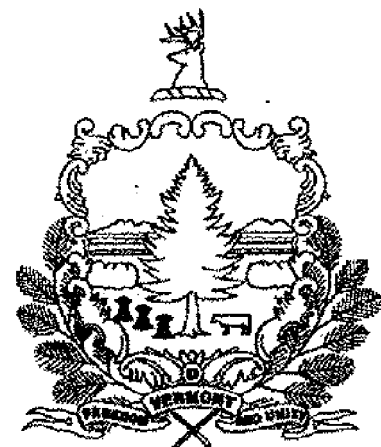


STATE OF VERMONT AGENCY OF TRANSPORTATION

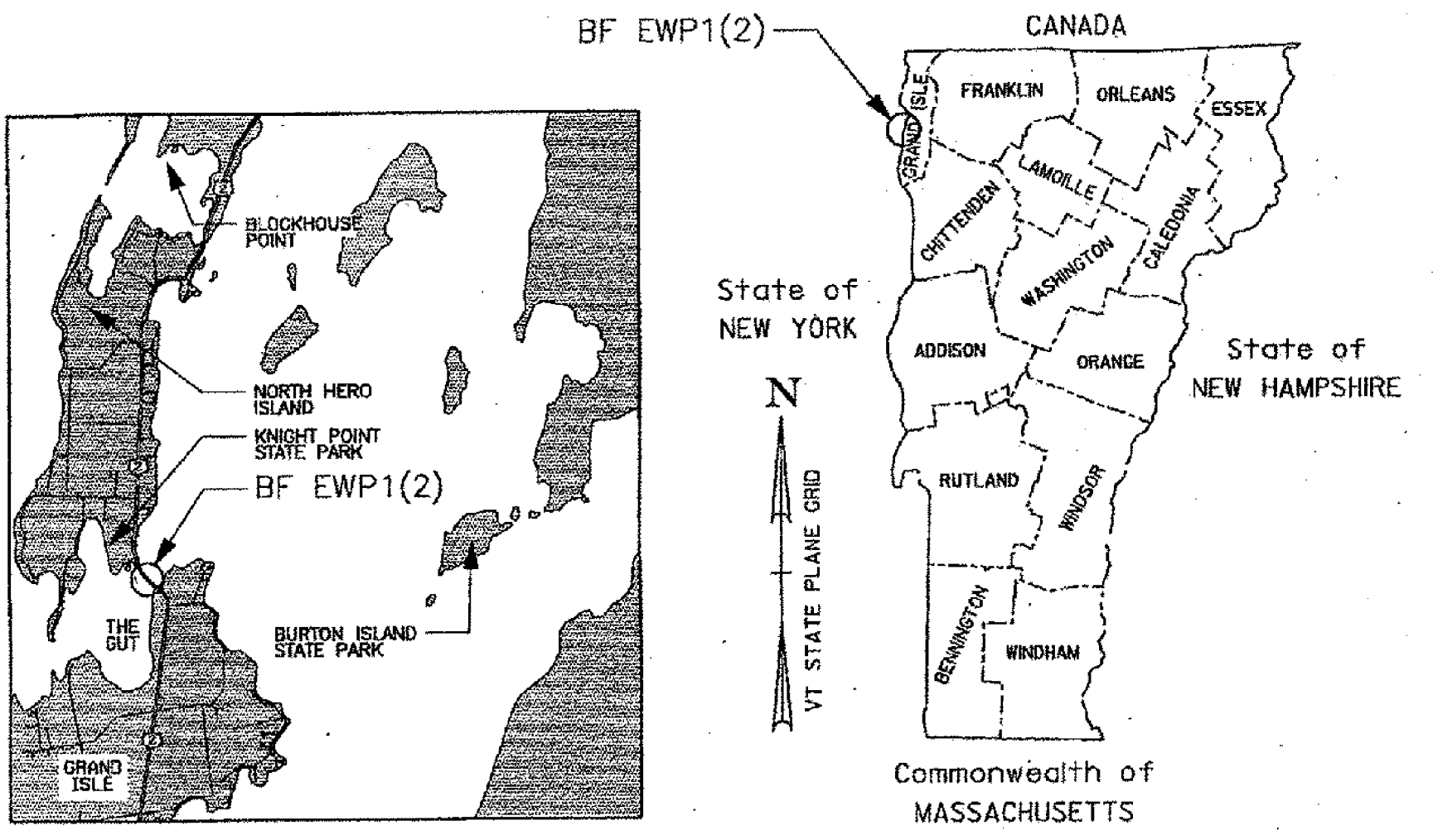


PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF NORTH HERO – GRAND ISLE
COUNTY OF GRAND ISLE

ROUTE NO. : US ROUTE 2 BRIDGE NO. : 8
PROJECT LOCATION : LOCATED ON US ROUTE 2, APPROXIMATELY 2,000 FEET NORTH OF THE
INTERSECTION OF US ROUTE 2 AND EAST SHORE NORTH OVER LAKE CHAMPLAIN.

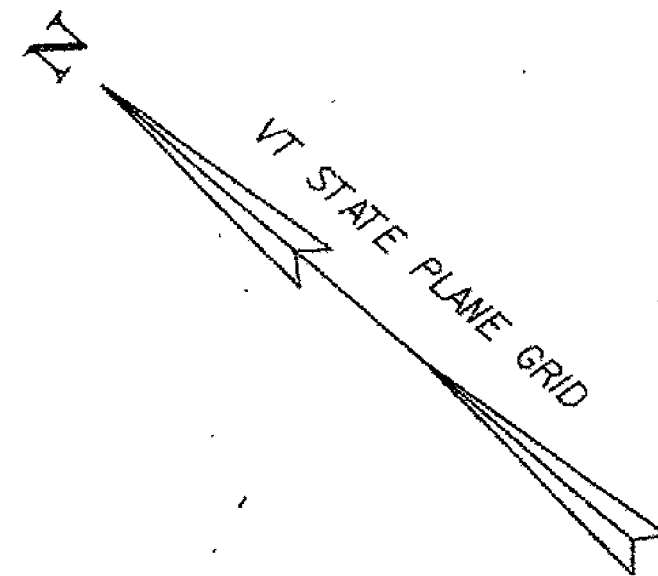
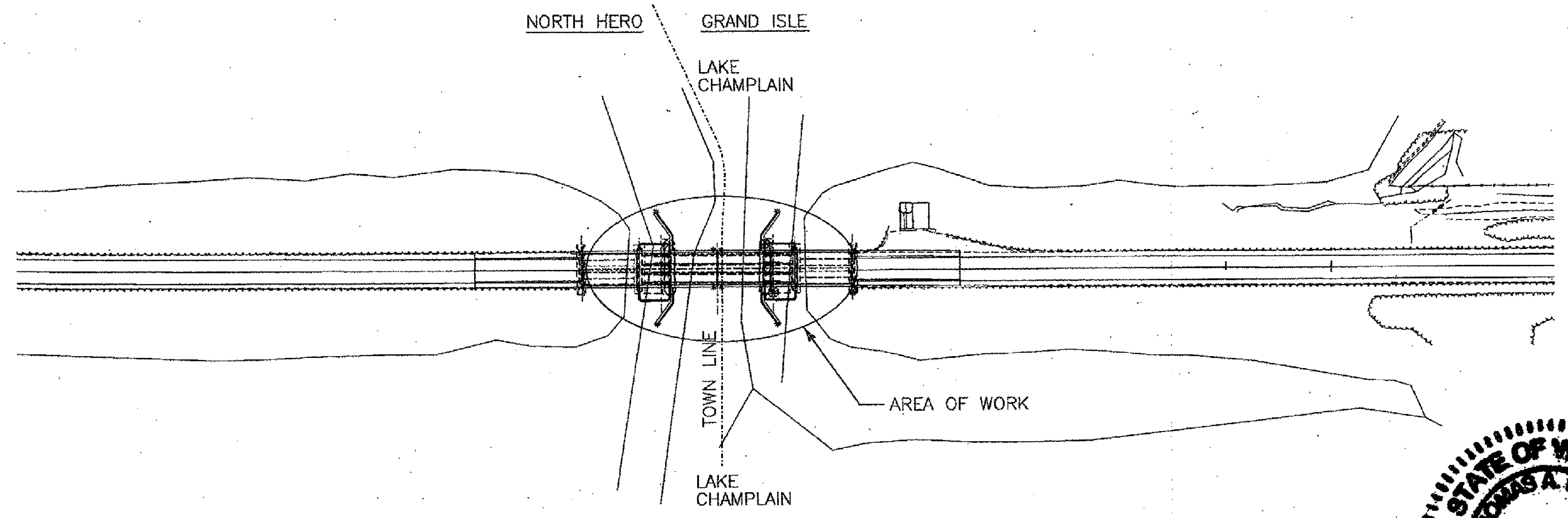
PROJECT DESCRIPTION : INTERIM DRAWBRIDGE REPAIRS – WORK PACKAGE II
LENGTH OF STRUCTURE : 258.80 FEET.



SHEET NO.	TITLE
1 OF 8	TITLE SHEET
2 OF 8	PAY ITEMS AND QUANTITIES
3 OF 8	MECHANICAL WORK
4 OF 8	MECHANICAL WORK DETAILS I
5 OF 8	MECHANICAL WORK DETAILS II
6 OF 8	ELECTRICAL WORK
7 OF 8	ELECTRICAL EQUIPMENT BILL OF MATERIALS
8 OF 8	AUXILIARY DRIVE CONTROLS

RECORD PLANS	
CONTRACTOR:	CIANBRO CORPORATION - PITTSFIELD, ME
RESIDENT ENGINEER:	GREG WILCOX
CONSTRUCTION BEGAN:	FEBRUARY 8, 2016
CONSTRUCTION COMPLETE:	MARCH 21, 2016
RECORD PLANS BY:	GREG WILCOX & KEVIN KING
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	RESIDENT ENGINEER
DATE	3/8/17
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.	

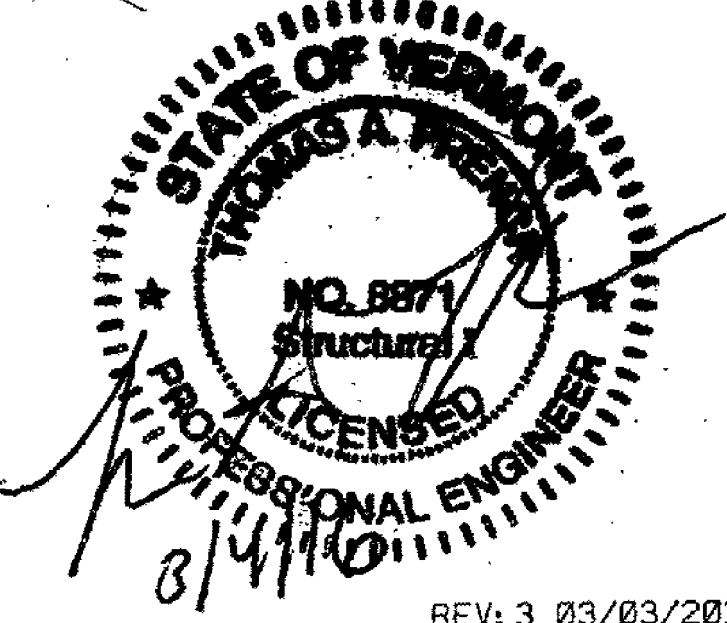
BUILT AS DESIGNED



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2014, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2
SURVEYED BY :
SURVEYED DATE :
DATUM
VERTICAL N/A
HORIZONTAL N/A

SCALE 1" = 80'-0"
80 0 80



DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATOR
APPROVED <i>[Signature]</i> DATE 3/8/16
DIRECTOR OF HIGHWAY DIVISION
APPROVED <i>[Signature]</i> DATE 3/4/2016
PROJECT MANAGER : D. LANDRY
PROJECT NAME : NORTH HERO GRAND ISLE
PROJECT NUMBER : BF EWP1(2)
SHEET 1 OF 8 SHEETS

REV: 3 03/03/2016

WORK PACKAGE II				
ITEM	TITLE	BRIEF DESCRIPTION OF WORK	UNITS	QTY.
630.10	UNIFORMED TRAFFIC OFFICERS	FURNISH QUALIFIED UNIFORMED TRAFFIC OFFICERS FOR HANDLING TRAFFIC IN, AROUND AND THROUGH THE WORK ZONE	HR	120
630.15	FLAGGERS	FURNISH QUALIFIED FLAGGERS FOR HANDLING TRAFFIC IN, AROUND AND THROUGH THE WORK ZONE.	HR	240
635.11	MOBILIZATION / DEMOBILIZATION	ALL PREPARATORY WORK AND APPARATUS FOR MOVEMENT OF PERSONNEL, EQUIPMENT, SUPPLIES AND INCIDENTALS TO AND FROM THE PROJECT SITE.	LS	1
641.10	TRAFFIC CONTROL	ESTABLISH AND MAINTAIN TRAFFIC CONTROL MEASURES TO PROTECT THE TRAVELING PUBLIC AND CONSTRUCTION OPERATIONS	LS	1
641.15	PORTABLE CHANGEABLE MESSAGE SIGN	PROVIDE AND MAINTAIN PORTABLE MESSAGE SIGNS DURING CONSTRUCTION ACTIVITIES.	EA	2
900.610	SPECIAL PROVISION (AUXILIARY OPERATION)	BRIDGE OPERATION UTILIZING THE AUXILIARY SPAN DRIVE SYSTEM	DAYS	22
900.615	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE (N.A.B.I))		DL	30,000
900.620	SPECIAL PROVISION (CPM SCHEDULE)		EA	4
900.645	SPECIAL PROVISION (PARTIAL REMOVAL OF STRUCTURE)	<ul style="list-style-type: none"> - MOTOR BRAKE INSTRUMENTATION AND SUPPORT REMOVAL - SPAN LOCK AND MACHINERY BRAKE LIMIT SWITCHES - CABLES AND CONDUITS 	LS	1
900.645	SPECIAL PROVISION (MECHANICAL EQUIPMENT REHABILITATION)	<ul style="list-style-type: none"> - INSTALL REHABILITATED SPAN DRIVE MOTORS - FURNISH AND INSTALL AUXILIARY DRIVE SUPPORTS, SPROCKETS, AND CHAINS - FURNISH AND INSTALL SPAN LOCK LIMIT SWITCH SUPPORTS, SPROCKETS AND CHAINS - MACHINERY BRAKE REHABILITATION - FURNISH AND INSTALL MACHINERY ENCLOSURES - FINAL FIELD TESTING OF MOVABLE SPAN 	LS	1
900.645	SPECIAL PROVISION (ELECTRICAL EQUIPMENT REHABILITATION)	<ul style="list-style-type: none"> - SPAN DRIVE MOTOR REHABILITATION AND TESTING - FURNISH AND INSTALL SPAN DRIVE REPLACEMENT INSTRUMENTATION - FURNISH AND INSTALL MOTOR BRAKES - FURNISH AND INSTALL AUXILIARY DRIVE MOTOR AND ASSOCIATED ELECTRICAL WORK - FURNISH PORTABLE GENERATORS - FURNISH AND INSTALL SPAN LOCK LIMIT SWITCHES - FURNISH AND INSTALL CONDUIT AND WIRING 	LS	1

GENERAL NOTES

1. STEEL TO BE ASTM A709 GRADE 36 UNLESS SPECIFIED OTHERWISE.
2. MAINTENANCE OF TRAFFIC REQUIREMENTS SHALL CONFORM TO SPECIFICATION 641.10.
3. ALL MANUFACTURERS PRODUCTS INDICATED ON THE PLANS ARE MERELY TO DEFINE SPECIFIC PERFORMANCE AND QUALITY REQUIREMENTS. THE CONTRACTOR MAY SUBMIT ALTERNATIVE PRODUCTS WHICH MEETS THE DESIGN INTENT OF THE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS TO BE SUPPLIED ON THIS CONTRACT ARE CONSIDERED TEMPORARY, THEREFORE BUY AMERICA PROVISIONS DO NOT APPLY. FOR THE PURPOSE OF VTRANS GAP, TESTING AND CERTIFICATIONS ARE NOT REQUIRED.
5. ANY ADDITIONAL WORK OR MATERIALS NECESSARY TO ANCHOR OR INSTALL NEW OR REHABILITATED MECHANICAL EQUIPMENT INCLUDING MATERIALS, LABOR AND EQUIPMENT IS CONSIDERED INCIDENTAL TO PAY ITEM 900.645 SPECIAL PROVISION (MECHANICAL EQUIPMENT REHABILITATION)

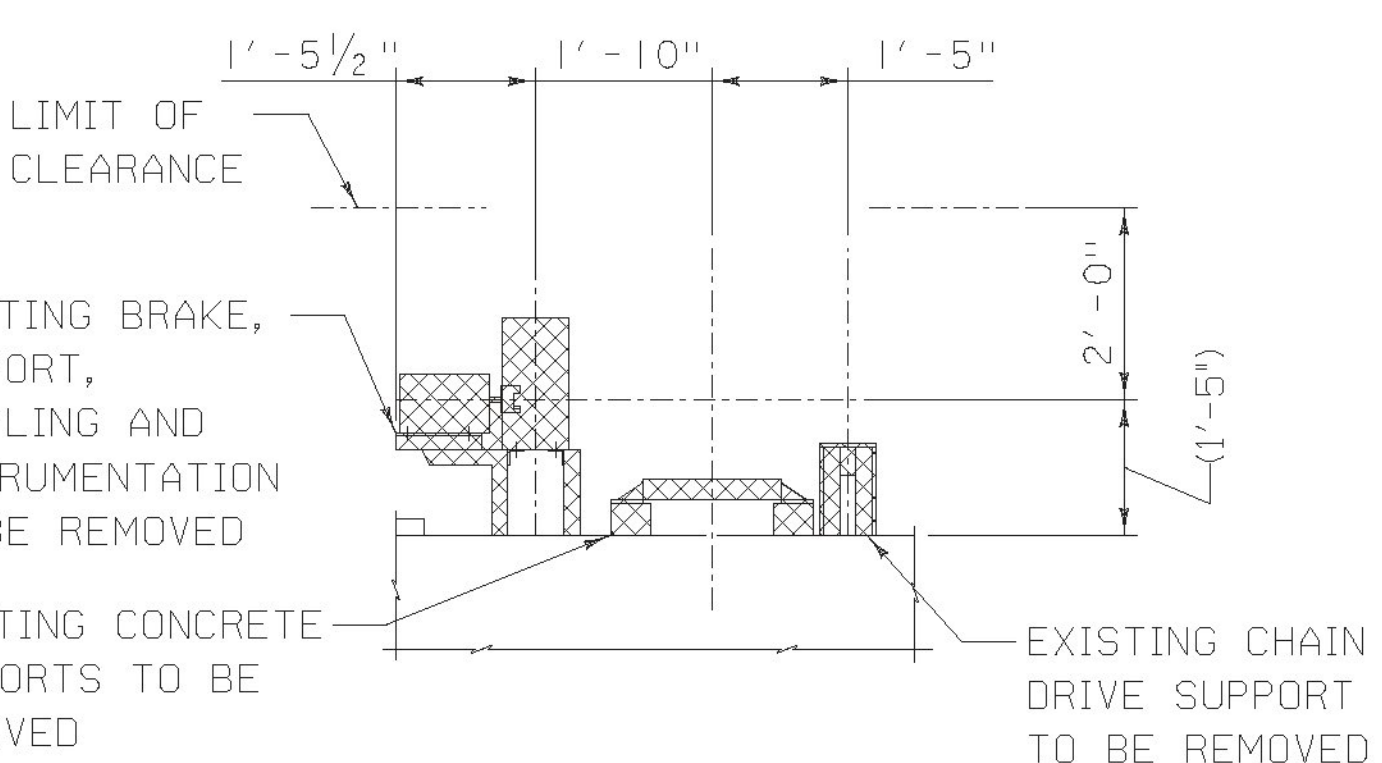
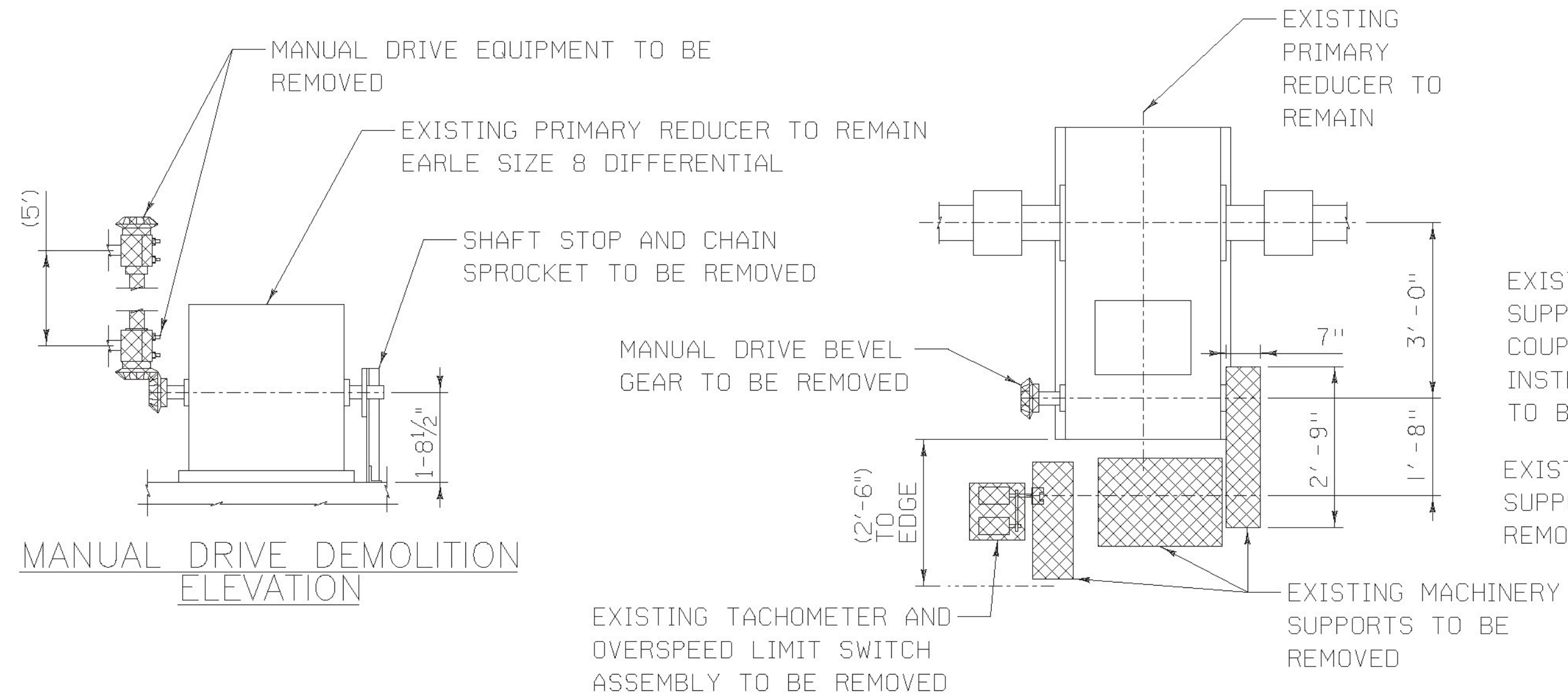
SUBMITTALS

THE FOLLOWING SUBMITTALS ARE LISTED BELOW FOR THE CONVENIENCE OF THE CONTRACTOR. ADDITIONAL SUBMITTALS MAY BE REQUIRED AS DEFINED IN THE CONTRACT DOCUMENTS.

1. CPM SCHEDULE
2. TRAFFIC CONTROL PLAN
3. PLANNED REMOVAL PROCEDURES
4. SPAN DRIVE SUPPORT FABRICATION SHOP DRAWING
5. CATALOG CUTS FOR GEAR MOTOR, SPROCKETS & CHAIN, COUPLINGS, LIMIT SWITCHES AND INSTRUMENTS, PORTABLE GENERATOR, MOTOR BRAKES, MACHINERY BRAKE THRUSTER, GROUT CABLE AND CONDUIT, ELECTRICAL CABINETS, RELAYS, CONTRACTORS, SWITCHES
6. MOTOR REPAIR SHOP QUALIFICATIONS
7. SPAN DRIVE MOTOR TEST PLAN AND INSPECTION REPORT
8. MACHINERY BRAKE INSPECTION REPORT
9. AUXILIARY SPAN DRIVE WIRING DIAGRAM
10. FIELD TEST PROCEDURE FOR PRIMARY AND AUXILIARY SPAN DRIVE SYSTEMS.

PROJECT NAME: NORTH HERO GRAND ISLE
PROJECT NUMBER: BF EWPI(2)

FILE NAME: z12b142bdr_p1q.dgn PLOT DATE: 03/03/2016
PROJECT LEADER: T. FRENCH DRAWN BY: C. MADDEN
DESIGNED BY: C. MADDEN CHECKED BY: P. DAVIS
PAY ITEMS AND QUANTITIES SHEET 2 OF 8



GENERAL NOTES

1. THE DIMENSIONS PROVIDED HERE ARE APPROXIMATE AND FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND MEASURING ANY AND ALL DIMENSIONS NECESSARY FOR THE COMPLETION OF THE REPAIR WORK.
2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE PROTECTION TO ALL EXISTING AND REMAINING MACHINERY TO WHICH WORK IS BEING PERFORMED AS A PART OF THIS EFFORT. DAMAGE TO EXISTING MACHINERY COMPONENTS OCCURRING DURING THE REMOVAL OR INSTALLATION OF MACHINERY WILL BE REPAIRED AT NO COST TO VTRANS.
3. ALL REMOVED EQUIPMENT TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
4. DETAILS SHOWN HERE ARE FOR REFERENCE PURPOSES ONLY AND ARE NOT TO SCALE.
5. FOR FITS AND FINISHES SEE NOTE 9 ON SHEET 4.

SUGGESTED MACHINERY REHABILITATION PROCEDURE

THE FOLLOWING IS PROVIDED AS A SUGGESTED PROCEDURE FOR THE MAIN SPAN DRIVE REPAIR AND AUXILIARY DRIVE INSTALLATION AT ONE LEAF. THIS PROCEDURE IS FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DEVELOPMENT OF A FINAL PROCEDURE THAT ADHERES TO ALL APPLICABLE STANDARDS. SEE PERFORMANCE SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.

EQUIPMENT REMOVAL

1. FIELD VERIFY ALL NEEDED INSTALLATION DIMENSIONS.
2. REMOVE INSTRUMENTATION, SHAFT AND JAW COUPLING HALF. DOCUMENT BELT DRIVE RATIO AND MEASUREMENTS. DOCUMENT BELT TYPE.
3. REMOVE EXISTING MOTOR, BRAKE, INSTRUMENTATION AND CHAIN DRIVE SUPPORT STEEL. CLEAR DEBRIS AND GRIND ANY EMBEDDED STEEL TO PREPARE SURFACE FOR NEW MACHINERY MOUNTING. PROTECT EXISTING OPEN GEARING DURING THIS PROCESS.
4. REMOVE EXISTING CONCRETE SUPPORT PADS. SOUND THE PIER CAP AND REMOVE ANY LOOSE OR DETERIORATED CONCRETE. REPAIR PIER CAP SURFACE WITH QUICK SET CONCRETE OR EPOXY GROUT.
5. VERIFY PRIMARY REDUCER INPUT SHAFT DIMENSIONS NEEDED FOR NEW CHAIN DRIVE INSTALLATION. CLEAN SHAFT AND KEY WAY AND PROTECT UNTIL INSTALLATION OF NEW SPROCKET.
6. UNBOLT MANUAL DRIVE BEARINGS AND REMOVE MANUAL DRIVE SHAFT ALONG WITH ATTACHED BEVEL GEARS. REMOVE BEARING CLOSEST TO PRIMARY REDUCER.
7. CAREFULLY REMOVE BEVEL GEAR FROM PRIMARY REDUCER INPUT SHAFT. VERIFY SHAFT DIMENSIONS NEEDED FOR INSTALLATION. CLEAN SHAFT AND KEY WAY AND PROTECT UNTIL INSTALLATION OF NEW SPROCKET.
8. TEMPORARILY REPOSITION AND PROTECT ANY WIRING OR JUNCTION BOXES AS REQUIRED FOR THE MOTOR INSTALLATION WORK.

SHOP ASSEMBLY OF MAIN SPAN DRIVE

1. FABRICATE NEW SPAN DRIVE SUPPORT.
2. INSTALL AND ALIGN REFURBISHED MOTOR AND BRAKE ON THE SUPPORT.
3. INSTALL NEW TACHOMETER IN PROTECTIVE ENCLOSURE WITH GEAR BOX AND DELTA FLEX COUPLING. SECURE AND PROTECT ANY WIRING.
3. INSTALL CHAIN DRIVE SPROCKET ON MOTOR SHAFT AND SHOP TEST ASSEMBLY WITH CHAIN USED FOR FINAL INSTALLATION.

FIELD INSTALLATION OF MAIN SPAN DRIVE ASSEMBLY

1. POSITION AND ALIGN THE MACHINERY ASSEMBLY SKID ON THE PIERCAP.
2. TEMPORARILY SECURE AUXILIARY INPUT OF PRIMARY REDUCER TO PREVENT ROTATION. REMOVE SHAFT STOP AND INSTALL SPROCKET ON REDUCER INPUT SHAFT. INSTALL NEW MAIN DRIVE CHAIN TO MANUFACTURER'S SPECIFICATIONS.
3. ALIGN DRIVE ASSEMBLY FOR CHAIN TENSION AND ALIGNMENT AS PER MANUFACTURER'S RECOMMENDATIONS. INSTALL ANCHOR BOLTS IN OVERSIZED HOLES AND PERFORM FINAL ALIGNMENT USING LEVELING NUTS.
4. FINAL INSTALL ANCHOR BOLTS AND GROUT NEW SUPPORT IN PLACE. INSTALL CHAIN COVER AND LUBRICATE AS INDICATED BY THE MANUFACTURER.
5. MOVE ANY ELECTRICAL COMPONENTS PREVIOUSLY REPOSITIONED BACK TO THEIR ORIGINAL POSITIONS.

FIELD INSTALLATION OF AUXILIARY DRIVE

1. IT IS RECOMMENDED THAT THE CHAIN DRIVE SPROCKET BE INSTALLED ON THE GEAR MOTOR SHAFT IN THE SHOP.
2. INSTALL CHAIN DRIVE SPROCKET ON PRIMARY REDUCER INPUT SHAFT.
3. TEMPORARILY MOUNT BRACKET AND GEARMOTOR ASSEMBLY.
4. ALIGN ASSEMBLY WITH PRIMARY REDUCER INPUT SHAFT.
5. INSTALL CHAIN TO MANUFACTURER'S SPECIFICATIONS AND MARK BASE FASTENER HOLE POSITIONS.
6. FIELD DRILL HOLES IN WEB AND BRACKET INSTALL FINAL INSTALLATION FASTENERS.
7. TEST SYSTEM AFTER ELECTRICAL WORK.
8. REMOVE CHAIN AND STORE AS PER MANUFACTURER'S RECOMMENDATIONS IN LOCATION DETERMINED BY VTRANS MAINTENANCE.

FIELD REHABILITATE MACHINERY BRAKES AS PER SPECIFICATION AND INSTALL NEW LIMIT SWITCHES

SUMMARY OF WORK

ITEM 900.645 SPECIAL PROVISION (PARTIAL REMOVAL OF STRUCTURE)

1. DEMOLITION AND REMOVAL (2 LOCATIONS)

- A. REMOVE MOTOR BRAKES AND INSTRUMENTATION.
- B. REMOVE EXISTING MOTOR SUPPORT, INSTRUMENTATION SUPPORT AND EXISTING CHAIN DRIVE SUPPORT. CUT/GRIND EMBEDDED STEEL DOWN TO PIER SURFACE. CLEAR DEBRIS FROM PIER SURFACE AND REMOVE CONCRETE MOTOR SUPPORTS (SEE DETAIL). REPAIR DAMAGED CONCRETE AT MOTOR INSTALLATION AREA.
- D. REMOVE BEVEL GEAR FROM MANUAL DRIVE INPUT OF PRIMARY REDUCER (SEE DETAIL).
- F. REMOVE BEVEL PINIONS, BEVEL PINION BEARING AND BEVEL PINION SHAFT ADJACENT TO MANUAL DRIVE INPUT OF PRIMARY REDUCER (SEE DETAIL).

ITEM 900.645 SPECIAL PROVISION (MECHANICAL EQUIPMENT REHABILITATION)

1. MAIN SPAN DRIVE REPAIRS (2 LOCATIONS)

- A. PROVIDE NEW CHAIN DRIVE BETWEEN MAIN MOTOR AND PRIMARY REDUCER.
- B. PROVIDE NEW MOTOR BRAKE. SEE SPECIFICATIONS. PROVIDE NEW BRAKE COVER.
- C. REFURBISH EXISTING BRAKE WHEEL JAW COUPLING. PROVIDE NEW MATING JAW COUPLING HALF AND SPIDER TO CONNECT INSTRUMENTATION.
- D. PROVIDE GEARBOX FOR TACHOMETER (SEE SPECIFICATION).
- E. PROVIDE DELTA-FLEX COUPLING BETWEEN TACHOMETER AND GEARBOX.
- F. PROVIDE NEW SEALED PROTECTIVE COVER FOR THE TACHOMETER AND TACHOMETER GEARBOX. CONTRACTOR MAY ALSO PROVIDE A SUITABLE WEATHER RESISTANT ENCLOSURE FOR ONLY THE TACHOMETER (SEE DETAIL).
- G. FABRICATE MACHINERY SUPPORT FOR THE REFURBISHED MOTOR, MOTOR BRAKE AND INSTRUMENTATION (SEE DETAILS ON SHEET 5).
- H. REFURBISH MACHINERY BRAKES AS PER THE MECHANICAL SPECIFICATIONS (2 PER LOCATION).
- I. PROVIDE MACHINERY BRAKE THRUSTER FOR NORTHWEST BRAKE.
- J. SECURE MANUAL DRIVE INPUT OF PRIMARY REDUCER FROM ROTATION AND REMOVE SHAFT STOP AND EXISTING SPROCKET.
- K. INSTALL REFURBISHED MOTOR, MOTOR BRAKE, INSTRUMENTATION ON MACHINERY SUPPORT.

SEE THE SPECIFICATIONS FOR INSTALLATION, TESTING AND ALIGNMENT REQUIREMENTS.

2. AUXILIARY DRIVE (2 LOCATIONS)

- A. PROVIDE AUXILIARY DRIVE GEAR MOTOR (SEE SHEET 4).
- B. PROVIDE AUXILIARY DRIVE SUPPORT AND FASTENERS (SEE SHEET 4).
- C. PROVIDE CHAIN DRIVE SPROCKETS, INSTALLATION HARDWARE AND CHAIN.
- D. INSTALL EQUIPMENT AT EXISTING PRIMARY REDUCER.
- E. PROVIDE STORAGE CONTAINER FOR CHAIN.
- F. INSTALL NEW PORTABLE GENERATOR PLUGS INSIDE LOCKABLE CABINETS ON THE NORTHEAST AND SOUTHEAST SIDE OF THE BRIDGE RAILING.

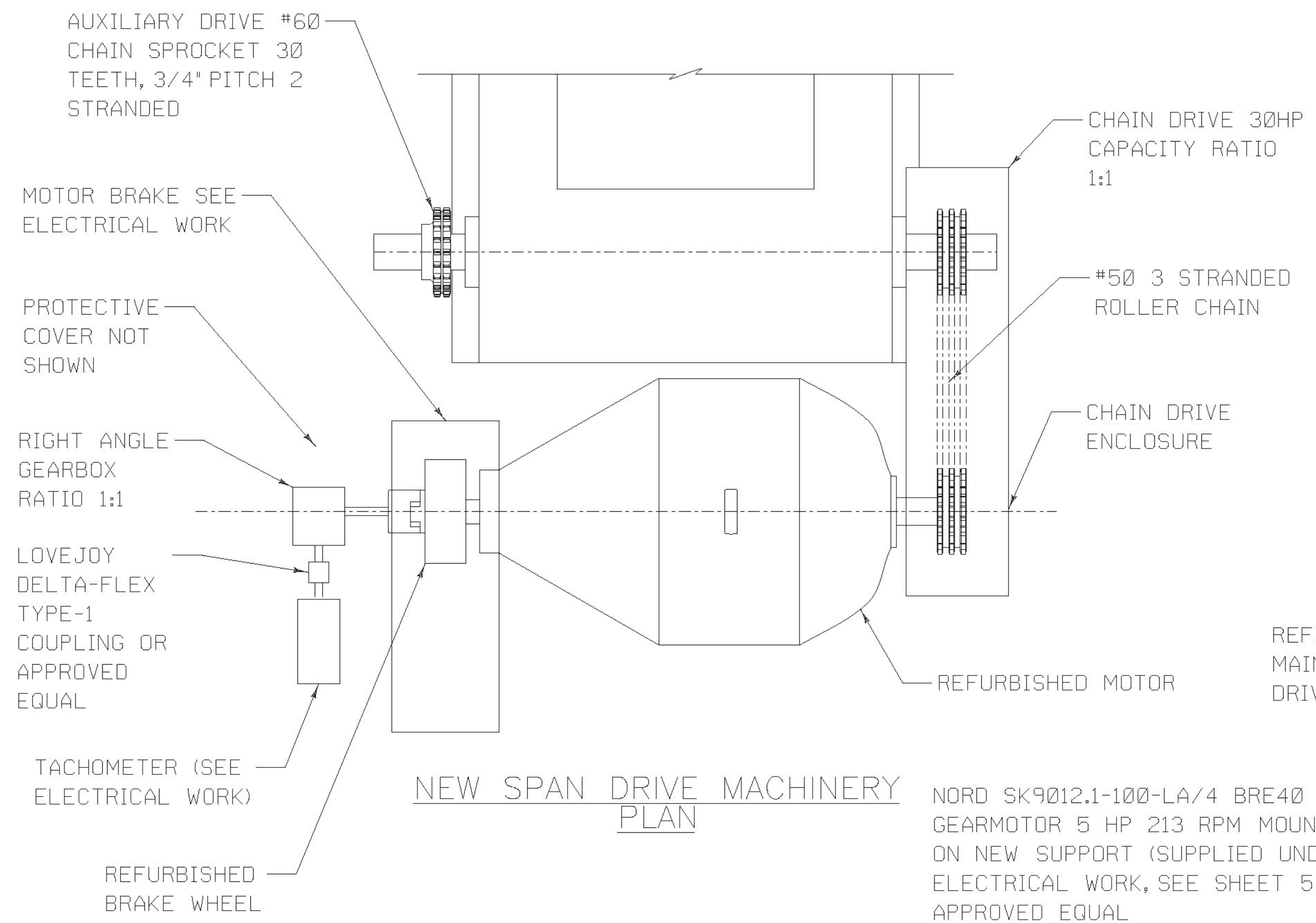
ITEM 900.645 SPECIAL PROVISION (ELECTRICAL EQUIPMENT REHABILITATION)

1. LIMIT SWITCHES

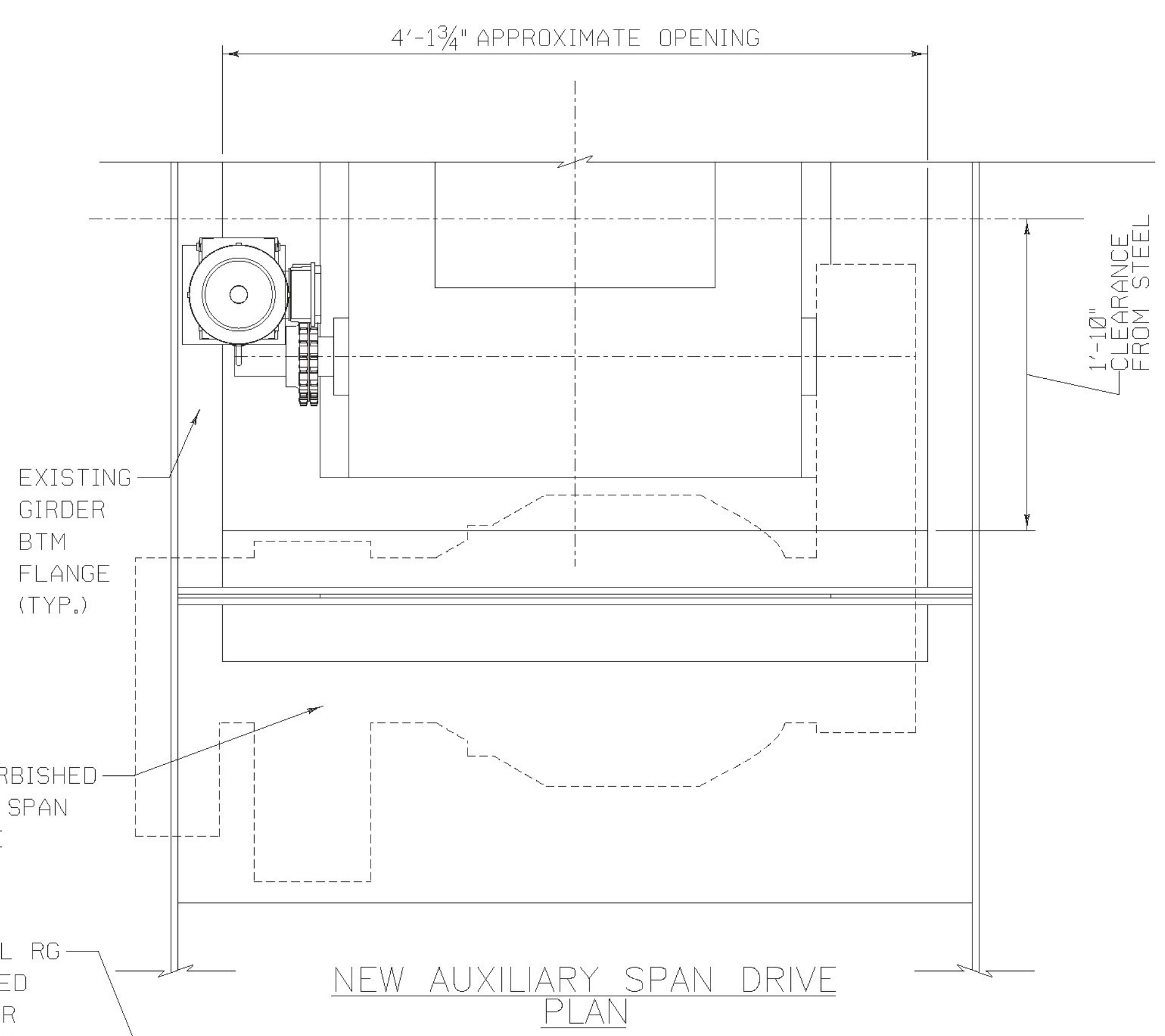
- A. REMOVE EXISTING AND PROVIDE IN KIND LIMIT SWITCH SUPPORT REPLACEMENTS FOR ALL LIMIT SWITCHES REPLACED UNDER ELECTRICAL WORK.
- B. INSTALL INSTRUMENTATION SUPPORTS IN COORDINATION WITH ELECTRICAL WORK.
- C. PROVIDE CHAIN SPROCKETS AND CHAIN FOR ROTARY CAM LIMIT SWITCHES (2 LOCATIONS).
- D. PROVIDE IN KIND FLEXIBLE COUPLING REPLACEMENTS FOR ROTARY CAM LIMIT SWITCHES (2 LOCATIONS).

2. SEE ELECTRICAL DRAWINGS (SHEETS 6 THROUGH 8) FOR CORRESPONDING ELECTRICAL WORK ITEMS

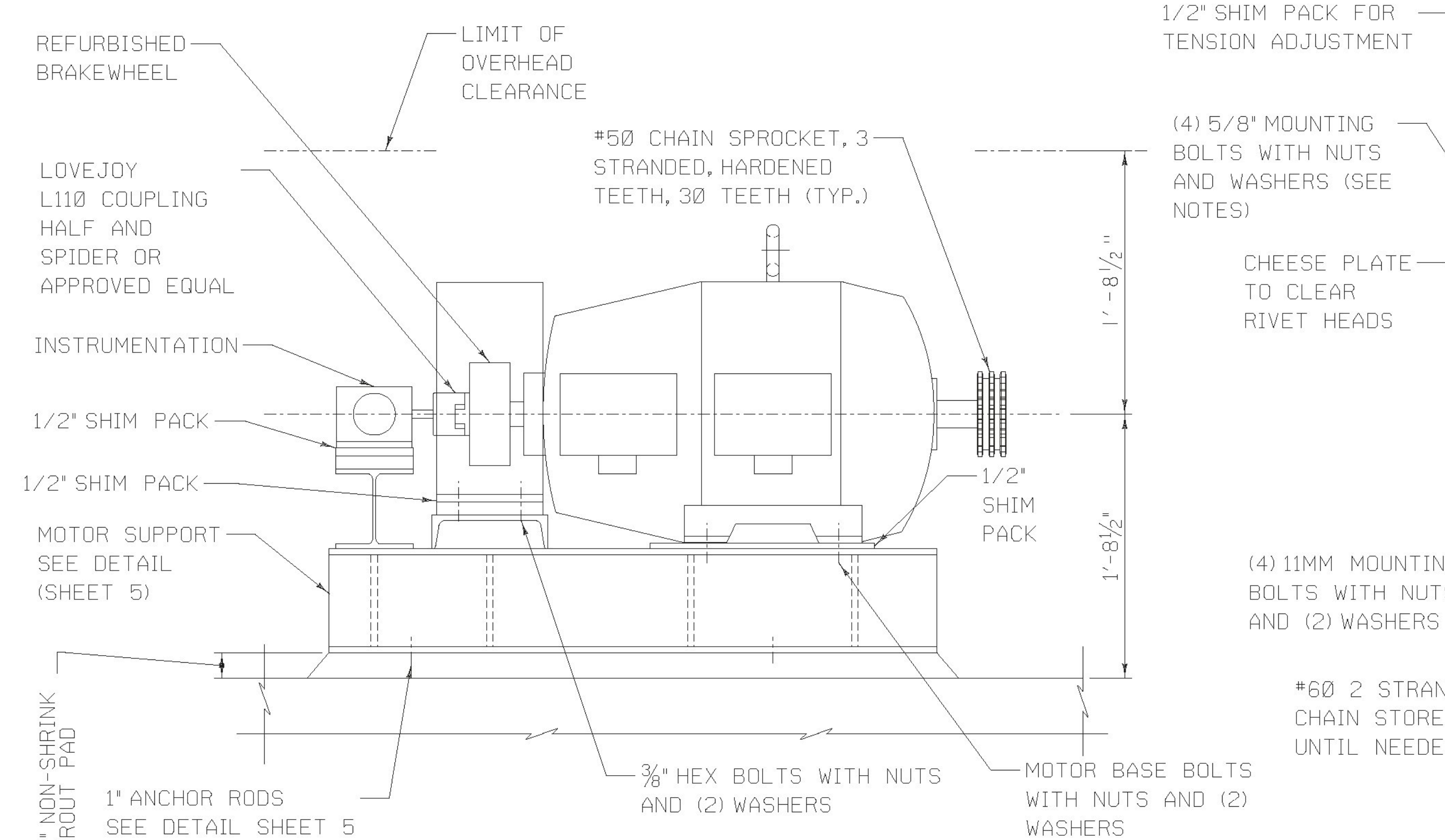
PROJECT NAME:	NORTH HERO GRAND ISLE	
PROJECT NUMBER:	BF EWPI(2)	
FILE NAME:	z12b142bdr_MWP21.dgn	PLOT DATE: 03/03/2016
PROJECT LEADER:	T. FRENCH	DRAWN BY: C. MADDEN
DESIGNED BY:	C. MADDEN	CHECKED BY: P. DAVIS
MECHANICAL WORK		SHEET 3 OF 8



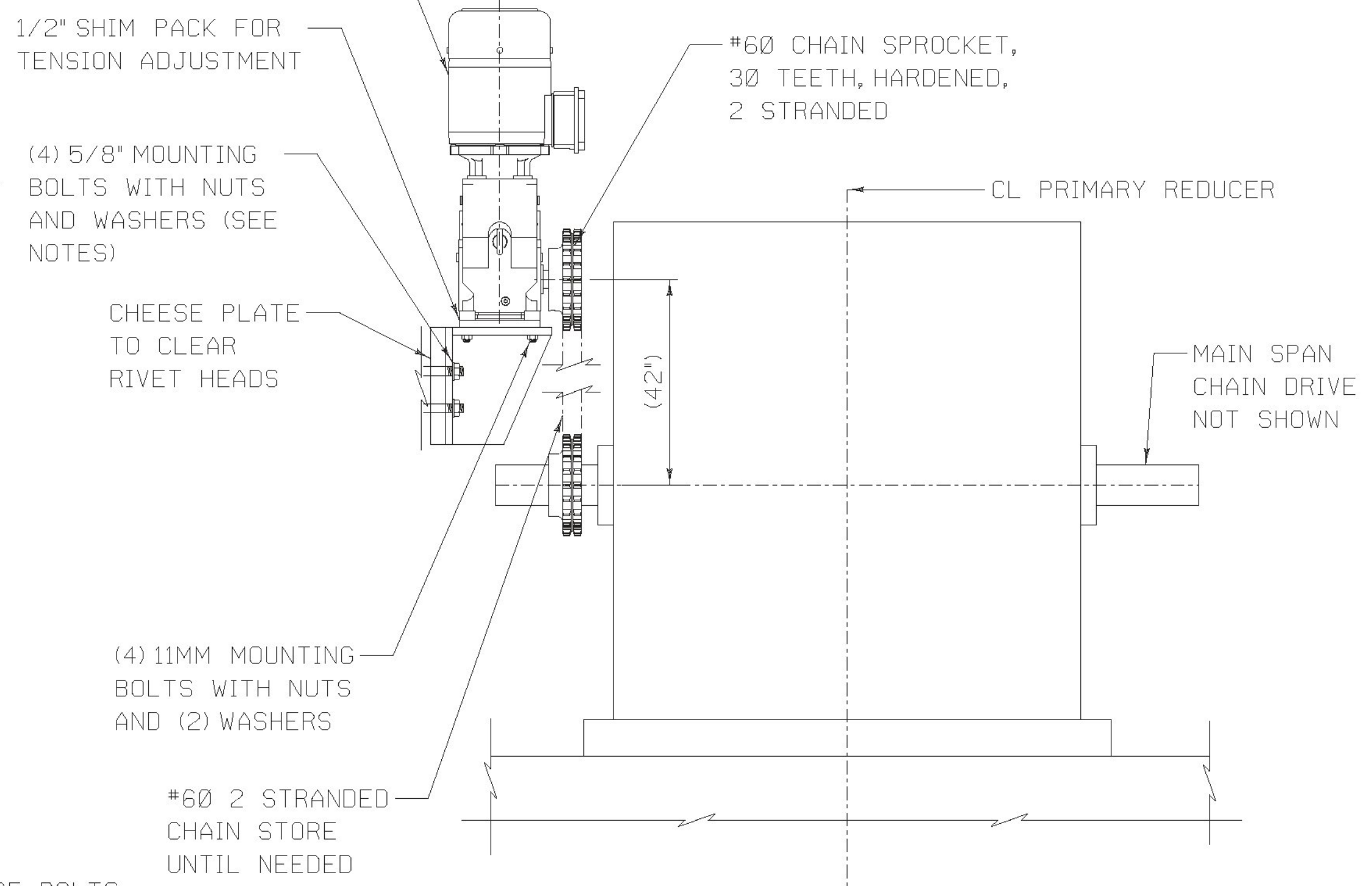
NEW SPAN DRIVE MACHINERY PLAN



NEW AUXILIARY SPAN DRIVE PLAN



NEW SPAN DRIVE MACHINERY ELEVATION



NEW AUXILIARY SPAN DRIVE ELEVATION

NOTES

1. THE DIMENSIONS PROVIDED ARE APPROXIMATE AND FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND MEASURING ANY AND ALL DIMENSIONS NECESSARY FOR THE COMPLETION OF THE REPAIR WORK.
2. DETAILS SHOWN ARE FOR REFERENCE AND CONCEPTUAL PURPOSES ONLY AND ARE NOT TO SCALE.
3. PART NUMBERS AND COMPONENT SPECIFICATIONS ARE PROVIDED HERE FOR CONCEPTUAL PURPOSES. FINAL COMPONENT SELECTION SHALL BE BASED ON FINAL INSTALLATION GEOMETRY. THE CONTRACTOR IS RESPONSIBLE FOR FINAL SELECTION OF MACHINERY COMPONENTS.
4. THE CENTERLINE OF THE EMERGENCY DRIVE GEARMOTOR SPROCKET SHALL BE OFFSET HORIZONTALLY FROM THE CENTERLINE OF THE REDUCER SPROCKET.
5. CONTRACTOR TO VERIFY BOLT LENGTHS AND DIAMETERS FOR MOTOR BASE UPON REMOVAL OF MOTOR.
6. CONTRACTOR TO VERIFY BOLT LENGTH FOR GEARMOTOR MOUNT UPON REMOVAL OF MANUAL DRIVE BEARINGS.
7. GEARMOTOR TO HAVE BUILT IN SAFETY BRAKE TO SET WHILE MOTOR IS UNPOWERED. GEARMOTOR TO BE TENV.
8. SPROCKETS TO BE BORED FOR FN2 FIT WITH SHAFT JOURNALS.
9. UNLESS OTHERWISE NOTED, FITS AND FINISHES FOR MACHINERY SHALL BE AS FOLLOWS:

SURFACE	FIT	FINISH
MACHINERY BASE ON STEEL	-	250
MACHINERY BASE ON MASONRY	-	500
MACHINERY PARTS IN FIXED CONTACT	-	125
SHAFT JOURNAL	RC6	8
JOURNAL BUSHINGS	RC6	16
SOLID BUSHING IN BASE (TO 1/4" WALL)	FN1	63
SOLID BUSHING IN BASE (OVER 1/4" WALL)	FN2	63
HUBS ON SHAFTS (TO 2" BORE)	FN2	32
HUBS ON SHAFTS (OVER 2" BORE)	FN2	63
TURNED BOLTS IN FINISHED HOLES	LC6	63
SPLIT BUSHING IN BASE	LC1	125
SLIDING BEARINGS	RC6	32
KEYS AND KEYWAYS (SIDE FIT)	LC3	63
SHAFTS	-	63

THE ABOVE FITS FOR CYLINDRICAL PARTS SHALL ALSO APPLY TO THE MAJOR DIMENSIONS OF NON-CYLINDRICAL PARTS. ABOVE FINISHES ARE IN MICROINCHES.

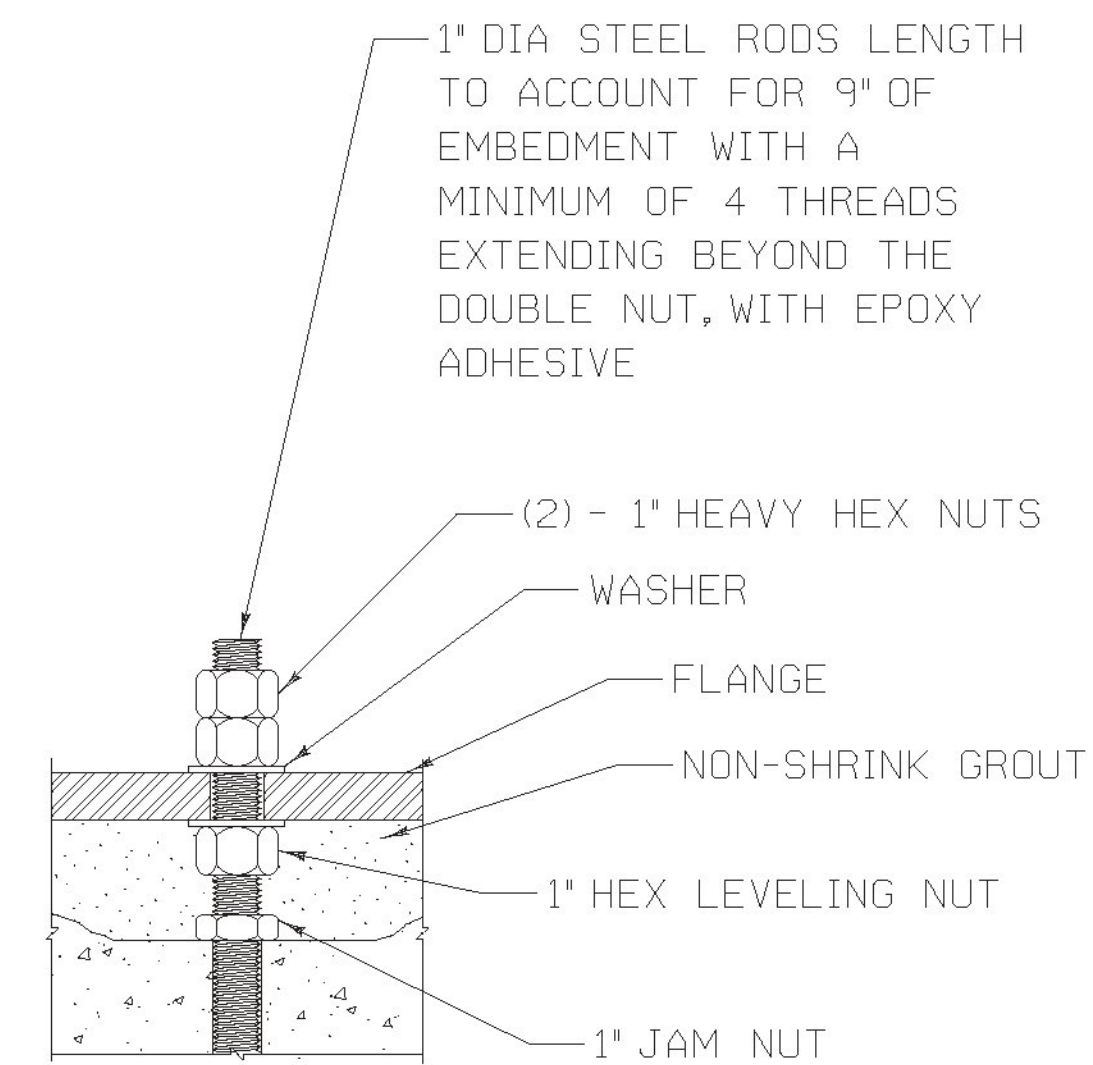
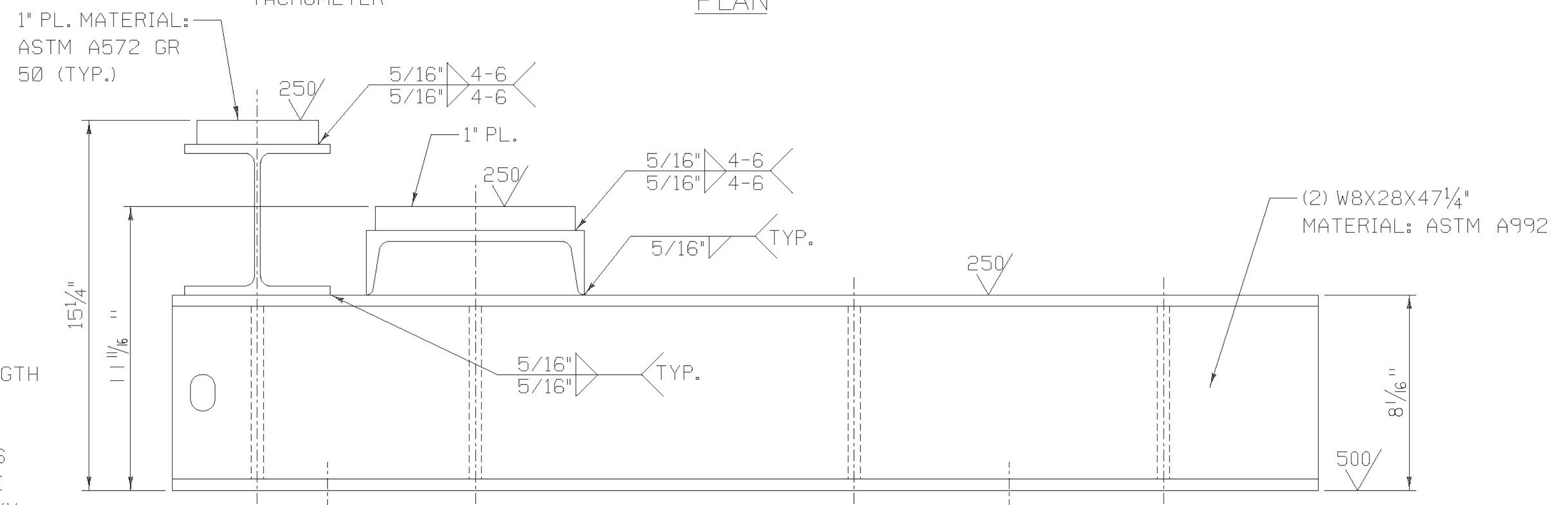
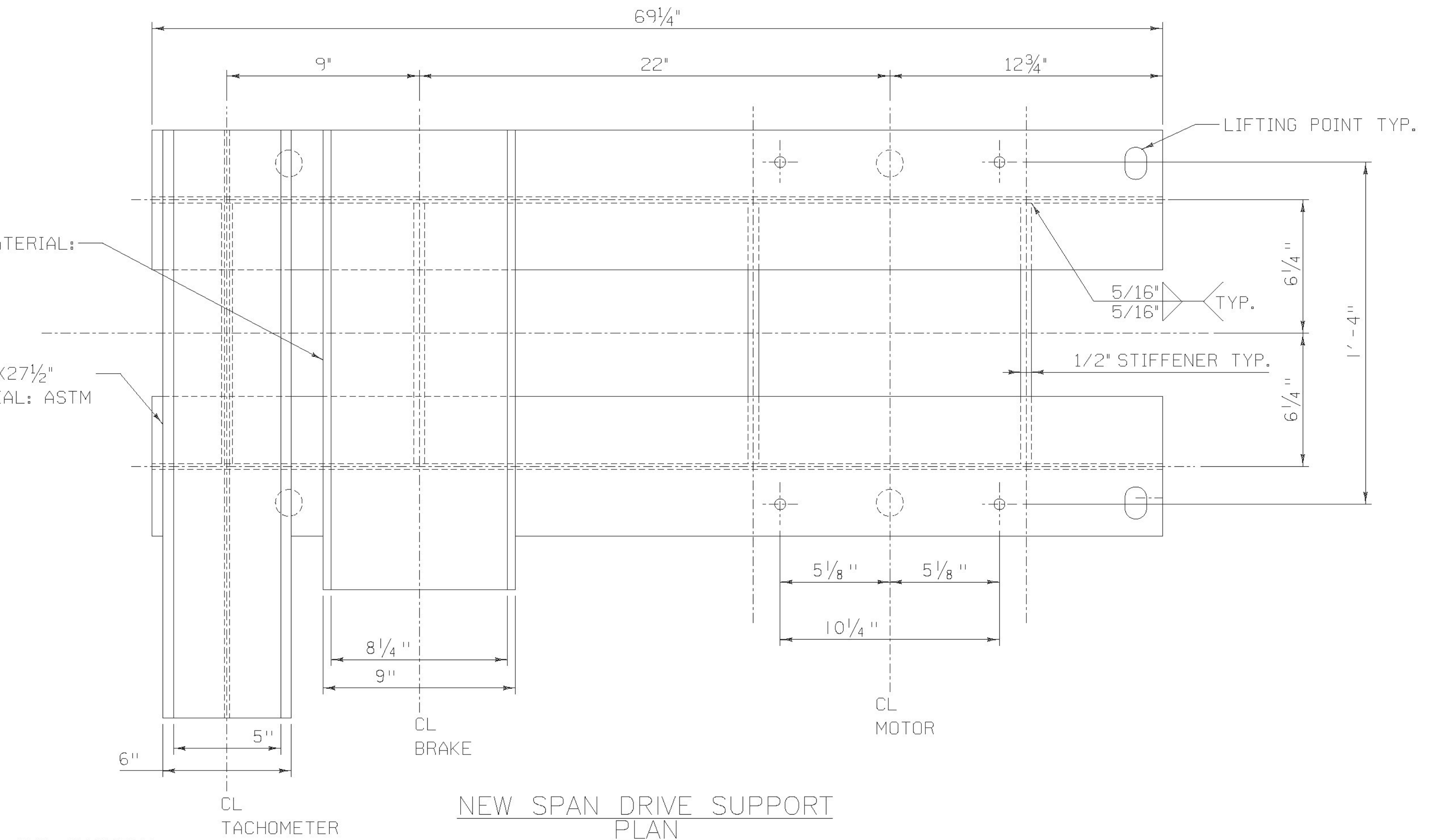
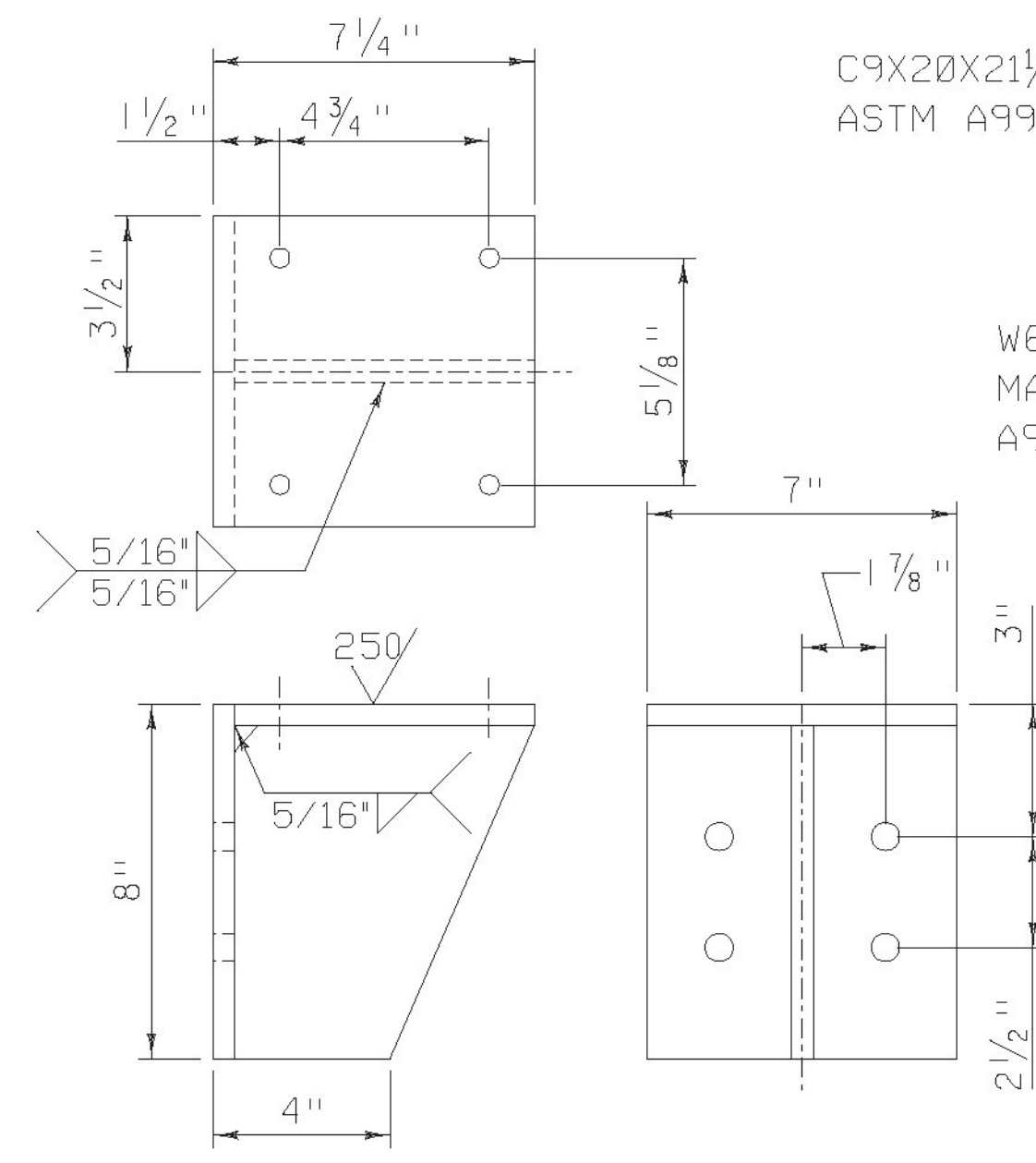
TYPICAL SHIM PACK TABLE		
SHIM PACK	THICKNESS (IN)	QUANTITY
CONSISTING OF THE FOLLOWING THICKNESSES AND QUANTITIES	1/4	1
	1/8	1
	1/16	1
	1/32	1
	1/64	2

10. ALL MANUFACTURERS PRODUCTS INDICATED ON THE PLANS ARE MERELY TO DEFINE SPECIFIC PERFORMANCE AND QUALITY REQUIREMENTS. THE CONTRACTOR MAY SUBMIT ALTERNATE PRODUCTS WHICH MEET THE DESIGN INTENT OF THE PLANS AND SPECIFICATIONS, AT NO ADDITIONAL COST TO VTRANS.

PROJECT NAME: NORTH HERO GRAND ISLE
 PROJECT NUMBER: BF EWPI(2)
 FILE NAME: z12b142_mwp22.dgn PLOT DATE: 03/03/2016
 PROJECT LEADER: T. FRENCH DRAWN BY: C. MADDEN
 DESIGNED BY: C. MADDEN CHECKED BY: P. DAVIS
 MECHANICAL WORK DETAILS I SHEET 4 OF 8

MECHANICAL EQUIPMENT BILL OF MATERIALS			
NO.	ITEM	MATERIAL	QUANTITY
1	#60, 2 STRAND, CHAIN SPROCKET	HARDENED STEEL	4
2	#50, 3 STRAND, CHAIN SPROCKET	HARDENED STEEL	4
3	#60 CHAIN	-	106.5 IN (2)
4	#50 CHAIN	-	56.75 IN (2)
5	1" HILTI THREADED ROD	A325	8
6	1" HEAVY HEX NUT	A563	24
7	1" JAM NUT	-	8
8	1" CIRCULAR WASHER	F436	16
9	5/8"x5/8" REDUCER KEY*	A668 CLASS K	4
10	1/4"x1/4" GEARMOTOR KEY	A668 CLASS K	2
11	1/2"x1/2" MOTOR KEY*	A668 CLASS K	2
12	MACHINERY SUPPORT	AS NOTED	2
12	GEARMOTOR BRACKET	A572 GR 50	2
14	MOTOR SHIMS	316 SS	2 PACKS
15	MOTOR BRAKE SHIMS	316 SS	2 PACKS
16	TACHOMETER SHIMS	316 SS	2 PACKS
17	MOTOR BASE BOLTS*	A325	8
18	MOTOR BASE NUTS*	A563	8
19	MOTOR BASE WASHERS*	F436	16
20	11MM GEARMOTOR BOLTS	A325M	8
21	11MM GEARMOTOR NUTS	A563M	8
22	11MM GEARMOTOR WASHERS	F436M	16
23	BRACKET 5/8" BOLTS	A325	8
24	BRACKET 5/8" NUTS	A563	8
25	BRACKET 5/8" WASHERS	F436	16
26	RIGHT ANGLE GEARBOX RATIO: 1:1	-	2
27	DELTA FLEX COUPLING OR APPROVED EQUAL	-	2
28	LOVEJOY L110 COUPLING HALF OR APPROVED EQUAL	-	2
29	JAW COUPLING SPIDER	-	2
30	1" CHEESE PLATE	A572 GR 50	2
31	MOTION CONTROL COUPLING*	-	2
32	3/8" HEX BOLTS	A325	8
33	3/8" HEX NUTS	A563	8
34	3/8" WASHERS	F436	16
35	ROTARY CAM SHIMS	316 SS	2
36	ROTARY CAM PINION SPROCKET*	-	2
37	ROTARY CAM GEAR SPROCKET*	-	2
38	ROTARY CAM SUPPORTS*	-	2
39	SEATED LIMIT SWITCH SUPPORT*	-	2

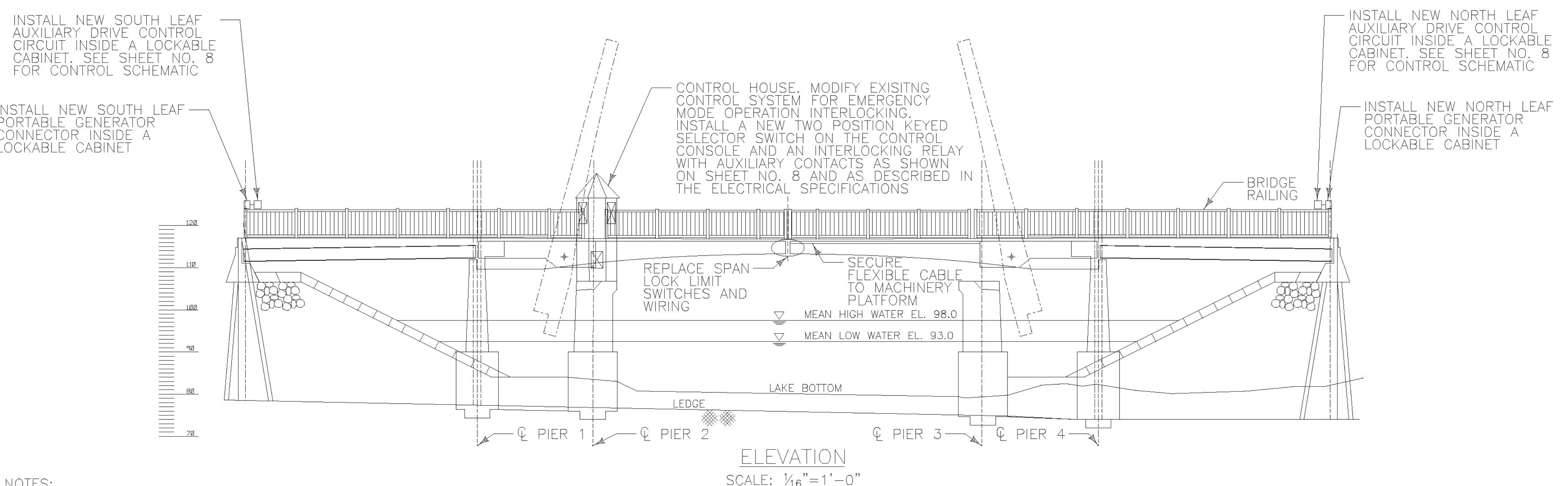
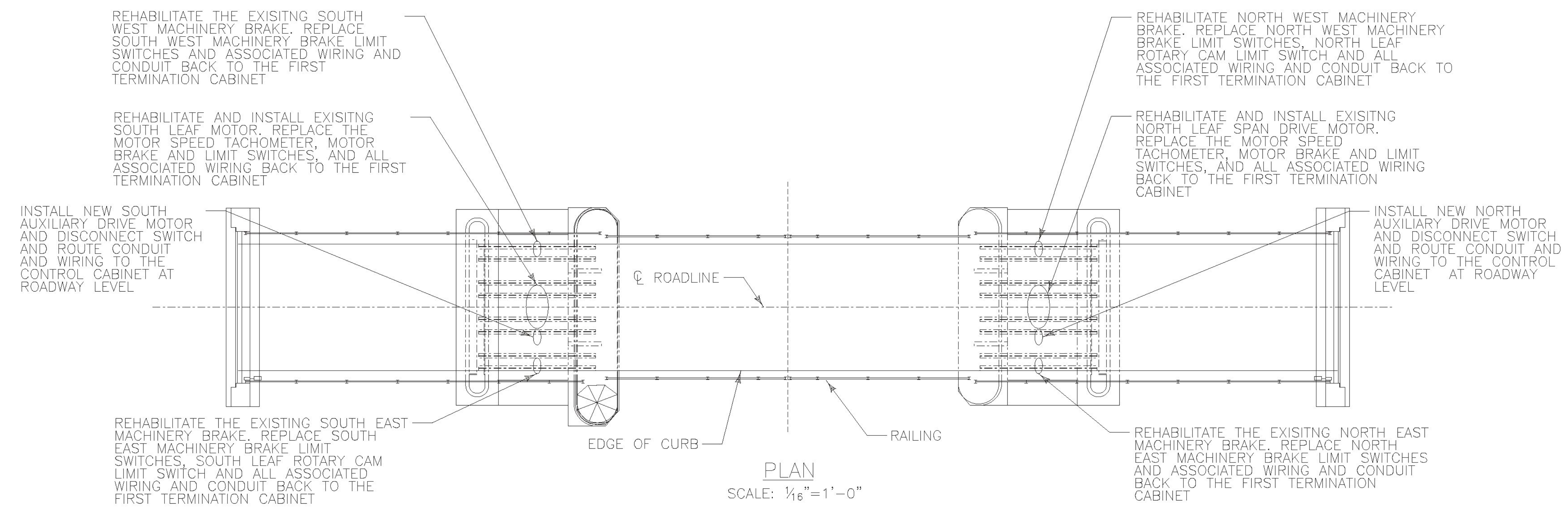
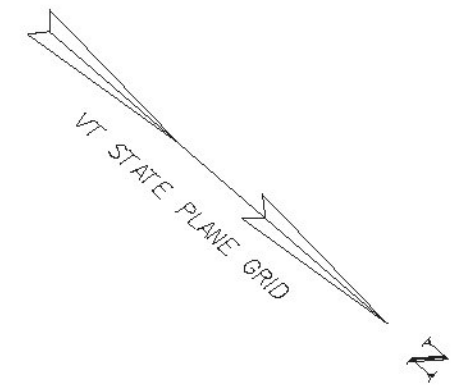
* CONFIRM DIMENSIONS IN THE FIELD



NOTES

1. CLIP STIFFENERS AS NECESSARY TO AVOID OVERLAP OF WELDS OR CLEAR FILLET WELDS BY A MINIMUM OF 1/4"
2. THE WORK ON THIS SHEET IS TO BE PAID UNDER ITEM 900.645 SPECIAL PROVISION (MECHANICAL EQUIPMENT REHABILITATION).

PROJECT NAME:	NORTH HERO GRAND ISLE
PROJECT NUMBER:	BF EWPI(2)
FILE NAME:	z12b142bdr_mwp23.dgn
PROJECT LEADER:	T. FRENCH
DESIGNED BY:	C. MADDEN
MECHANICAL WORK DETAILS II	
PLOT DATE:	03/03/2016
DRAWN BY:	C. MADDEN
CHECKED BY:	P. DAVIS
SHEET	5 OF 8



NOTES:

- ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION," DATED 2011, EXCEPT AS NOTED HEREIN.
- SEE SHEET NO. 7 FOR ELECTRICAL EQUIPMENT BILL OF MATERIALS
- SEE SHEET 2 FOR PAY ITEMS AND QUANTITIES.
- SEE MECHANICAL WORK ITEMS ON SHEETS NO. 3 THROUGH 5.
- THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THESE CONTRACT DRAWINGS AND CONTRACT SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS AS DEFINED WITHIN THE SPECIFICATIONS. IF A CONFLICT ARISES BETWEEN THE CONTRACT DOCUMENTS AND AGENCY SPECIFICATION IT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
- FUNCTIONAL TESTING OF REHABILITATED SPAN DRIVE SYSTEM, AUXILIARY DRIVE SYSTEM AND TRAINING OF VTTRANS DISTRICT STAFF. CONTRACTOR TO PREPARE EMERGENCY OPERATING PROCEDURE.
- ALL WORK ON THIS SHEET SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (ELECTRICAL EQUIPMENT REHABILITATION) AND ITEM 900.645 SPECIAL PROVISION (MECHANICAL EQUIPMENT REHABILITATION).
- ALL MANUFACTURERS PRODUCTS INDICATED ON THE PLANS ARE MERELY TO DEFINE SPECIFIC PERFORMANCE AND QUALITY REQUIREMENTS. THE CONTRACTOR MAY SUBMIT ALTERNATIVE PRODUCTS WHICH MEETS THE DESIGN INTENT OF THE PLANS AND SPECIFICATIONS.
- CONTRACTOR TO PREPARE AND SUBMIT AUXILIARY DRIVE CONTROL CABINET AND GENERATOR CONNECTOR SUPPORT WITH BASE DETAIL.

ABBREVIATIONS

A	AMPERE
C	CENTER LINE
DS	DISCONNECT
EMERG	EMERGENCY
FC	FULLY CLOSED
FO	FULLY OPEN
FVR	FULL VOLTAGE REVERSING STARTER
GDS	GENERATOR DISCONNECT
HP	HORSE POWER
KSS	KEYED SELECTOR SWITCH
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LS	LIMIT SWITCH
M	MAGNETIC CONTACTOR
NC	NORMALLY CLOSED
NEM	NORTH EMERGENCY MOTOR
NEML	NORTH EMERGENCY MOTOR LOWER
NEMR	NORTH EMERGENCY MOTOR RAISE
NO	NORMALLY OPEN
NORM	NORMAL
OL	OVERLOAD
RGS	RIGID GALVANIZED STEEL
TYP	TYPICAL
VAC	VOLTAGE ALTERNATING CURRENT

LEGEND

	PORTABLE GENERATOR CONNECTOR WITH COMBINATOR CIRCUIT BREAKER. 30A DENOTES CURRENT RATING
	DISCONNECT SWITCH (UNFUSED) 30A DENOTES CURRENT RATING
	KSS-EMERG. TWO POSITION MAINTAINED KEYED SELECTOR SWITCH. "KSS-EMERG" DENOTES SELECTOR SWITCH DESIGNATION
	NCR NORMALLY OPEN AUXILIARY CONTACT "NCR" DENOTES RELAY DESIGNATION
	START PUSH BUTTON "START" DENOTES PUSH BUTTON DESIGNATION
	STOP PUSH BUTTON "STOP" DENOTES PUSH BUTTON DESIGNATION
	(LS-NC) NORMALLY CLOSED LIMIT SWITCH "NC" DENOTES CAM POSITION
	TRANSFORMER
	THERMAL OVERLOAD
	FUSE
	CONTROL RELAY "NCR" DENOTES RELAY DESIGNATION
	MOTOR "3HP" DENOTES SIZE
	MAGNETIC CONTACTOR
	EXISTING
	PROPOSED

PROJECT NAME:	NORTH HERO GRAND ISLE
PROJECT NUMBER:	BF EWP1(2)
FILE NAME:	z12b142bdr_ewp2.dgn
PLOT DATE:	03/03/2016
PROJECT LEADER:	T. FRENCH
DRAWN BY:	S. YEARWOOD
DESIGNED BY:	Y. ADELEKAN
CHECKED BY:	K. HAJJEH
ELECTRICAL WORK	SHEET 6 OF 8

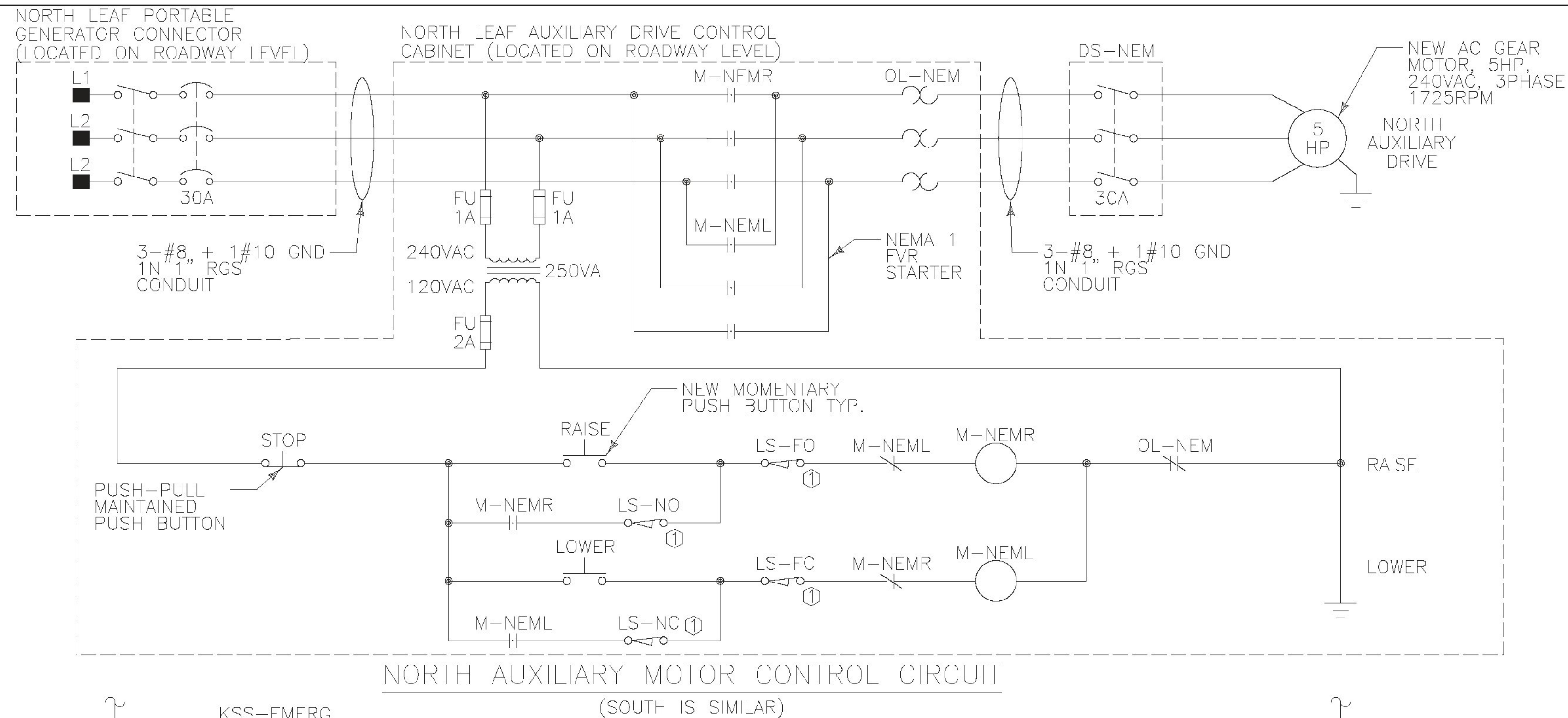
ELECTRICAL EQUIPMENT BILL OF MATERIALS				
NO.	ITEM	DESCRIPTION	MANUFACTURER/CAT NO.	QUANTITY
1	EMERGENCY AC GEAR MOTOR	5HP, 240VAC, 3PHASE MOTOR RPM: 1725RPM OUTPUT RPM: 213 RPM, OUTPUT TORQUE: 1478 IN-LBF SERVICE FACTOR: 1.1, AGMA CLASS: 1, GEAR RATIO: 8.09	NORD CAT NO. SK 9012.1-100LA/4 BRE40 HL RG OR ENGINEER APPROVED EQUAL	2
2	EMERGENCY GEAR MOTOR DISCONNECT SWITCH	600VAC, 30AMP, NEM 4X STAINLESS STEEL	EATON CAT NO. DH361UWK OR ENGINEER APPROVED EQUAL	2
3	MAIN SPAN MOTOR SPEED TACHOMETER	DC TACHOMETER GENERATOR	BALDOR TYPE XPY CAT NO. DTG100XP OR ENGINEER APPROVED EQUAL	2
4	MOTOR BRAKE	MAGNETEK 200S SERIES TYPE 8" MST/E-ED 30 AC HY-THYRUST, SUPPLY VOLTAGE=240V, SHAFT RPM=900, SHAFT HP=20HP, SET FOR 185FT-LBF	MAGNETEK OR ENGINEER APPROVED EQUAL	2
5	MACHINERY BRAKE THRUSTER	THRUSTER SIZED FOR 10000FT-LBF (BRAKING TORQUE)	ELDRO OR ENGINEER APPROVED EQUAL	2 (ONE SPARE)
6	ROTARY CAM LIMIT SWITCH	12 CIRCUITS (INDIVIDUALLY MICRO ADJUSTABLE) IN A NEMA 4X ENCLOSURE	GEMCO SERIES 1980 OR ENGINEER APPROVED EQUAL	2
7	LEVER ARM TYPE LIMIT SWITCH	HEAVY DUTY LEVER-OPERATED SPRING RETURN, TWO-CIRCUIT SNAP ACTION LIMIT SWITCH IN NEMA 4 ENCLOSURE	EATON SERIES E84 OR ENGINEER APPROVED EQUAL	3
8	BRAKE LIMIT SWITCHES	HEAVY DUTY LEVER-OPERATED SPRING RETURN IN SUBMERSIBLE, NEMA 6 ENCLOSURE	EATON CAT NO. E50SA6P OR ENGINEER APPROVED EQUAL	16
9	SPAN LOCK LIMIT SWITCH	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
10	CONTROLLER CABINET	CONTINUOUS HINGE, 36"H X 30"W X 10"D NEMA 4X STAINLESS STEEL, TYPE 316L LOCKABLE CABINET TO BE FURNISHED WITH BACK PANEL, SWING OUT PANEL, FLUORESCENT LIGHTING, AND HEAVY DUTY STAINLESS STEEL LIFTING EYES AS DESCRIBED IN THE SPECIFICATION	HOFFMAN OR ENGINEER APPROVED EQUAL	2
11	TERMINAL BLOCKS	600V/45A PANEL MOUNT TERMINAL BLOCK, 12 POLES	COOPER BUSSMAN TB345 OR ENGINEER APPROVED EQUAL	2
12	PORTABLE GENERATOR PLUG CABINET	CONTINUOUS HINGE, NEMA 4X STAINLESS STEEL, TYPE 316L LOCKABLE CABINET TO BE FURNISHED WITH BACK PANEL & SWING OUT PANEL AS DESCRIBED IN THE SPECIFICATION 24"H X 20"W X 10"D	HOFFMAN OR ENGINEER APPROVED EQUAL	2
13	GENERATOR	40KW, 60HZ, 3PHASE, 240VAC PORTABLE GENERATOR	KOHLER MODEL 45REOZT4 OR ENGINEER APPROVED EQUAL	2
14	PORTABLE GENERATOR CONNECTOR	600VAC, 30AMP, NEMA 4X RECEPTACLE WITH MATING PLUG	RUSSELL STOLL MAXGARD CAT NO. DBRS3307030KZ & DS3307MPO30 OR ENGINEER APPROVED EQUAL	2
15	CONTROL COMPONENTS			
	"RAISE" PUSH BUTTON	MOMENTARY PUSH BUTTON	EATON SERIES E34 OR ENGINEER APPROVED EQUAL	2
	"LOWER" PUSH BUTTON	MOMENTARY PUSH BUTTON	EATON SERIES E34 OR ENGINEER APPROVED EQUAL	2
	"STOP" PUSH BUTTON	TWO POSITION MAINTAINED PUSH-PULL PUSH BUTTON	EATON SERIES E34 OR ENGINEER APPROVED EQUAL	2
	SELECTOR SWITCH	2 POSITION MAINTAINED KEY SELECTOR SWITCH	EATON SERIES E34 OR ENGINEER APPROVED EQUAL	1
	INTERLOCKING RELAY	120VAC CONTROL RELAY	SQUARE D TYPE 8501 OR ENGINEER APPROVED EQUAL	2
	CONTROL TRANSFORMER	150VA, 1PHASE CONTROL TRANSFORMER PRIMARY 240 X 480, SECONDARY 120V	SQUARE D CAT NO. 9070T250D1 OR ENGINEER APPROVED EQUAL	2
	AC GEAR MOTOR STARTER	NEMA 1, FULL VOLTAGE REVERSING STARTER WITH OVERLOAD	SQUARE D TYPE S OR ENGINEER APPROVED EQUAL	2
	FUSES	(2) - 1AMP FUSE FOR EACH TRANSFORMER PRIMARY (1) - 2AMP FUSE FOR EACH TRANSFORMER SECONDARY	LITTELFUSE CLASS CC KLDR SERIES	6
16	CONDUITS AND WIRING			
	CONDUIT	3/4" RGS	ALLIED TUBE & CONDUIT OR ENGINEER APPROVED EQUAL	250LF
	CONDUIT	1" RGS	ALLIED TUBE & CONDUIT OR ENGINEER APPROVED EQUAL	500LF
	CONDUIT	1-1/2" RGS	ALLIED TUBE & CONDUIT OR ENGINEER APPROVED EQUAL	100LF
	CONDUIT	3/4" LFMC	ALLIED TUBE & CONDUIT OR ENGINEER APPROVED EQUAL	100LF
	CONDUIT	1" LFMC	ALLIED TUBE & CONDUIT OR ENGINEER APPROVED EQUAL	20LF
	CONDUIT	2" LFMC	ALLIED TUBE & CONDUIT OR ENGINEER APPROVED EQUAL	50LF
	MULTI-CONDUCTOR CABLE	4-#10AWG TYPE SOW CABLE	GENERAL CABLE OR ENGINEER APPROVED EQUAL	200LF
	MULTI-CONDUCTOR CABLE	10-#10AWG GND TYPE SOW CABLE	GENERAL CABLE OR ENGINEER APPROVED EQUAL	50LF
	MULTI-CONDUCTOR CABLE	10-#16 AWG INDIVIDUALLY TWISTED SHIELDED TSP	BELDEN OR ENGINEER APPROVED EQUAL	120LF
	SINGLE-CONDUCTOR CABLE	#10 AWG RHW-2	GENERAL CABLE OR ENGINEER APPROVED EQUAL	3000LF
	SINGLE-CONDUCTOR CABLE	#8 AWG RHW-2	GENERAL CABLE OR ENGINEER APPROVED EQUAL	1500LF
	SINGLE-CONDUCTOR CABLE	#2 AWG RHW-2	GENERAL CABLE OR ENGINEER APPROVED EQUAL	80LF
	SINGLE-CONDUCTOR CABLE	#1 AWG RHW-2	GENERAL CABLE OR ENGINEER APPROVED EQUAL	80LF

NOTES:

- FOR LEGEND, ABBREVIATION, AND NOTES SEE SHEET NO. 6
- VERIFY SPAN LOCK LIMIT SWITCH TYPE AND QUANTITY AND REPLACE IN KIND OR AS APPROVED BY THE ENGINEER.
- MATERIALS ON THIS SHEET TO BE FURNISHED UNDER PAY ITEM 900.645 SPECIAL PROVISION (ELECTRICAL EQUIPMENT REHABILITATION).

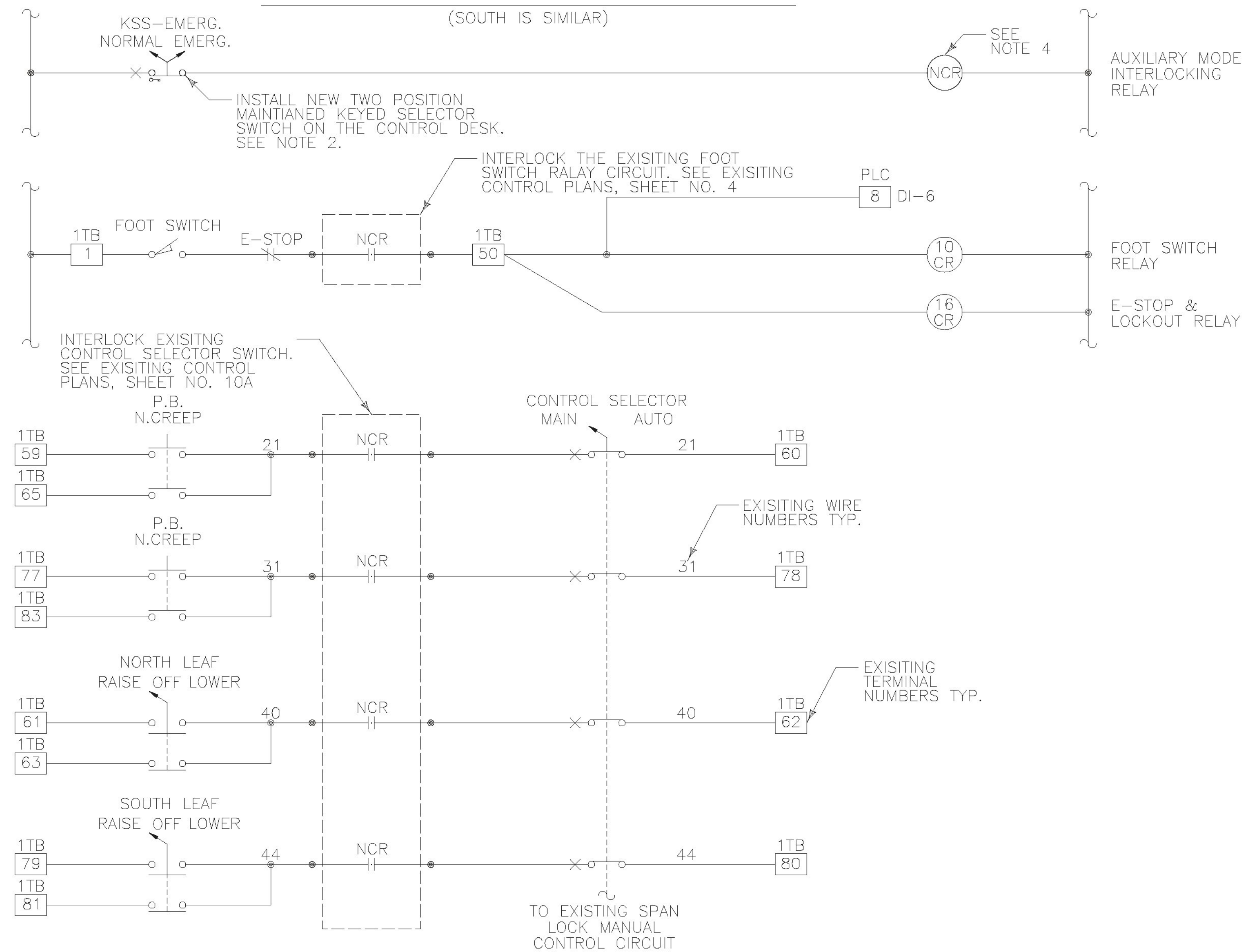
PROJECT NAME: NORTH HERO GRAND ISLE
PROJECT NUMBER: BF EWP1(2)

FILE NAME: z12b142bdr_ebillmat.dgn PLOT DATE: 03/03/2016
PROJECT LEADER: T. FRENCH DRAWN BY: S. YEARWOOD
DESIGNED BY: Y. ADELEKAN CHECKED BY: K. HAJJEH
ELECTRICAL EQUIPMENT BILL OF MATERIALS SHEET 7 OF 8



- NOTES:
- FOR LEGEND, ABBREVIATION, AND NOTES SEE SHEET NO. 6
 - THE EXISTING CONTROL SYSTEM SHALL BE INTERLOCKED SUCH THAT NORMAL BRIDGE OPERATION (MANUAL AND AUTO MODE) CAN ONLY BE PERFORMED WHEN THE SELECTOR SWITCH "KSS-EMER" IS SWITCHED TO THE NORMAL POSITION. WHEN THE SELECTOR SWITCH "KSS-EMER" IS SWITCHED TO THE AUXILIARY POSITION, THE BRIDGE RAISE AND LOWER FUNCTION CAN ONLY BE PERFORMED VIA THE AUXILIARY DRIVE MOTOR.
 - EACH LEAF AUXILIARY MOTOR CONTROL CIRCUIT SHALL BE INTERLOCKED WITH THE RESPECTIVE NEARLY OPENED, NEARLY CLOSED, FULLY OPEN AND FULLY CLOSED POSITION CAM CIRCUIT LOCATED IN THE ROTARY CAM LIMIT SWITCH BOX. NEW AND DEDICATED CAM CIRCUITS SHALL BE USED FOR THESE FUNCTIONS. THEY SHALL BE CALIBRATED TO MATCH THE EXISTING ANGLE POSITIONS SET FOR THE NORMAL MODE OF OPERATION.
 - INSTALL THE INTERLOCKING RELAY IN THE CONTROL DESK. FURNISH THE INTERLOCKING RELAY WITH SUFFICIENT AUXILIARY CONTACTS AS SHOWN ON THE PLANS.
 - SEE SPECIAL PROVISION 900.645 (ELECTRICAL EQUIPMENT REHABILITATION) FOR AUXILIARY DRIVE SEQUENCE OF OPERATION.

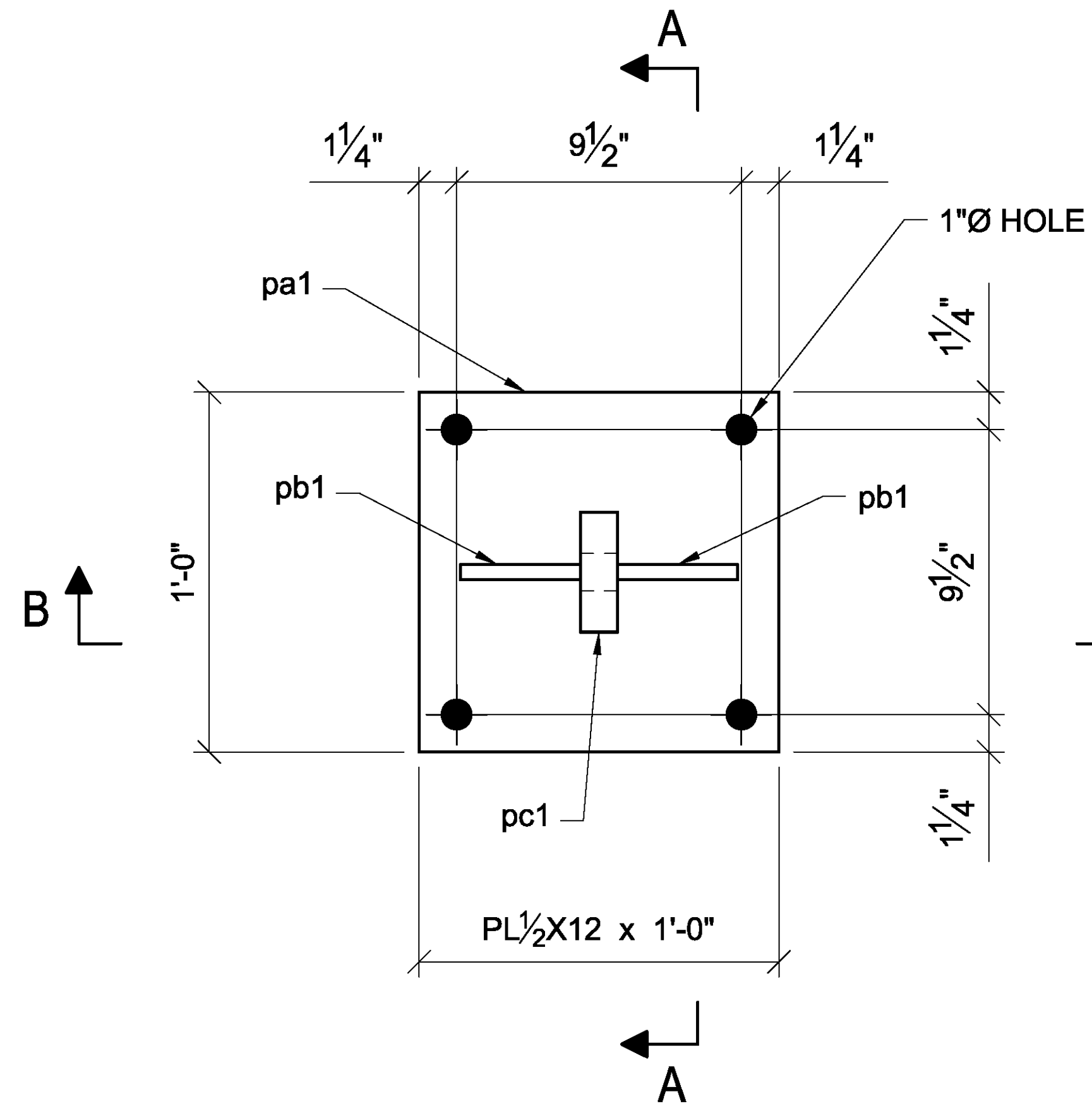
- KEY NOTES:
- ① EACH LEAF AUXILIARY MOTOR CONTROL CIRCUIT SHALL BE INTERLOCKED WITH THE RESPECTIVE NEARLY OPENED, NEARLY CLOSED, FULLY OPEN AND FULLY CLOSED POSITION LIMIT SWITCHES LOCATED IN THE ROTARY CAM BOX. DEDICATED CAM CIRCUITS SHALL BE USED FOR THE AUXILIARY CONTROL FUNCTIONS. THEY SHALL BE CALIBRATED TO MATCH THE EXISTING ANGLE POSITIONS SET FOR THE NORMAL MODE OF OPERATION. FURNISH THE ROTARY CAM LIMIT SWITCH WITH ENOUGH CAM CIRCUITS FOR THE AUXILIARY AND THE EXISTING MAIN CONTROL SYSTEM INTERLOCKING.



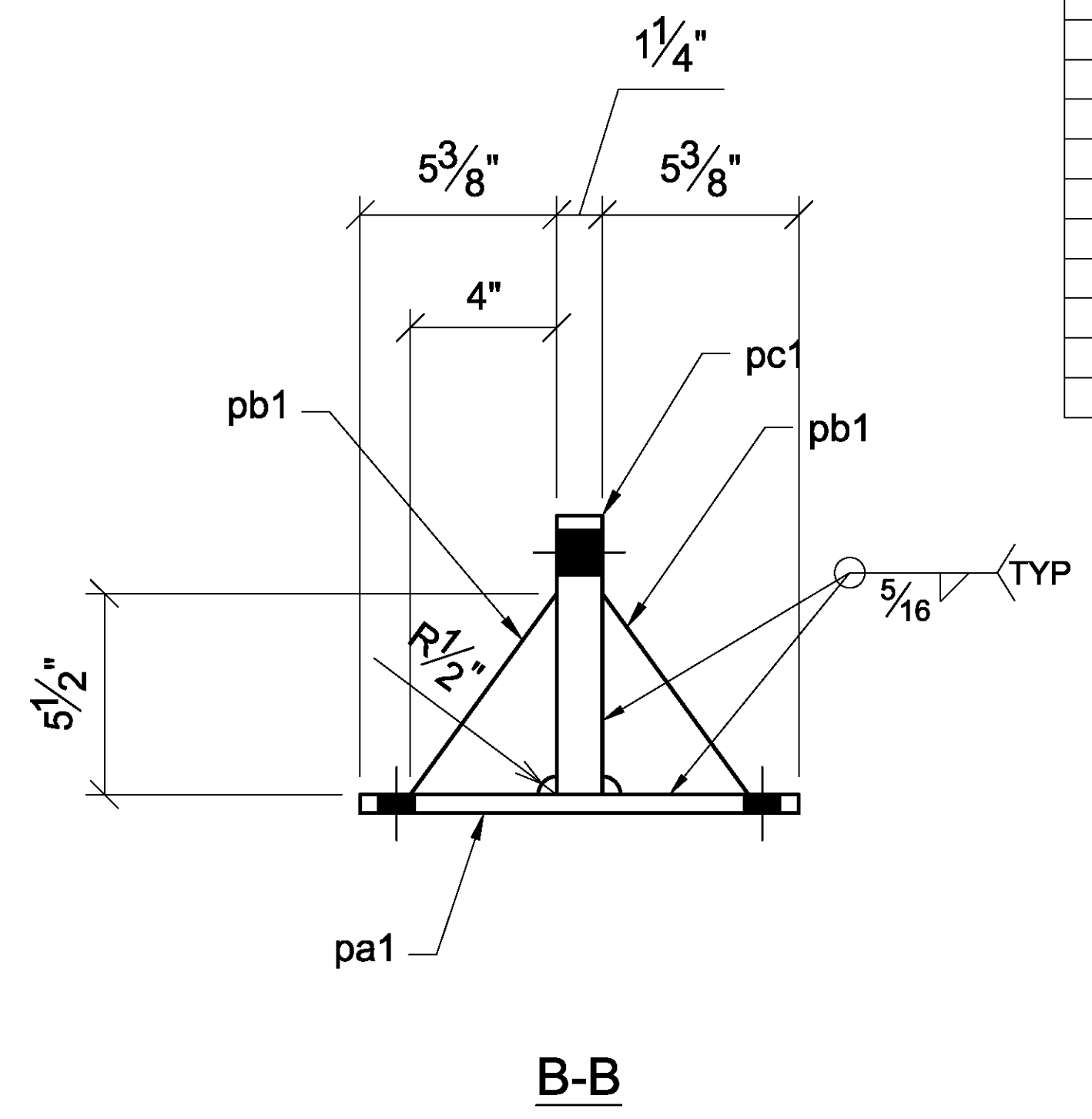
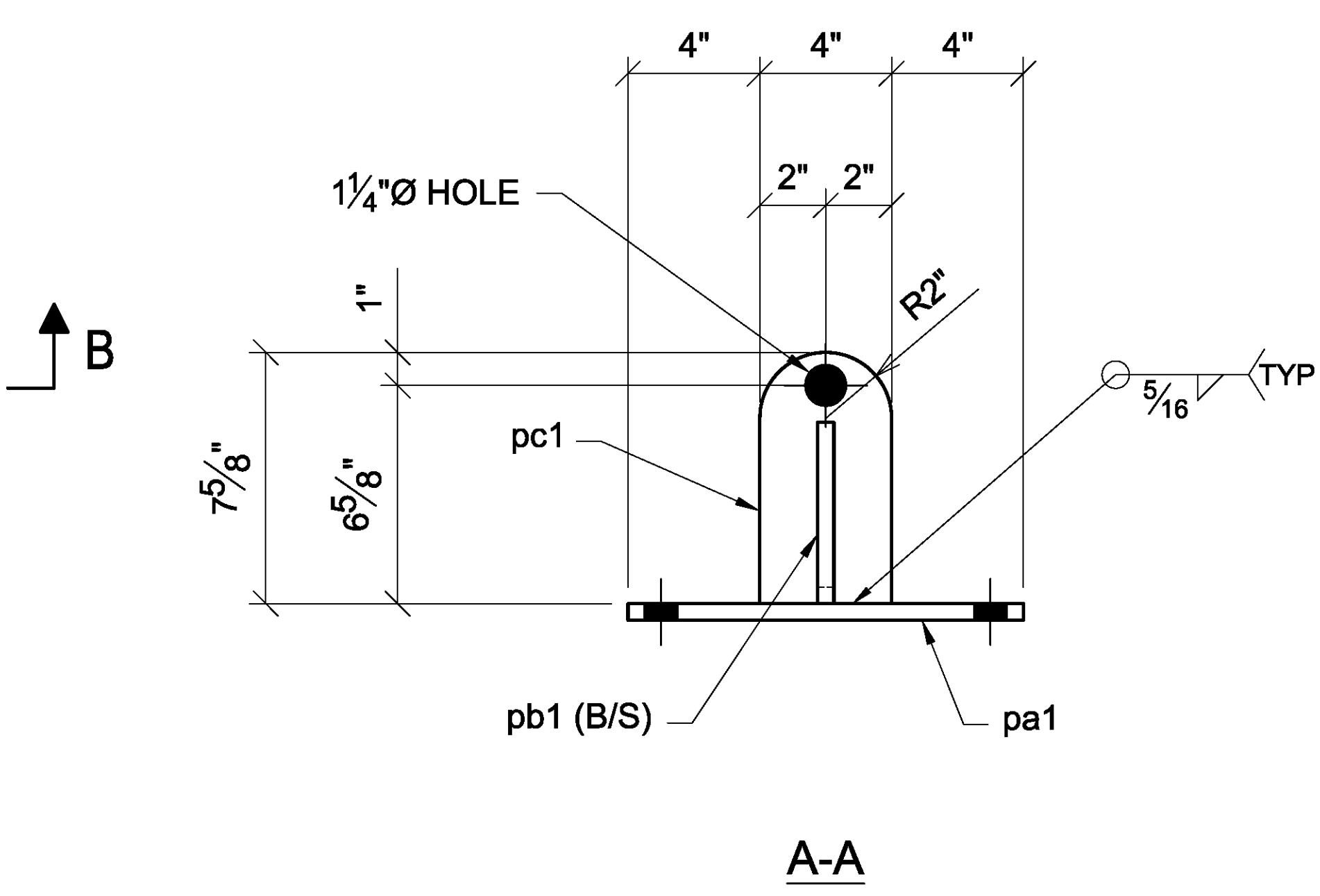
MODIFICATIONS TO EXISTING CONTROL CIRCUIT (SEE NOTE 2)

PROJECT NAME: NORTH HERO GRAND ISLE	PLOT DATE: 03/03/2016
PROJECT NUMBER: BF EWP1(2)	DRAWN BY: S. YEARWOOD
FILE NAME: z12b142bdr_ctr1s.dgn	CHECKED BY: K. HAJJEH
PROJECT LEADER: T. FRENCH	SHEET 8 OF 8
DESIGNED BY: Y. ADELEKAN	
AUXILIARY DRIVE CONTROLS	

MARK	QTY.	SIZE	LENGTH		GRADE	REMARKS	WEIGHT	LINE #
			FT	IN				
1900M	2	SUPPORTS						
pa1	2	PL1/2X12		1'-0"	A572-GR.50		41	
pb1	4	PL1/2X4		5 1/2"	A572-GR.50		12	
pc1	2	PL1 1/4X4		7 5/8"	A572-GR.50		22	
1901M	2	.974"Ø STEEL PIN (±.002")		1'-1 13/16"	4140		6	
1902M	2	.974"Ø STEEL PIN (±.002")		4 9/16"	4140		2	
1903M	4	BRASS SPACER (1.600" O.D. x 1.000" I.D.)		4 3/8"			4	
1904M	4	BRASS SPACER (1.600" O.D. x 1.000" I.D.)		1 1/4"			2	
1905M	2	BRASS SPACER (1.250" O.D. x 1.000" I.D.)		1 1/4"			1	
SHEET WEIGHT							90	

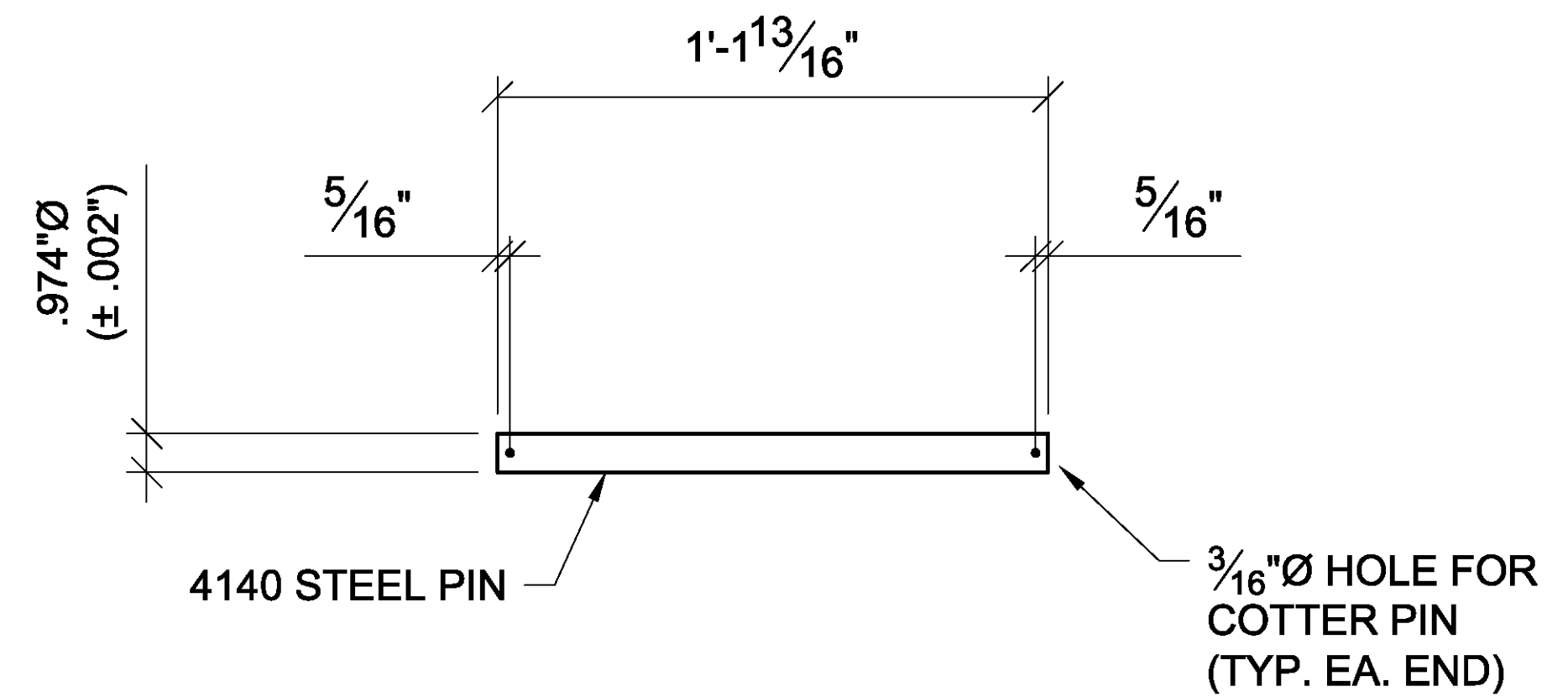


2 - SUPPORTS - 1900M

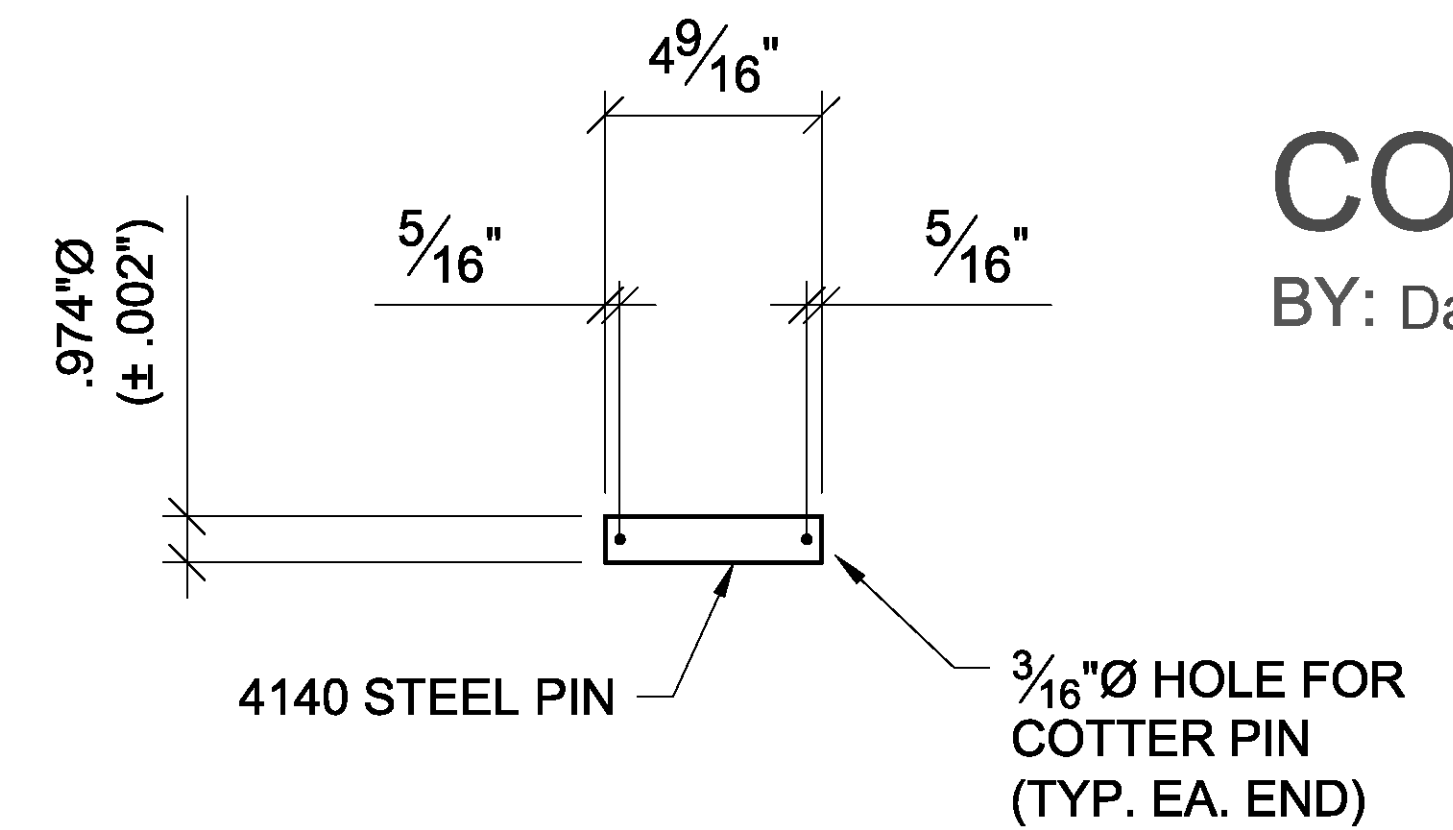


Vermont Agency of Transportation
RECEIVED
 ON: May 25, 2016
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 BY: Danny Landry DATE: 06/02/2016

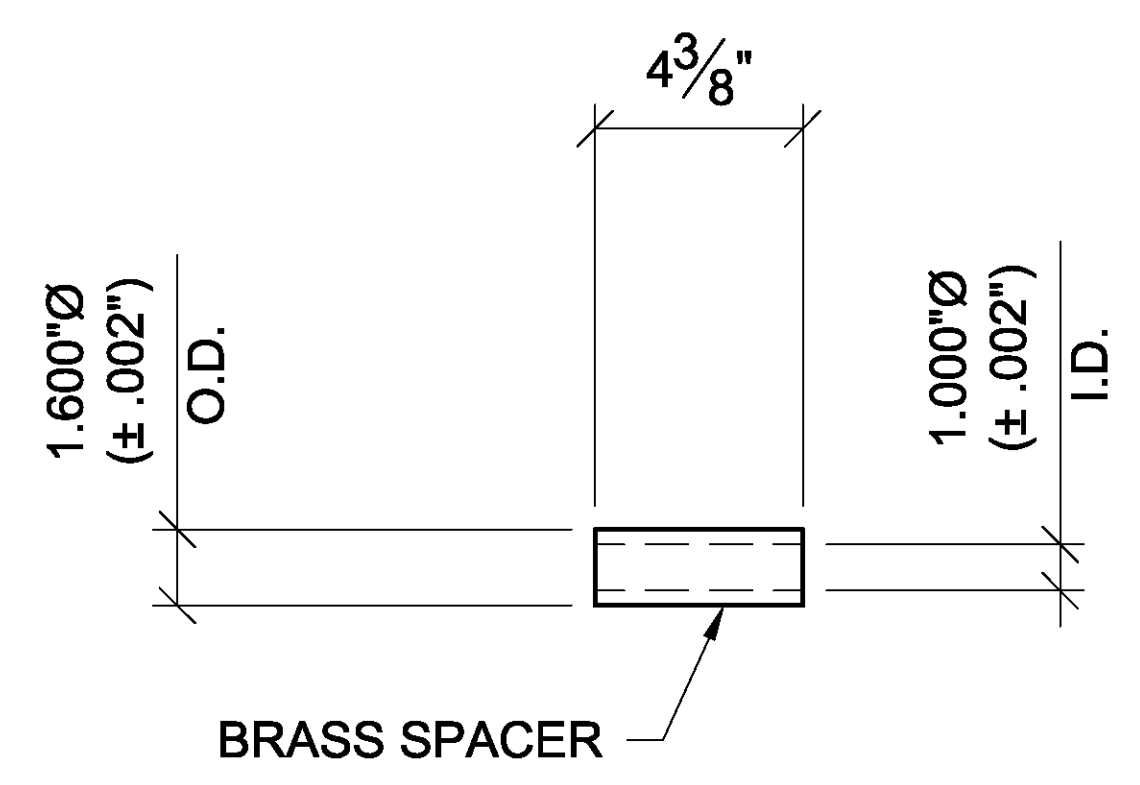
SUBMITTAL REVIEW	
VTRANS North Hero - Grand Isle BF EWP1(2)	
Submittal #0044	
<input checked="" type="checkbox"/>	APPROVED - APP
<input type="checkbox"/>	APPROVED AS NOTED - ANR
<input type="checkbox"/>	> CONSTRUCTION MAY PROCEED WITH ANR
<input type="checkbox"/>	> RESUBMITTAL REQUIRED FOR DOCUMENTATION ONLY
<input type="checkbox"/>	FOR RECORD ONLY - FRO
<input type="checkbox"/>	REVISE & RESUBMIT - RR
<input type="checkbox"/>	> CONSTRUCTION MAY NOT PROCEED
<input type="checkbox"/>	> RESUBMITTAL REQUIRED - RR
<input type="checkbox"/>	REJECTED - NA
<input type="checkbox"/>	> CONSTRUCTION MAY NOT PROCEED
<input type="checkbox"/>	> RESUBMITTAL REQUIRED - RR
<input type="checkbox"/>	REVIEWED WITH NO COMMENTS - RWNC
REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS. SOLE RESPONSIBILITY FOR CORRECTNESS OF DIMENSIONS, DETAIL QUANTITIES AND SAFETY DURING FABRICATION AND ERECTION SHALL REMAIN WITH THE CONTRACTOR. SHOP DRAWING APPROVAL DOES NOT RELIEVE CONTRACTOR FROM FULFILLING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.	
FIRM:	HDR
BY:	PJJ DATE: 6/2/2016



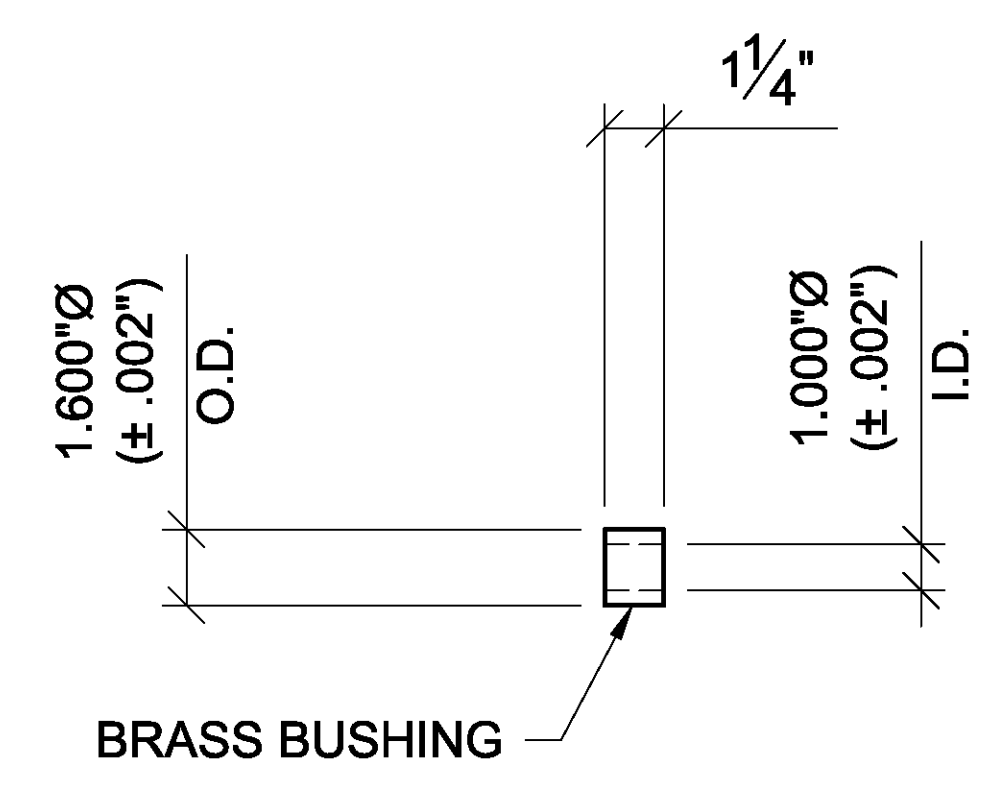
2 - PINS - 1901M



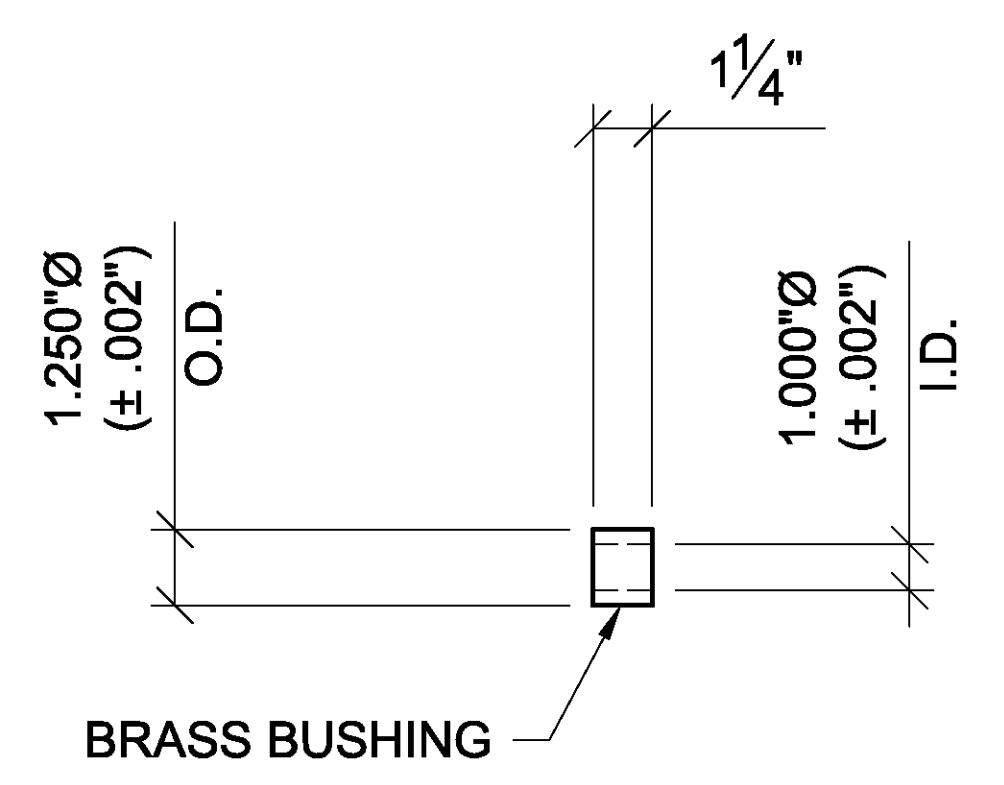
2 - PINS - 1902M



4 - SPACERS - 1903M



4 - BUSHINGS - 1904M



2 - BUSHINGS - 1905M

DRAWING NOTES:
 HOLES: 1"Ø (UNO)
 BOLTS: N/A
 WELDS: PER AWS D1.5
 MATERIAL: A572-GR.50 (UNO)
 E - DRG REF: N/A
 ENG. REF. DRG. No. SHEETS 1-3

CIANBRO
 Fabrication & Coating Corp.
 Pittsfield, ME - Baltimore, MD - Georgetown, MA

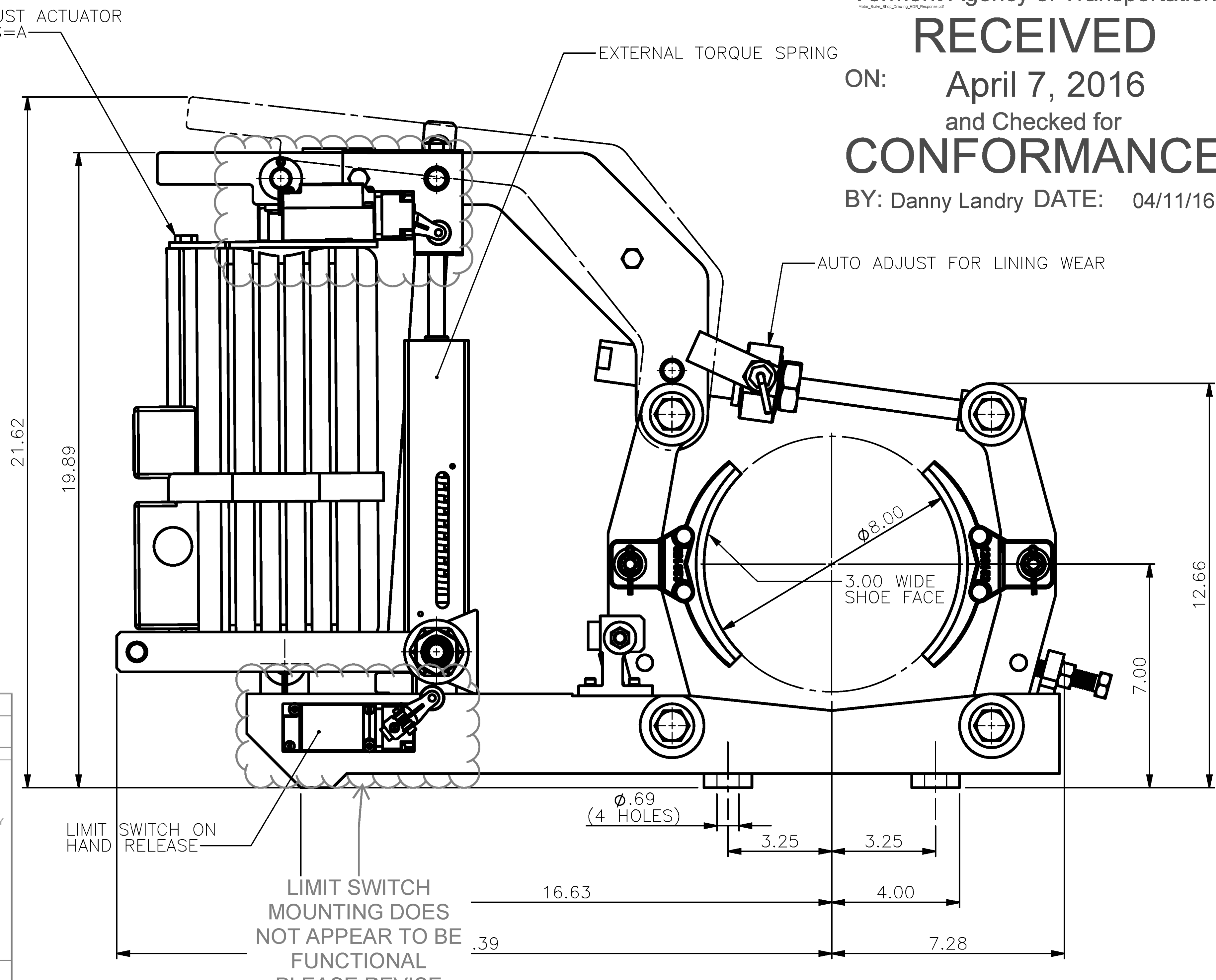
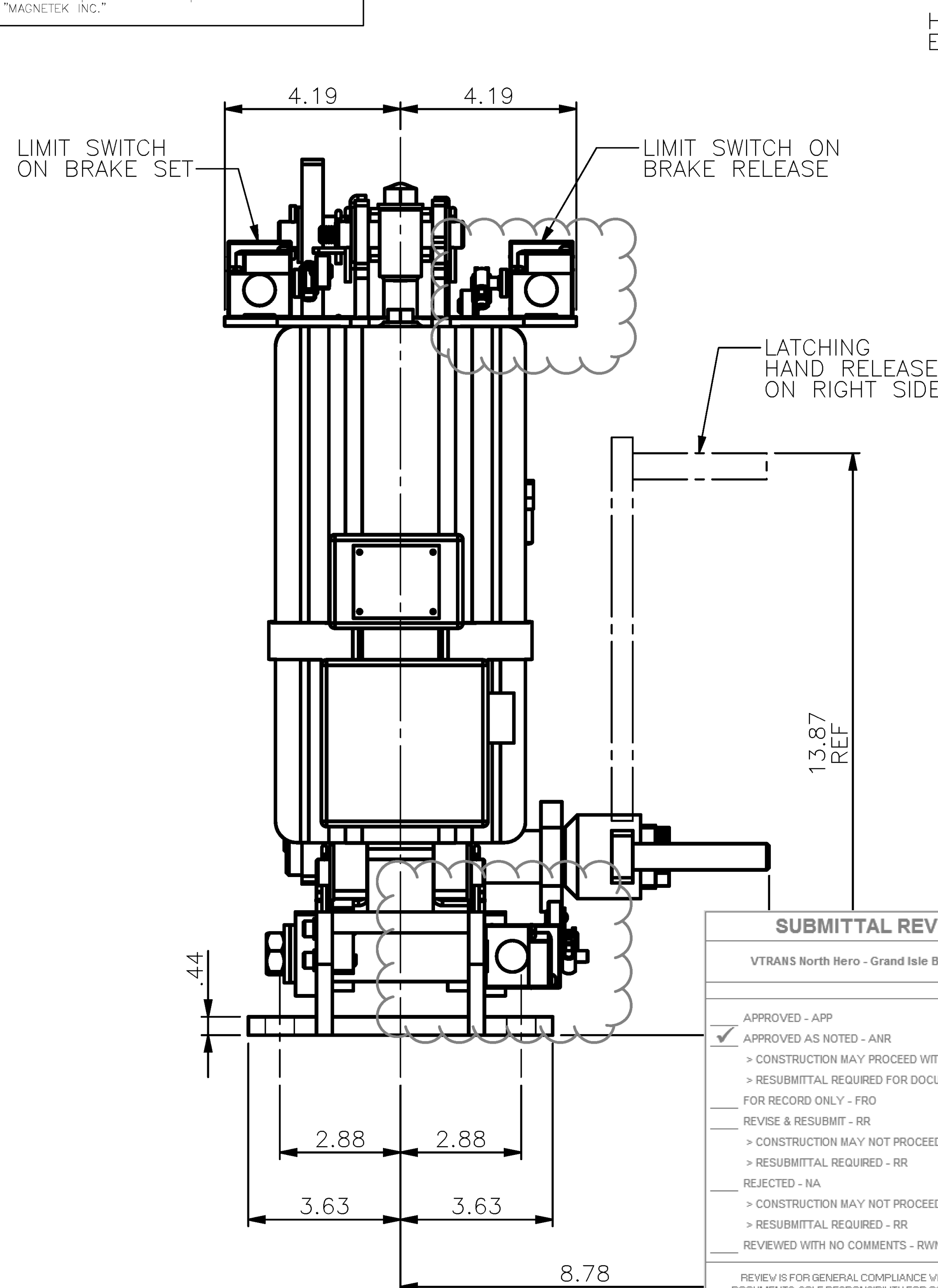
PEOPLE
 PRIDE
 PROGRESS

COATINGS	GALVANIZING	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	MASKING REQ'D	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	DRAWN BY	DATE
SURFACE PREP: SSPC-SP10					M. DAVIS	05/22/2016
PRIME COAT: MACROPOXY 646					CHKD BY	DATE
SECOND COAT: MACROPOXY 646					RAB	05/23/2016
TOP COAT: (FINISH COLOR: OSHA FEDERAL GREEN)					JOB COORDINATOR	
DESCRIPTION: BRAKE SUPPORTS					P. DEROO	REV. A
JOB: NORTH HERO BASCULE BRIDGE NORTH HERO, VT					JOB NO.	DRG. NO.
CUSTOMER: CIANBRO CORPORATION					7160169	M1

REV.	REMARKS	DATE	DWN	XO
A	FOR APPROVAL	05/23		

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Vermont Agency of Transportation
RECEIVED
 ON: April 7, 2016
 and Checked for
CONFORMANCE
 BY: Danny Landry DATE: 04/11/16



SUBMITTAL REVIEW	
VTRANS North Hero - Grand Isle BF EWP1(2)	
APPROVED - APP	
<input checked="" type="checkbox"/> APPROVED AS NOTED - ANR	> CONSTRUCTION MAY PROCEED WITH ANR
	> RESUBMITTAL REQUIRED FOR DOCUMENTATION ONLY
FOR RECORD ONLY - FRO	
REVISE & RESUBMIT - RR	
<input type="checkbox"/> CONSTRUCTION MAY NOT PROCEED	> RESUBMITTAL REQUIRED - RR
REJECTED - NA	
<input type="checkbox"/> CONSTRUCTION MAY NOT PROCEED	> RESUBMITTAL REQUIRED - RR
REVIEWED WITH NO COMMENTS - RWNC	
REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS. SOLE RESPONSIBILITY FOR CORRECTNESS OF DIMENSIONS, DETAIL QUANTITIES AND SAFETY DURING FABRICATION AND ERECTION SHALL REMAIN WITH THE CONTRACTOR. SHOP DRAWING APPROVAL DOES NOT RELIEVE CONTRACTOR FROM FULFILLING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.	
FIRM:	HDR
BY:	CPM
DATE:	4/8/2016

8MBTE-0200-AA-ED30-RHR-M7-SPL

- FOR 8 INCH BRAKEWHEEL
- EXTERNAL TORQUE SPRING
- MAX TORQUE: 200 LBFT
- AUTO ADJUST FOR LINING WEAR
- ED30/5S-A ACTUATOR, 230-460/3/60HZ
- TIME DELAY ON BRAKE SET
- C10 FLUID, OPERATING TEMPERATURE (-13F TO 122F)
- LATCHING HAND RELEASE ON RIGHT HAND SIDE
- LIMIT SWITCHES ON BRAKE SET, RELEASE, AND HAND RELEASE
- **SPECIAL: CUSTOM TORQUE**
- **SPECIAL: LIMIT SWITCHES TO BE EPOXY POTTED WITH 12 FT CABLES**

PROVIDE BRAKE TORQUE SETTING

DRAWING APPROVAL	
SIGNED:	_____
DATE:	_____
<input type="checkbox"/> APPROVED.	
<input type="checkbox"/> APPROVED AS NOTED.	
<input type="checkbox"/> RESUBMIT WITH CORRECTIONS SHOWN.	

NEXT ASSY:- XXXXXX	
DECIMAL PLACE	
(1) PLACE 0.0	± 0.040"
(2) PLACE 0.00	± 0.020"
(3) PLACE 0.000	± 0.010"
(4) PLACE 0.0000	± 0.005"

EXCEPTIONS:
 TOLERANCE BELOW 0.005" TO BE SHOWN TO UPPER AND LOWER LIMIT.
 ∇# INDICATES USE OF DECIMAL PLACE TOLERANCE OTHER THAN INDICATED BY ORIGINAL DECIMAL DIMENSION.
 AS 0.25" - (USE ONE DECIMAL PLACE TOL.)

GENERAL TOLERANCES NOTES

NO.	REVISION	BY	DATE

MAGNETEK
 MATERIAL HANDLING
 Mondel

TITLE: 8MBTE-0200-AA-ED30-RHR-M7-SPL
 OUTLINE DRAWING

DRAWN: AB	DATE: 4/6/2016	DWG NO.	104928	REV NO.	0
CHECK'D: ---	DATE: ---	APPR'D: ---	SCALE: 1:4	WEIGHT: --- Lbs.	SHEET: 1 OF 1

