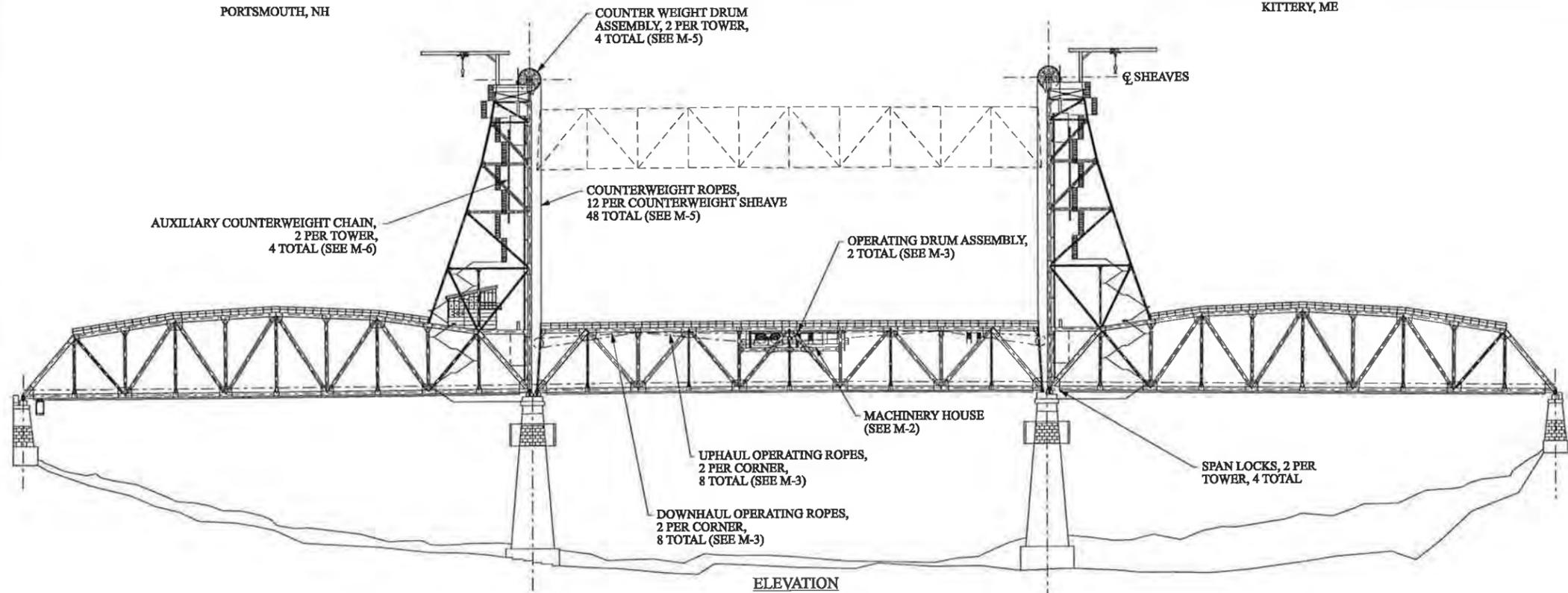
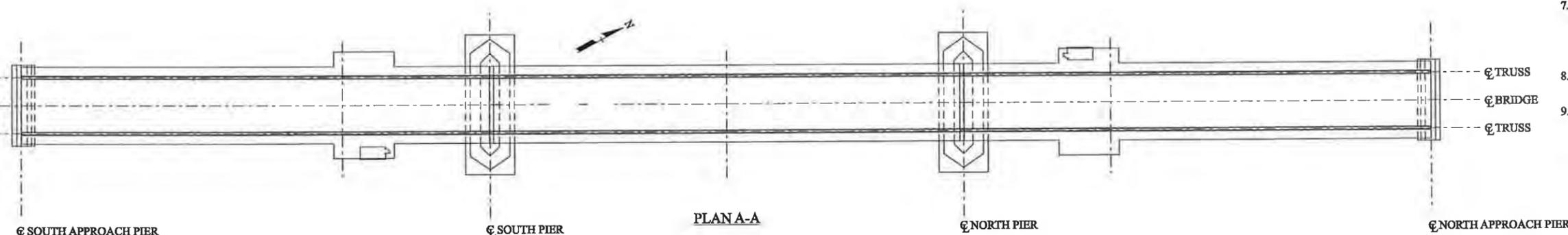


PORTSMOUTH, NH

KITTERY, ME



ELEVATION



PLAN A-A

GENERAL MACHINERY NOTES:

1. DETAILS OF MACHINERY SHALL CONFORM TO THE 2007 STANDARD SPECIFICATIONS FOR MOVABLE HIGHWAY BRIDGES PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, INCLUDING INTERIM REVISIONS, UNLESS OTHERWISE SHOWN ON THE PLANS, OR PROVIDED FOR IN THE SPECIFICATIONS.
2. ALL DIMENSIONS FOR MACHINE FINISHED SURFACES SHALL BE HELD TO +/- 0.010, EXCEPT AS OTHERWISE REQUIRED BY THE PLANS OR SPECIFICATIONS.
3. UNLESS OTHERWISE INDICATED OR REQUIRED FOR THE PROPER ASSEMBLY OF PARTS, DIMENSIONAL TOLERANCES OF MACHINERY IN GENERAL SHALL BE AS FOLLOWS:

SURFACE	TOLERANCE
MACHINED (TO 1")	+/-0.015"
MACHINED (OVER 1")	+/-0.030"
ROLLED	+/-0.030"
NON-MACHINED CAST (TO 1")	+/-0.030"
NON-MACHINED CAST (OVER 1")	+/-0.060"
COMPONENT LOCATIONS	+/-0.030"
BOLT HOLE LOCATIONS	+/-0.030"
ANGULAR	+/- 1/2

FITS AND FINISHES FOR MACHINERY SHALL BE AS FOLLOWS:

SURFACE	FIT	FINISH (MICRONCHES)
MACHINERY BASE ON STEEL	-	250
MACHINERY PARTS IN FIXED CONTACT	-	125
HUBS ON MAIN TRUNNIONS	FN2	63
KEYS AND KEYWAYS	LC3	63
SHAFTS	-	63
TURNED BOLT SHANKS	LC1	63
TURNED BOLT HOLES	LC1	63

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

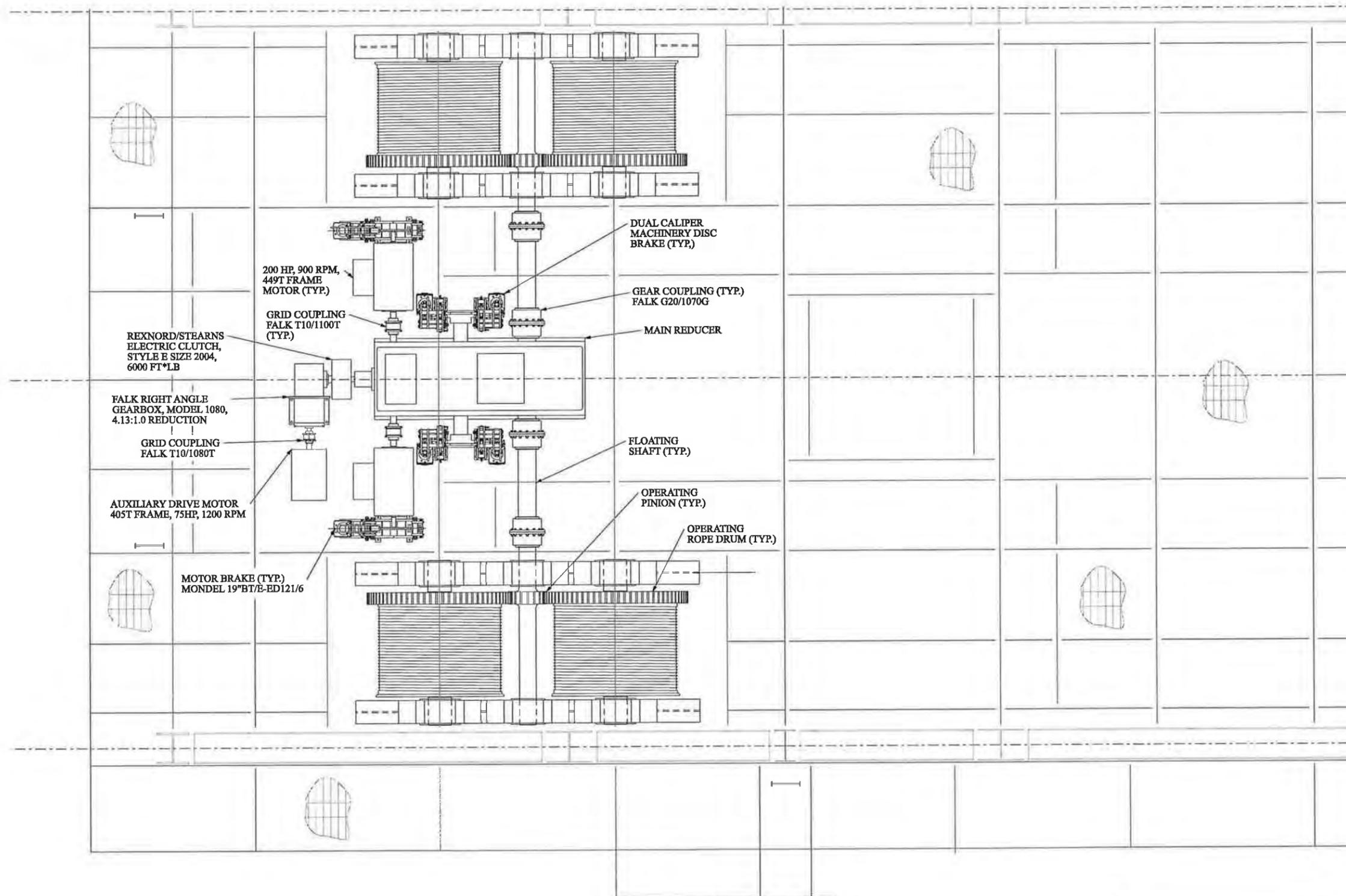
4. PROVIDE ASTM A449 (FINISH BODY HIGH STRENGTH) BOLTS AS REQUIRED TO CONNECT MACHINERY TO STRUCTURAL STEEL. ALL ASTM A449 BOLTS CONNECTING MACHINERY TO STRUCTURAL STEEL SHALL HAVE A CLEARANCE OF NOT MORE THAN 0.010" BETWEEN THE BODY OF THE BOLT AND THE HOLE UNLESS TURNED BOLTS ARE SPECIFIED. TURNED BOLTS SHALL HAVE A CLASS LC1 FIT BETWEEN THE BODY OF THE BOLT AND THE HOLE.
5. ALL H.S. FASTENERS SHALL HAVE A HARDENED PLAIN WASHER UNDER THE HEAD AND THE NUT. NEW ASTM A325 BOLTS THAT HAVE BEEN TORQUED SHALL NOT BE REUSED.
6. ALL BOLT HOLES IN CASTINGS SHALL BE SPOT FACED.
7. PROVIDE STAINLESS STEEL SHIMS (ASTM A240 TYPE 304) FOR LEVELING AND ALIGNING ALL MACHINERY COMPONENTS. SHIMS SHALL BE 1/2" NOMINAL THICKNESS, UNLESS OTHERWISE SPECIFIED, WITH ADJUSTMENT VARIATIONS AS DESCRIBED IN THE SPECIFICATIONS.
8. MACHINERY DIMENSIONS SHOWN ON DRAWINGS ARE DIMENSIONS AFTER MACHINING.
9. MODEL NUMBERS AND DETAILS OF REDUCERS, COUPLINGS, BEARINGS AND OTHER STANDARD COMPONENTS ARE BASED ON MANUFACTURER'S CATALOG DATA CURRENT AT THE TIME THE PLANS WERE PREPARED. ALL RELATED STRUCTURAL, MECHANICAL, ARCHITECTURAL AND ELECTRICAL DETAILS SHALL BE REVISED BY THE CONTRACTOR TO SUIT THE CERTIFIED DRAWINGS OF THE COMPONENTS ACTUALLY FURNISHED AT NO ADDITIONAL COST TO THE DEPARTMENT. EQUIVALENT MODELS FROM OTHER MANUFACTURERS MAY BE SUBSTITUTED AT THE OPTION OF THE CONTRACTOR AND WITH THE APPROVAL OF THE ENGINEER.

SPAN OPERATING TIME AND LOADS:

1. THE OPERATING MACHINERY IS DESIGNED TO ACCELERATE, RUN AT CONSTANT SPEED AND DECELERATE THE LIFT SPAN IN APPROXIMATELY 120 SECONDS AGAINST A WIND LOAD OF 2- 1/2 PSF AND ICE LOAD OF 2- 1/2 PSF ACTING PERPENDICULAR TO THE LIFT SPAN HORIZONTAL SURFACE AREA.
2. THE LIFT SPAN SHALL ACCELERATE UNIFORMLY FROM A STANDING POSITION TO FULL SPEED IN APPROXIMATELY 10 SECONDS AND DECELERATE UNIFORMLY FROM FULL SPEED TO CREEP SPEED IN APPROXIMATELY 10 SECONDS.
3. THE OPERATING ROPE TENSILE LOAD PER ROPE AT 100% FULL-LOAD MOTOR TORQUE IS 21.2 KIPS. THE OPERATING ROPE TENSILE LOAD PER ROPE AT THE MAXIMUM STARTING TORQUE (AASHTO CONDITION B) IS 23.3 KIPS.
4. DURING AUXILIARY OPERATION, THE OPERATING MACHINERY ASSEMBLY IS DESIGNED TO ACCELERATE THE LIFT SPAN TO AUXILIARY SPEED, RUN AT CONSTANT SPEED AND DECELERATE THE LIFT SPAN IN 10 MINUTES.

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH - KITTERY, ME	BRIDGE NO.	247084	STATE PROJECT	13678F				
LOCATION	U.S. ROUTE 1 OVER PISCATAQUA RIVER								
GENERAL PLAN AND ELEVATION									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		
		DESIGNED	PJJ	04/11	XXX	XX/XX	M-1 of M-7		
		DRAWN	JSJ	04/11	XXX	XX/XX	FILE NUMBER		
		QUANTITIES	XXX	XX/XX	XXX	XX/XX	-		
		ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS		
		REV. DATE				22	44		

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SUPER	M-1.dgn	1"=40'

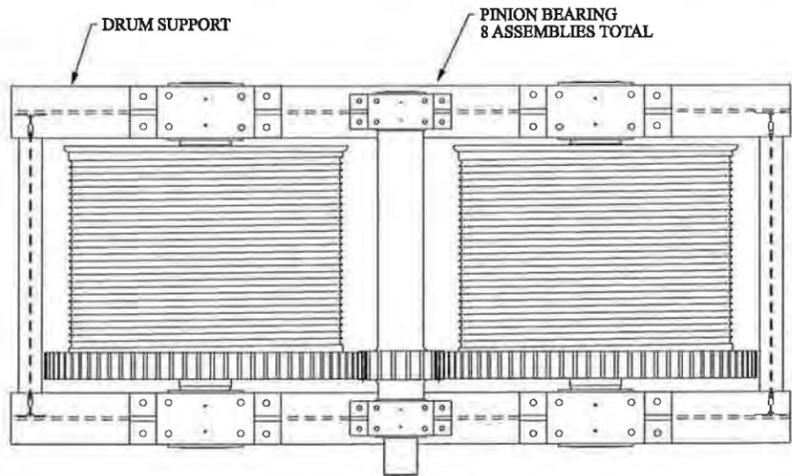


PLAN - OPERATING MACHINERY

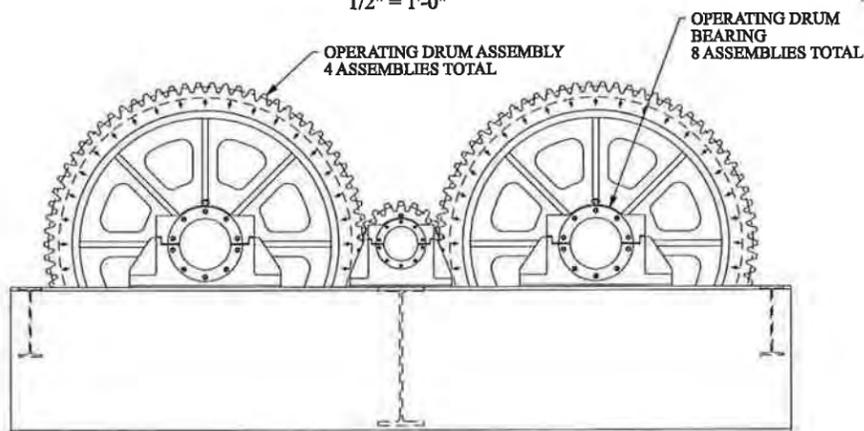
SCALE : 3/8" = 1' - 0"

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH - KITTERY, ME	BRIDGE NO.	247/084	STATE PROJECT	13678F	BRIDGE SHEET			
LOCATION	U.S. ROUTE 1 OVER PISCATAQUA RIVER					M-2 of M-7			
SPAN DRIVE MACHINERY LAYOUT									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	FILE NUMBER		
		DESIGNED	PJ	04/11	XXX	XX/XX			
		DRAWN	JSJ	04/11	XXX	XX/XX			
		QUANTITIES	XXX	XX/XX	XXX	XX/XX			
		ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS		
		REV. DATE	-----		23		44		

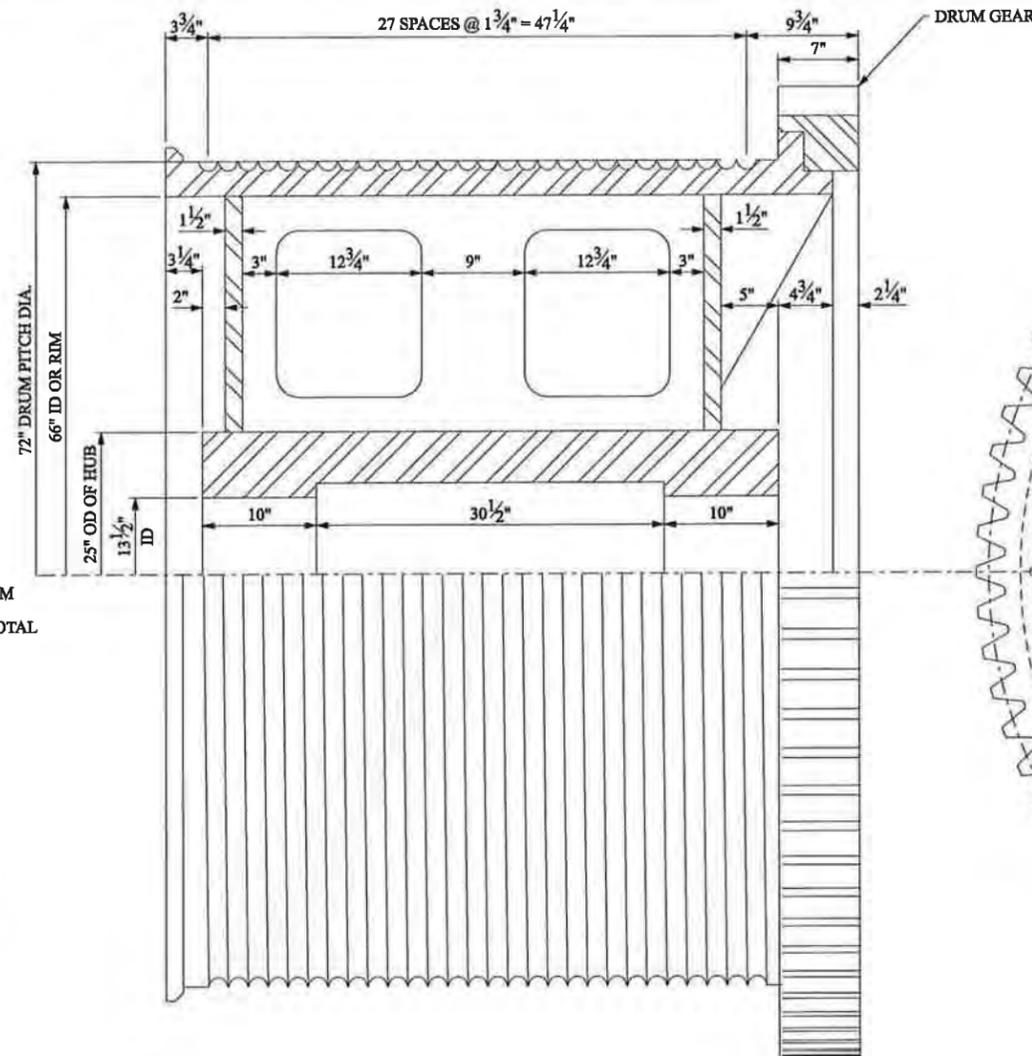
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SUPER	M-2.dgn	AS NOTED



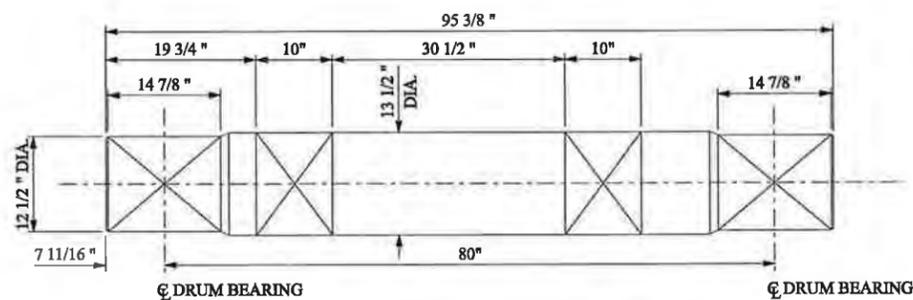
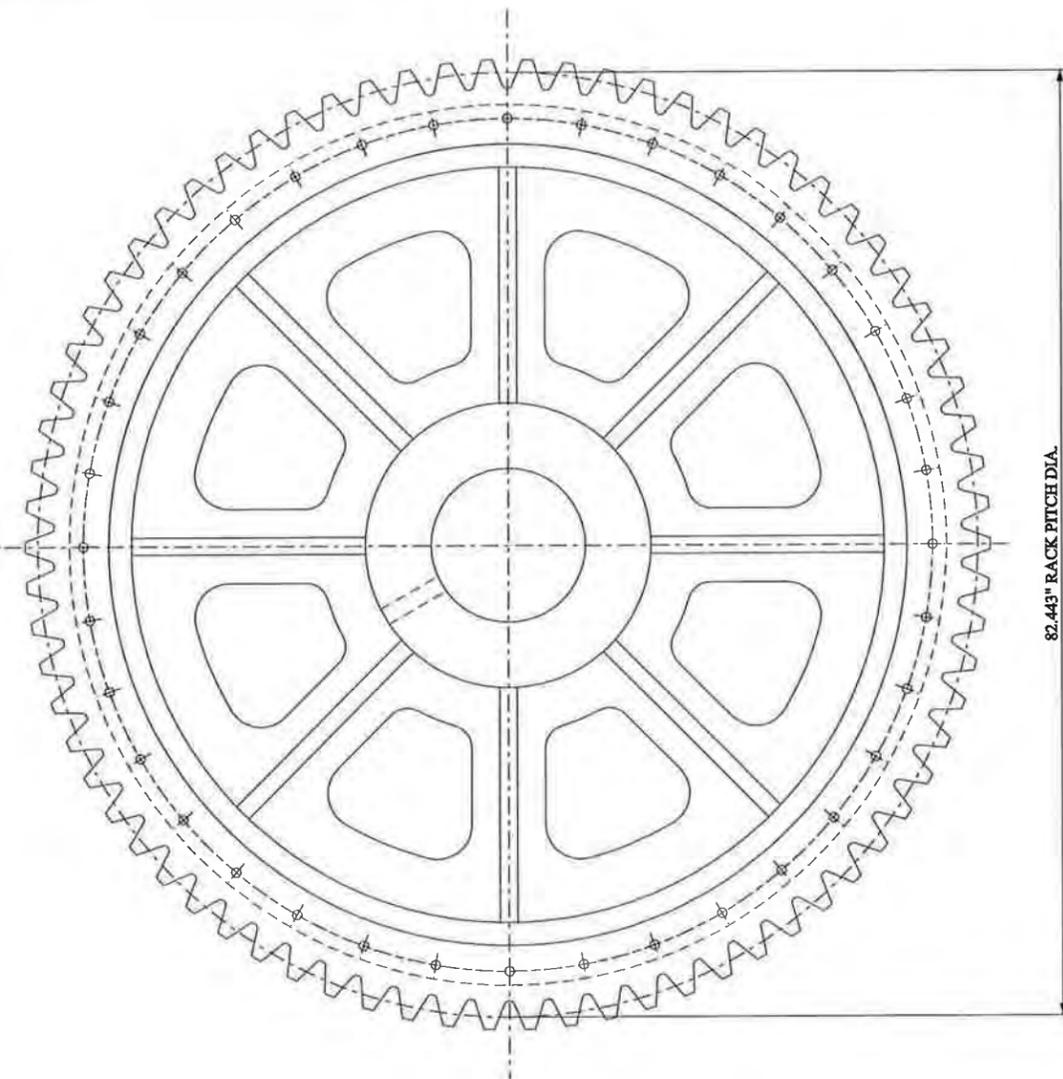
OPERATING ROPE DRUM ASSEMBLY - PLAN
1/2" = 1'-0"



OPERATING ROPE DRUM ASSEMBLY - ELEVATION
1/2" = 1'-0"

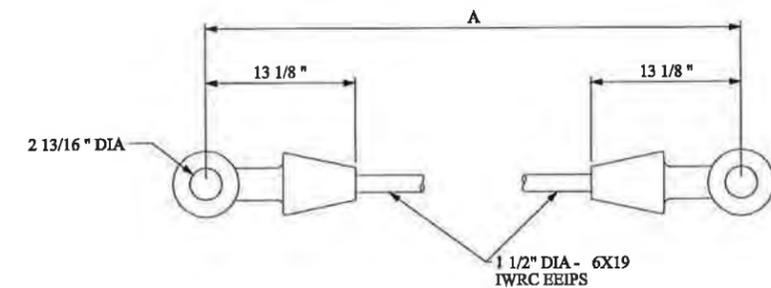


OPERATING ROPE DRUM
1/2" = 1'-0"



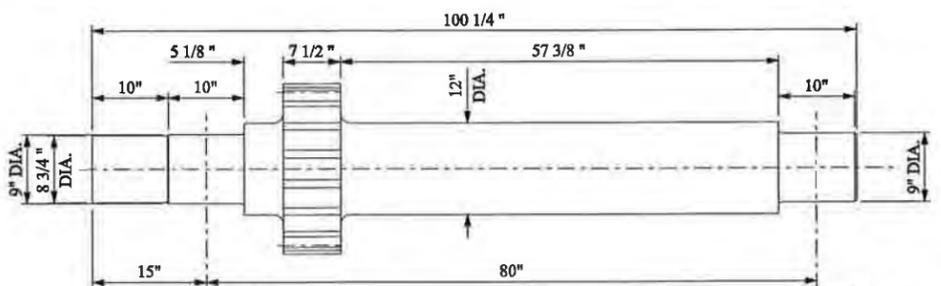
OPERATING ROPE DRUM SHAFT
1" = 1'-0"

GEAR TABLE		
FEATURE	PINION	RACK
TOOTH TYPE	20 DEGREE INVOLUTE SPUR GEAR	
CIRCULAR PITCH	3.500"	3.500"
DIAMETRAL PITCH	.8976 IN ⁻¹	.8976 IN ⁻¹
NUMBER OF TEETH	18	74
PITCH DIAMETER	20.054"	82.443"
FACE WIDTH	7.50"	7.00"
ADDENDUM	1.114"	1.114"
WHOLE DEPTH	2.507"	2.507"
WORKING DEPTH	2.228"	2.228"
OUTSIDE DIAMETER	22.282"	84.671"
GEAR QUALITY AGMA CLASS	10	10
THICKNESS OF TOOTH AT PITCH LINE	1.750"	1.750"
MATERIAL	AISI 4340	AISI 4140
BRINELL HARDNESS	337	317



OPERATING ROPE DRUM ASSEMBLY - ELEVATION
1" = 1'-0"

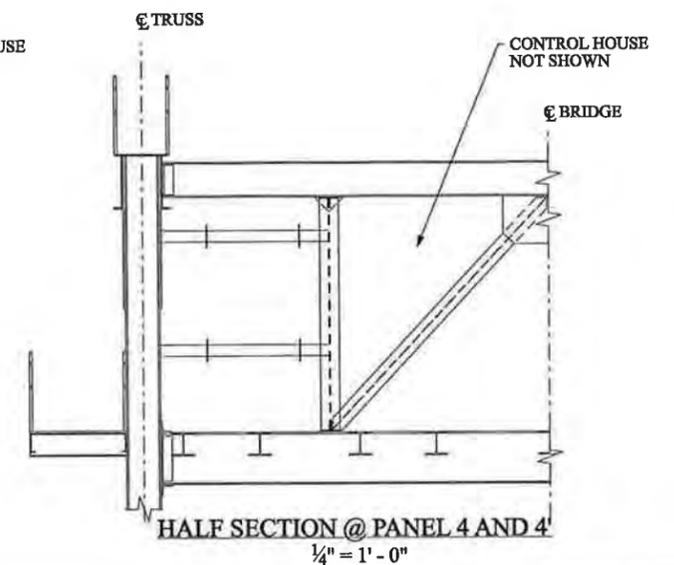
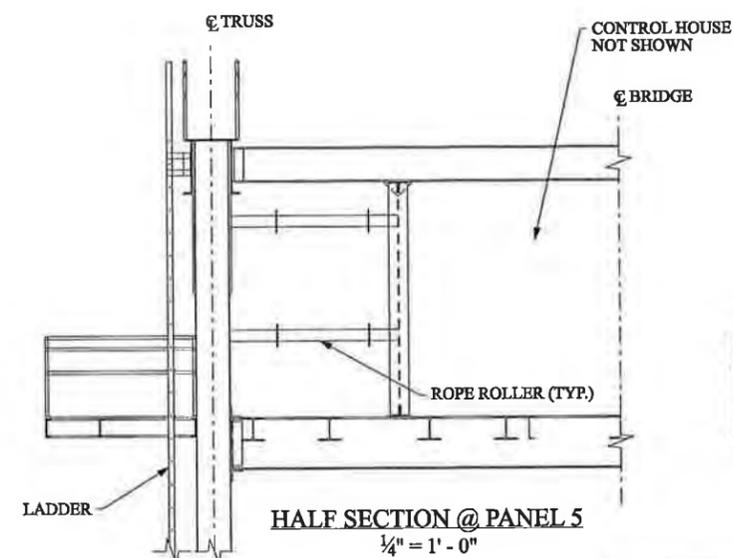
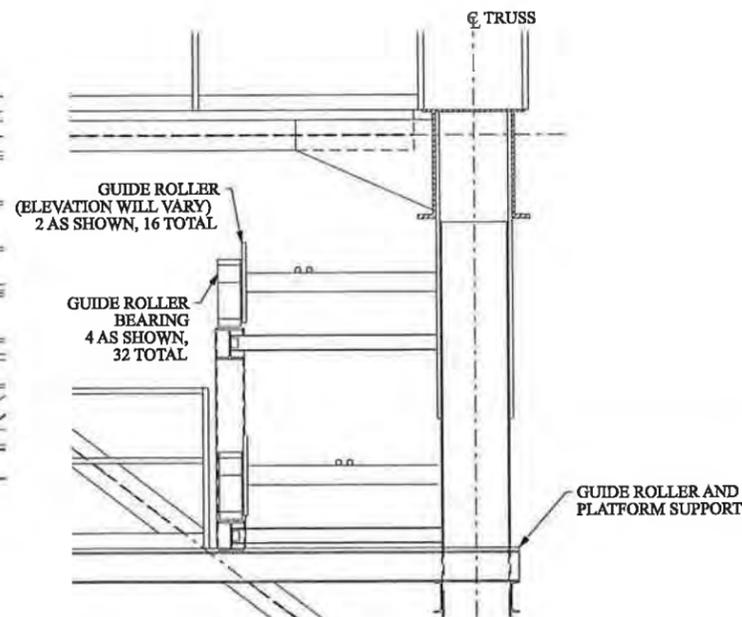
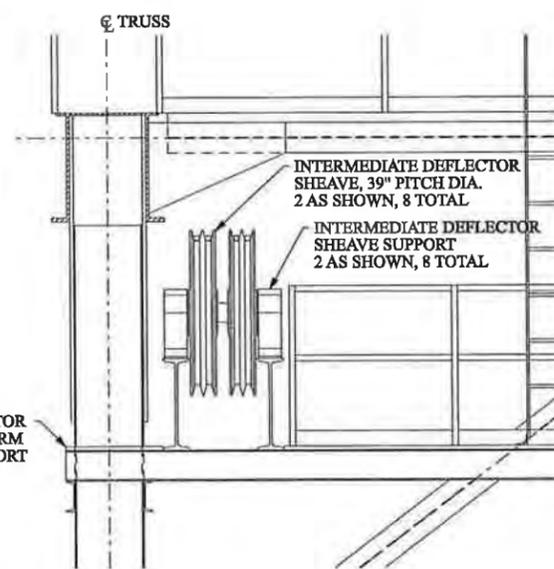
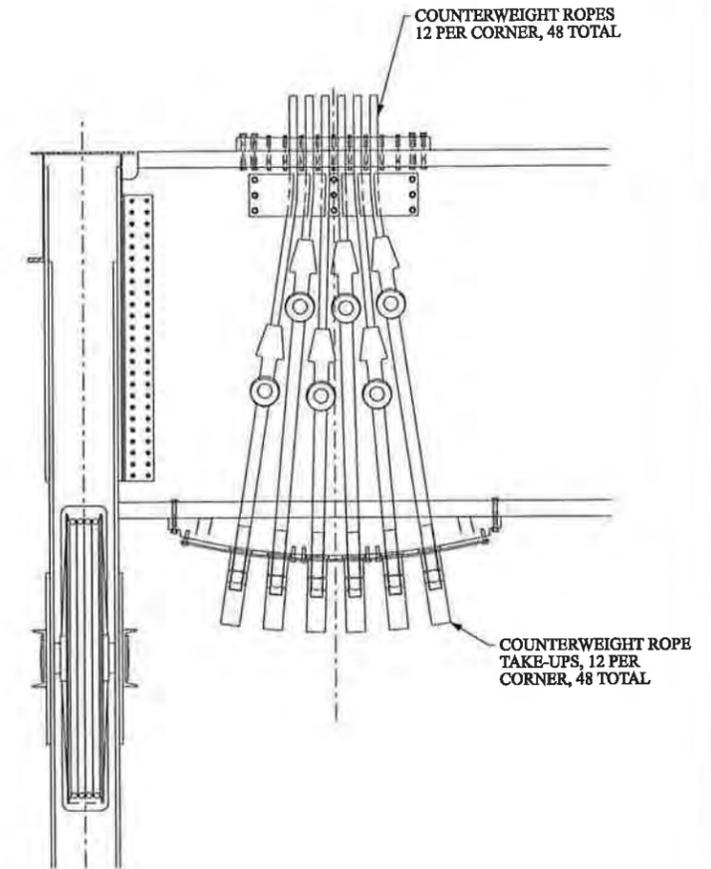
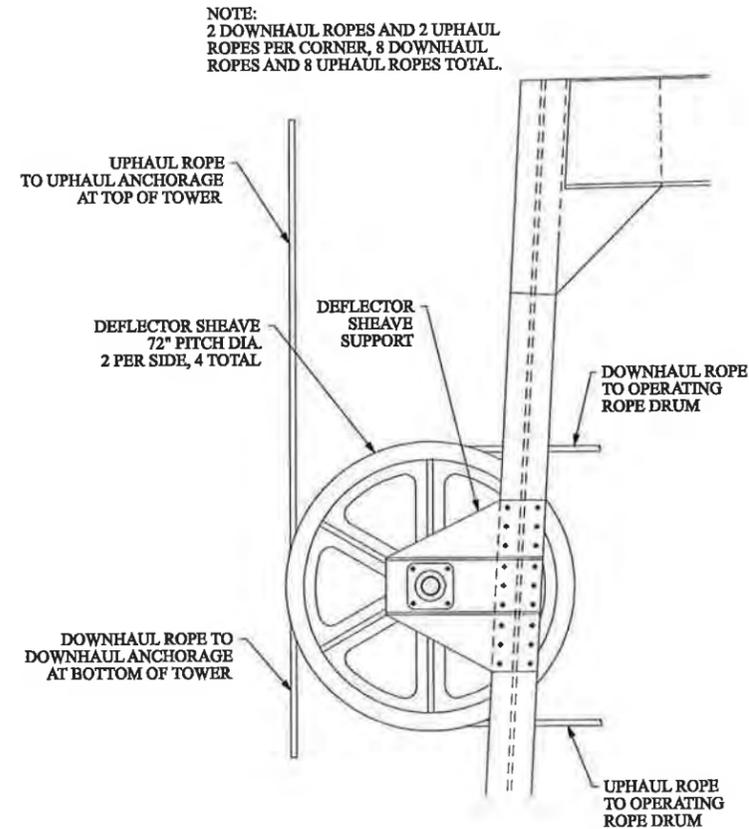
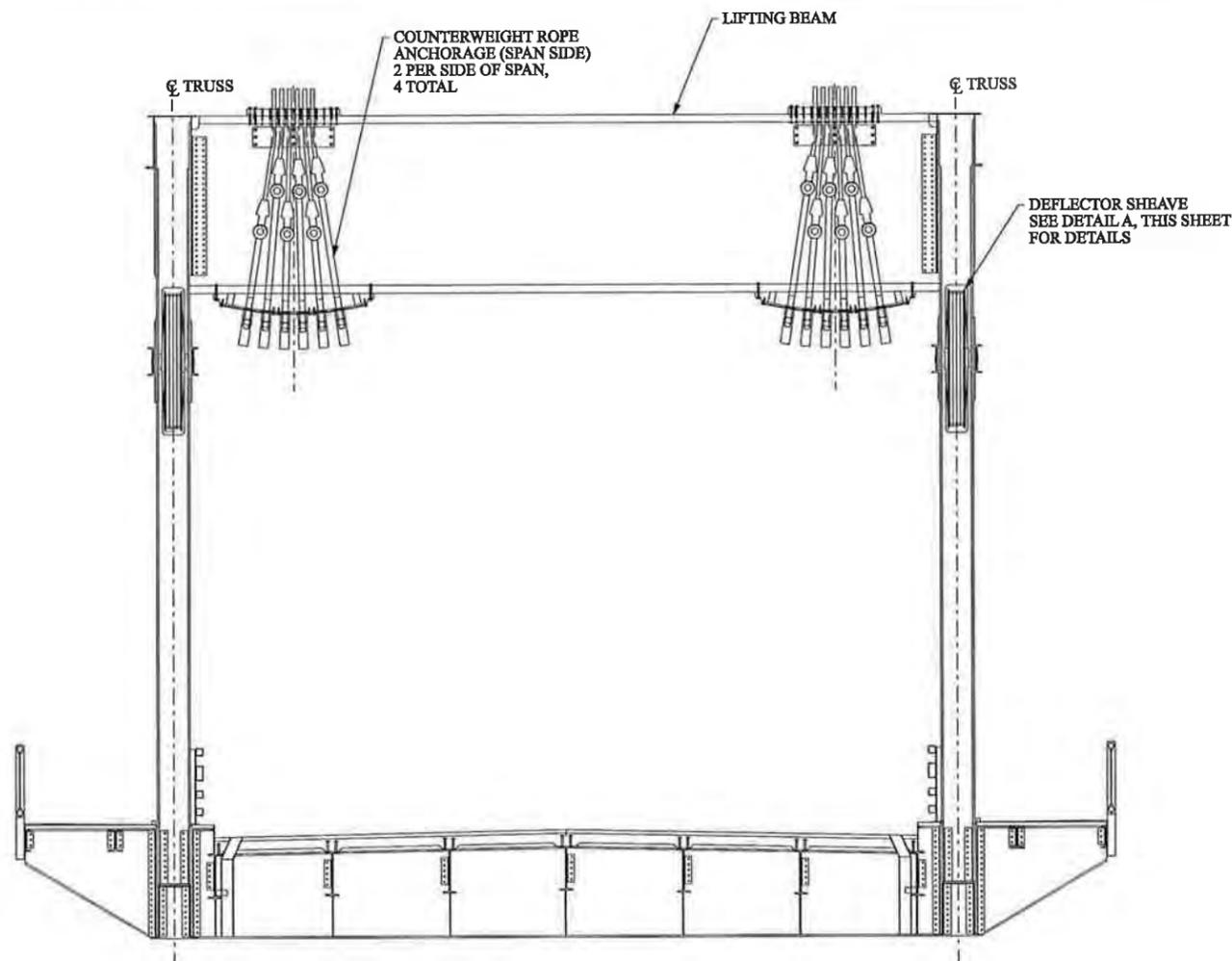
4 UPHAUL ROPES @ A = 309',
4 UPHAUL ROPES @ A = 334',
4 DOWNHAUL ROPES @ A = 309',
4 DOWNHAUL ROPES @ A = 334'



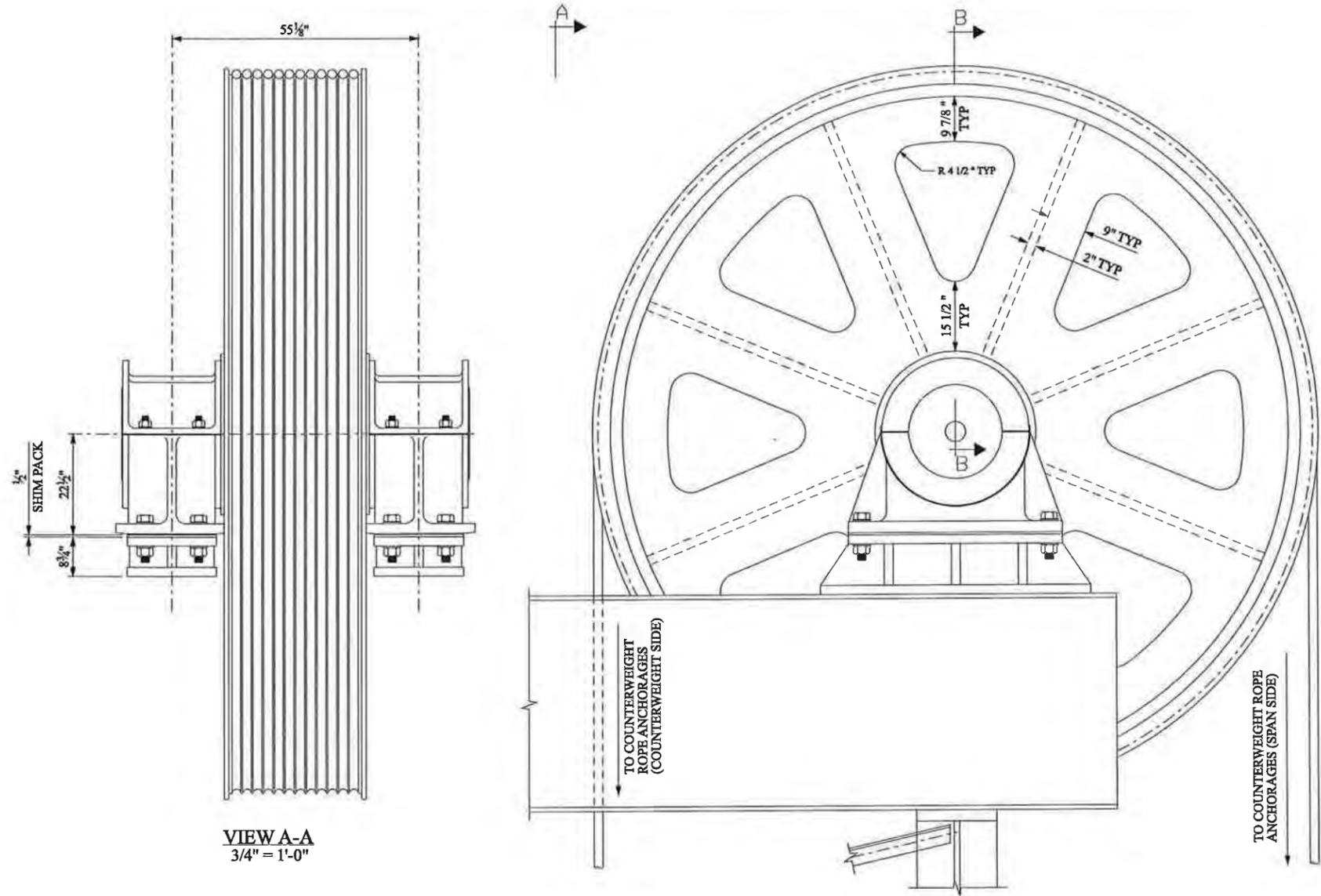
PINION SHAFT SHAFT
1" = 1'-0"

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH - KITTERY, ME	BRIDGE NO.	247/084	STATE PROJECT	13678F
LOCATION	U.S. ROUTE 1 OVER PISCATAQUA RIVER				
OPERATING ROPES, DRUMS, AND GEARING					BRIDGE SUBMIT
DESIGNED	PJJ	04/11	CHECKED	XXX	XX/XX
DRAWN	JSJ	04/11	CHECKED	XXX	XX/XX
QUANTITIES	XXX	XX/XX	CHECKED	XXX	XX/XX
ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS
REV. DATE			24		44

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SUPER	M-3.dgn	AS NOTED

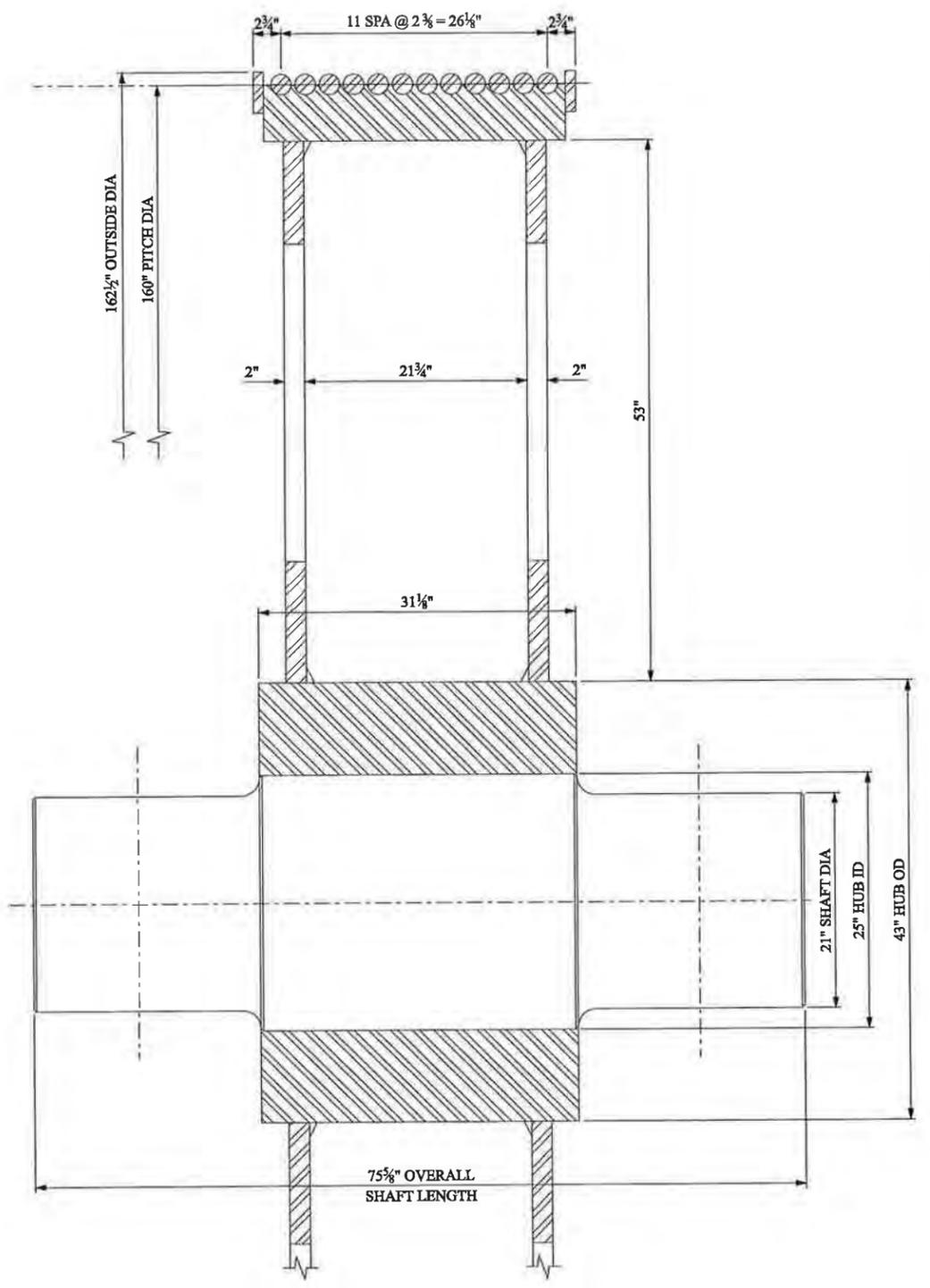


STATE OF NEW HAMPSHIRE										
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN										
TOWN	PORTSMOUTH, NH - KITTERY, ME	BRIDGE NO.	247/084	STATE PROJECT	13678F					
LOCATION	U.S. ROUTE 1 OVER PISCATAQUA RIVER									
DEFLECTOR SHEAVES AND ROLLERS										
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET			
		DESIGNED	PJJ 04/11	CHECKED	XXX	XX/XX	M-4 OF M-7			
		DRAWN	JSJ 04/11	CHECKED	XXX	XX/XX	FILE NUMBER			
		QUANTITIES	XXX	XX/XX	CHECKED	XXX	XX/XX	-		
		ISSUE DATE	FEDERAL PROJECT NO.			SHEET NO.	TOTAL SHEETS			
		REV. DATE	*****			25	44			
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE								
SUPER	M-4.dgn	AS NOTED								

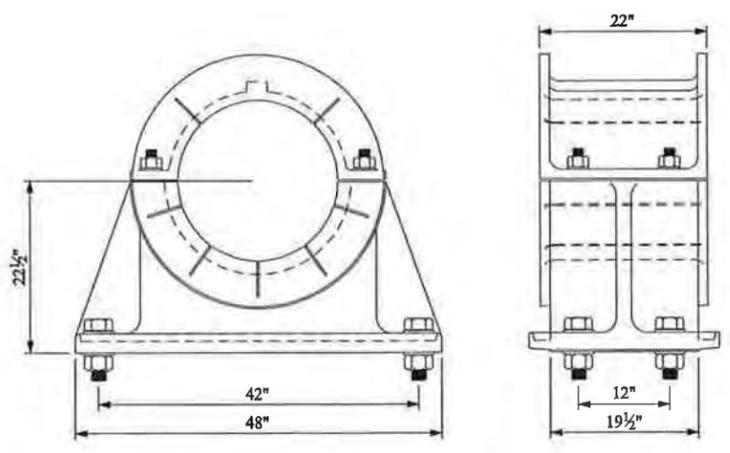


VIEW A-A
3/4" = 1'-0"

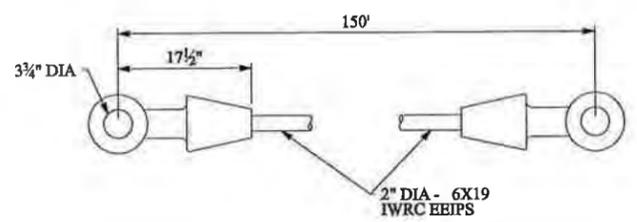
COUNTERWEIGHT SHEAVE ASSEMBLY
3/4" = 1'-0"
2 COUNTERWEIGHT SHEAVE ASSEMBLIES PER TOWER,
4 COUNTERWEIGHT SHEAVE ASSEMBLIES TOTAL



SECTION B-B
1 1/2" = 1'-0"



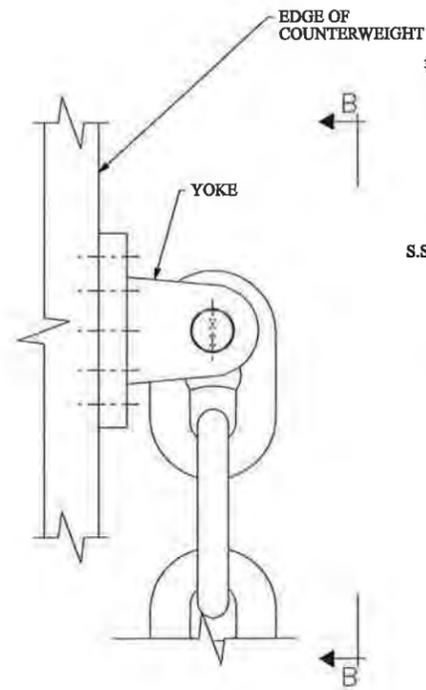
COUNTERWEIGHT TRUNNION BEARINGS
1" = 1'-0"
2 PER COUNTERWEIGHT SHEAVE ASSEMBLY, 8 TOTAL



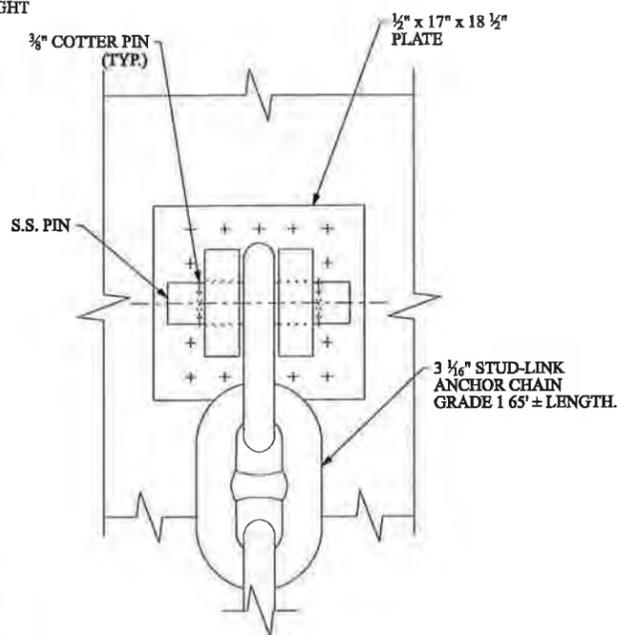
COUNTERWEIGHT ROPES
1" = 1'-0"
12 PER COUNTERWEIGHT SHEAVE ASSEMBLY, 48 TOTAL

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SUPER	M-5.dgn	AS NOTED

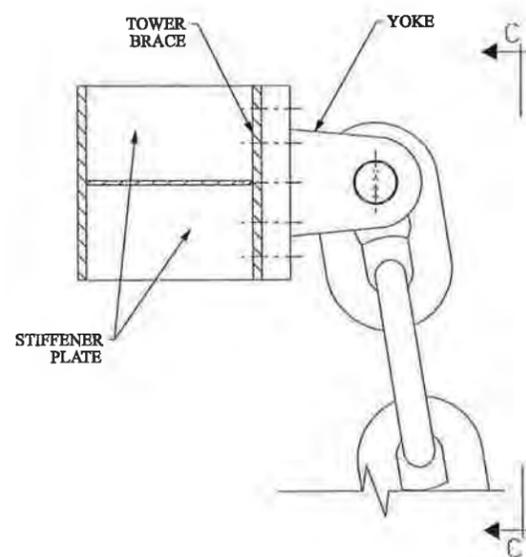
STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH - KITTERY, ME	BRIDGE NO.	247/084	STATE PROJECT	13678F	BRIDGE SHEET			
LOCATION	U.S. ROUTE 1 OVER PISCATAQUA RIVER					M-5 of M-7			
COUNTERWEIGHT ROPES, SHEAVES, AND TRUNNIONS									
REVISIONS AFTER PROPOSAL	BY	DATE	CHECKED	BY	DATE	FILE NUMBER			
	DESIGNED	PJJ	04/11	CHECKED	XXX	XX/XX			
	DRAWN	JSJ	04/11	CHECKED	XXX	XX/XX			
	QUANTITIES	XXX	XX/XX	CHECKED	XXX	XX/XX			
	ISSUE DATE			FEDERAL PROJECT NO.		SHEET NO.			
	REV. DATE					26	44		



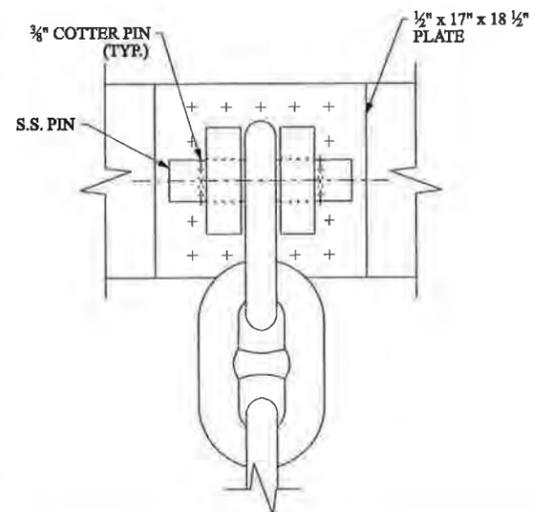
COUNTERWEIGHT STUD-LINK CHAIN SUPPORT MOUNT
1 1/2" = 1' - 0"



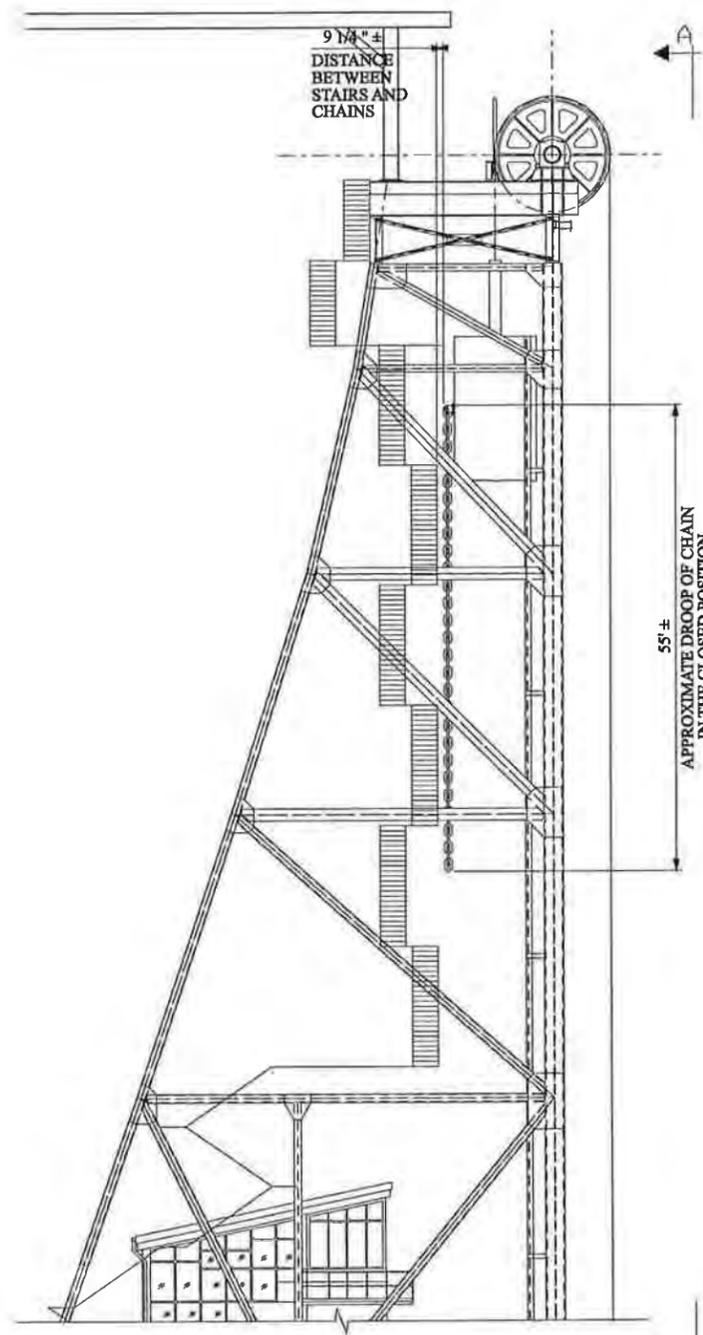
SECTION B-B
1 1/2" = 1' - 0"



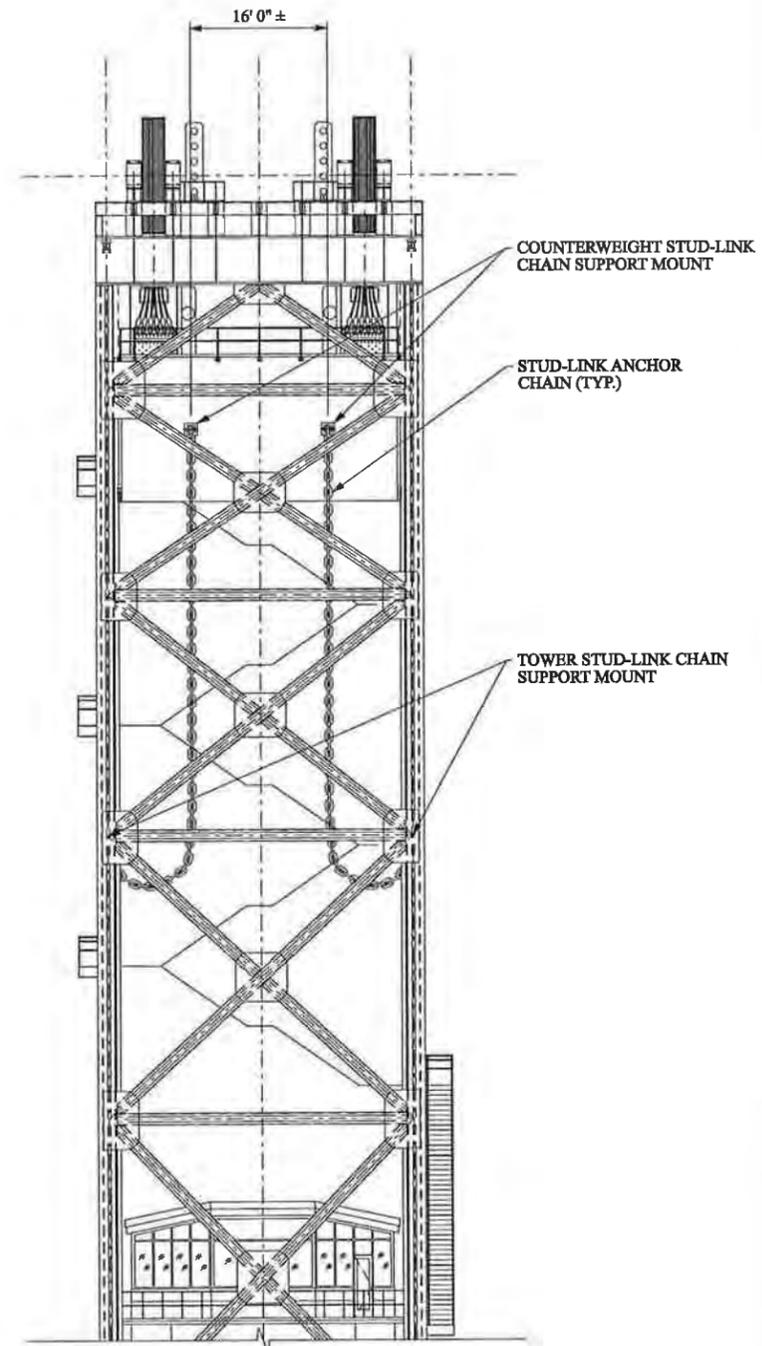
TOWER STUD-LINK CHAIN SUPPORT MOUNT
1 1/2" = 1' - 0"



SECTION C-C
1 1/2" = 1' - 0"



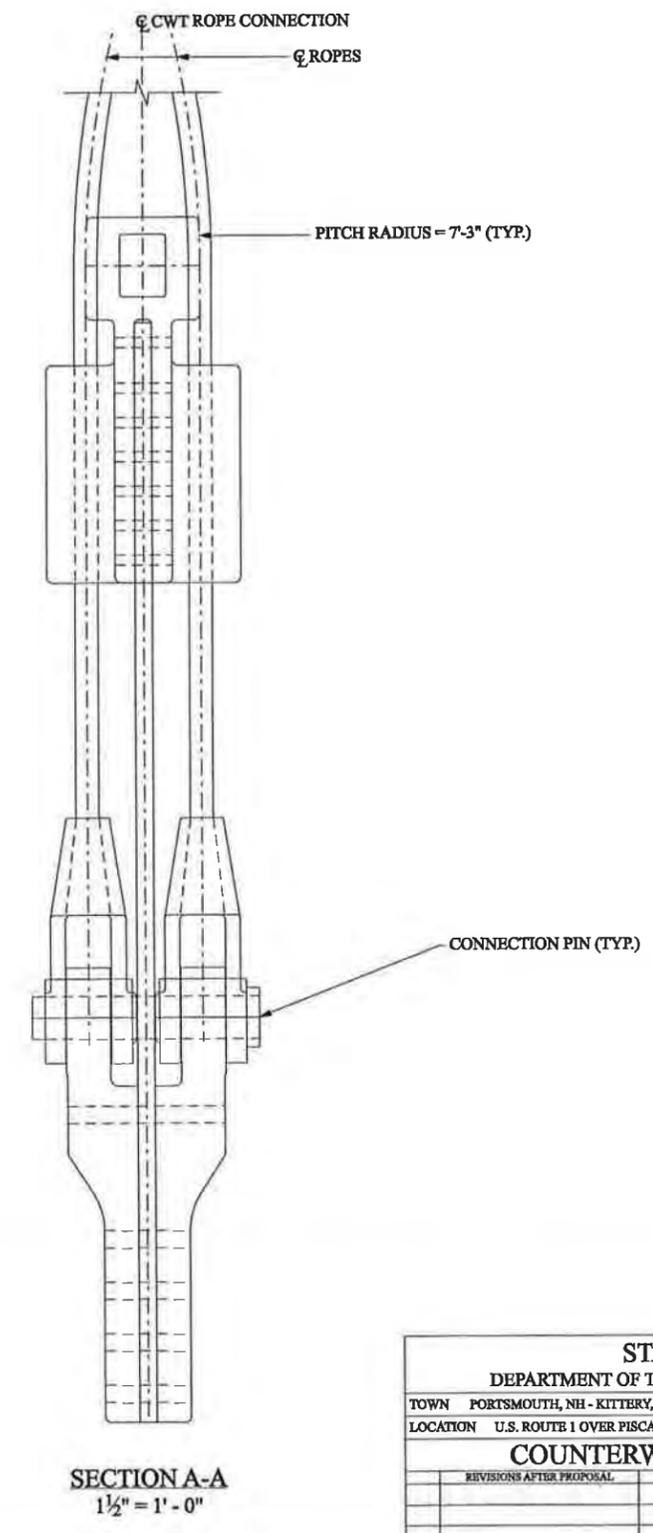
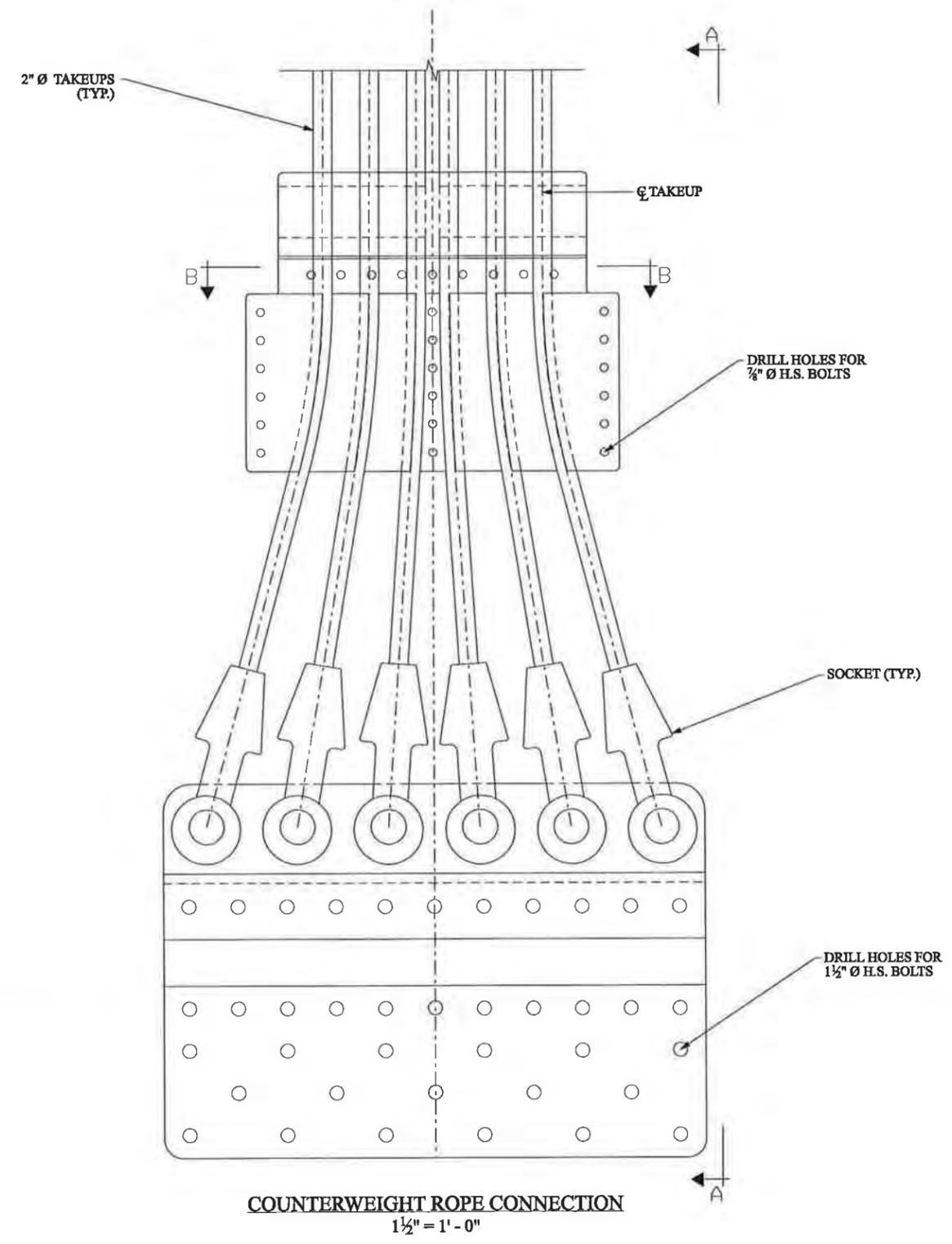
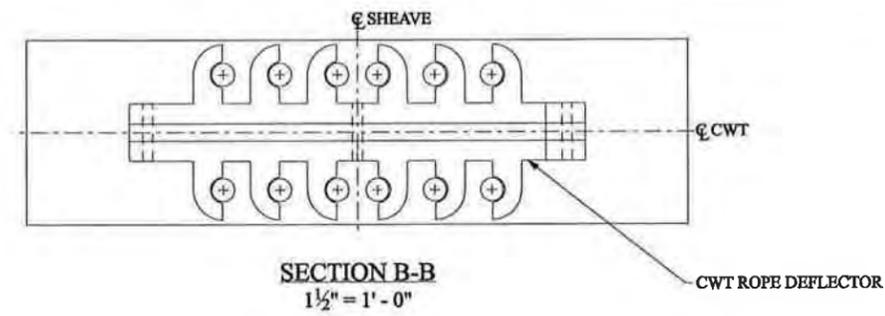
COUNTERWEIGHT BALANCING CHAIN LAYOUT
3/32" = 1' - 0"



SECTION A-A
3/32" = 1' - 0"

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SUPER	M-6 dgn	AS NOTED

STATE OF NEW HAMPSHIRE						
DEPARTMENT OF TRANSPORTATION • BUREAU OF BRIDGE DESIGN						
TOWN	PORTSMOUTH, NH - KITTERY, ME	BRIDGE NO.	247/084	STATE PROJECT	13678F	
LOCATION	U.S. ROUTE 1 OVER PISCATAQUA RIVER					
COUNTERWEIGHT BALANCING CHAIN LAYOUT						BRIDGE SHEET
REVISIONS AFTER PROPOSAL			BY	DATE	BY	DATE
			DESIGNED	PJJ	04/11	CHECKED XXX XX/XX
			DRAWN	JSJ	04/11	CHECKED XXX XX/XX
			QUANTITIES	XXX	XX/XX	CHECKED XXX XX/XX
			ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.
			REV. DATE			27
						TOTAL SHEETS
						44



SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SUPER	M-7.dgn	AS NOTED

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH - KITTERY, ME	BRIDGE NO.	247/084	STATE PROJECT	13678F				
LOCATION	U.S. ROUTE 1 OVER PISCATAQUA RIVER								
COUNTERWEIGHT ROPE ANCHORAGE									
BRIDGE SHEET									
M-7 OF M-7									
FILE NUMBER									
-									
TOTAL SHEETS									
44									