ELECTRICAL QUANTITY SUMMARY SCHEDULE D: LITTLE COYOTE ROAD

ITEM NO.	MATERIAL	TOTAL	UNIT
*616323106	CONDUIT-STEEL 3/4 IN	110	LNFT
*616343909	CONDUIT-PLASTIC 3/4 IN	190	LNFT
616343920	CONDUIT-PLASTIC 2 IN	55	LNFT
616343930	CONDUIT-PLASTIC 3 IN	300	LNFT
**616783007	PULL BOX-COMPOSITE TYPE 2	4	EACH
616783008	PULL BOX-COMPOSITE TYPE 3	2	EACH
617000000	FOUNDATION-CONCRETE	14	CUYD
617033214	CABLE-COPPER 3AWG14-600V	180	LNFT
617033314	CABLE-COPPER 5AWG14-600V	550	LNFT
617033514	CABLE-COPPER 9AWG14-600V	600	LNFT
617123106	CONDUCTOR-COPPER AWG6-600V	150	LNFT
617123108	CONDUCTOR-COPPER AWG8-600V	675	LNFT
**617123110	CONDUCTOR-COPPER AWG10-600V	1120	LNFT
**617303300	HIGH EFFICACY LUMINAIRE LED	5	EACH
617333160	SERV ASSEMB-60 AMP	2	EACH
617503130	SIG-TRAF 3 COL-1 WAY 12-12-12	5	EACH
617513125	SIG TRAF 4 COL 1 W 12-12-12-12	2	EACH
617553020	SIG-PEDESTRIAN TYPE 2	2	EACH
617233030	CONTROLLER-CAB PEDESTAL TYPE P (OWNER SUPPLIED)	1	EACH
617605081	CONTLR/TRAF-ACTUAT TYPE 8-A (OWNER SUPPLIED)	1	EACH
617673100	SIG STANDARD TYPE 1-100	1	EACH
617715053	SIG STANDARD TYPE 3-A-500-3	1	EACH
617715097	SIG STANDARD TYPE 3-A-900-7	2	EACH
617763500	DETECTOR-RADAR/PRESENCE	5	EACH
617781000	REMOVE AND SALVAGE MISC ELECTRICAL	LS	LS
617903255	PUSH BUTTON-PEDESTRIAN-TACTILE	2	EACH
617909502	EMER PRE-EMPT DET CABLE	775	LNFT
617909505	EMER PRE-EMPTION DET HEAD	3	EACH

^{*} This bid item is for the pedestrian underpass lighting.

QUANTITY SUMMARY
NO SCALE

ELECTRICAL QUANTITY SUMMARY

GALLATIN COUNTY, MADISON COUNTY

ELECTRICAL QUANTITY SUMMARY SCHEDULE F: US 191 AREA

ITEM NO.	MATERIAL	TOTAL	UNIT
616343920	CONDUIT-PLASTIC 2 IN	50	LNFT
617000000	FOUNDATION-CONCRETE	0.7	CUYD
617033314	CABLE-COPPER 5AWG14-600V	180	LNFT
617123110	CONDUCTOR-COPPER AWG10-600V	60	LNFT
617513125	INSTALL (OWNER SUPPLIED) SIG TRAF 4 COL 1 W 12-12-12-12	1	EACH
617513125	SIG TRAF 4 COL 1 W 12-12-12-12	2	EACH
617533000	SIG TRAF BACKPLATE REFLECTIVE	5	EACH
617553020	SIG-PEDESTRIAN TYPE 2	2	EACH
617233030	CONTROLLER-CAB PEDESTAL TYPE P (OWNER SUPPLIED)	1	EACH
617233100	CONTROLLER-CAB-PED-MODIFY	1	EACH
617673100	SIG STANDARD TYPE 1-100	2	EACH
*617733621	REMOVE AND RESET EXISTING POLE	1	LS
617763500	DETECTOR-RADAR/PRESENCE	5	EACH
617781000	REMOVE AND SALVAGE MISC ELECTRICAL	LS	LS
617783040	REMOVE AND RESET CONTROLLER	1	EACH
617903255	PUSH BUTTON-PEDESTRIAN-TACTILE	2	EACH

^{*} This bid item is for the the bus pull out.

QUANTITY SUMMARY
NO SCALE

SANDERSON STEWART

FOR BIDDING

MONTANA HIGHWAY 64 (LONE MOUNTAIN TRAIL)

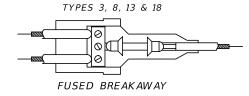
SHEET E1

^{**} The quantities for this bid item include quantities for the pedestrian underpass lighting.

WATERTIGHT CONNECTORS



	NON-FU.
IDENTITY NO.	DESCRIPTIVE SYMBOL & WIRE SIZES
1	8 8
2	8 0 10
3	8 20 10
4	8 8
5	8 8
6	6 6
7	6 0 10
8	6 10
9	6 6
10	6 6
11	44_
12	4 0 10
13	4 10 10
14	4 4
15	4
16	10
17	10 00 10
18	10 10 10 10 10
19	10
20	10 10 10 VARIES
21	VARIES



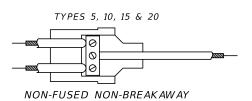
TYPES 4, 9, 14 & 19

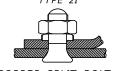
NON-FUSED BREAKAWAY

PROVIDE A PLUG AND RECEPTACLE HOUSED IN WATER-RESISTANT, SYNTHETIC RUBBER CAPABLE OF BURIAL IN THE GROUND OR INSTALLATION IN SUNLIGHT. THE HOUSING, CONSISTING OF 2 SECTIONS, PROVIDES A WATERTIGHT SEAL AROUND THE CABLE AND A WATERTIGHT SEAL BETWEEN THE TWO SECTIONS AT THE POINT OF DISCONNECTION. SUPPLY EACH KIT WITH SUFFICIENT SILICONE COMPOUND TO LUBRICATE METAL PARTS AND THE RUBBER HOUSINGS FOR EASY ASSEMBLY.

WHERE INDICATED, CRIMP A COPPER PIN AND A COPPER RECEPTACLE TO THE CABLE. THE RECEPTACLE IS TO ESTABLISH CONTACT PRESSURE WITH THE PIN THROUGH THE USE OF A COPPER BERYLLIUM SPRING AND BE EQUIPPED WITH A DISPOSABLE MOUNTING PIN. THE PIN IS TO BE CONSTRUCTED OF AT LEAST HALF-HARD MATERIAL. THE CRIMPING PORTION IS TO BE FULLY ANNEALED WHILE THE REST OF THE PIN IS MAINTAINED IN ITS ORIGINAL STATE OF HARDNESS. THE RECEPTACLE IS TO BE FULLY ANNEALED. THE PIN AND RECEPTACLE ARE TO LOCK TOGETHER SO THE CONNECTION IS MAINTAINED WHEN A MINIMUM FORCE OF 20 POUNDS TENSION IS APPLIED TO THE ATTACHED CABLES.

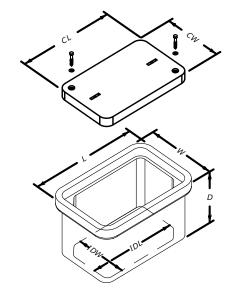
PROVIDE FUSED CONNECTOR KITS CONTAINING A PAIR OF SPRING LOADED 90% CONDUCTIVITY CONTACTS FOR GRIPPING A STANDARD MIDGET FERRULE TYPE FUSE. THE CONTACTS MUST BE FULLY ANNEALED AND ADAPTED TO BE CRIMPED TO THE CABLE.



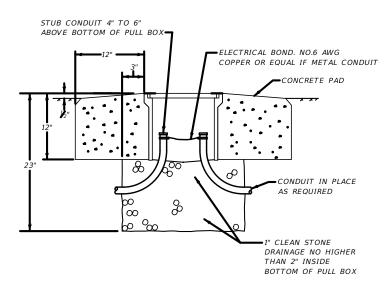


COPPER SPLIT BOLT -MAKE WATERTIGHT USING SELF ADHERING MASTIC

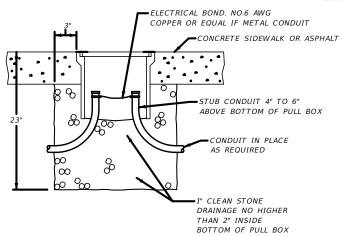
WATERTIGHT CONNECTORS NO SCALE



	PULL BOX - COMPOSITE MINIMUM DIMENSIONS							
TYPE 1	TYPE 2	TYPE 3						
L = 20 W = 13 D = 12 I D L = 17 I D W = 10 C L = 18 C W = 11	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	L = 32" W = 19" D = 12" I D L = 28" I D W = 15" C L = 30" C W = 17"						



PULL BOX INSTALLED IN DIRT



PULL BOX INSTALLED IN A SIDEWALK OR ASPHALT

PULL BOX-COMPOSITE

TYPE 1,2 & 3 NO SCALE

SANDERSON STEWART



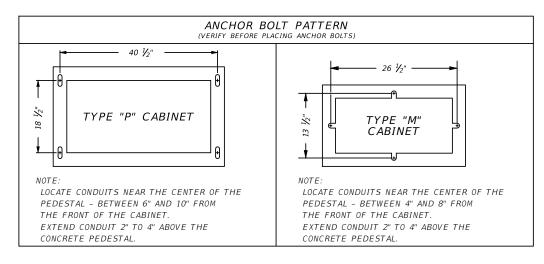
GALLATIN COUNTY STATE OF MONTANA

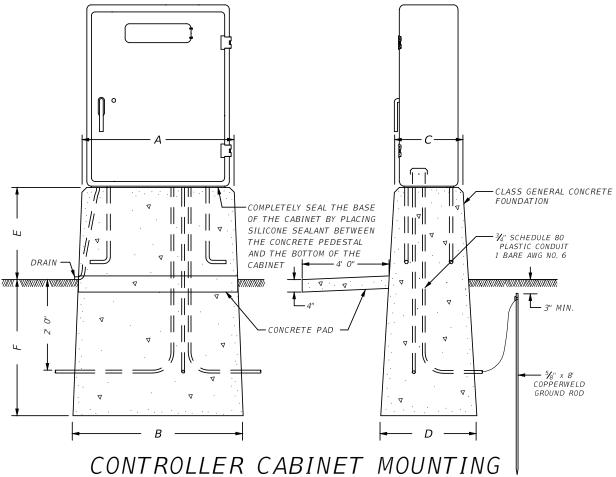
VARIES -

ELECTRICAL DETAILS GALLATIN COUNTY, MADISON COUNTY FOR BIDDING

MONTANA HIGHWAY 64 (LONE MOUNTAIN TRAIL)

SHEET E2

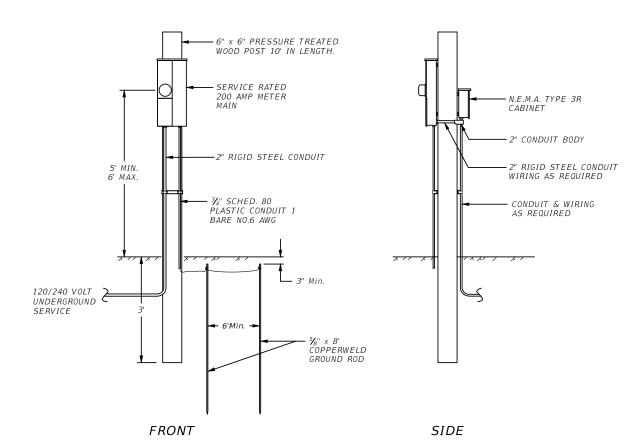




NOT TO SCALE

CONCRETE PEDESTAL DIMENSIONS TYPE M 2' 10" 3' 2" 1' 7" 2' 0" 2' 0" 3' 0" TYPE P 4' 0" 4' 4" 2' 4" 2' 9" 2' 0" 3' 0"

TYPICAL CABINET DIMENSIONS						
	WIDTH	HEIGHT	DEPTH			
TYPE M	2' 6"	4' 2"	1' 5"			
TYPE P	3' 8"	4' 6"	2' 2"			



UNDERGROUND SERVICE ASSEMBLY DETAIL NOT TO SCALE

SANDERSON STEWART

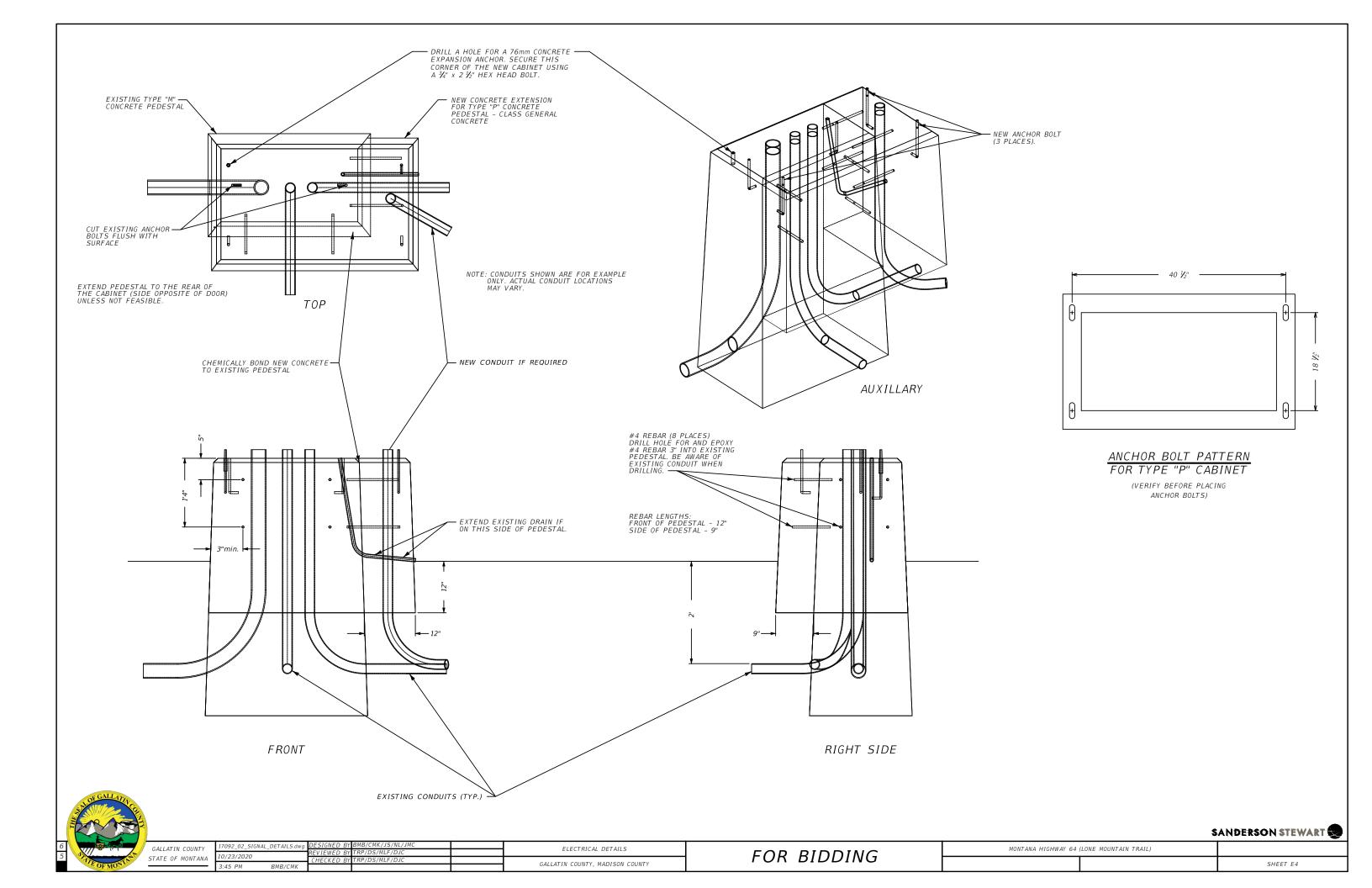
FOR BIDDING

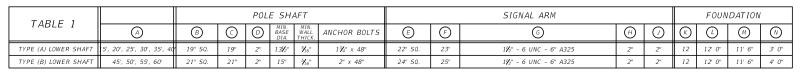
MONTANA HIGHWAY 64 (LONE MOUNTAIN TRAIL)

GALLATIN COUNTY STATE OF MONTANA

ELECTRICAL DETAILS GALLATIN COUNTY, MADISON COUNTY

SHEET E3





	MOUNTING POINTS							
TABLE 2	* 1 SIGNAL	* 2 EMERG. VEHICLE DETECTOR	*3 - *3C SIGN PANEL	*1A - *1C SIGNAL	* 7 LUMINAIRE	* 8 SIGNALS	* 9 PED. SIGNAL	* 10 CONTROLLER CAB.
DESIGN AREA	12.0 SQ.FT.	NIL	8.0 SQ.FT.	9.0 SQ.FT.	3.3 SQ.FT.	9.0 SQ.FT.	3.0 SQ.FT.	4.72 SQ.FT.
DESIGN WEIGHT	135 LB.	NIL	100 LB.	105 LB.	77LB.	210 LB.	80 LB.	200 LB.

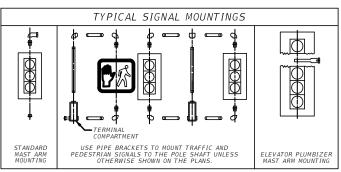
TABLE 3	A					
	15'	20' & 25'	30', 35', 40' & 45'	50', 55' & 60'		
MTG.PTS.	*1 *2 & *3	*1 *14 *2 *3 & *34	*1 *14 *18 *2 *3 *34 & *3i	*1 *14 *18 *1C *2 *3 *34 *38 & *3		

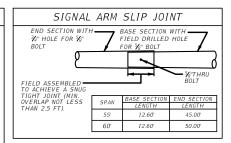
OF #4

REBAR HOOPS SPACED

EQUALLY AT ABOUT

1' O" CENTERS





NOTES

DESIGN STANDARDS IN ACCORDANCE WITH THE 2015 AASHTO LRFD SPECIFICATI FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (AND ANY AMENDMENTS THERETO).

DESIGN WIND VELOCITY 700 YEAR MRI BASIC WIND SPEED

FATIGUE CATEGORY 2

HEIGHT AND EXPOSURE FACTOR KZ z=16 FEET $\alpha=9.5$ zg=TAKEN AS 900 FEET FOR EXPOSURE C

DIRECTIONAL FACTOR Kd = 0.95, GUST FACTOR = 1.14 DRAG COEFFICIENTS FRD TABLE 3.8.7-1

NO ICE LOADS OR GALLOPING

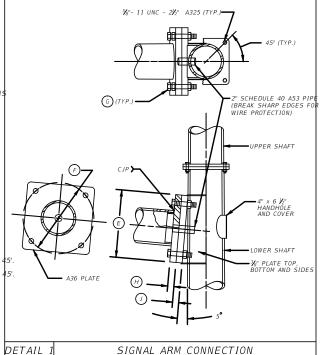
DESIGN AREA = AREA WITH MAXIMUM WIND LOAD (WIND IS PERPENDICULAR TO STANDARD, AS SHOWN).

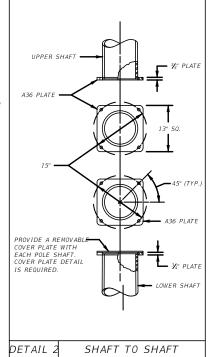
DESIGN WEIGHT = DEAD LOAD

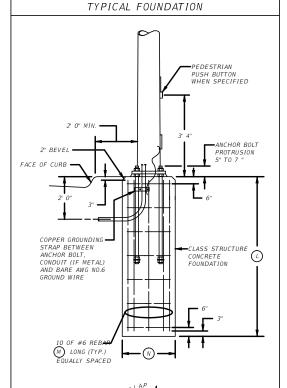
DESIGN ALL TYPE (A) LOWER SHAFTS FOR A = 40' AND A MOUNTING HEIGHT OF DESIGN ALL TYPE (B) LOWER SHAFTS f(OR) A = 60' AND A MOUNTING HEIGHT OF PROVIDE ANCHOR BOLTS CONFORMING TO ASTM F1554 OR EQUAL. GALVANIZE AND THREAD THE TOP END (12" MIN.).

CALL OUT WELDING PROCEDURES, SYMBOLS, BASE METAL SPECIFICATIONS AND GRADES PRIOR TO FABRICATION OR APPROVAL.

GALVANIZE POLE SHAFTS, ARMS, AND ACCESSORIES PER ASTM A123. GALVANIZE HARDWARE PER ASTM F2329.



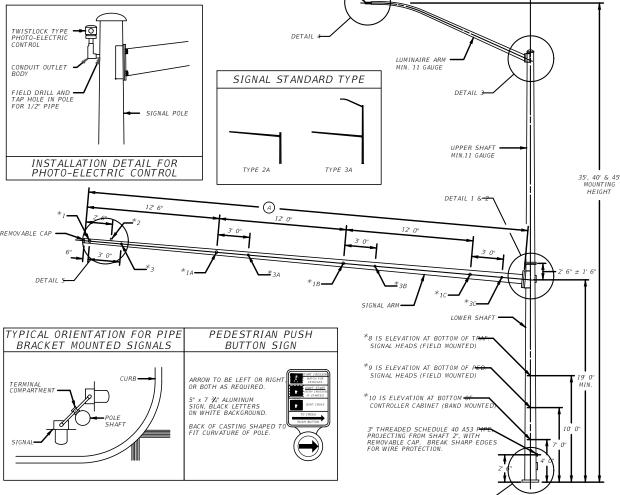




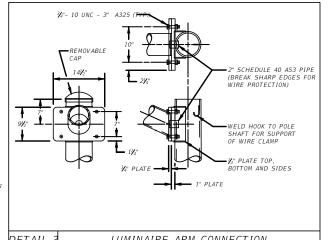
USE GRADE 60 REINFORCING STEEL

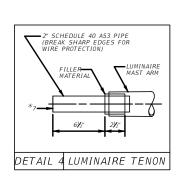
GALLATIN COUNTY

STATE OF MONTANA

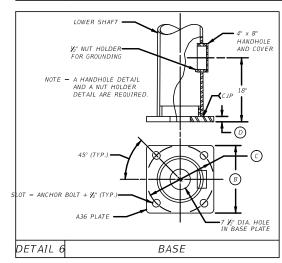


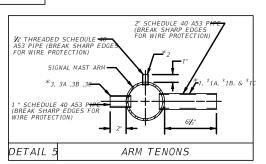
GALLATIN COUNTY, MADISON COUNTY





DETAIL 3 LUMINAIRE ARM CONNECTION



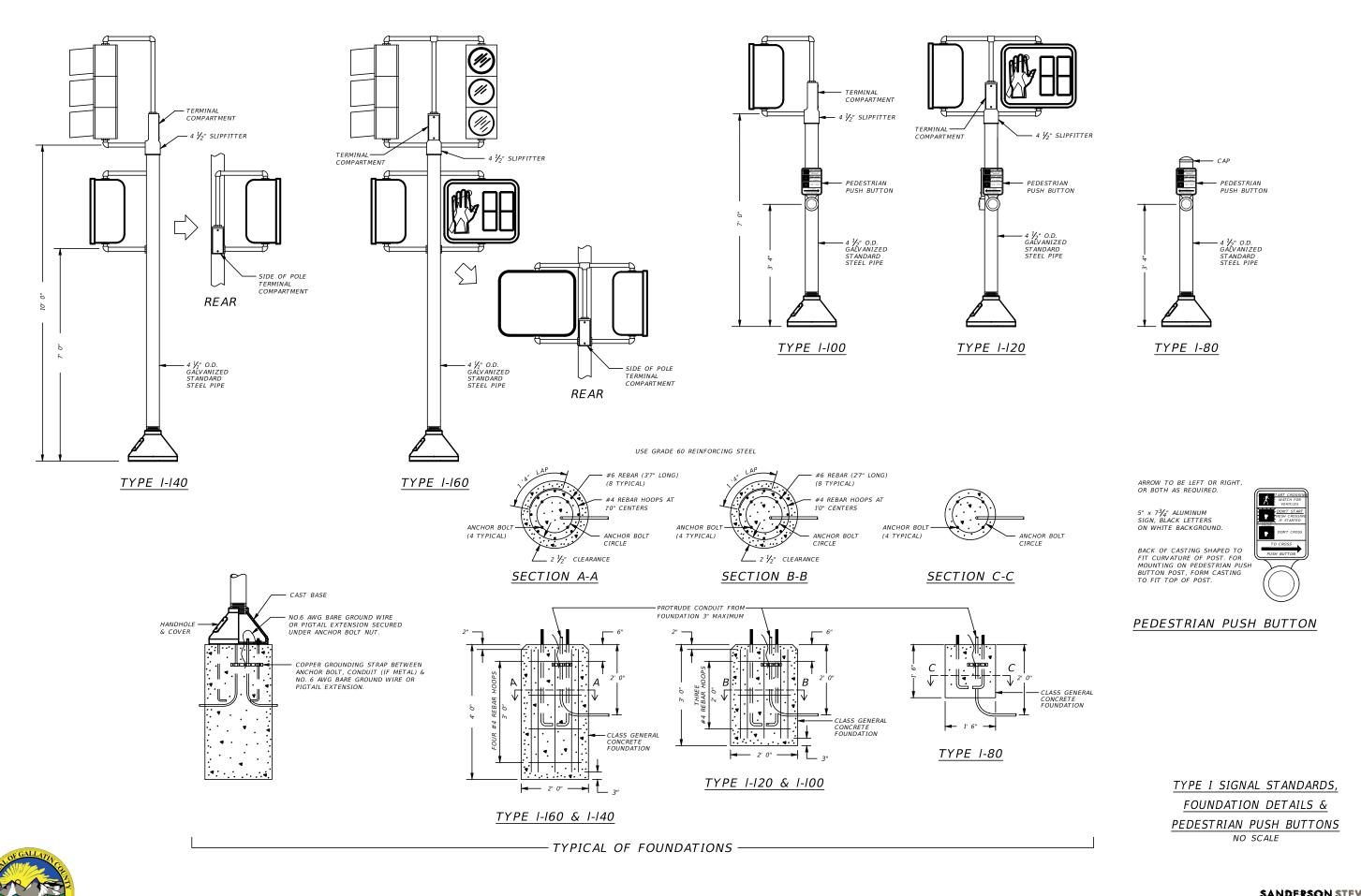


2015 LRFD TYPE 2A & 3A SIGNAL STANDARDS, FOUNDATION DETAILS, AND TYPICAL SIGNAL MOUNTINGS NO SCALE

SANDERSON STEWART

SHEET E5

ELECTRICAL DETAILS MONTANA HIGHWAY 64 (LONE MOUNTAIN TRAIL) FOR BIDDING



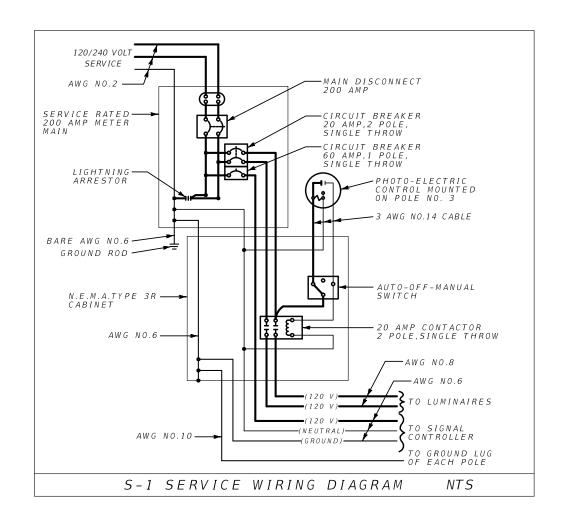
ELECTRICAL DETAILS

GALLATIN COUNTY, MADISON COUNTY

SANDERSON STEWART

MONTANA HIGHWAY 64 (LONE MOUNTAIN TRAIL)

FOR BIDDING

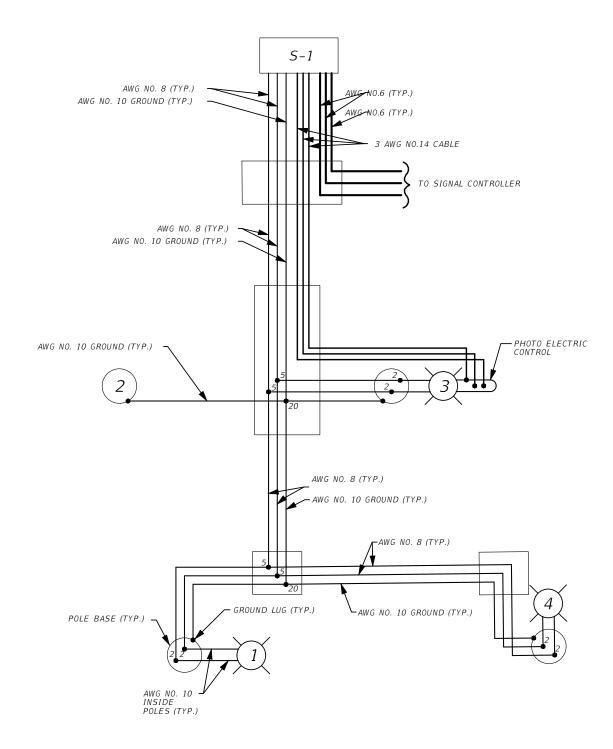




SUPPLY FUSED CONNECTORS THAT ARE MIDGET FERRULE TYPE RATED AT 6 AMPS FOR LUMINAIRES.

ELECTRICAL WIRING DIAGRAM

GALLATIN COUNTY, MADISON COUNTY



WIRING DIAGRAM NTS



SANDERSON STEWART

17092_02_SIGNAL_DETAILS.dwg DESIGNED BY BMB/CMK/JS/NL/JMC
10/23/2020 REVIEWED BY TRP/DS/MLF/DJC
CHECKED BY TRP/DS/MLF/DJC

FOR BIDDING

MONTANA HIGHWAY 64 (LONE MOUNTAIN TRAIL)

