLETON, WISCONSIN 54913
ATTN: BUDGET ENGINEERING SUPERVISOR
TELEPHONE: (920) 735-8445
- TELEPHONE
AMERITECH
221 W. WASHINGTON STREET
FOURTH FLOOR, OSPE
APPLETON, WISCONSIN 54911
ATTN: MR. JOHN STUMPF
TELEPHONE: (920) 735-3250
CABLE LOCATE: (800) 242-8511 (TOLL FREE)
- GAS
WISCONSIN ELECTRIC POWER COMPANY
GAS DIVISION
800 SOUTH LYNNDAL DRIVE
APPLETON, WISCONSIN 54914
ATTN: MR. DENNIS GIRARD
TELEPHONE: (920) 735-8466
- WATER AND
SANITARY SEWER
TOWN OF GREENVILLE
P.O. BOX 60
GREENVILLE, WISCONSIN 54942
ATTN: MR. DON SCHINKE
TELEPHONE: (920) 757-5151
- DIGGERS HOTLINE
CABLE LOCATE
TELEPHONE: (800) 242-8511 (TOLL FREE)
- DNR LIAISON
MS. KELLEY O'CONNOR
WDNR - LAKE MICHIGAN DISTRICT
1125 N. MILITARY AVENUE
GREEN BAY, WISCONSIN 54307-0448
TELEPHONE: (920) 492-5819
- TRAFFIC SIGNALS
CITY OF APPLETON
100 NORTH APPLETON STREET
APPLETON, WISCONSIN 54911
ATTN: MR. GREG HANSON
TELEPHONE: (920) 832-6474

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

CURVE DATA BASED ON ARC DEFINITION.

BEARINGS SHOWN ON THIS PLAN ARE GRID BEARINGS.

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

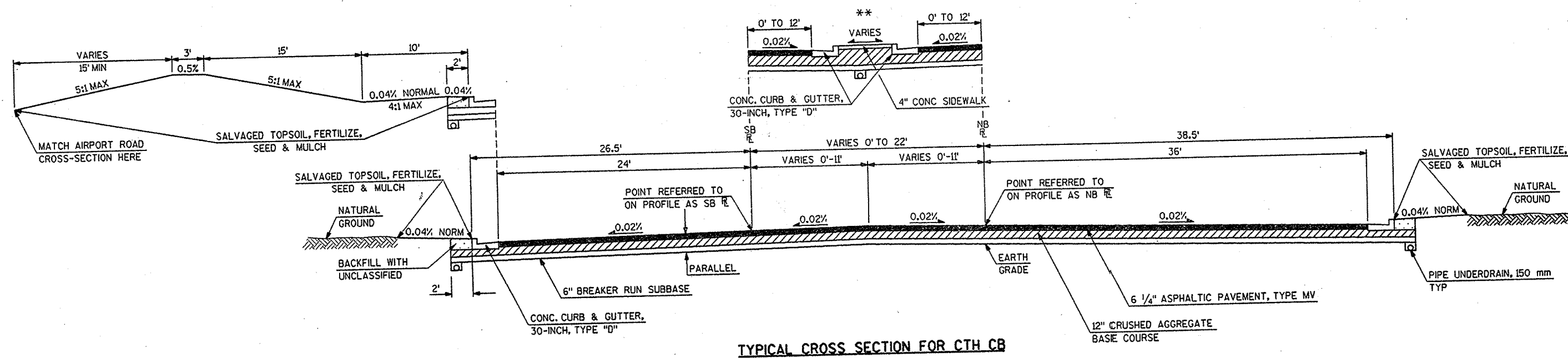
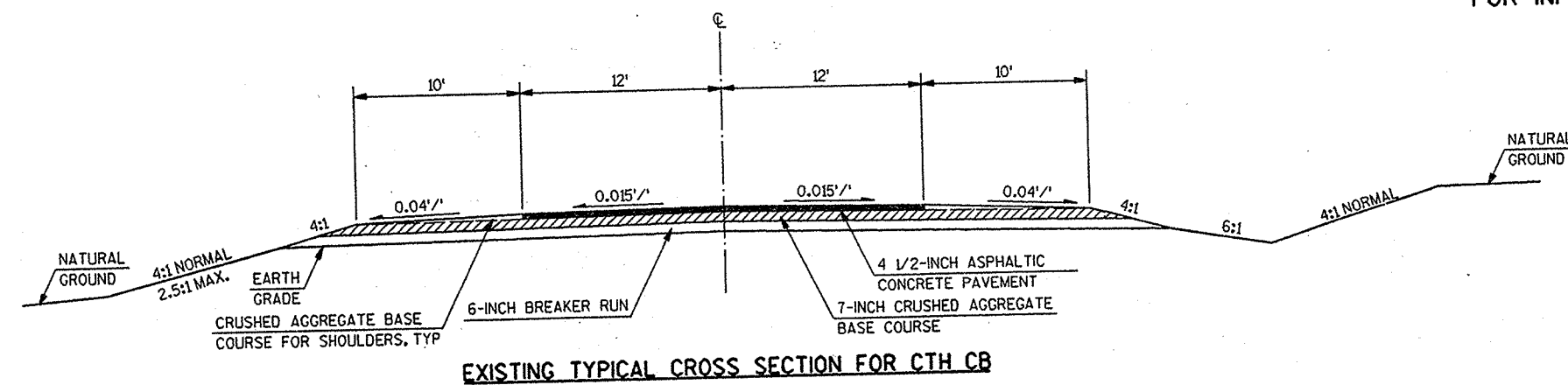
CONVERSION FACTOR = 0.999935

PLAN ELEVATIONS = USGS DATUM.

ALL COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COORDINATE SYSTEM, CENTRAL ZONE.

TYPICAL SECTIONS
FOR
CTH CB (TWO MILE DR) OUTAGAMIE CO

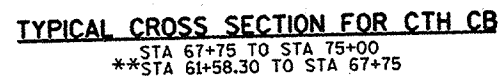
FOR INFORMATION ONLY



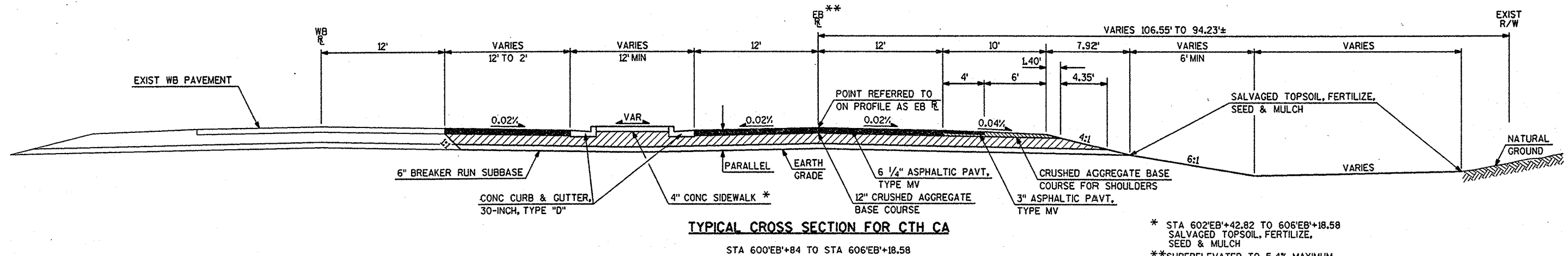
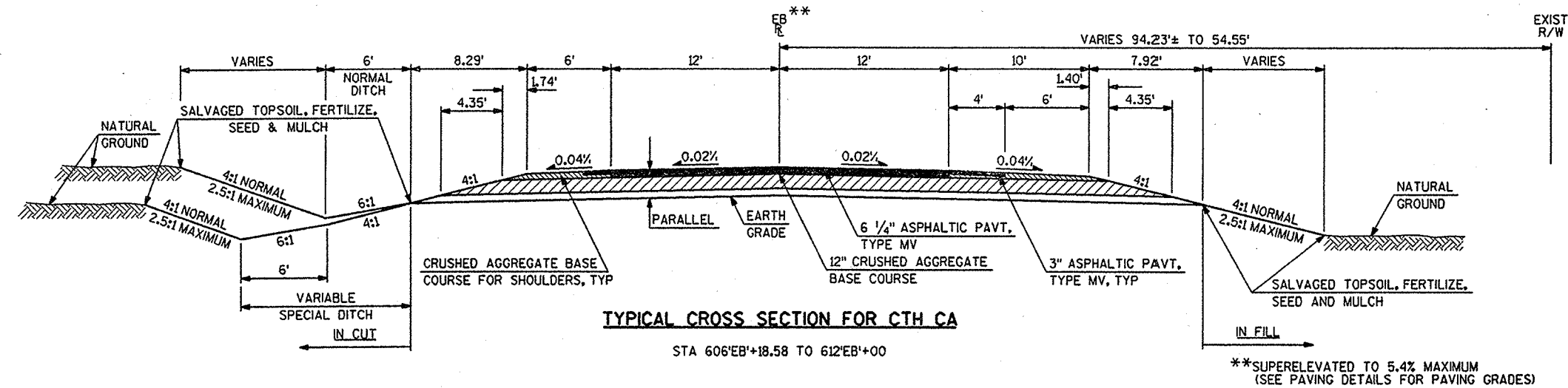
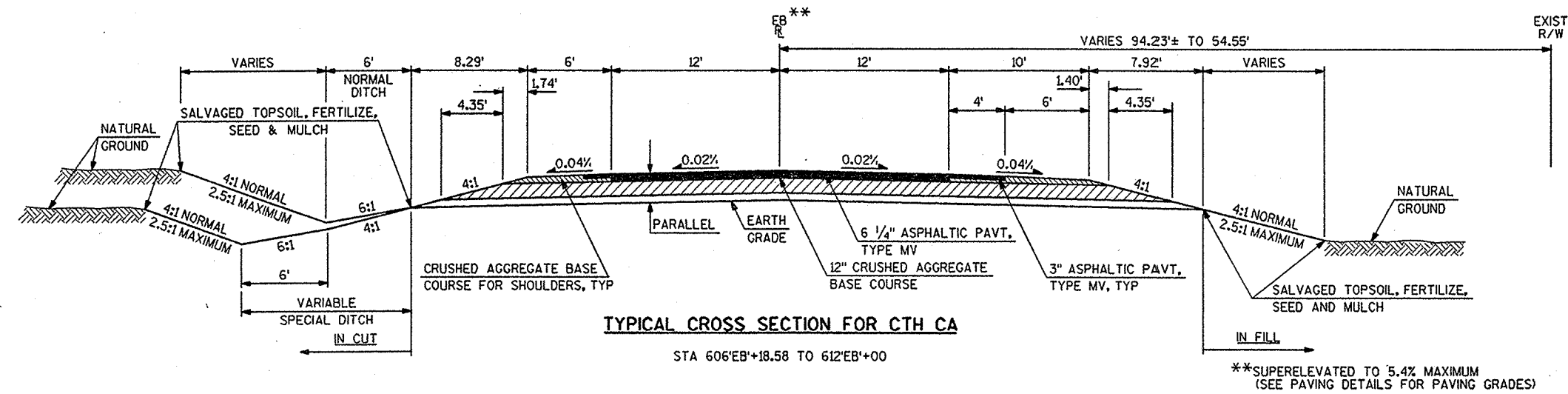
**STA 49+00 TO STA 61+58.30
STA 47+35.35 TO STA 49+00

OUTAGAMIE CO

FOR INFORMATION ONLY



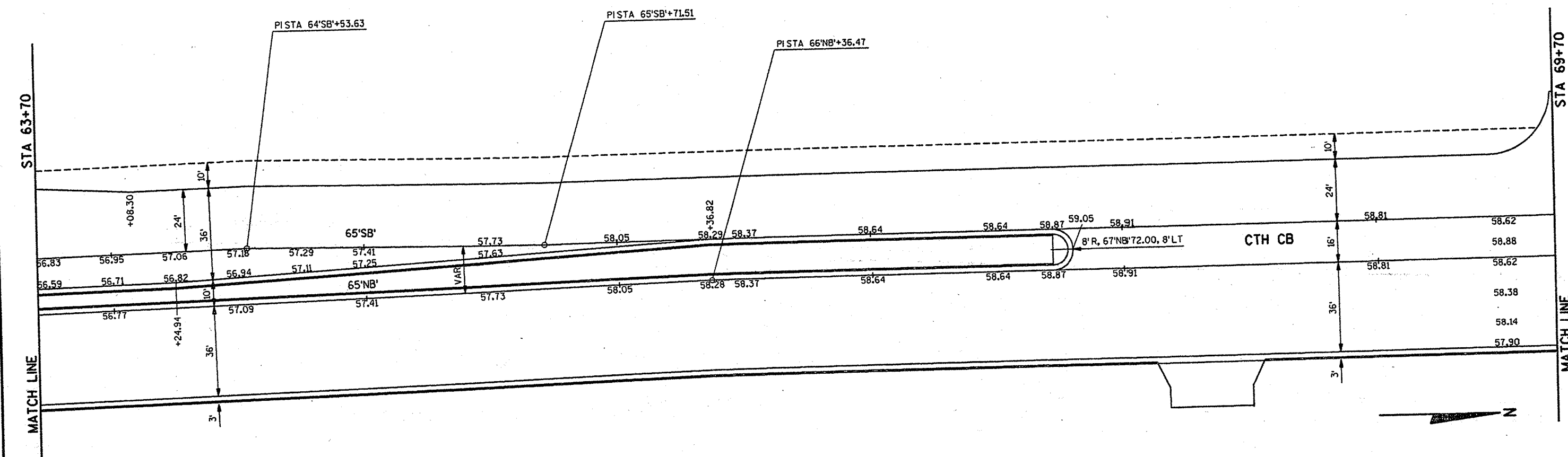
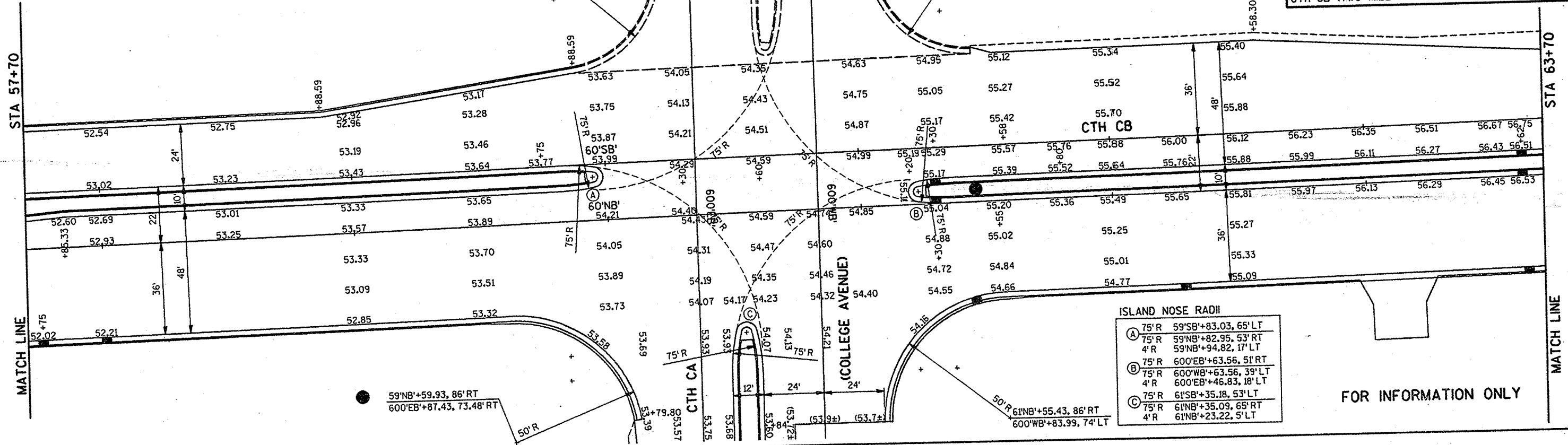
FOR INFORMATION ONLY



* STA 602'EB'+42.82 TO 606'EB'+18.58
SALVAGED TOPSOIL, FERTILIZE,
SEED & MULCH

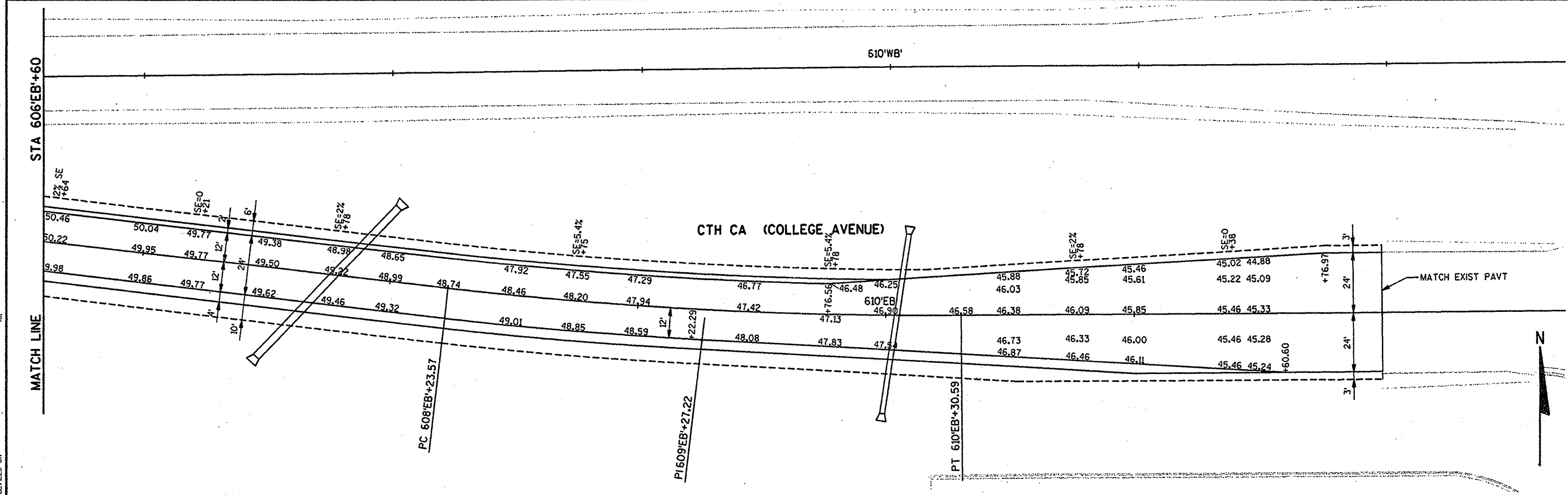
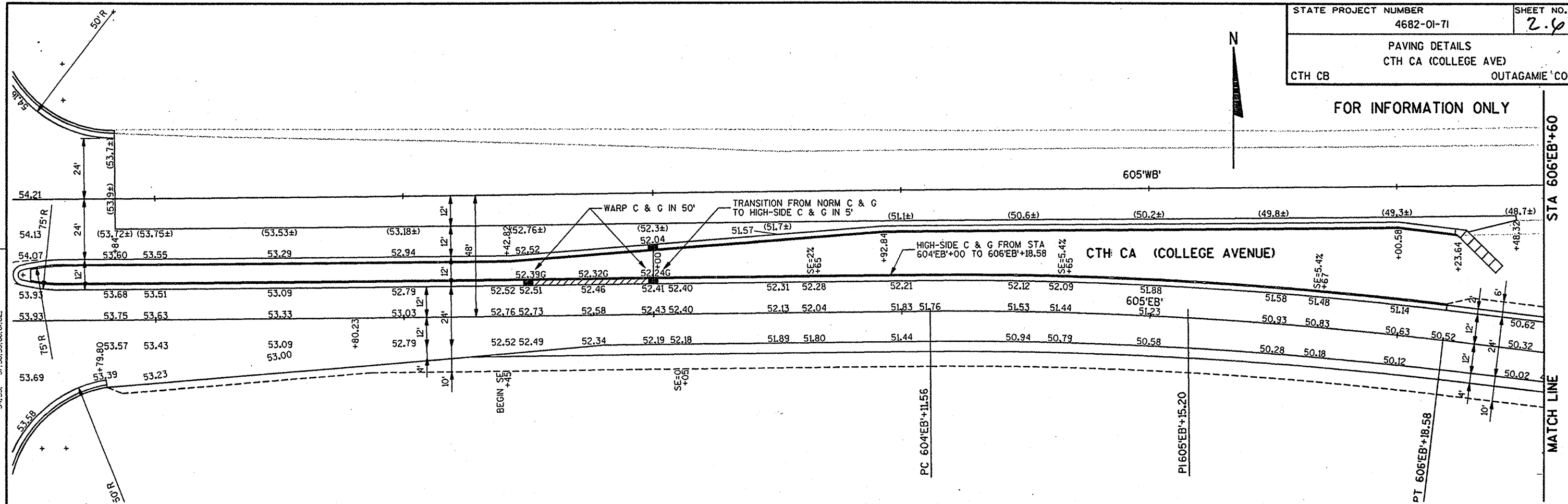
**SUPERELEVATED TO 5.4% MAXIMUM
(SEE PAVING DETAILS FOR PAVING GRADES)

LEVELS ON - 1, 2, 3, 4



FILE NAME: ENGRDWS/SHEETS /SIGNAL / PDCAD/DON TECH/ENGR: CRK/MAH PLOT DATE: 11/26/97
ORIGINATOR: OMNINI ASSOCIATES ONE SYSTEMS DRIVE APPLETON, WI 54914 REV. DATE: / 97
LEVELS ON - 16

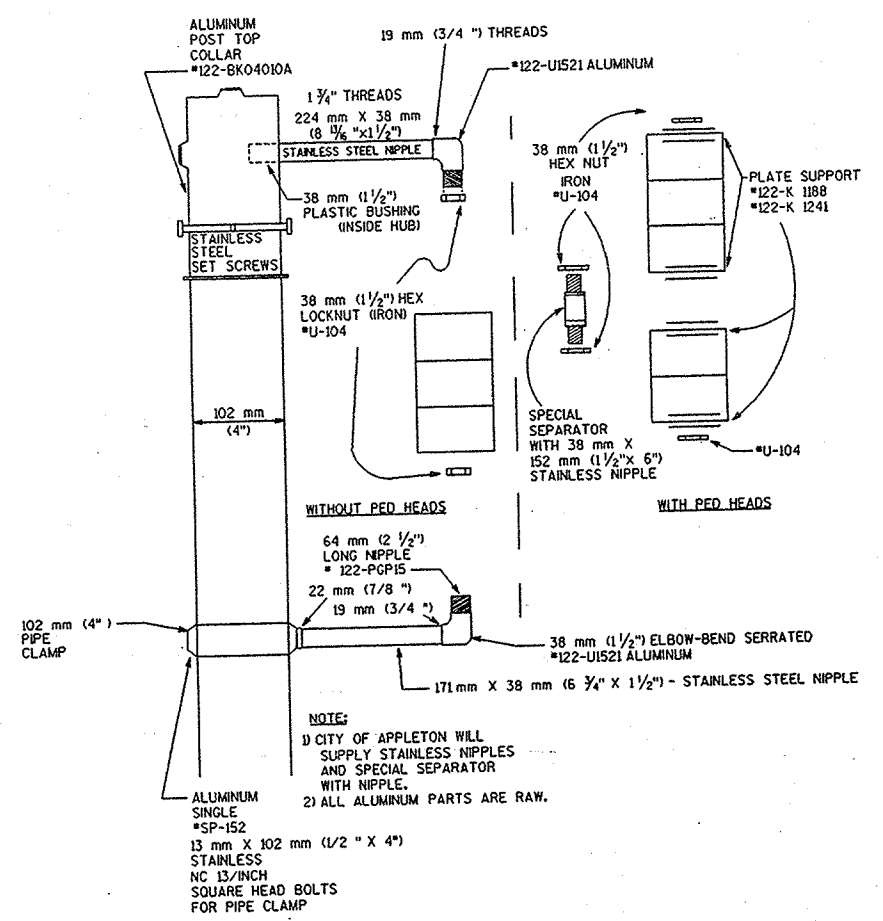
PLOT SCALE: 1" = 11'
54.55 57.58 59.62 61.62



CITY OF APPLETON TYPICAL TRAFFIC SIGNAL POLE AND HARDWARE ITEM LIST

SINGLE TRAFFIC STANDARD

NUMBER	ITEM
203-00014	BASE, ALUM. SO. NO PAINT, W/ALUM TAPCO DOOR PB-5334-01
373-13	PIPE, ALUM. SCHED 40, 6061-T6, 13', 4.5 O.D. T.D.E.
SA-103A-1111YBB	SIGNAL, 3 SEC 12" POLY W/TUN WISDOT SPEC
122-BPD503AN	BACKPLATES-VERTICAL
122-BK04010A	COLLAR POST TOP BK040-10A PN# A31435 UNPAINTED
SP-152	CLAMP 4", POLE, SING HUB UJ-152 UNPAINTED
122-K1188	PLATE SUPRT 2" HOLE K-1188 SM-0225-FHWA YEL
122-K1241	PLAT SUPRT 2.8125 K-1241 SM-0226-FHWA YEL
122-U104	LOCKNUTS U-104 P/N# M30244
122-U1521	ELBOW 1 END SERRATED U-1521 FROM U1616 & U847 PN# M311
122-PGP15	NIPPLE - 1 1/2" PGP-15 PN#380200
122-U-1616	RING, SERRATED U-1616 WHITE NYLON PN# M20466
SP-810526	SERRATED RING - ALUM-A-810526
122-EJ4	PUSHBUTTON PED. EJ4Y
SA-302B-1212YBB	SIGNAL, 2 SEC 12" PED SYMBOLS W/CUTAWAY VISORS



TRAFFIC STANDARD (SINGLE)

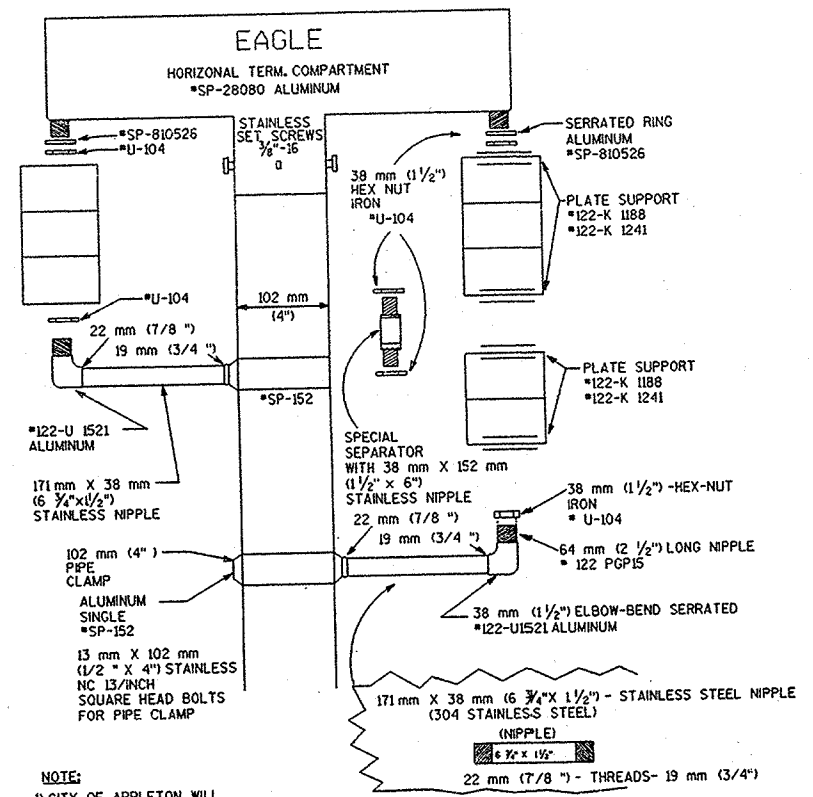
CITY OF APPLETON
TRAFFIC DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGNAL MOUNTING HARDWARE

CITY OF APPLETON TYPICAL TRAFFIC SIGNAL POLE AND HARDWARE ITEM LIST

DOUBLE TRAFFIC STANDARD

NUMBER	ITEM
203-00014	BASE, ALUM. SO. NO PAINT, W/ALUM TAPCO DOOR PB-5334-01
373-13	TRAFFIC SIGNAL STANDARDS, ALUMINUM, 13 FEET
SA-103A-1111YBB	TRAFFIC SIGNAL FACES, 3-12 VERTICAL WITH TUNNEL
122-BPD503AN	BACKPLATES - VERTICAL
SP-28080	COMP TERM HORIZ BK280-20A UNPAINTED
SP-152	CLAMP 4", POLE, SING HUB UJ-152 UNPAINTED
122-K1188	PLATE SUPRT 2" HOLE K-1188 SM-0225-FHWA YEL.
122-K1241	PLATE SUPRT 2.8125 K-1241 SM-0226-FHWA YEL
122-U104	LOCKNUTS U-104 P/N# M30244
122-U1521	ELBOW 1 END SERRATED U-1521 FROM U1616 & U847 PN# M311
122-PGP15	NIPPLE - 1 1/2" PGP-15 PN#380200
122-U-1616	RING, SERRATED U-1616 WHITE NYLON PN# M20466
SP-810526	SERRATED RING - ALUM-A-810526
122-EJ4	PUSHBUTTON PED. EJ4Y
SA-302B-1111YBB	PEDESTRIAN SIGNAL FACES, 12 INCH, CUT AWAY SYMBOL



TRAFFIC STANDARD (DOUBLE)

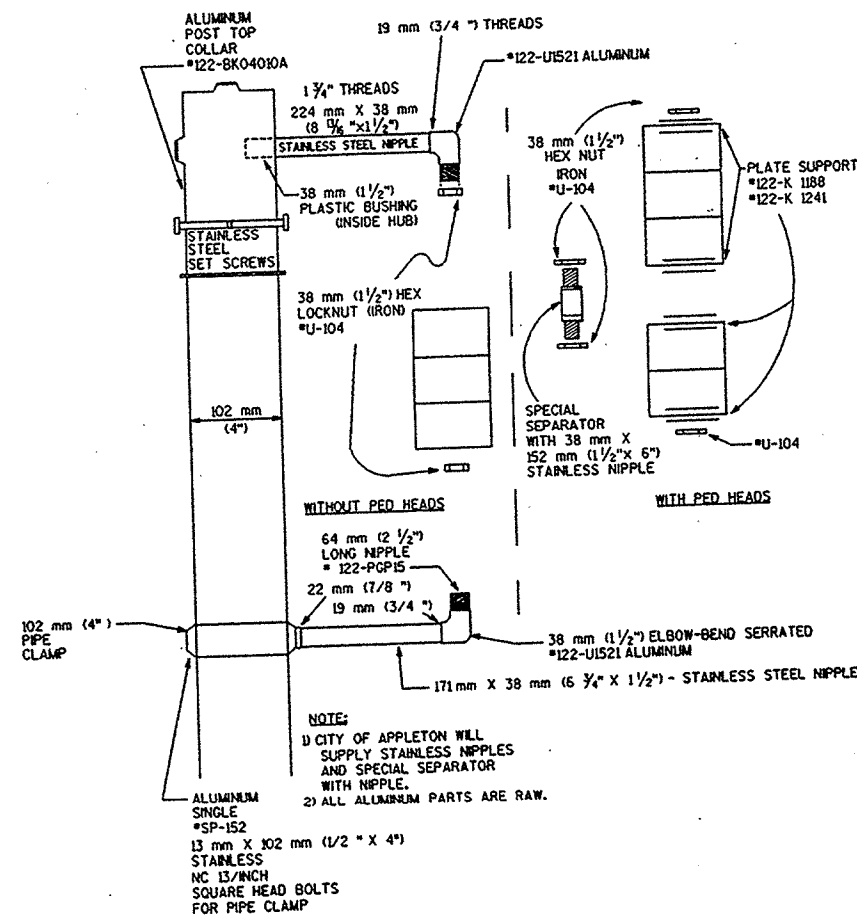
CITY OF APPLETON
TRAFFIC DIVISION
DEPARTMENT OF PUBLIC WORKS

CITY OF APPLETON TYPICAL TRAFFIC SIGNAL POLE AND HARDWARE ITEM LIST
SINGLE TRAFFIC STANDARD

NUMBER	ITEM
203-00014	BASE, ALUM. SO. NO PAINT, W/ALUM TAPCO DOOR PB-5334-01
373-13	PIPE, ALUM. SCHED 40, 6061-T6.13', 4.5 O.D. T.O.E.
SA-103A-1111YBB	SIGNAL, 3 SEC 12" POLY W/TUN WISDOT SPEC
122-8P0503AN	BACKPLATES-VERTICAL
122-BK04010A	COLLAR POST TOP BK040-10A PN# A31435 UNPAINTED
SP-152	CLAMP 4", POLE, SING HUB UJ-152 UNPAINTED
122-K1188	PLATE SUPRT 2" HOLE K-1188 SM-0225-FHWA YEL.
122-K1241	PLAT SUPRT 2.8125 K-1241 SM-0226-FHWA YEL
122-U104	LOCKNUTS U-104 P/N# M30244
122-U1521	ELBOW 1 END SERRATED U-1521 FROM U1616 & U847 PN# M311
122-PGP15	NIPPLE - 1 1/2" PGP-15 PN#380200
122-U-1616	RING, SERRATED U-1616 WHITE NYLON PN# M20466
SP-810526	SERRATED RING - ALUM-A-810526
122-EJ4	PUSHBUTTON PED. EJ4Y
SA-302B-1212YBB	SIGNAL, 2 SEC 12" PED SYMBOLS W/CUTAWAY VISORS

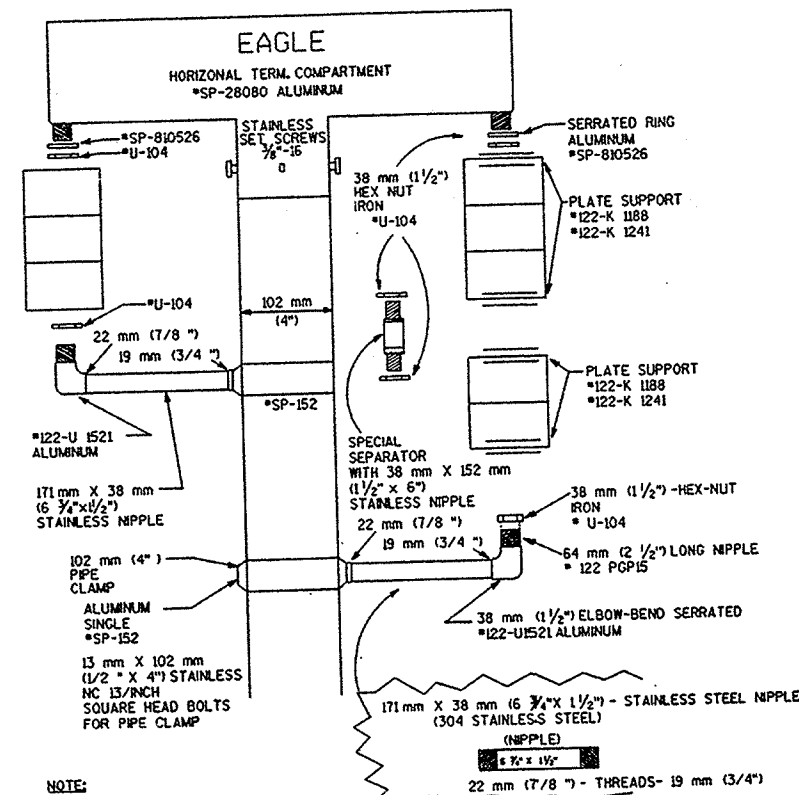
CITY OF APPLETON TYPICAL TRAFFIC SIGNAL POLE AND HARDWARE ITEM LIST
DOUBLE TRAFFIC STANDARD

NUMBER	ITEM
203-00014	BASE, ALUM. SO. NO PAINT, W/ALUM TAPCO DOOR PB-5334-01
373-13	TRAFFIC SIGNAL STANDARDS, ALUMINUM, 13 FEET
SA-103A-1111YBB	TRAFFIC SIGNAL FACES, 3-12 VERTICAL WITH TUNNEL
122-8P0503AN	BACKPLATES - VERTICAL
SP-28080	COMP TERM HORIZ BK280-20A UNPAINTED
SP-152	CLAMP 4", POLE, SING HUB UJ-152 UNPAINTED
122-K1188	PLATE SUPRT 2" HOLE K-1188 SM-0225-FHWA YEL.
122-K1241	PLATE SUPRT 2.8125 K-1241 SM-0226-FHWA YEL
122-U104	LOCKNUTS U-104 P/N# M30244
122-U1521	ELBOW 1 END SERRATED U-1521 FROM U1616 & U847 PN# M311
122-PGP15	NIPPLE - 1 1/2" PGP-15 PN#380200
122-U-1616	RING, SERRATED U-1616 WHITE NYLON PN# M20466
SP-810526	SERRATED RING - ALUM-A-810526
122-EJ4	PUSHBUTTON PED. EJ4Y
SA-302B-1111YBB	PEDESTRIAN SIGNAL FACES, 12 INCH. CUT AWAY SYMBOL



TRAFFIC STANDARD (SINGLE)

CITY OF APPLETON
TRAFFIC DIVISION
DEPARTMENT OF PUBLIC WORKS



TRAFFIC STANDARD (DOUBLE)

CITY OF APPLETON
TRAFFIC DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGNAL MOUNTING HARDWARE

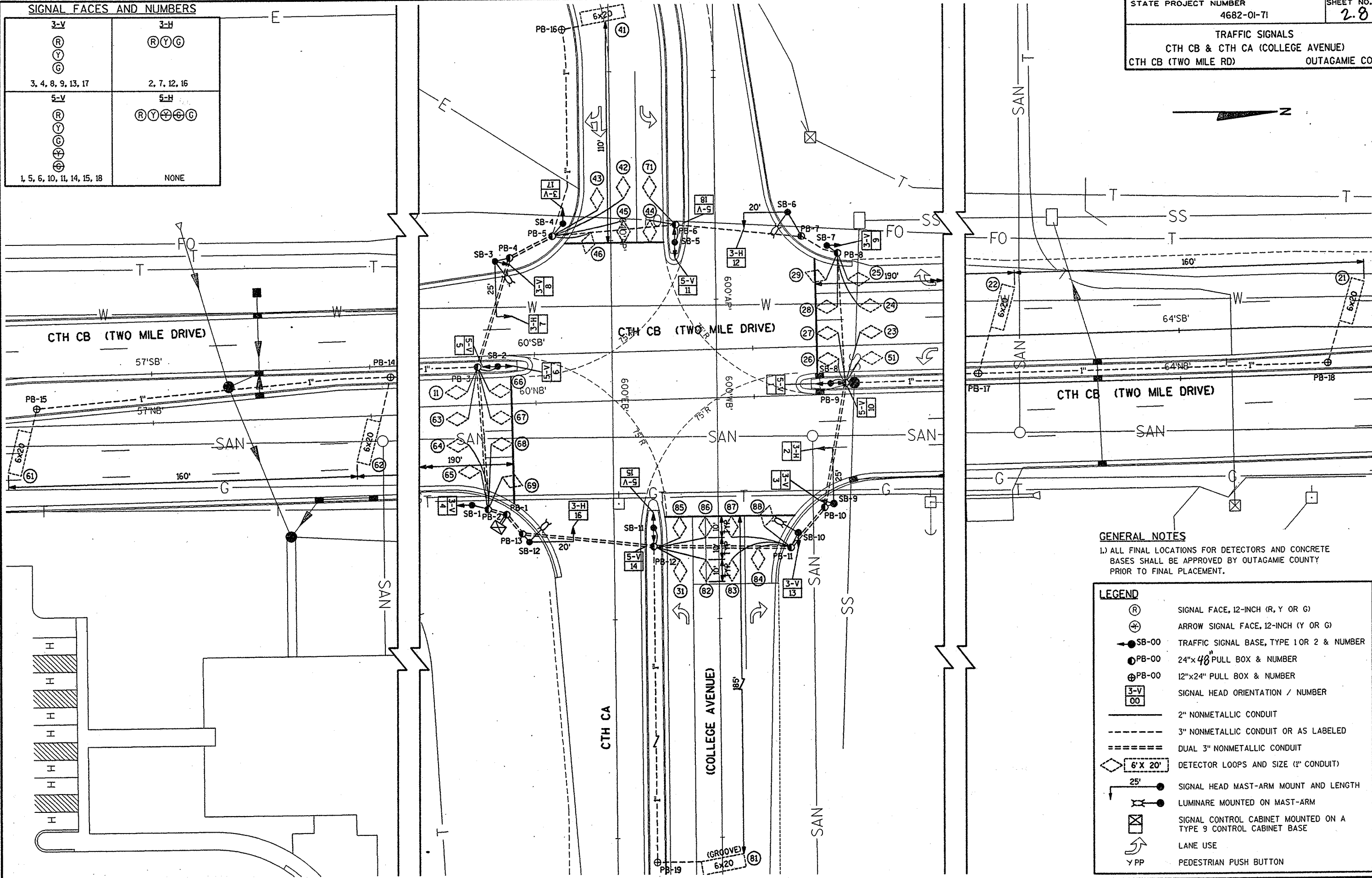
SIGNAL FACES AND NUMBERS

3-V (R) (Y) (G) 3, 4, 8, 9, 13, 17	3-H (R) (Y) (G) 2, 7, 12, 16
5-V (R) (Y) (G) (A) (B) 1, 5, 6, 10, 11, 14, 15, 18	5-H (R) (Y) (G) (A) (B) NONE

STATE PROJECT NUMBER
4682-01-71

SHEET NO.
2.8

TRAFFIC SIGNALS
CTH CB & CTH CA (COLLEGE AVENUE)
CTH CB (TWO MILE RD) OUTAGAMIE CO



GENERAL NOTES

1.) ALL FINAL LOCATIONS FOR DETECTORS AND CONCRETE BASES SHALL BE APPROVED BY OUTAGAMIE COUNTY PRIOR TO FINAL PLACEMENT.

LEGEND

- (R) SIGNAL FACE, 12-INCH (R, Y OR G)
- (Y) ARROW SIGNAL FACE, 12-INCH (Y OR G)
- SB-00 TRAFFIC SIGNAL BASE, TYPE 1 OR 2 & NUMBER
- PB-00 24"x48" PULL BOX & NUMBER
- PB-01 12"x24" PULL BOX & NUMBER
- 3-V / 00 SIGNAL HEAD ORIENTATION / NUMBER
- 2" NONMETALLIC CONDUIT
- 3" NONMETALLIC CONDUIT OR AS LABELED
- ===== DUAL 3" NONMETALLIC CONDUIT
- 6' x 20' DETECTOR LOOPS AND SIZE (1" CONDUIT)
- 25' SIGNAL HEAD MAST-ARM MOUNT AND LENGTH
- LUMINARE MOUNTED ON MAST-ARM
- SIGNAL CONTROL CABINET MOUNTED ON A TYPE 9 CONTROL CABINET BASE
- LANE USE
- Y PP PEDESTRIAN PUSH BUTTON

59. PLOT SCALE: 1:1
REV. DATE: / /
FILE NAME: E:\050A / SHEETS
ORIGINATOR: OMNI ASSOCIATES
LEVEL: 01 - 1.2

SEQUENCE OF OPERATION

	HEAD NUMBERS	Ø1 CLEAR TO				Ø2 CLEAR TO			
		R/W	**			R/W	**		
Ø1	1, 5								
Ø2	6, 7, 8, 9, 10	R	R	R		G	Y	R	
Ø3	11, 14								
Ø4	15, 16, 17, 18	R	R	R		R	R	R	
Ø5	6, 10								
Ø6	1, 2, 3, 4, 5	R	R	R		R	R	R	
Ø7	15, 18								
Ø8	11, 12, 13, 14	R	R	R		R	R	R	

	HEAD NUMBERS	Ø3 CLEAR TO				Ø4 CLEAR TO			
		R/W	**			R/W	**		
		R	R	R		R	R	R	
						G	Y	R	
		R	R	R		R	R	R	
						R	R	R	

	HEAD NUMBERS	Ø5 CLEAR TO				Ø6 CLEAR TO			
		R/W	**			R/W	**		
Ø1	1, 5								
Ø2	6, 7, 8, 9, 10	R	R	R		R	R	R	
Ø3	11, 14								
Ø4	15, 16, 17, 18	R	R	R		R	R	R	
Ø5	6, 10								
Ø6	1, 2, 3, 4, 5	R	R	R		G	Y	R	
Ø7	15, 18								
Ø8	11, 12, 13, 14	R	R	R		R	R	R	

	HEAD NUMBERS	Ø7 CLEAR TO				Ø8 CLEAR TO			
		R/W	**			R/W	**		
		R	R	R		R	R	R	
		R	R	R		R	R	R	
		R	R	R		G	Y	R	

BARRIER

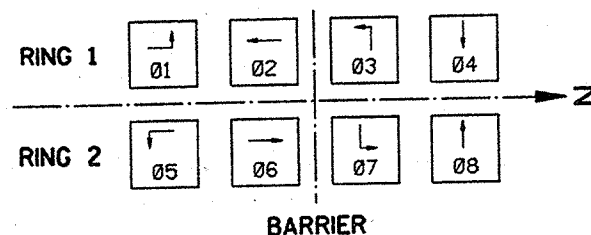
** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1 BELOW)

CHART 1

PHASE ON	NON-CONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
Ø1	5 or 6	2, 3, 4, 7, 8
Ø2	5 or 6	1, 3, 4, 7, 8
Ø3	7 or 8	1, 2, 4, 5, 6
Ø4	7 or 8	1, 2, 3, 5, 6
Ø5	1 or 2	3, 4, 6, 7, 8
Ø6	1 or 2	3, 4, 5, 7, 8
Ø7	3 or 4	1, 2, 5, 6, 8
Ø8	3 or 4	1, 2, 5, 6, 7

GENERAL NOTES

- ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
- WHEN ONE PHASE IS ON ALONE, ANY NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)
- IF ANY OPPOSING THRU PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER DUE TO PERMISSIVE LEFT TURN CONFLICT.
- PROVIDE FOR HAND OPERATION.



TYPE OF INTERCONNECT		TYPE OF PRE-EMPT		TYPE OF LIGHTING	
NONE	☒	NONE	☐	NONE	☒
TBC	☐	RAILROAD	☐	IN TRAFFIC CONTROL CABINET	☒
CLOSED LOOP	☐	EMERGENCY VEHICLE	☒	IN SEPARATE CONTROL CABINET	☐
HARDWIRE	☐				
TONE (FREQ)	☐				

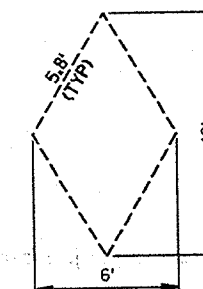
DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11	1	X			1	1				*5.8' x 5.8'	4
21	2	X			2	2			X	6' x 20'	4
22	3	X			2	2			X	6' x 20'	4
23	4		X		2					*5.8' x 5.8'	4
24	5		X		2					*5.8' x 5.8'	4
25	6		X		2			X		*5.8' x 5.8'	4
26	7		X		2					*5.8' x 5.8'	4
27	4		X		2					*5.8' x 5.8'	4
28	5		X		2					*5.8' x 5.8'	4
29	6		X		2			X		*5.8' x 5.8'	4
31	8	X			3	3				*5.8' x 5.8'	4
41	9	X			4	4			X	6' x 20'	4
42	10		X		4					*5.8' x 5.8'	4
43	11		X		4			X		*5.8' x 5.8'	4
44	12		X		4					*5.8' x 5.8'	4
45	10		X		4					*5.8' x 5.8'	4
46	11		X		4			X		*5.8' x 5.8'	4
51	13	X			5	5				*5.8' x 5.8'	4
61	14	X			6	6			X	6' x 20'	4
62	15	X			6	6			X	6' x 20'	4
63	16		X		6					*5.8' x 5.8'	4
64	17		X		6					*5.8' x 5.8'	4
65	18		X		6			X		*5.8' x 5.8'	4
66	19		X		6					*5.8' x 5.8'	4
67	16		X		6					*5.8' x 5.8'	4
68	17		X		6					*5.8' x 5.8'	4
69	18		X		6			X		*5.8' x 5.8'	4
71	20	X			7	7				*5.8' x 5.8'	4
81	21	X			8	8			X	6' x 20'	4
82	22		X		8					*5.8' x 5.8'	4
83	23		X		8					*5.8' x 5.8'	4
84	24		X		8			X		*5.8' x 5.8'	4
85	25		X		8					*5.8' x 5.8'	4
86	22		X		8					*5.8' x 5.8'	4
87	23		X		8					*5.8' x 5.8'	4
88	24		X		8			X		*5.8' x 5.8'	4

STATE PROJECT NUMBER 4682-01-71
TRAFFIC SIGNALS
SEQUENCE OF OPERATIONS
CTH CB (TWO MILE DRIVE) OUTAGAMIE CO.

SHEET NO. 2.9

* DIAMOND LOOP DETAIL



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	PHASE RECALL	DUAL ENTRY W/O
Ø1			6
Ø2		MIN	6
Ø3			8
Ø4			8
Ø5			2
Ø6		MIN	2
Ø7			4
Ø8			4

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TWO MILE DRIVE (CTH CB) & COLLEGE AVE (CTH CA)

CTH CB & CTH CA

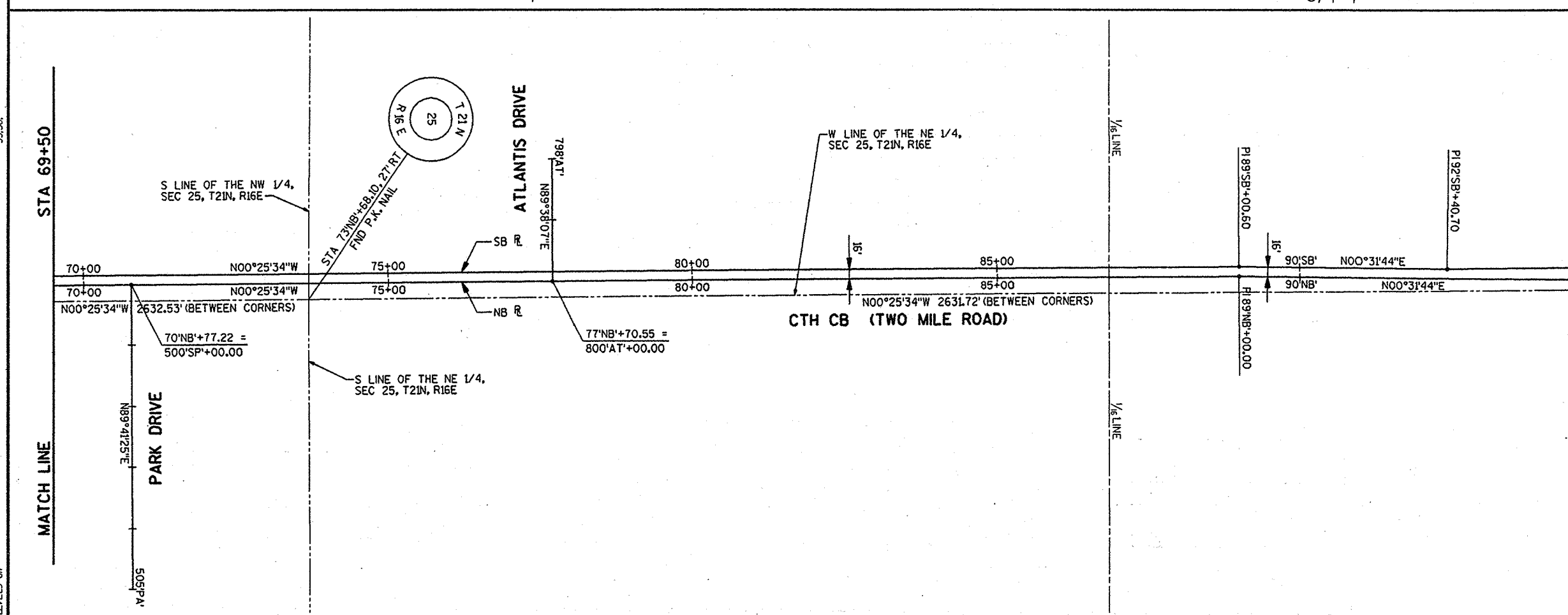
OUTAGAMIE CO.

SIGNAL NO. ---

DATE: 03/98

SHEET NO. 2 OF 2

WISDOT/CADD SHEET 40



DATE 06MAY98

ESTIMATE OF QUANTITIES

SHEET: 3.1

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4682-01-71 QUANTITY
0010	61910	MOBILIZATION	LS	1.00	1.00
0020	64301	TRAFFIC CONTROL	LS	1.00	1.00
0030	65216	NONMETALLIC CONDUIT, SCHEDULE 40, 1-INCH	L.F.	1,021.00	1,021.00
0040	65219	NONMETALLIC CONDUIT, SCHEDULE 40, 2-INCH	L.F.	77.00	77.00
0050	65221	NONMETALLIC CONDUIT, SCHEDULE 40, 3-INCH	L.F.	924.00	924.00
0060	65250	LOOP DETECTOR CONDUIT	L.F.	1,628.00	1,628.00
0070	65301	PULL BOXES, STEEL, 12X24-INCH	EACH	6.00	6.00
0080	65311	PULL BOXES, STEEL, 24X48-INCH	EACH	13.00	13.00
0090	65401	CONCRETE BASES, TYPE 1	EACH	7.00	7.00
0100	65402	CONCRETE BASES, TYPE 2	EACH	5.00	5.00
0110	65418	CONCRETE CONTROL CABINET BASES, TYPE 9	EACH	1.00	1.00
0120	65425	PEDESTAL BASES	EACH	7.00	7.00
0130	65430	TRANSFORMER BASES, STANDARD, 11 1/2-INCH BOLT CIRCLE	EACH	5.00	5.00
0140	65526	TRAFFIC SIGNAL CABLE, 7 CONDUCTOR, NO. 14	L.F.	1,615.00	1,615.00
0150	65532	TRAFFIC SIGNAL CABLE, 15 CONDUCTOR, NO. 14	L.F.	1,130.00	1,130.00
0160	65557	ELECTRICAL WIRE, TRAFFIC SIGNALS, NO. 10	L.F.	2,100.00	2,100.00
0170	65567	ELECTRICAL WIRE, LIGHTING, NO. 10	L.F.	1,500.00	1,500.00
0180	65569	ELECTRICAL WIRE, LIGHTING, NO. 6	L.F.	500.00	500.00
0190	65580	LOOP DETECTOR LEAD IN CABLE	L.F.	6,695.00	6,695.00
0200	65585	LOOP DETECTOR WIRE	L.F.	5,620.00	5,620.00
0210	65615	ELECTRICAL SERVICE, METER BREAKER PEDESTAL, CTH CB & CTH CA INTERSECTION	LS	1.00	1.00
0220	65702	POLES, TYPE 2	EACH	1.00	1.00
0230	65703	POLES, TYPE 3	EACH	3.00	3.00
0240	65704	POLES, TYPE 4	EACH	1.00	1.00
0250	65732	TRAFFIC SIGNAL STANDARDS, ALUMINUM, 13-FOOT	EACH	3.00	3.00
0260	65733	TRAFFIC SIGNAL STANDARDS, ALUMINUM, 15-FOOT	EACH	4.00	4.00
0270	65803	TROMBONE ARMS, 20-FOOT	EACH	2.00	2.00
0280	65804	TROMBONE ARMS, 25-FOOT	EACH	2.00	2.00
0290	65826	TRAFFIC SIGNAL FACES, 3-12 INCH VERTICAL	EACH	6.00	6.00

DATE 06MAY98

ESTIMATE OF QUANTITIES

SHEET: 3.2

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4682-01-71 QUANTITY
0300	65828	TRAFFIC SIGNAL FACES, 5-12 INCH VERTICAL	EACH	8.00	8.00
0310	65829	TRAFFIC SIGNAL FACES, 3-12 INCH HORIZONTAL	EACH	4.00	4.00
0320	65836	BACKPLATES, 3 SECTION, 12-INCH SIGNAL FACES	EACH	10.00	10.00
0330	65838	BACKPLATES, 5 SECTION, 12-INCH SIGNAL FACES	EACH	4.00	4.00
0340	65850	TRAFFIC SIGNAL MOUNTING HARDWARE, CTH CB & CTH CA INTERSECTION	LS	1.00	1.00
0350	65905	LUMINAIRES, UTILITY, 250 WATTS	EACH	4.00	4.00
0360	65936	LUMINAIRE ARMS, TRUSS TYPE, 4 1/2-INCH CLAMP, 12-FOOT	EACH	4.00	4.00
0370	90005	MISC 90005A TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 16-PHASE, SPECIAL	EACH	1.00	1.00
0380	90030	MISC 90030A LOOP DETECTOR GROVES	L.F.	55.00	55.00

57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856. 857. 858. 859. 860. 861. 862. 863. 864. 865. 866. 867. 868. 869. 870. 871. 872. 873. 874. 875. 876. 877. 878. 879. 880. 881. 882. 883. 884. 885. 886. 887. 888. 889. 890. 891. 892. 893. 894. 895. 896. 897. 898. 899. 900. 901. 902. 903. 904. 905. 906. 907. 908. 909. 910. 911. 912. 913. 914. 915. 916. 917. 918. 919. 920. 921. 922. 923. 924. 925. 926. 927. 928. 929. 930. 931. 932. 933. 934. 935. 936. 937. 938. 939. 940. 941. 942. 943. 944. 945. 946. 947. 948. 949. 950. 951. 952. 953. 954. 955. 956. 957. 958. 959. 960. 961. 962. 963. 964. 965. 966. 967. 968. 969. 970. 971. 972. 973. 974. 975. 976. 977. 978. 979. 980. 981. 982. 983. 984. 985. 986. 987. 988. 989. 990. 991. 992. 993. 994. 995. 996. 997. 998. 999. 1000.

NONMETALLIC CONDUIT, SCHEDULE 40

| FROM | TO | 1-INCH LF | 2-INCH LF | 3-INCH LF |
|--------|------|-----------|-----------|-----------|
| CB | PB1 | --- | --- | 10 |
| PB1 | PB2 | --- | --- | 20 |
| PB2 | PB3 | --- | --- | 126 |
| PB2 | SB1 | --- | 7 | --- |
| PB3 | PB4 | --- | --- | 100 |
| PB3 | PB14 | 180 | --- | --- |
| PB3 | SB2 | --- | 10 | --- |
| PB4 | PB5 | --- | --- | 48 |
| PB4 | SB3 | --- | 5 | --- |
| PB5 | PB6 | --- | --- | 55 |
| PB5 | PB16 | 95 | --- | --- |
| PB5 | SB4 | --- | 5 | --- |
| PB6 | PB7 | --- | --- | 58 |
| PB6 | SB5 | --- | 8 | --- |
| PB7 | PB8 | --- | --- | 18 |
| PB7 | SB6 | --- | 12 | --- |
| PB8 | PB9 | --- | --- | 59 |
| PB8 | SB7 | --- | 6 | --- |
| PB9 | PB10 | --- | --- | 114 |
| PB9 | PB17 | 165 | --- | --- |
| PB9 | SB8 | --- | 7 | --- |
| PB10 | PB11 | --- | --- | 48 |
| PB10 | SB9 | --- | 5 | --- |
| PB11 | PB12 | --- | --- | 126 |
| PB11 | SB10 | --- | 7 | --- |
| PB12 | PB13 | 120 | --- | 120 |
| PB12 | PB19 | 133 | --- | --- |
| PB12 | SB11 | 8 | --- | --- |
| PB13 | PB1 | --- | --- | 22 |
| PB13 | SB12 | --- | 5 | --- |
| PB14 | PB15 | 160 | --- | --- |
| PB17 | PB18 | 160 | --- | --- |
| TOTALS | | 1 021 | 77 | 924 |

TRAFFIC SIGNAL CABLE, NO. 14

| FROM | TO | 15 COND. LF | 7 COND. LF | BASE TO HEAD HEAD NO. | 7 COND. LF |
|--------|------|-------------|------------|-----------------------|------------|
| CB | SB1 | --- | 43 | 4 | 20 |
| CB | SB2 | 115 | --- | 5 | 20 |
| CB | SB3 | 167 | --- | 7 | 55 |
| CB | SB4 | --- | --- | 8 | 20 |
| CB | SB5 | 261 | --- | 17 | 20 |
| CB | SB6 | --- | --- | 11 | 20 |
| CB | SB12 | --- | 329 | 18 | 20 |
| CB | SB11 | 108 | 42 | 12 | 50 |
| CB | SB10 | --- | --- | 16 | 50 |
| CB | SB9 | 207 | --- | 14 | 20 |
| CB | SB8 | 272 | --- | 15 | 20 |
| CB | SB7 | --- | 332 | 13 | 20 |
| TOTALS | | 1 130 | 1 125 | 2 | 55 |

7 COND. TOTAL = 1615

COLOR CODE

| NB & WB | SB & EB |
|--------------------|-----------------------------|
| RED = RED | RED = RED W/ BLACK |
| YELLOW = ORANGE | YELLOW = ORANGE W/ BLACK |
| GREEN = GREEN | GREEN = GREEN W/ BLACK |
| LT. GREEN = BLUE | LT. GREEN = BLUE W/ BLACK |
| LT. YELLOW = BLACK | LT. YELLOW = BLACK W/ WHITE |

LOOP DETECTORS

| LOOP NO. | SIZE FT X FT | NO. OF TURNS | CONDUIT LF | WIRE LF | LEAD IN CABLE LF |
|----------|--------------|--------------|------------|---------|------------------|
| 11 | *5.8 X 5.8 | 4 | 35 | 123 | 88 |
| 21 | 6 X 20 | 4 | 72 | 254 | 570 |
| 22 | 6 X 20 | 4 | 72 | 254 | 410 |
| 23 | *5.8 X 5.8 | 4 | 46 | 145 | 230 |
| 24 | *5.8 X 5.8 | 4 | 48 | 143 | 285 |
| 25 | *5.8 X 5.8 | 4 | 36 | 123 | 285 |
| 26 | *5.8 X 5.8 | 4 | 34 | 121 | 230 |
| 27 | *5.8 X 5.8 | 4 | 46 | 145 | 230 |
| 28 | *5.8 X 5.8 | 4 | 48 | 143 | 285 |
| 29 | *5.8 X 5.8 | 4 | 36 | 123 | 285 |
| 31 | *5.8 X 5.8 | 4 | 37 | 127 | 84 |
| 41 | 6 X 20 | 4 | 61 | 232 | 260 |
| 42 | *5.8 X 5.8 | 4 | 56 | 165 | 162 |
| 43 | *5.8 X 5.8 | 4 | 41 | 137 | 162 |
| 44 | *5.8 X 5.8 | 4 | 33 | 119 | 217 |
| 45 | *5.8 X 5.8 | 4 | 53 | 159 | 162 |
| 46 | *5.8 X 5.8 | 4 | 38 | 129 | 162 |
| 51 | *5.8 X 5.8 | 4 | 36 | 125 | 230 |
| 61 | 6 X 20 | 4 | 63 | 236 | 420 |
| 62 | 6 X 20 | 4 | 72 | 254 | 260 |
| 63 | *5.8 X 5.8 | 4 | 46 | 145 | 87 |
| 64 | *5.8 X 5.8 | 4 | 52 | 157 | 24 |
| 65 | *5.8 X 5.8 | 4 | 40 | 133 | 24 |
| 66 | *5.8 X 5.8 | 4 | 34 | 123 | 88 |
| 67 | *5.8 X 5.8 | 4 | 46 | 145 | 88 |
| 68 | *5.8 X 5.8 | 4 | 51 | 157 | 24 |
| 69 | *5.8 X 5.8 | 4 | 38 | 129 | 24 |
| 71 | *5.8 X 5.8 | 4 | 37 | 127 | 217 |
| 81 | 6 X 20 | 4 | 18 | 264 | 255 |
| 82 | *5.8 X 5.8 | 4 | 49 | 157 | 85 |
| 83 | *5.8 X 5.8 | 4 | 50 | 153 | 148 |
| 84 | *5.8 X 5.8 | 4 | 36 | 125 | 148 |
| 85 | *5.8 X 5.8 | 4 | 35 | 123 | 85 |
| 86 | *5.8 X 5.8 | 4 | 47 | 147 | 85 |
| 87 | *5.8 X 5.8 | 4 | 50 | 153 | 148 |
| 88 | *5.8 X 5.8 | 4 | 36 | 125 | 148 |
| TOTALS | | | 1 628 | 5 620 | 6695 |

* DIAMOND SHAPED WITH OVERALL LENGTH OF 10' AND WIDTH OF 6'.

LOOP DETECTOR GROOVES

| LOOP NO. | LF |
|----------|----|
| 81 | 55 |

CONCRETE CONTROL CABINET BASE

| LOCATION | TYPE 9 EACH |
|-------------------------------|-------------|
| SE QUADRANT CTH CA AND CTH CB | 1 |

TRAFFIC SIGNALS

| SIGNAL BASE NUMBER | CONCRETE BASES TYPE 1 EACH | CONCRETE BASES TYPE 2 EACH | PEDESTAL BASES EACH | TRANSFORMER BASES EACH | POLES TYPE 2 EACH | POLES TYPE 3 EACH | POLES TYPE 4 EACH | TRAFFIC SIGNAL STANDARDS 13 FT EACH | TRAFFIC SIGNAL STANDARDS 15 FT EACH | TROMBONE ARMS 20 FT EACH | TROMBONE ARMS 25 FT EACH | LUMINAIRE TRUSS TYPE 12-FOOT EACH | LUMINAIRE 250 WATT HIGH PRESSURE SODIUM EACH |
|--------------------|----------------------------|----------------------------|---------------------|------------------------|-------------------|-------------------|-------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-----------------------------------|--|
| SB-1 | 1 | --- | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- |
| SB-2 | 1 | --- | 1 | --- | --- | --- | --- | --- | 1 | --- | --- | --- | --- |
| SB-3 | --- | 1 | --- | 1 | --- | 1 | --- | 1 | --- | --- | --- | --- | --- |
| SB-4 | 1 | --- | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- |
| SB-5 | 1 | --- | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | 1 |
| SB-6 | --- | 1 | --- | 1 | --- | 1 | --- | --- | --- | 1 | --- | 1 | --- |
| SB-7 | 1 | --- | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- |
| SB-8 | 1 | --- | 1 | --- | --- | --- | --- | --- | 1 | --- | 1 | --- | --- |
| SB-9 | --- | 1 | --- | 1 | 1 | --- | --- | --- | --- | --- | 1 | --- | --- |
| SB-10 | --- | 1 | --- | 1 | --- | --- | 1 | --- | --- | --- | --- | 1 | 1 |
| SB-11 | 1 | --- | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- |
| SB-12 | --- | 1 | --- | 1 | --- | 1 | --- | --- | --- | 1 | --- | 1 | 1 |
| TOTALS | | 7 | 5 | 7 | 5 | 1 | 3 | 1 | 3 | 4 | 2 | 2 | 4 |

ELECTRICAL WIRE, TRAFFIC SIGNALS, NO. 10

| FROM | TO | BONDED JUMPER LF | CURRENT CARRYING NEUTRAL LF |
|--------|------|------------------|-----------------------------|
| CB | SB1 | 40 | 40 |
| SB1 | SB2 | 100 | 100 |
| SB1 | PB2 | 13 | --- |
| SB2 | SB3 | 84 | 84 |
| SB2 | PB3 | 16 | --- |
| SB3 | SB4 | 53 | 53 |
| SB3 | PB4 | 11 | --- |
| SB4 | SB5 | 86 | 86 |
| SB4 | PB5 | 11 | --- |
| SB5 | SB6 | 96 | 96 |
| SB5 | PB6 | 15 | --- |
| SB6 | SB7 | 48 | 48 |
| SB6 | PB7 | 18 | --- |
| SB7 | SB8 | 88 | 88 |
| SB7 | PB8 | 11 | --- |
| SB8 | SB9 | 88 | 88 |
| SB8 | PB9 | 13 | --- |
| SB9 | SB10 | 55 | 55 |
| SB9 | PB10 | 11 | --- |
| SB10 | SB11 | 96 | 96 |
| SB10 | PB11 | 15 | --- |
| SB11 | SB12 | 90 | 90 |
| SB11 | PB12 | 15 | --- |
| SB12 | CB | 46 | 46 |
| SB12 | PB13 | 11 | --- |
| TOTALS | | 1 130 | 970 |

STATE PROJECT NUMBER 4682-01-71 SHEET NO. 3A

MISCELLANEOUS QUANTITIES FOR CTH CB OUTAGAMIE CO

TRAFFIC SIGNAL FACES

| FACES 3-12 VERT. EACH | FACES 5-12 VERT. EACH | FACES 3-12 HORIZ. EACH | BACKPLATES 3-12 EACH | 5-12 EACH |
|-----------------------|-----------------------|------------------------|----------------------|-----------|
| 6 | 8 | 4 | 10 | 4 |

ELECTRICAL WIRE, LIGHTING

| FROM | TO | NO. 6 LF | NO. 10 LF |
|--------|------|----------|-----------|
| CB | SB3 | 500 | 100 |
| SB3 | SB6 | --- | 550 |
| CB | SB12 | --- | 220 |
| CB | SB10 | --- | 630 |
| TOTALS | | 500 | 1 500 |

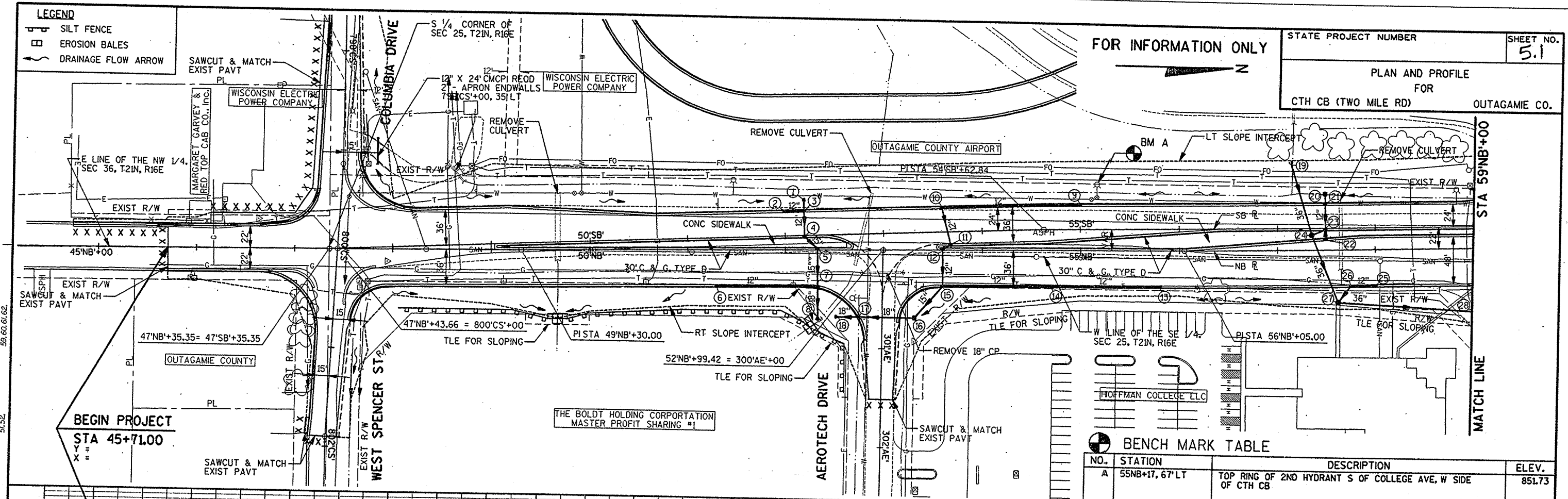
PULL BOXES, STEEL

| PULL BOX
NUMBER | 12" X 24"
EACH | 24" X 48"
EACH |
|--------------------|-------------------|-------------------|
| PB-1 | ---- | 1 |
| PB-2 | ---- | 1 |
| PB-3 | ---- | 1 |
| PB-4 | ---- | 1 |
| PB-5 | ---- | 1 |
| PB-6 | ---- | 1 |
| PB-7 | ---- | 1 |
| PB-8 | ---- | 1 |
| PB-9 | ---- | 1 |
| PB-10 | ---- | 1 |
| PB-11 | ---- | 1 |
| PB-12 | ---- | 1 |
| PB-13 | ---- | 1 |
| PB-14 | 1 | ---- |
| PB-15 | 1 | ---- |
| PB-16 | 1 | ---- |
| PB-17 | 1 | ---- |
| PB-18 | 1 | ---- |
| PB-19 | 1 | ---- |
| TOTALS | 6 | 13 |

- LEGEND**
- SILT FENCE
 - EROSION BALES
 - DRAINAGE FLOW ARROW

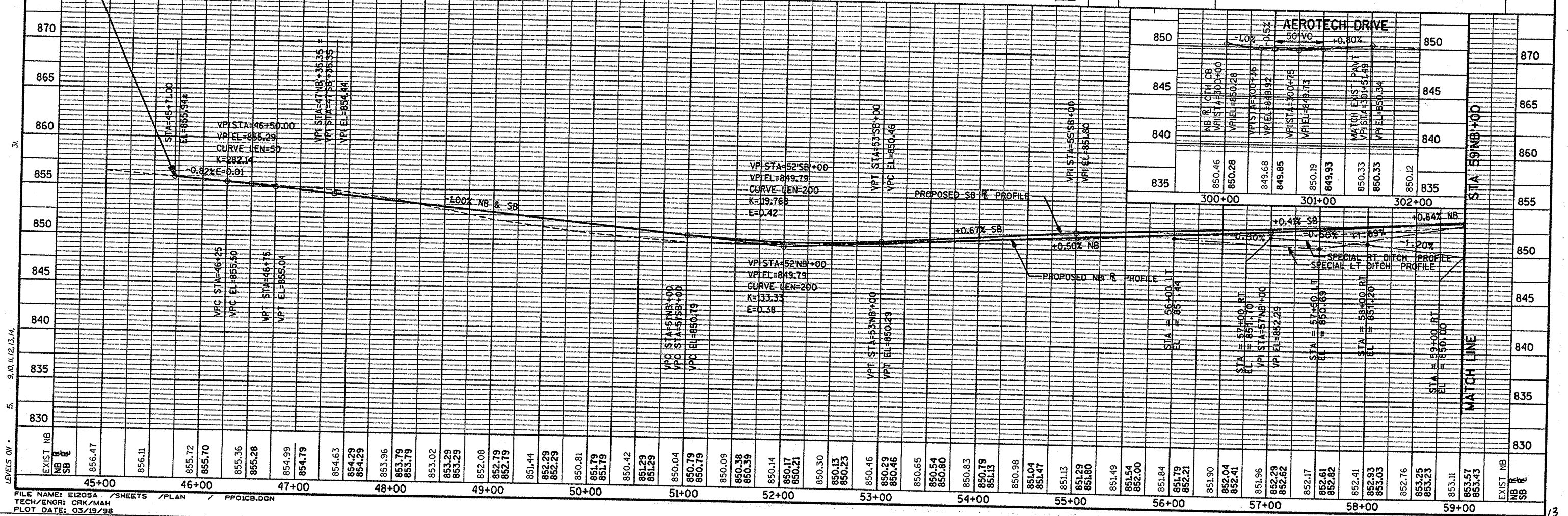
STATE PROJECT NUMBER
SHEET NO. 5.1
PLAN AND PROFILE FOR
CTH CB (TWO MILE RD) OUTAGAMIE CO.

FOR INFORMATION ONLY



BENCH MARK TABLE

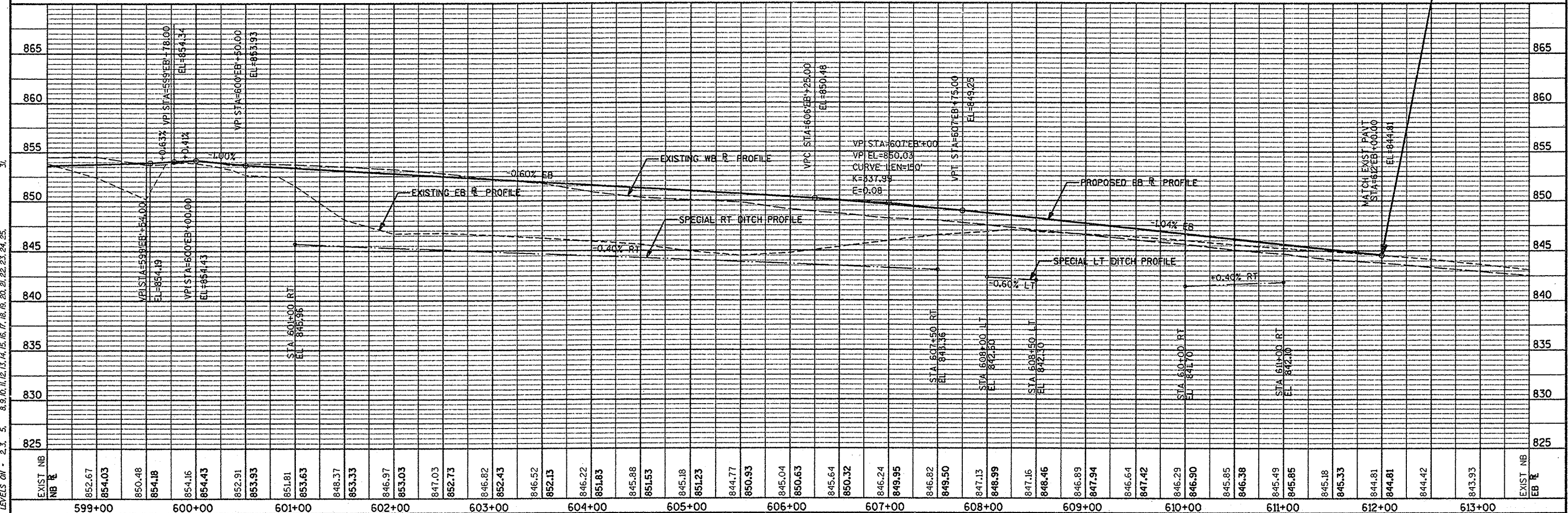
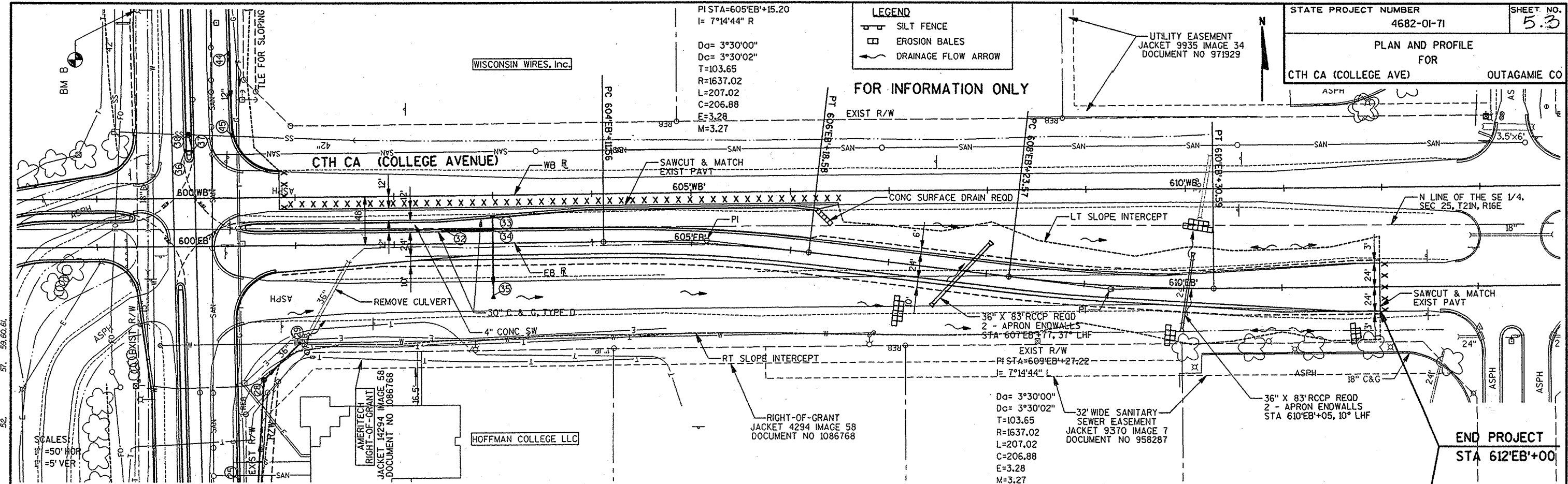
| NO. | STATION | DESCRIPTION | ELEV. |
|-----|-----------------|--|--------|
| A | 55NB+17, 67' LT | TOP RING OF 2ND HYDRANT S OF COLLEGE AVE, W SIDE | 851.73 |

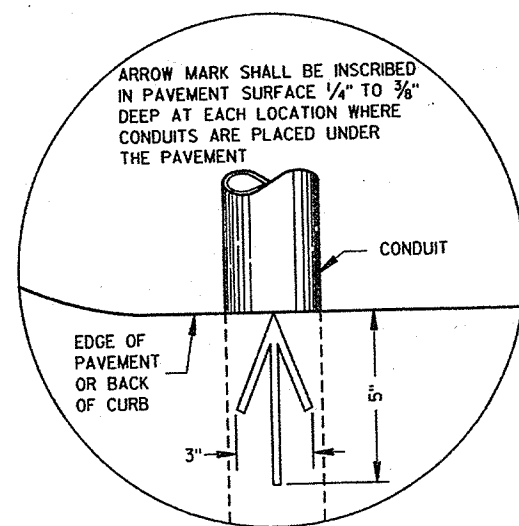


FILE NAME: E1205A / SHEETS / PLAN / PPOICB.DGN
TECH/ENGR: CRK/MAH
PLOT DATE: 03/19/98

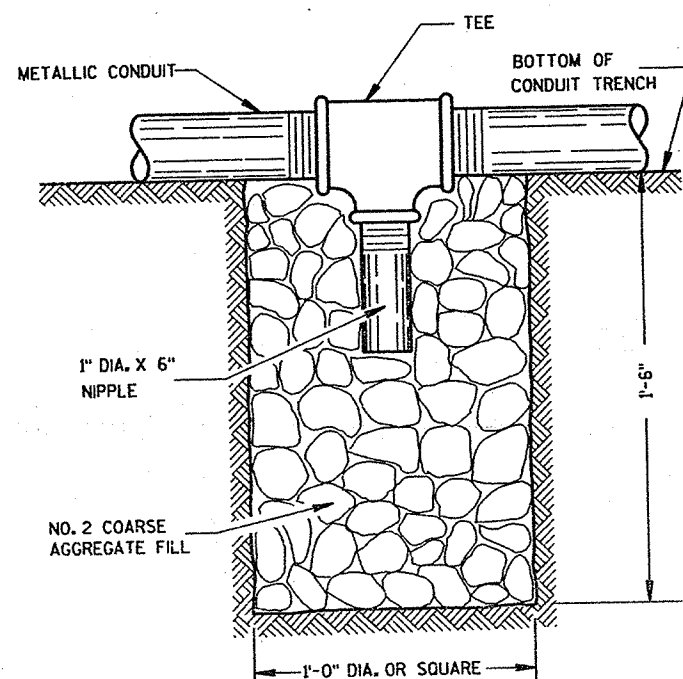
FILE NAME: EROSA /SHEETS /SIGNAL / PROJ.DGN TECH/ENGR: CRK/MAH
ORIGINATOR: GUNN/ASSOCIATES ONE SYSTEMS DRIVE APPLETON, WI 54914
LEVELS ON - 2,3,5 8/3/00,11/12/13,14/15,16/17,18,20,21,22,23,24,25
PLOT DATE: 03/19/98
REV. DATE: / /97

PLOT SCALE: 1"=50' HOR
1"=5' VER



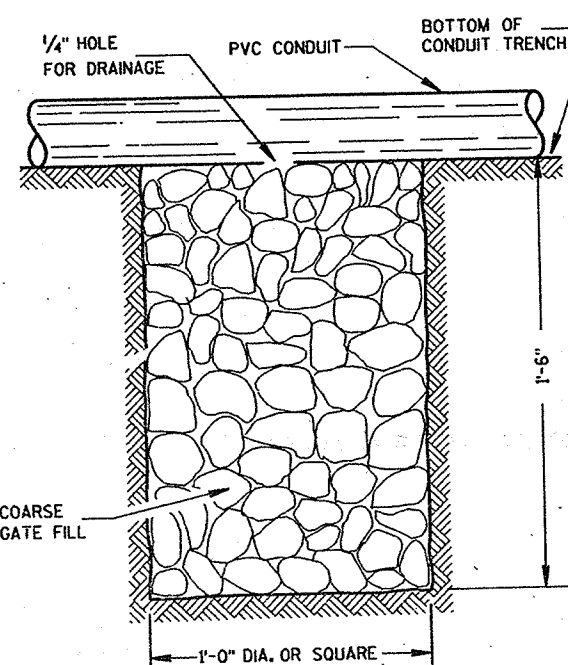


PLAN VIEW
ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

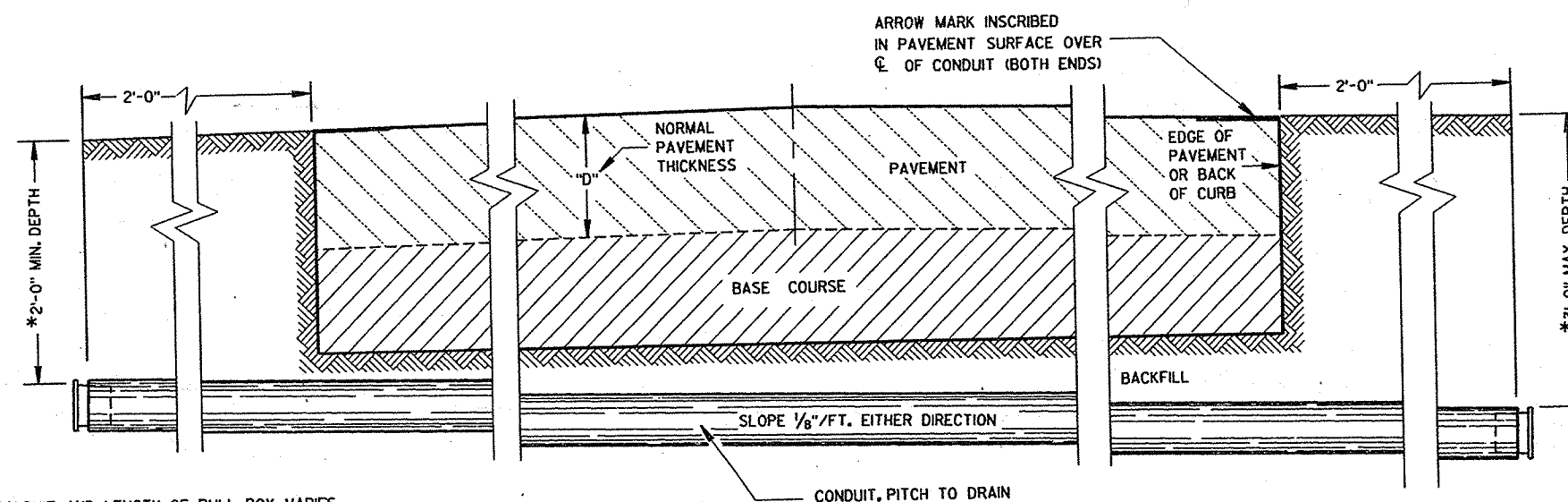
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

POLY ROPE OR A PULL WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE
FWHA

Paul J. Smith
STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

S.D.D. 9 B 2-6

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

| DIMENSION
IN INCHES | | TYPE OF PIPE | | | | | | | | |
|------------------------|---|------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | CORRUGATED STEEL | | | | | | | | |
| PIPE DIAMETER (INSIDE) | A | 12 | 12 | 12 | 18 | 18 | 18 | 24 | 24 | 24 |
| PIPE LENGTH ** | B | 24 | 30 | 36 | 24 | 30 | 36 | 36 | 42 | 48 |
| WALL THICKNESS | C | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.4 |
| COVER | D | 10 1/4 | 10 1/4 | 10 1/4 | 16 1/4 | 16 1/4 | 16 1/4 | 22 1/4 | 22 1/4 | 22 1/4 |
| FRAME | E | 14 1/2 | 14 1/2 | 14 1/2 | 20 1/2 | 20 1/2 | 20 1/2 | 26 1/2 | 26 1/2 | 26 1/2 |
| FRAME | F | 8 1/2 | 8 1/2 | 8 1/2 | 14 1/2 | 14 1/2 | 14 1/2 | 20 1/2 | 20 1/2 | 20 1/2 |
| FRAME | G | 11 1/2 | 11 1/2 | 11 1/2 | 17 1/2 | 17 1/2 | 17 1/2 | 23 1/2 | 23 1/2 | 23 1/2 |
| WEIGHT IN POUNDS * | | | | | | | | | | |
| FRAME AND COVER | | 60 | 60 | 60 | 110 | 110 | 110 | 155 | 155 | 155 |

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

POLYETHYLENE PULL BOXES SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALTIC PAVEMENT. PULL BOXES LOCATED IN THE ROADWAY SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE. THE MECHANICAL CONNECTION (INSIDE AND OUTSIDE) TO THE PULL BOX, SHALL BE TOTALLY AND PERMANENTLY SEALED WITH A SILICONE OR RUBBERIZED CAULKING COMPOUND AS APPROVED BY THE ENGINEER.

GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

DRAIN DUCT SHALL BE MEASURED, AND PAID FOR SEPARATELY.

RODENT WIRE SCREEN SHALL BE 1/8" STAINLESS STEEL MESH AND BE INSTALLED WITH A STAINLESS STEEL HOSE CLAMP OF SUFFICIENT SIZE.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

IF PULL BOX EQUIPMENT GROUNDING IS REQUIRED USING AN EQUIPMENT GROUNDING ELECTRODE IN EACH PULL BOX, THE EQUIPMENT GROUNDING ELECTRODE SHALL BE 5/8" X 8'-0", COPPERCLAD AND BE EXOTHERMICALLY WELDED TO A #4 AWG, COPPER, STRANDED WIRE (BARE OR GREEN INSULATED). THE #4 AWG WIRE SHALL BE 4 FEET IN LENGTH, NEATLY COILED, TAPED AND AVAILABLE FOR USE WHEN REQUIRED.

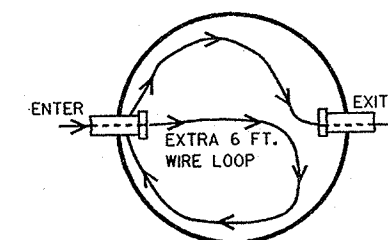
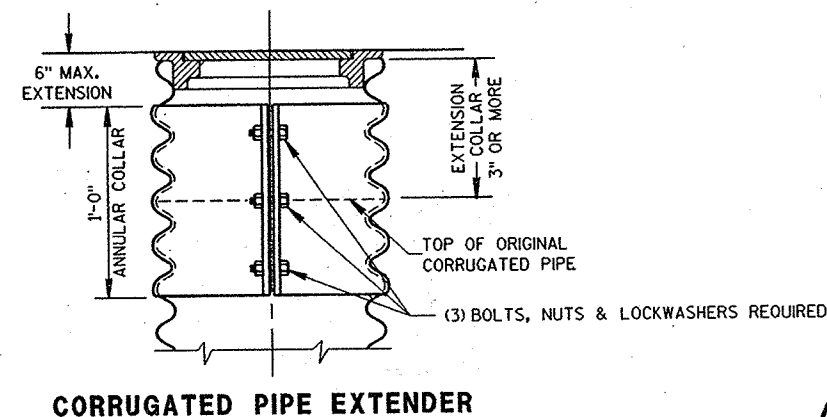
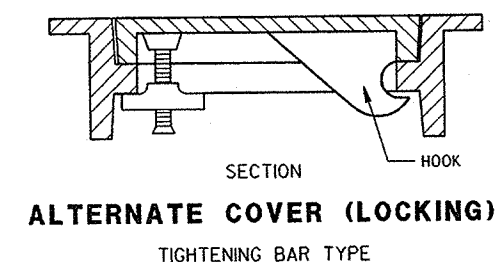
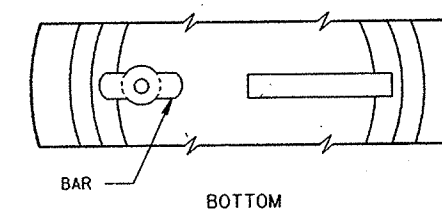


ILLUSTRATION OF WIRE/CABLE PLACEMENT IN PULLBOX



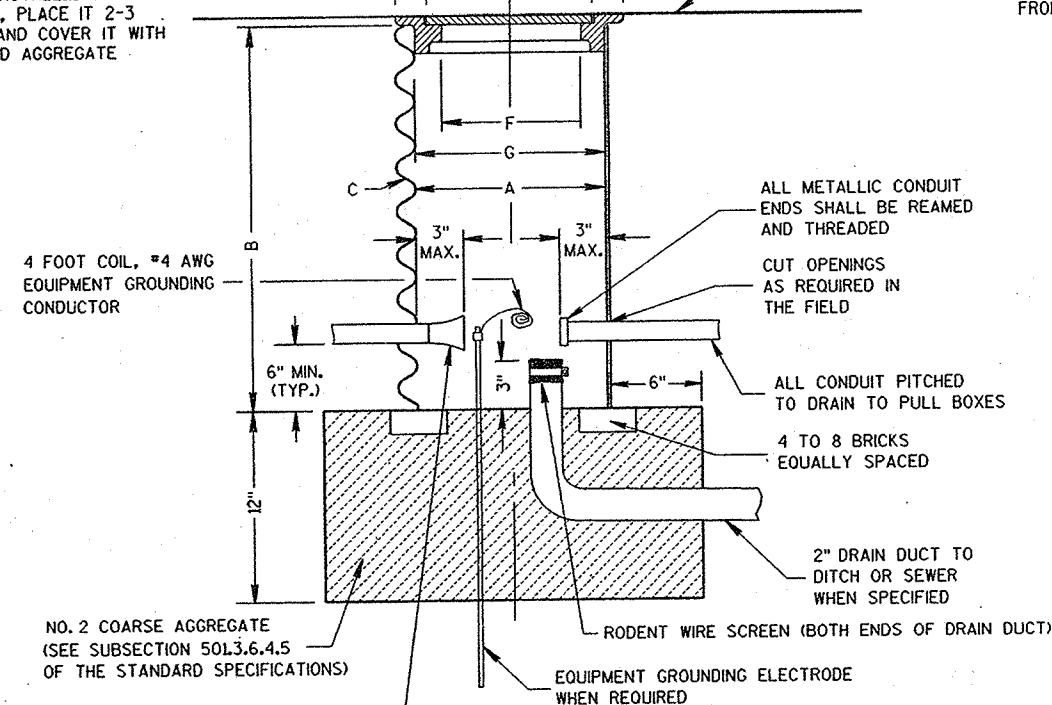
ALTERNATE COVER (LOCKING)

HEAVY DUTY FRAME AND COVER

HALF SECTION CORRUGATED STEEL PIPE

HALF SECTION POLYETHYLENE PIPE (NON PAVEMENT AREAS ONLY)

WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE.



PULL BOX

EQUIPMENT GROUNDING WIRE FROM NEAREST CAST BASE

COPPER SOLDERLESS LUG U.L. LISTED TO ACCEPT AWG. SIZE #10 TO #4 COPPER STRANDED WIRE

STAINLESS STEEL HARDWARE - BOLT, NUT AND LOCKWASHER (1/4" X 3/4" X 20 TPI)

EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/2/97
DATE
FWHA

[Signature]
STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

S.D.D. 9 B 4-3

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-325, (92,000 YIELD) HEAVY HEX NUT AND BE GALVANIZED IN ACCORDANCE WITH ASTM A-153, CLASS C.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED AND U.L. LISTED MECHANICAL CONNECTOR (LUG) AL/CU RATED AND SIZED TO ACCEPT #10 AWG STRANDED WIRE, SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

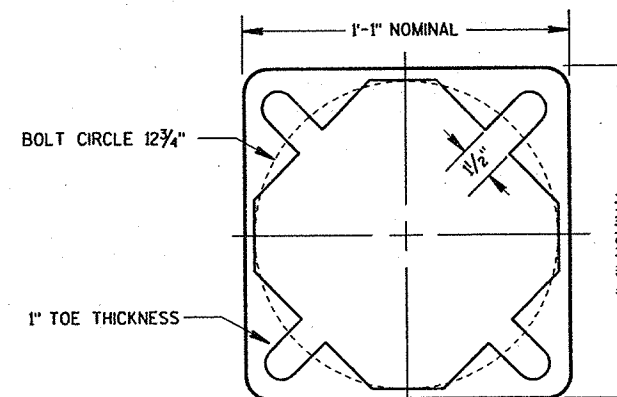
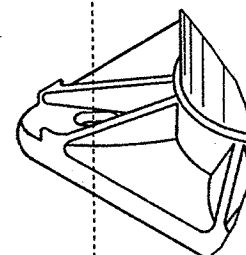
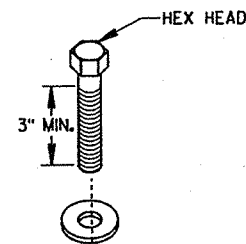
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

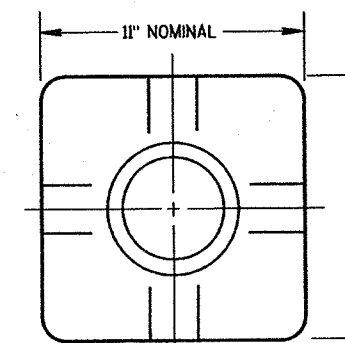
PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

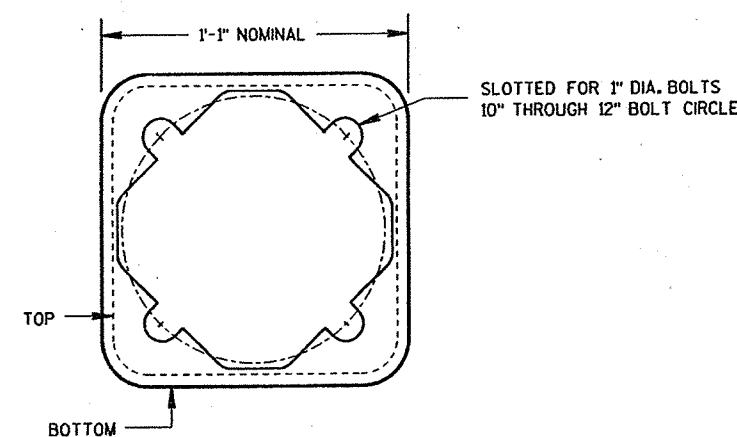
THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



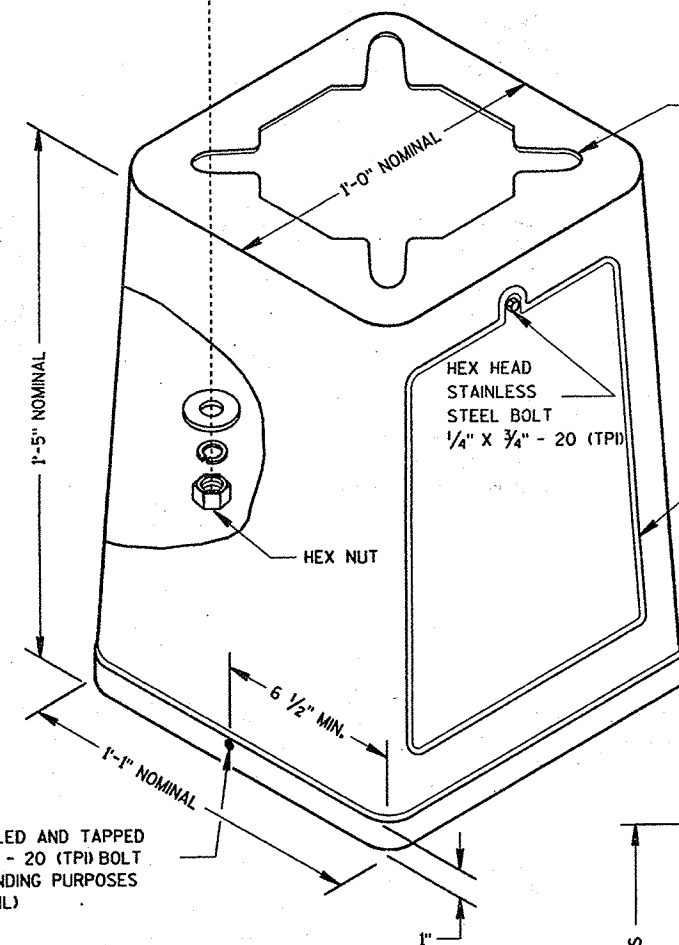
**BOTTOM VIEW
(PEDESTAL BASE)**



**TOP VIEW
(PEDESTAL BASE)**



**BOTTOM VIEW
(TRANSFORMER BASE)**

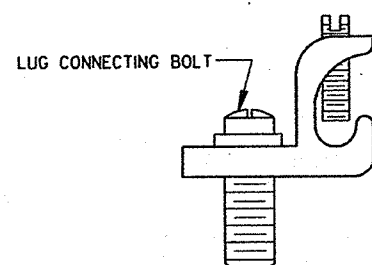


ISOMETRIC VIEW

SLOTTED FOR 1" DIA. BOLTS
ON 10" THROUGH 12" BOLT CIRCLE

HOLE DRILLED AND TAPPED
FOR A 1/4" - 20 (TPI) BOLT
FOR GROUNDING PURPOSES
(SEE DETAIL)

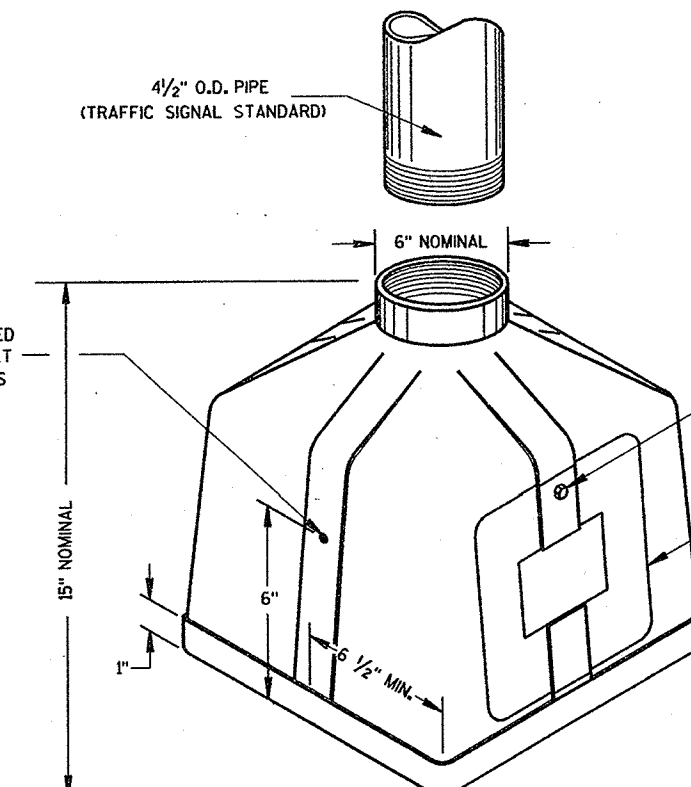
ACCESS OPENING NOMINAL
13 1/2" X 8 3/4" X 9 1/2"



**TYPICAL MECHANICAL
CONNECTOR LUG**

TO BE FURNISHED WITH EACH BASE

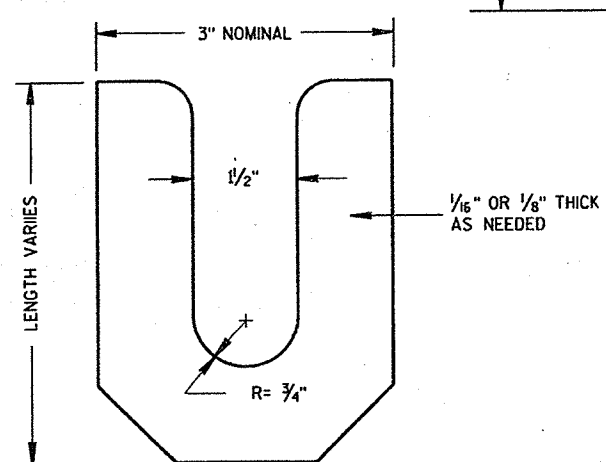
TRANSFORMER BASE
INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES



**ISOMETRIC VIEW
PEDESTAL BASE**

HEX HEAD STAINLESS
STEEL BOLT
1/4" X 3/4" - 20 (TPI)

ACCESS OPENING
NOMINAL 8" X 8"



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

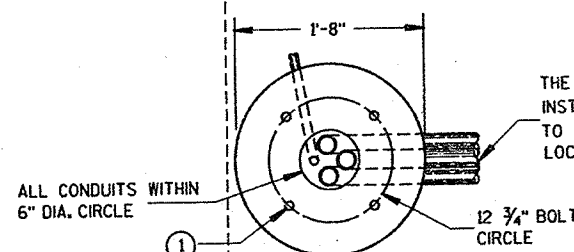
APPROVED
DATE 10/21/96
STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

S.D.D. 9 C 3-2

S.D.D. 9 C 3-2

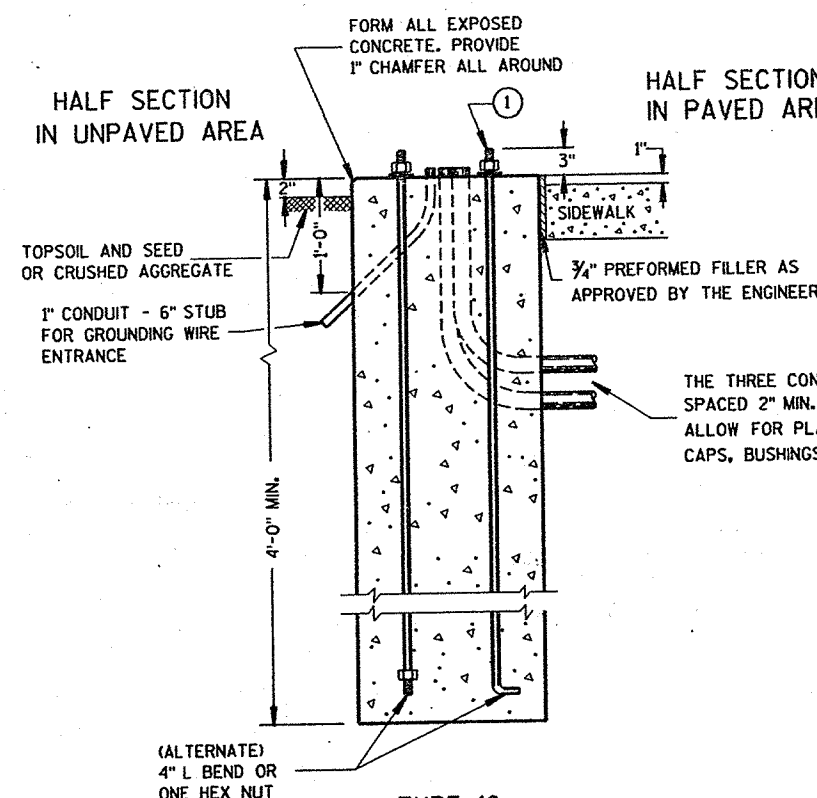
| CONTROL CABINET
BASE TYPE | DIMENSIONS | | | | C.Y. CONCRETE
(APPROX.) |
|------------------------------|------------|-----|-----|-----|----------------------------|
| | H | I | J | K | |
| TYPE 6 - 30" CABINET | 34" | 60" | 10" | 17" | .64 |
| TYPE 7 - 38" CABINET | 42" | 60" | 10" | 21" | .93 |
| TYPE 8 - 38" CABINET | 42" | 72" | 12" | 21" | 1.29 |
| TYPE 9 - VARIABLE | 54" | 72" | 14" | 27" | 1.56 |
| TYPE 10 - POST MOUNT | AS SHOWN | | | | .32 |

TYPICAL 3'-0" X 3'-0"
MAINTENANCE PLATFORM.
LOCATION TO BE DETERMINED
IN THE FIELD.



THE THREE CONDUITS SHALL BE
INSTALLED FROM THE CABINET BASE
TO THE FIRST (NEAREST) PULL BOX
LOCATED AS SHOWN ON THE PLAN

HALF SECTION
IN UNPAVED AREA



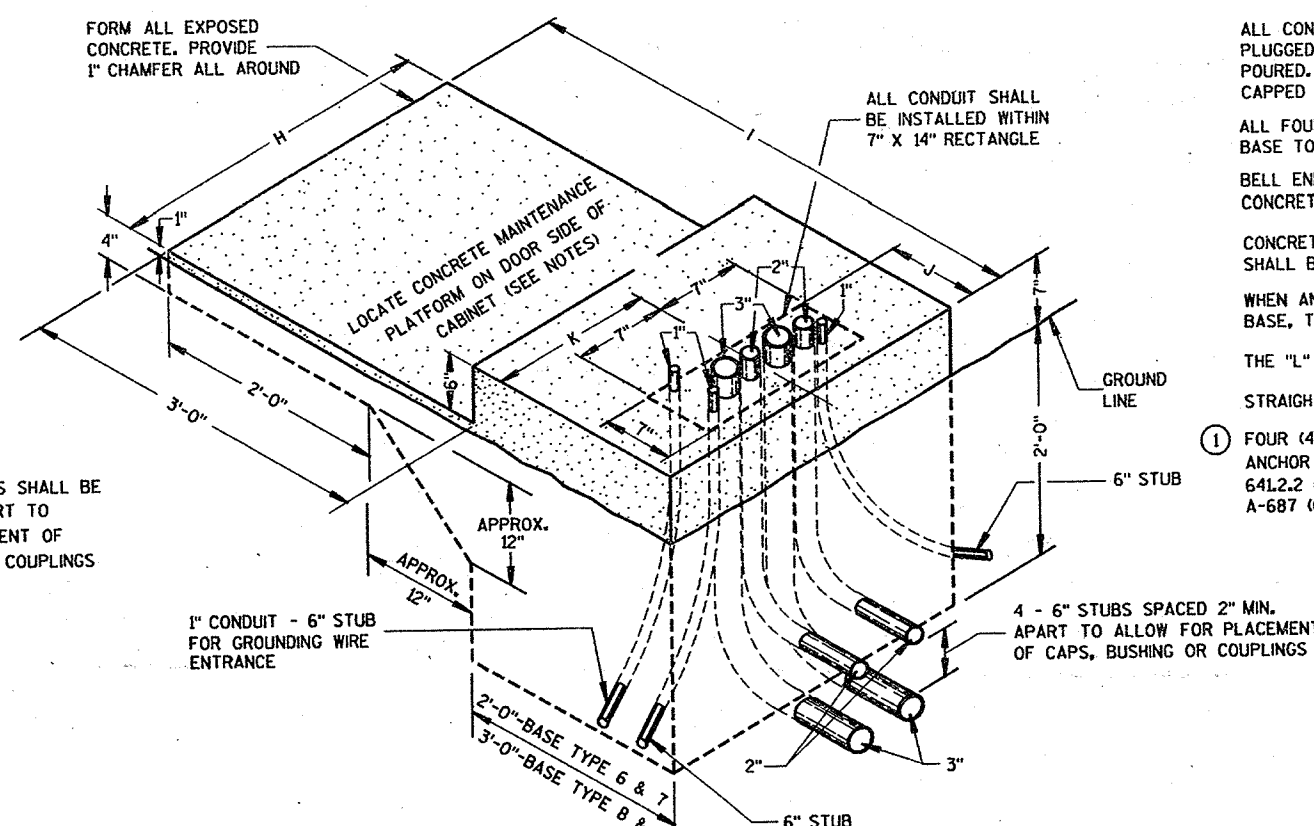
TYPE 10

HALF SECTION
IN PAVED AREA

THE THREE CONDUITS SHALL BE
SPACED 2" MIN. APART TO
ALLOW FOR PLACEMENT OF
CAPS, BUSHINGS OR COUPLINGS

CONCRETE CONTROL CABINET BASES

CONDUIT LOCATIONS IN 24" X 36" PULL BOX (LEADING TO CONTROLLER CABINET BASE TYPE 6, 7, 8 AND 9)



TYPE 6,7,8 AND 9
(ISOMETRIC VIEW)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

INSTALL FOUR 1/2 INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

CONTROL CABINET BASE TOP SURFACES SHALL BE TROWEL FINISHED AND LEVEL.

WHEN A TYPE 10 CONTROL CABINET BASE IS USED TO POST MOUNT A CONTROL CABINET, A 36" SQUARE 4" THICK CONCRETE MAINTENANCE PLATFORM SHALL BE REQUIRED ON THE DOOR SIDE OF THE CABINET. THE TOP 1 INCH SHALL BE ABOVE FINISHED GRADE AND BE BROOM FINISHED AND LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

ALL FOUR (TWO INCH AND THREE INCH) CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST) PULL BOX LOCATED AS SHOWN ON THE PLANS.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

WHEN ANCHOR RODS USING THE ALTERNATE L BEND ARE FURNISHED FOR THE TYPE 10 BASE, THE 4" L BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH.

THE "L" BEND SHALL NOT BE THREADED.

STRAIGHT ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD.

① FOUR (4) ANCHOR RODS, 1" DIA. X 3'-6" ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS AND IN ACCORDANCE WITH A-449, OR ASTM A-687 (GRADE 105).

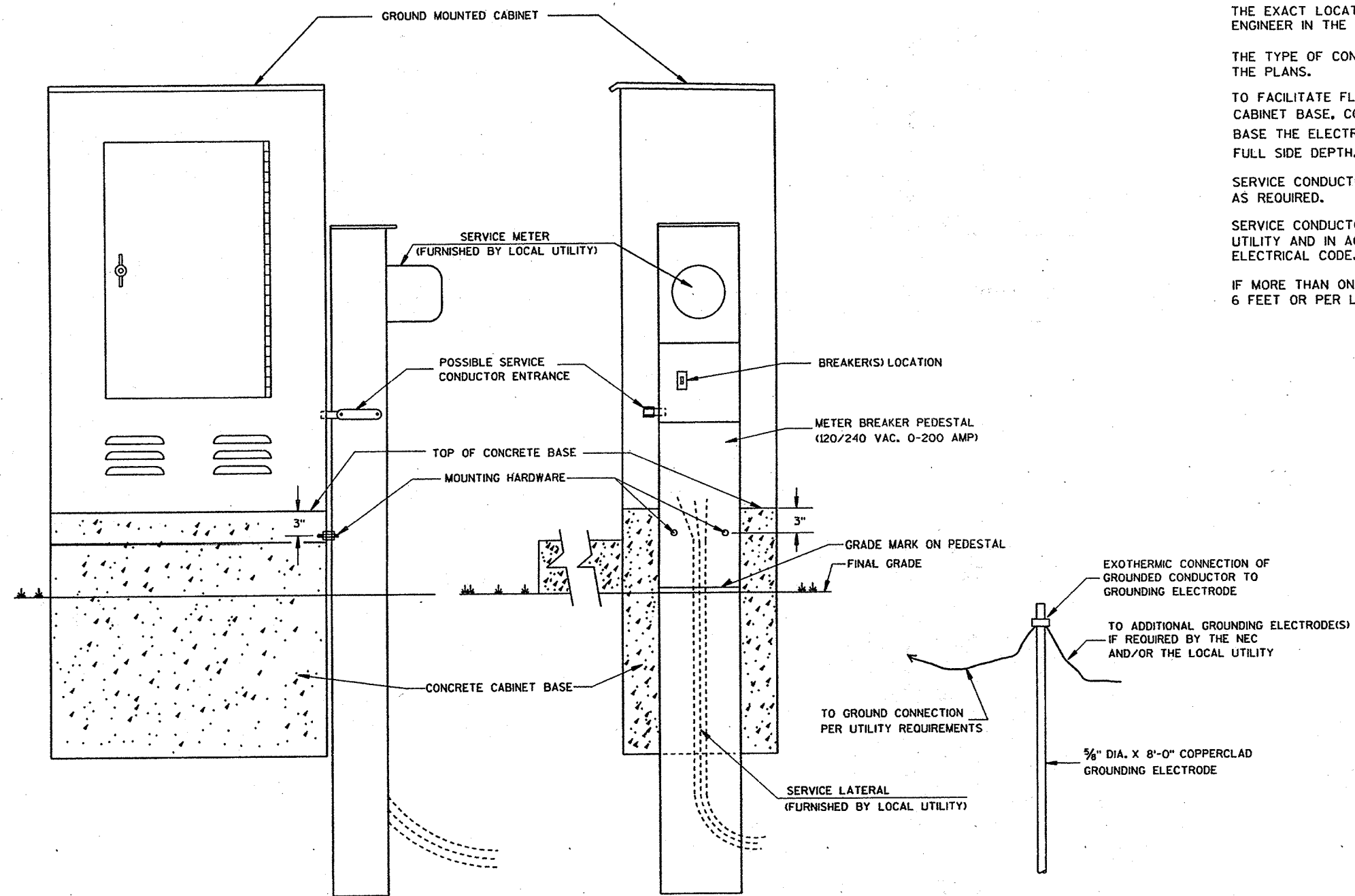
CONCRETE CONTROL CABINET
BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/21/96
DATE
FHWA

Bala
STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

S.D.D. 9 C 5-2



TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE, CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRIC SERVICE LATERAL WILL APPROACH. THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

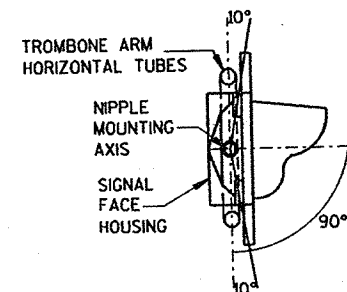
CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

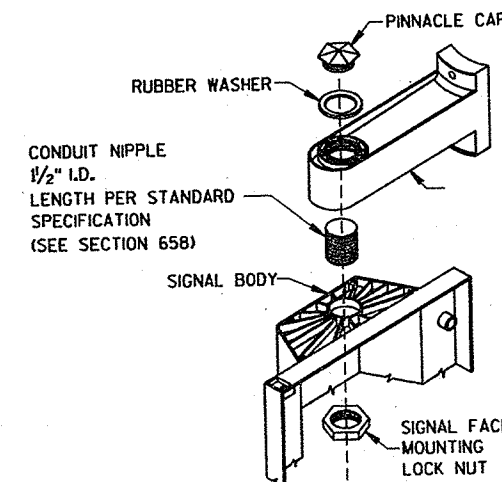
APPROVED
DATE
FHWA

STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

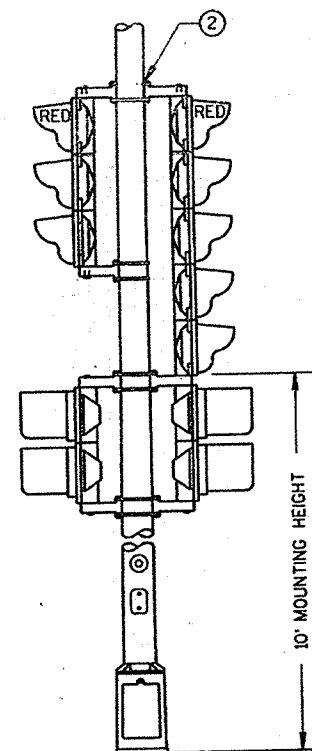
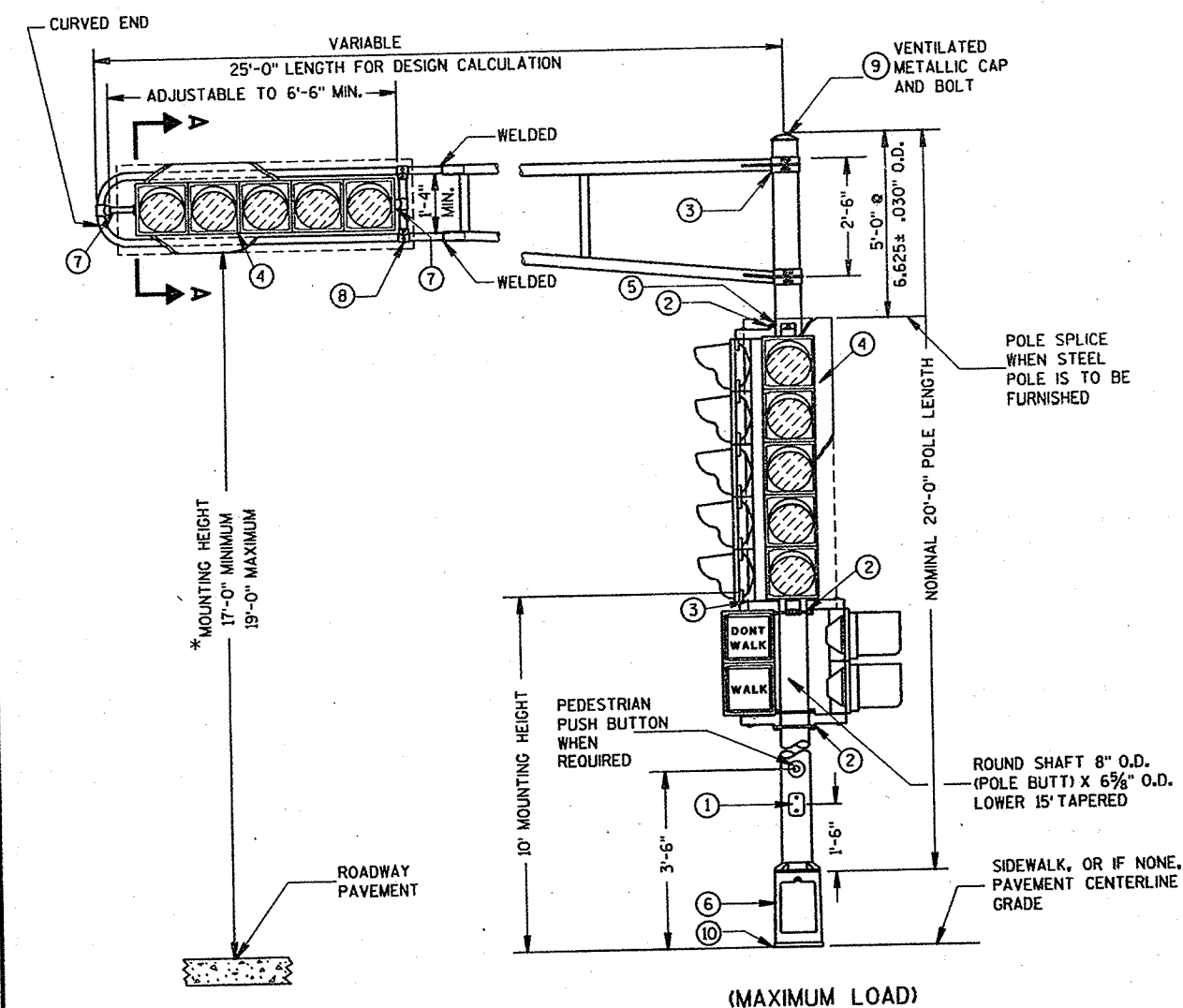
S.D.D. 9 D 1-2



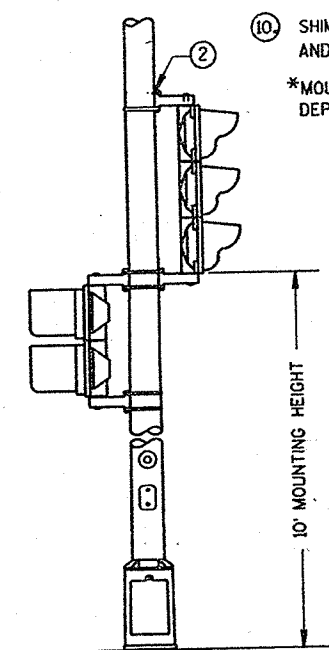
SECTION A-A
(10 DEGREES TILT REQUIREMENT OF FACE(S) IN THE TROMBONE MOUNTING)



SIGNAL FACE MOUNTING DETAIL
(BANDED)



TYPICAL MOUNTING OF BACK TO BACK
3 AND 5 SECTION SIGNAL FACES



TYPICAL MOUNTING OF 3 SECTION
SIGNAL FACE

TYPE 2 POLE MOUNTING CONFIGURATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT. POLES SHALL BE EITHER ALUMINUM OR GALVANIZED STEEL AS CALLED FOR IN THE CONTRACT.

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

A PULL WIRE/ROPE IN ACCORDANCE WITH STANDARD SPECIFICATION 652 SHALL BE INSTALLED IN EACH TROMBONE ARM RACEWAY DURING THE MANUFACTURING PROCESS.

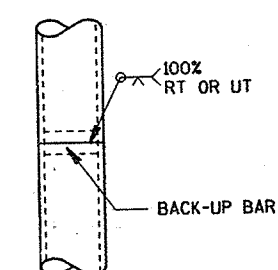
TYPE 2 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

- ① 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) 1/4" X 3/4" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
- ② SIGNAL FACE MOUNTING BRACKETS. MOUNT WITH CAP SCREWS AND BANDING. (SEE STANDARD SPECIFICATIONS - SEC. 658)
- ③ GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 1/8" HOLE IN POLE SHAFT FOR WIRING.
- ④ BACKBOARDS ARE REQUIRED AT ALL TIMES ON TROMBONE MAST ARM MOUNTED SIGNAL FACES. VERTICAL MOUNTED SIGNAL FACES WITH BACKBOARDS REQUIRED ARE LOCATED AS SHOWN ON THE PLANS. BACKBOARDS ARE REQUIRED TO SURROUND SIGNAL FACES. BACKBOARDS SHALL EXTEND 5" BEYOND EXTREMITIES OF THE SIGNAL FACE.
- ⑤ POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACES.
- ⑥ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
- ⑦ MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE(S) SHALL BE 2 INCHES IN LENGTH AND 1/2 INCHES IN DIAMETER. (SEE STANDARD SPECIFICATION - SECTION 658).
- ⑧ VERTICAL STRUT (ADJUSTABLE), ONE (1) SET SCREW (1/4" X 3/4" LONG - 20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.
- ⑨ FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
- ⑩ SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.

*MOUNTING HEIGHT LIMITATION DIMENSIONS OF THE TROMBONE MAST ARM WILL BE DEPENDENT UPON THE USE/NON-USE OF A TRANSFORMER BASE.

FOR MANUFACTURERS USE ONLY

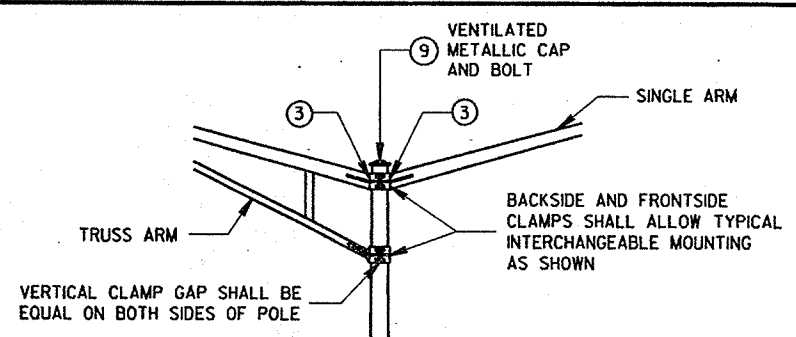
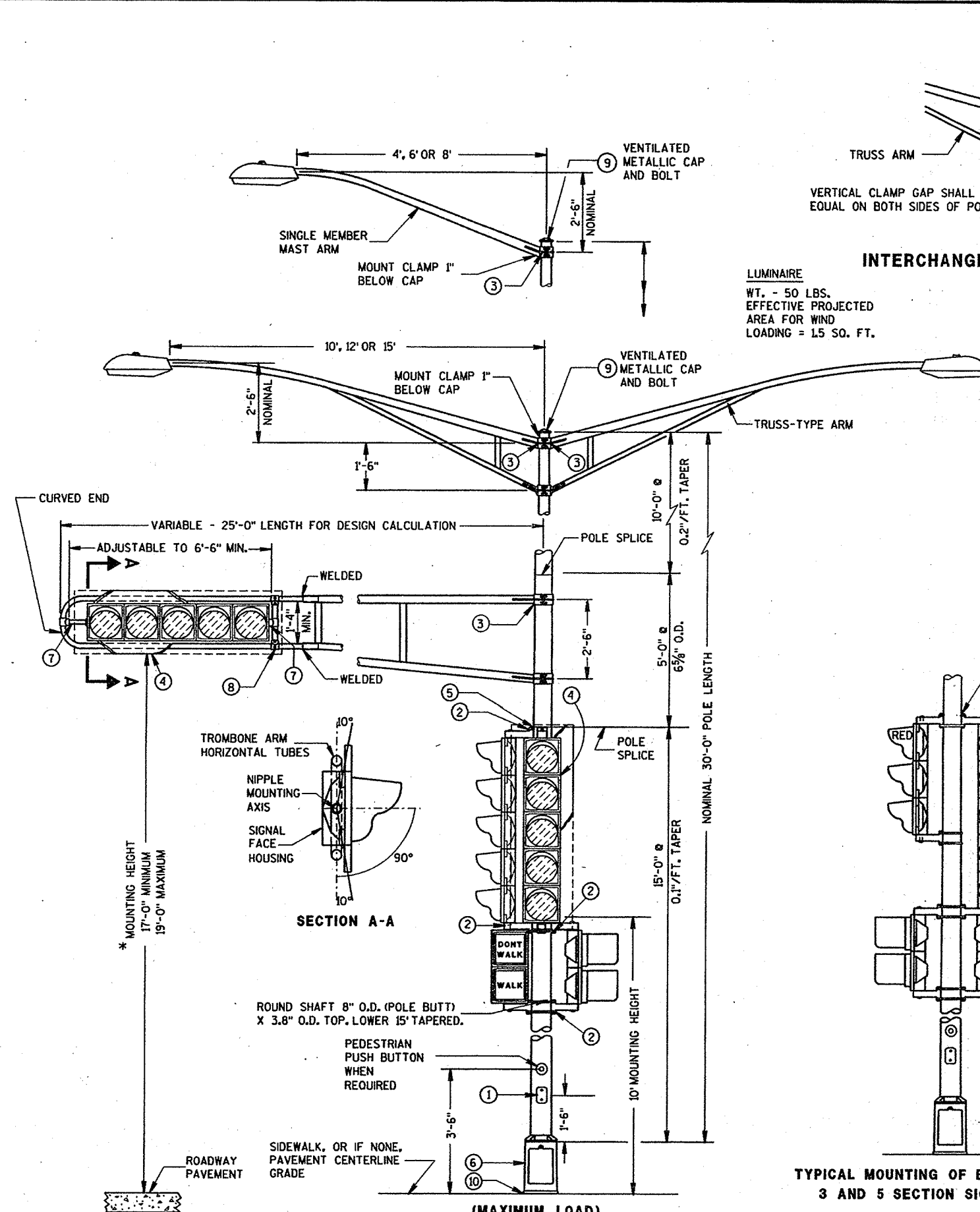
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 15-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN/BRIDGE FOR VERIFICATION AND APPROVAL.



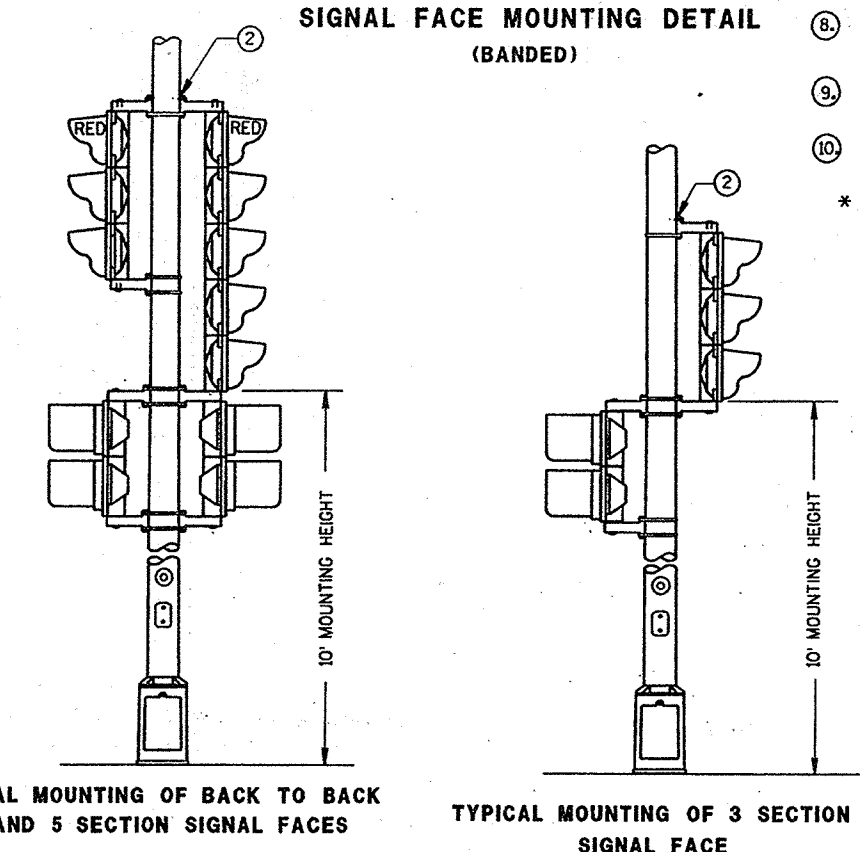
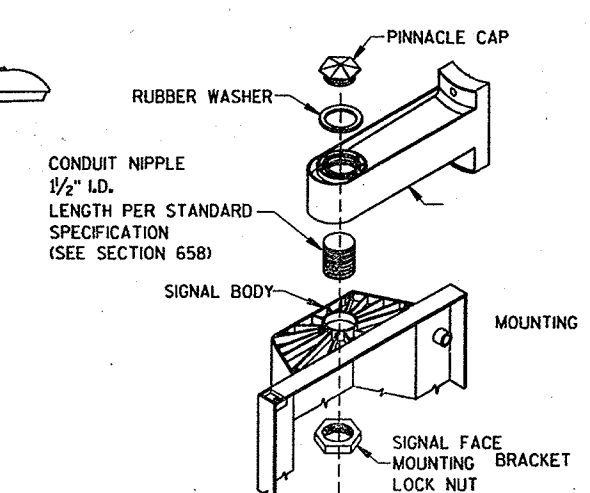
POLE SPLICE DETAIL

POLE MOUNTINGS FOR
TRAFFIC SIGNALS
TYPE 2

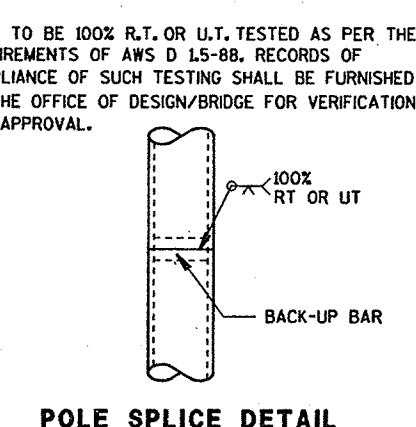
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



LUMINAIRE
 WT. - 50 LBS.
 EFFECTIVE PROJECTED AREA FOR WIND LOADING = 15 SQ. FT.



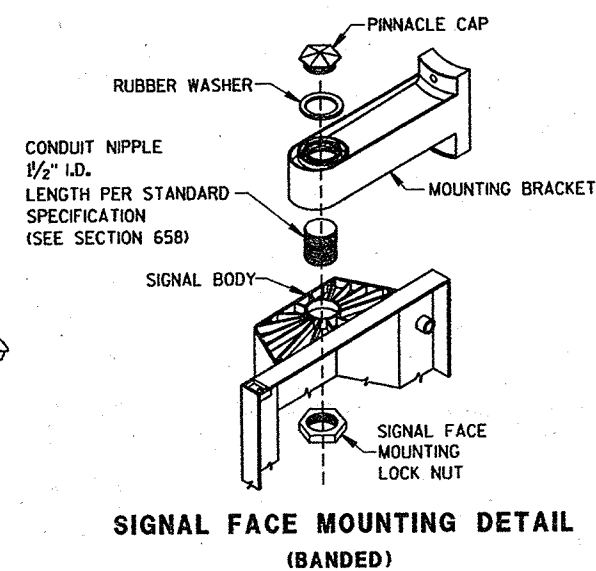
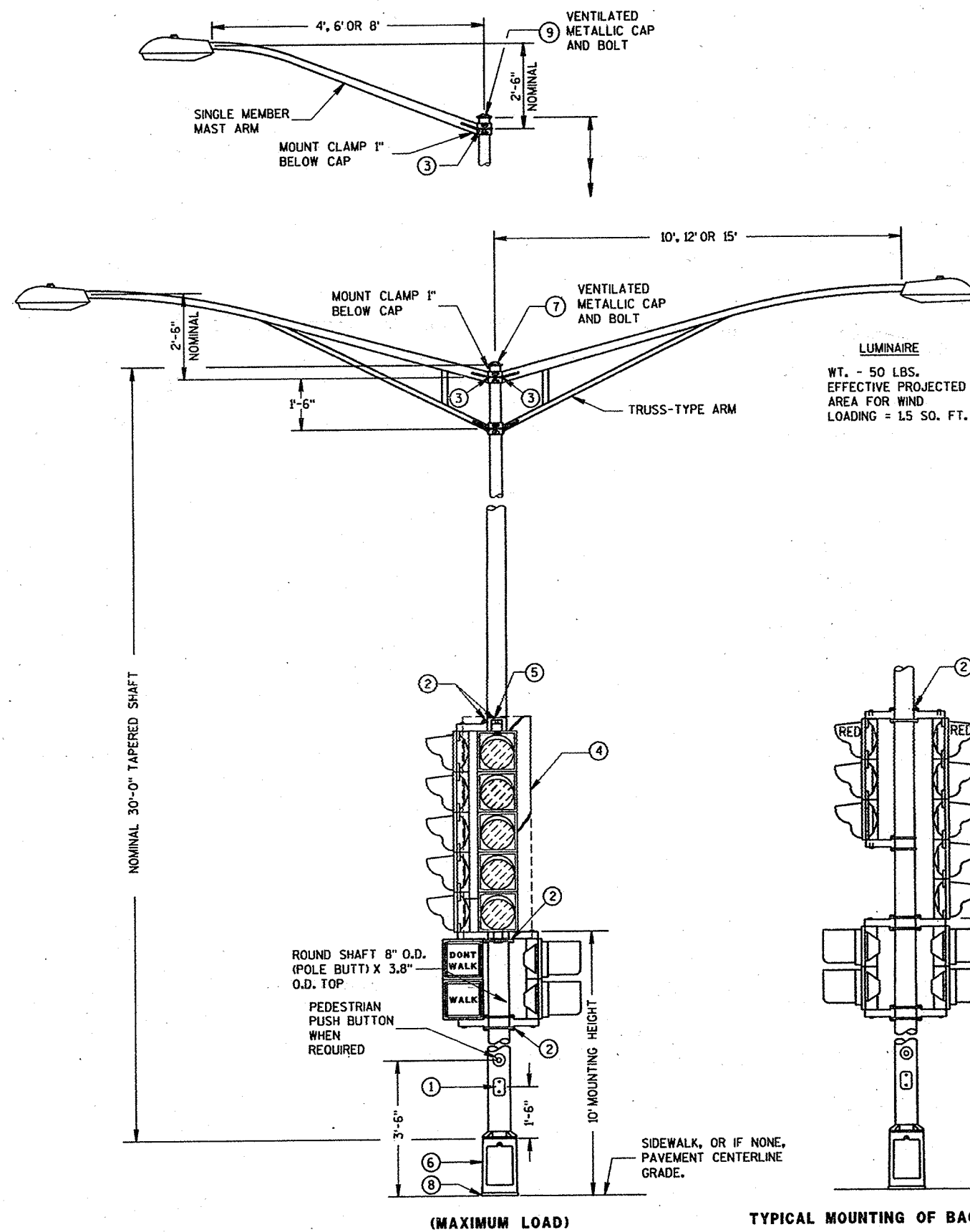
TYPE 3 POLE MOUNTING CONFIGURATION



POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

S.D.D. 9 E 1-2b



- ### GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN
ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS
OF THE CONTRACT.

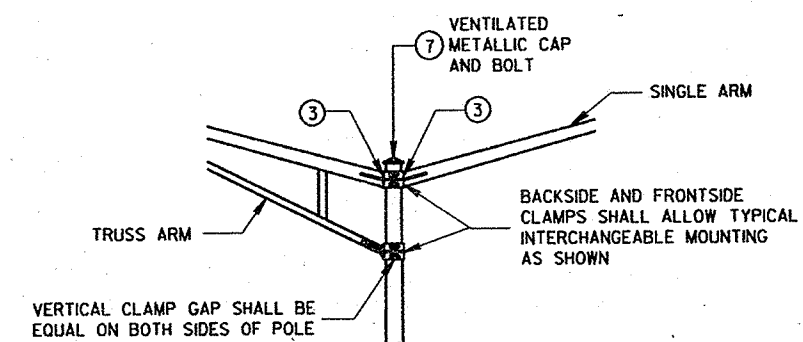
ALL TYPE 4 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL.

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2 $\frac{3}{8}$ INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

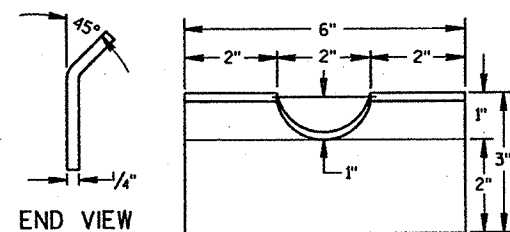
1. 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) 1/4" X 3/4" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
2. SIGNAL FACE MOUNTING BRACKETS, MOUNT WITH CAP SCREWS AND BANDING. (SEE STANDARD SPECIFICATIONS - SEC. 658).
3. GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
4. VERTICAL MOUNTED SIGNAL FACES WITH BACKBOARDS REQUIRED ARE LOCATED AS SHOWN ON THE PLANS. BACKBOARDS ARE REQUIRED TO SURROUND SIGNAL FACES. BACKBOARDS SHALL EXTEND 5" BEYOND EXTREMITIES OF THE SIGNAL FACE.
5. POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACE.
6. CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
7. FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
8. SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.



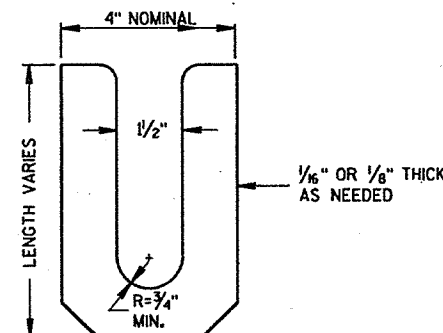
INTERCHANGEABLE MOUNTING DETAIL

POLE MOUNTINGS FOR
TRAFFIC SIGNALS AND
LIGHTING UNITS, TYPE 4

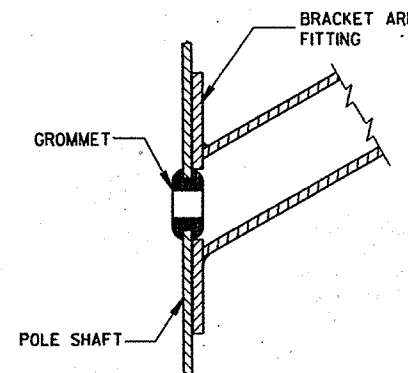
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



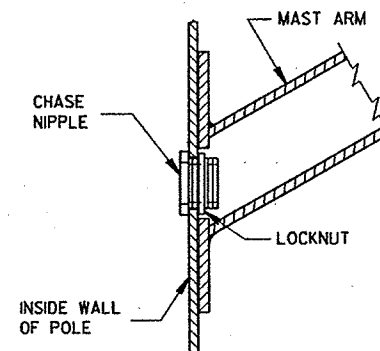
**FRONT VIEW
RECTANGULAR CLAMP SHIM**
(4 TO A SET)



LEVELING SHIM
SHALL BE ALUMINUM



**TYPICAL APPLICATION OF
GROMMET IN POLE SHAFT**

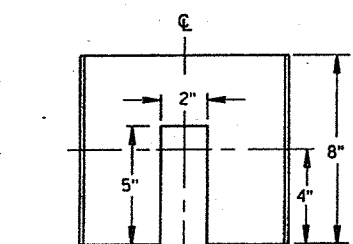
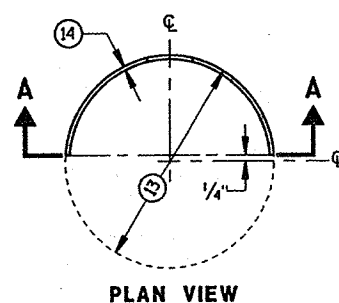


**TYPICAL APPLICATION OF
CHASE NIPPLE IN POLE SHAFT**

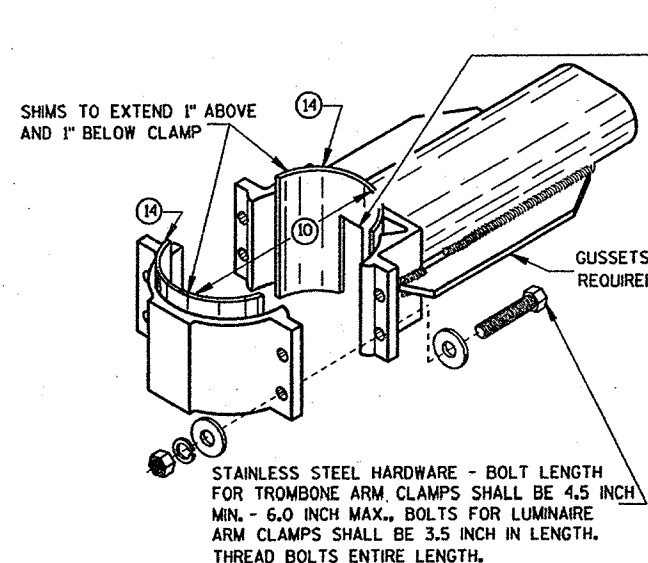
GENERAL NOTES

CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

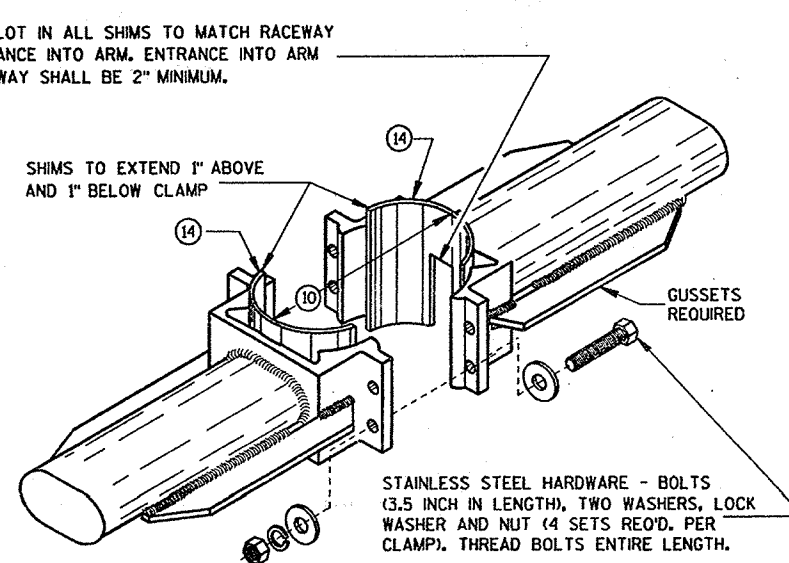
10. 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
11. INDIVIDUAL BASE PLATE ANCHOR ROD COVERS, (4 REQUIRED)
12. BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.
13. OUTSIDE SHIM DIAMETER - (4.5" O.D. FOR LUMINAIRE MAST ARM)
(6.625" O.D. FOR TROMBONE MAST ARM)
14. VARIABLE SHIM THICKNESS - (0.10", 0.25", 0.35", 0.53" OR 0.70")
SHIM THICKNESS FOR TROMBONE MAST ARMS MAY BE TYPICALLY 0.25", 0.35", 0.53" OR 0.70".
SHIM THICKNESS FOR LUMINAIRE MAST ARMS MAY BE TYPICALLY 0.10", 0.25" OR 0.35".
SHIM MATERIAL SHALL BE ALUMINUM ALLOY.
SHIM THICKNESS SHALL BE IMPRESSED INTO EACH SHIM. NUMERALS SHALL BE 1/4" HIGH AND LEGIBLE.
THE CONTRACTOR SHALL SUBMIT TWO COPIES OF ALL SHIM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
15. LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



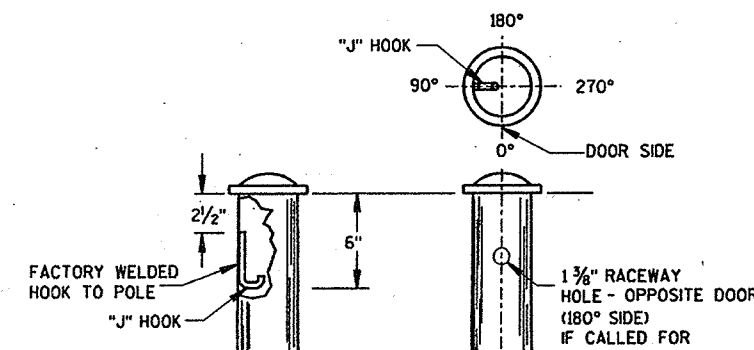
**SECTION A-A
CIRCULAR CLAMP SHIM**
(2 TO A SET)



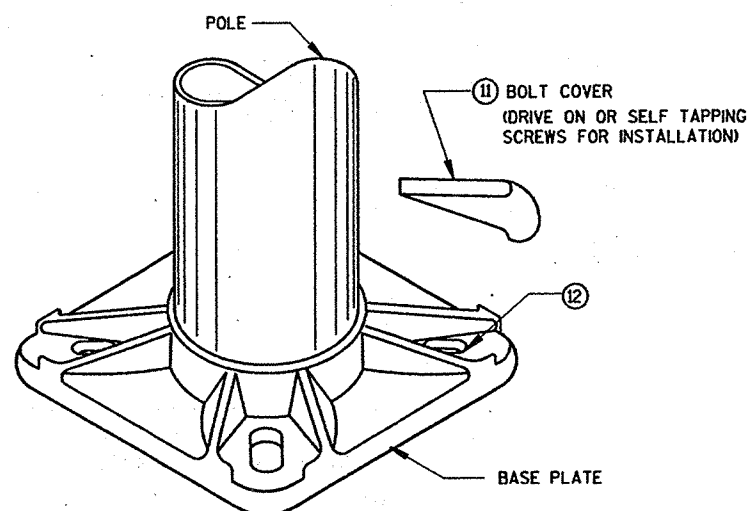
**TYPICAL TROMBONE MAST ARM AND SINGLE
LUMINAIRE MAST ARM MOUNTING CLAMP**



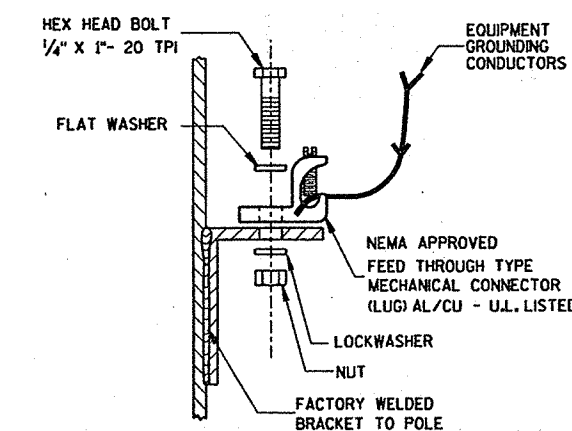
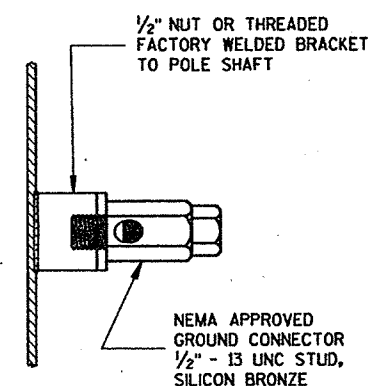
**TYPICAL LUMINAIRE MAST ARM
(DOUBLE) MOUNTING BRACKETS**



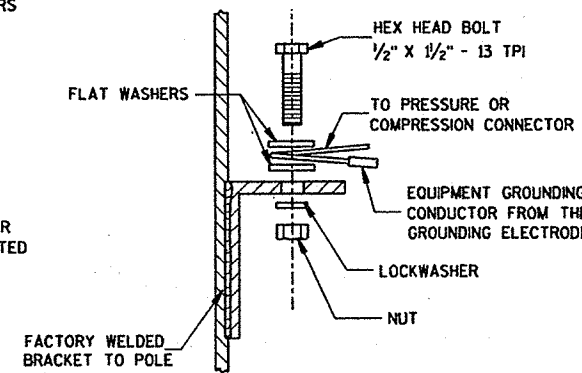
TYPICAL "J" HOOK LOCATION



BASE PLATE



TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/6/96
DATE
FWHA

Bala Stroud
STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.
FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

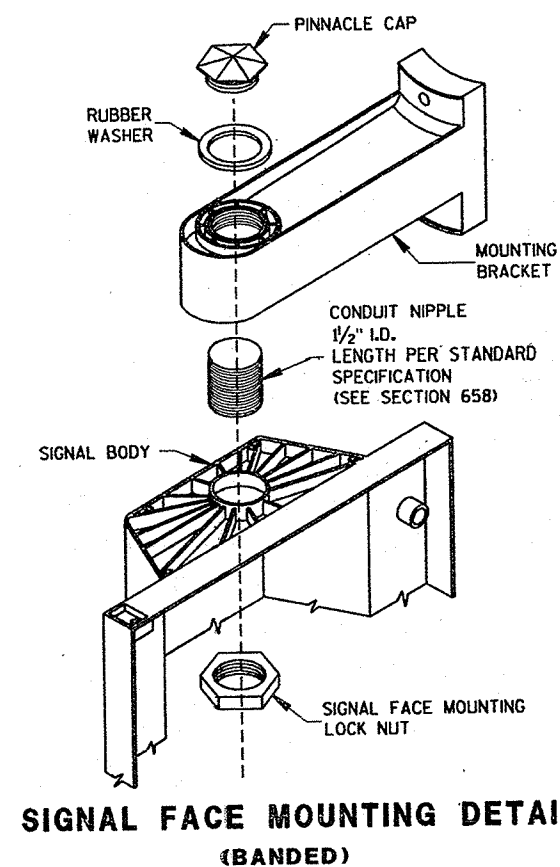
POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE DISTRICT TRAFFIC ENGINEER.

FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.



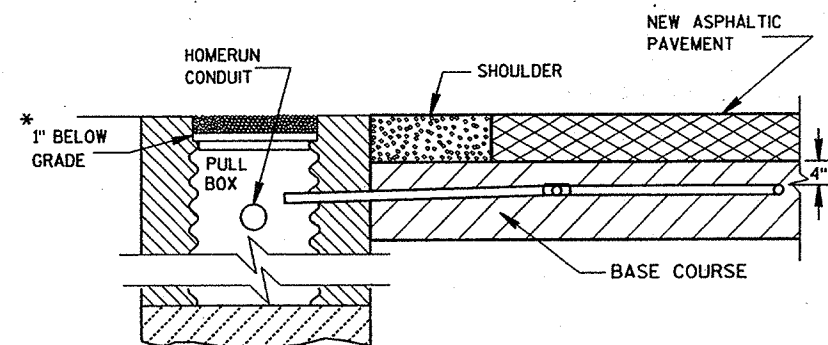
TRAFFIC SIGNAL STANDARD
POLY BRACKET MOUNTINGS (TYPICAL)
13 FT. OR 15 FT.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/21/96
DATE
FHWA

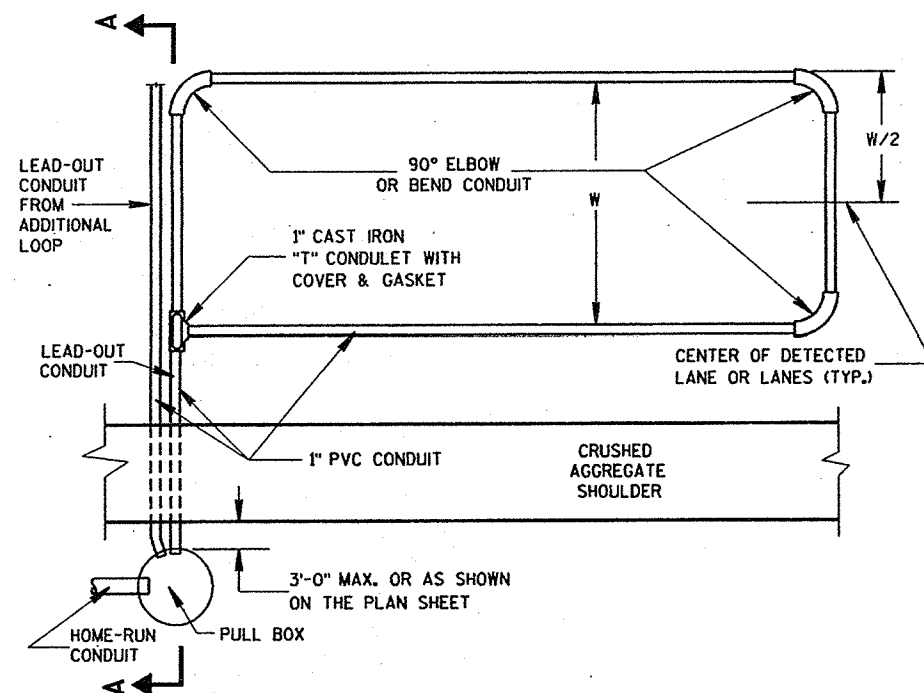
Bala Arun
STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

S.D.D. 9 E 6-1



SECTION A-A
NO CURB & GUTTER
DETECTOR LOOP INSTALLATION DETAIL

*RECESS PULL BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.



TYPICAL PLAN OF LOOP DETECTOR

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

LOOP SIZE, LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD-OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS SUCH AS 3M TYPE 82A1 OR APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

THE GROUND RESISTANCE READING OF THE LOOP SHALL READ "INFINITY" TO GROUND ON AN OHMMETER USING A MULTIPLIER SCALE OF 1 MEGOHM AND AN INPUT RESISTANCE OF 11 MEGOHMS MINIMUM BEFORE SPLICING THE LOOP TO THE LEAD-IN CABLE.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

ANTI-SIEZE LUBRICATING MATERIAL SHALL BE USED ON ALL THREADS OF THREADED ASSEMBLIES BEFORE INSTALLATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

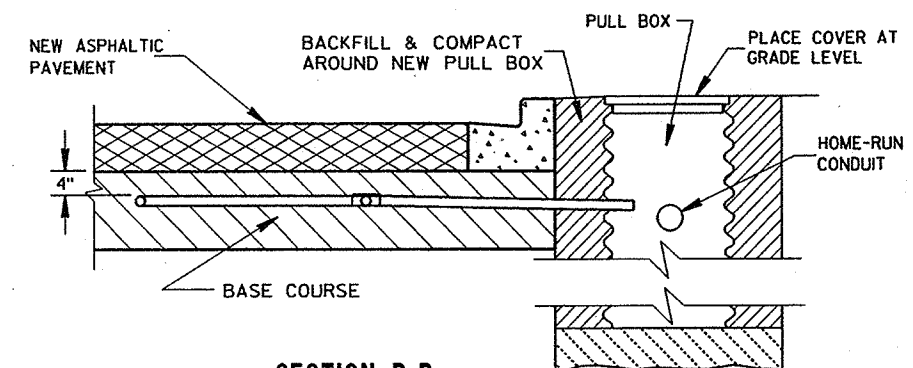
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, THROUGH THE LOOP DUCT, BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE, NON-SPLICED, CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT AND CONDULET SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE THE ASPHALTIC PAVEMENT IS PLACED.

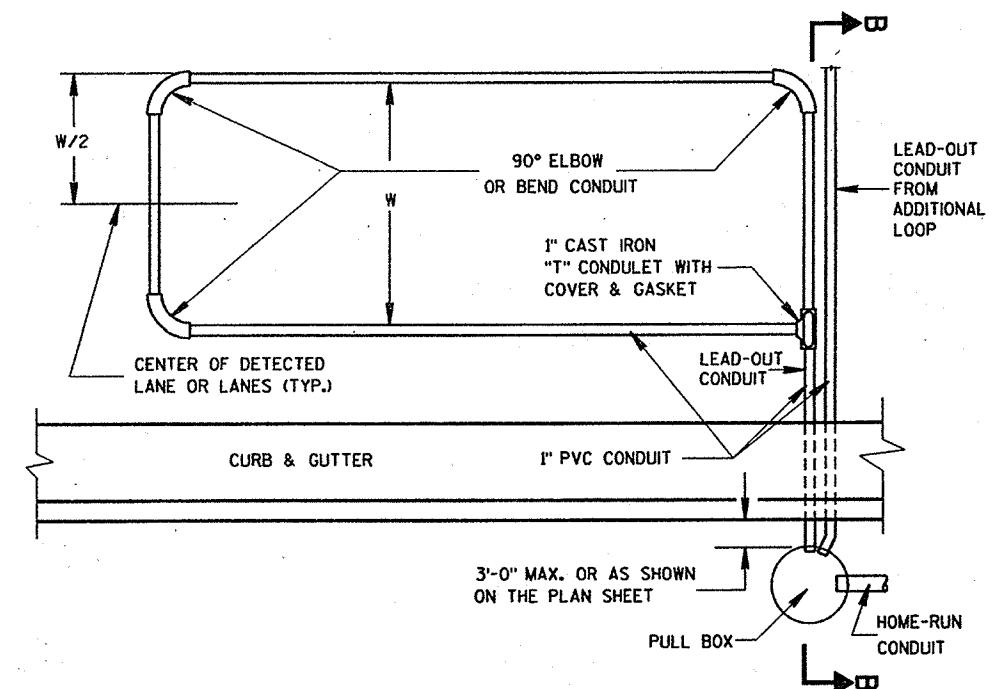
WHEN MULTIPLE LAYERS OF ASPHALTIC PAVEMENT ARE TO BE PLACED, LOOPS MAY BE INSTALLED BY SAWING A TWO INCH WIDE SLOT IN THE FIRST LAYER, DIG OUT THE ASPHALTIC MATERIAL AND BASE COURSE, PLACE THE LOOP, FILL THE SLOT WITH BASE COURSE MATERIAL AND NEW ASPHALTIC MATERIAL AND TAMP THE ASPHALTIC MATERIAL IN PLACE.

SHOULD TRAFFIC BE ALLOWED TO USE THE AREA OF ROADWAY WITH THE NEWLY INSTALLED LOOP BEFORE THE PLACEMENT OF THE NEXT LAYER OF ASPHALTIC PAVEMENT, THE SLOT/PAVEMENT OPENING SHALL BE SEALED WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".

DRIVE A 1 1/2" MAX. PK NAIL INTO THE NEW ASPHALTIC PAVEMENT AND DIRECTLY ABOVE THE CONDULET AFTER THE FINAL LAYER OF NEW ASPHALTIC PAVEMENT IS COMPLETELY INSTALLED, IF REQUIRED BY THE DISTRICT TRAFFIC SECTION.



SECTION B-B
CURB & GUTTER
LOOP DETECTOR INSTALLATION DETAIL



TYPICAL PLAN OF LOOP DETECTOR

LOOP DETECTOR PLACED
IN CRUSHED AGGREGATE BASE
(NEW ASPHALTIC PAVEMENT)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

DATE
10/21/96
FWA

STATE ELECTRICAL ENGINEER FOR
HIGHWAYS

S.D.D. 9 F 8-2

TWO-LANE ROADWAY

SYMBOLS

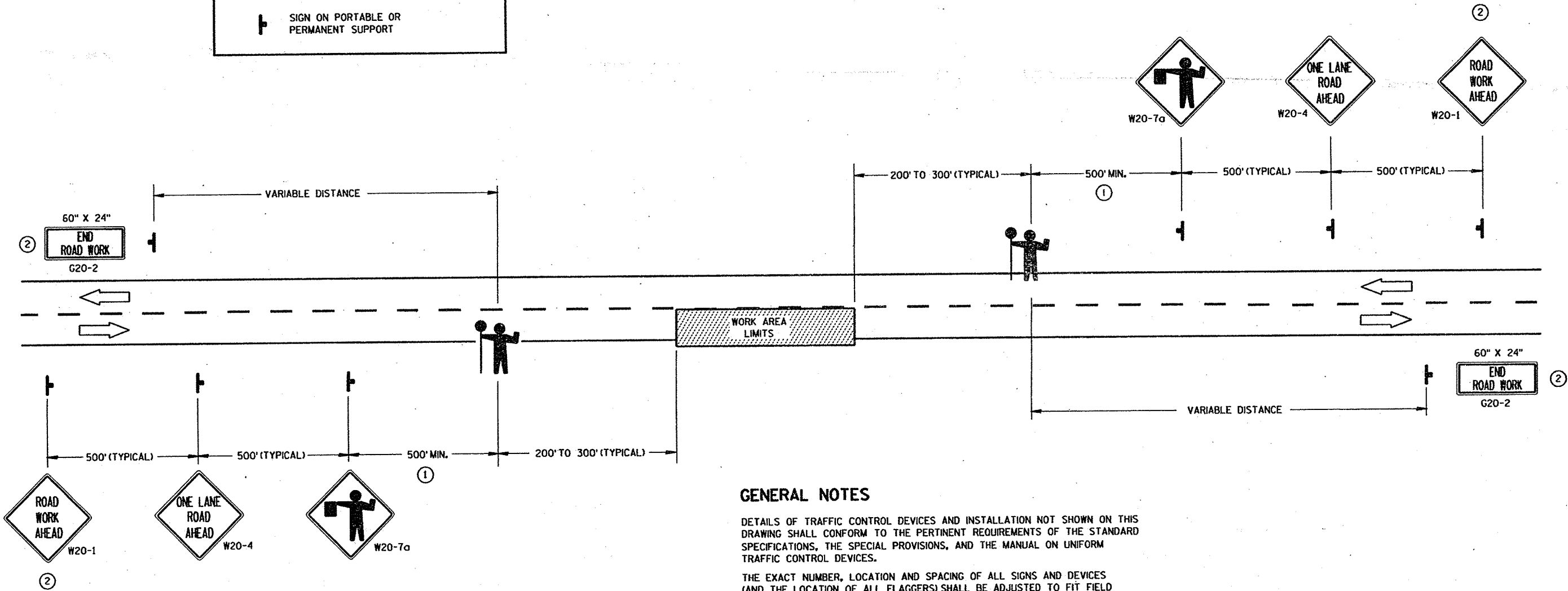
WORK AREA

FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN ON PORTABLE OR PERMANENT SUPPORT



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE LOCATION OF ALL FLAGGERS) SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, THE "FLAGGER AHEAD", THE "ROAD WORK AHEAD" AND THE ONE LANE ROAD AHEAD" SIGNS SHALL BE COVERED OR REMOVED AND THE HIGHWAY RESTORED TO NORMAL OPERATION.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS DIRECTED BY THE ENGINEER.

② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 2/17/94
STATE TRAFFIC ENGINEER FOR HWYS
FHW