

ELEVATION
 1" = 20'-0"
 (DIAGRAM ONLY)

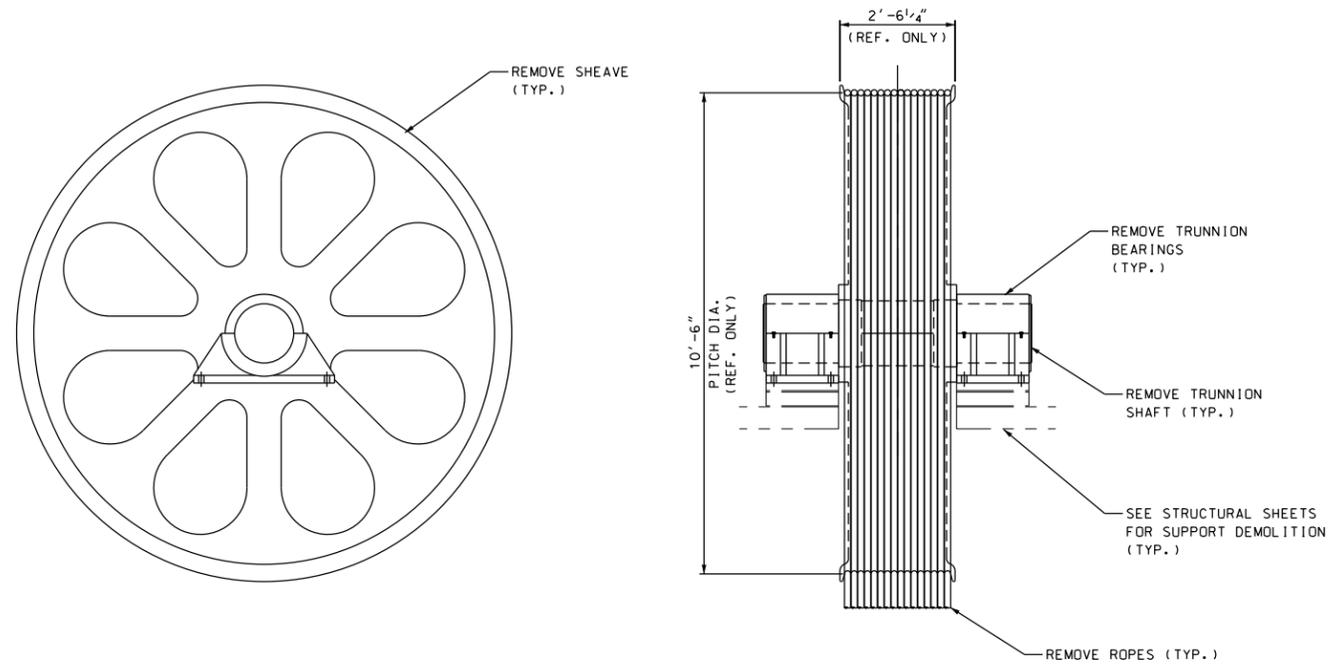
80% SUBMISSION
 DECEMBER 5, 2011



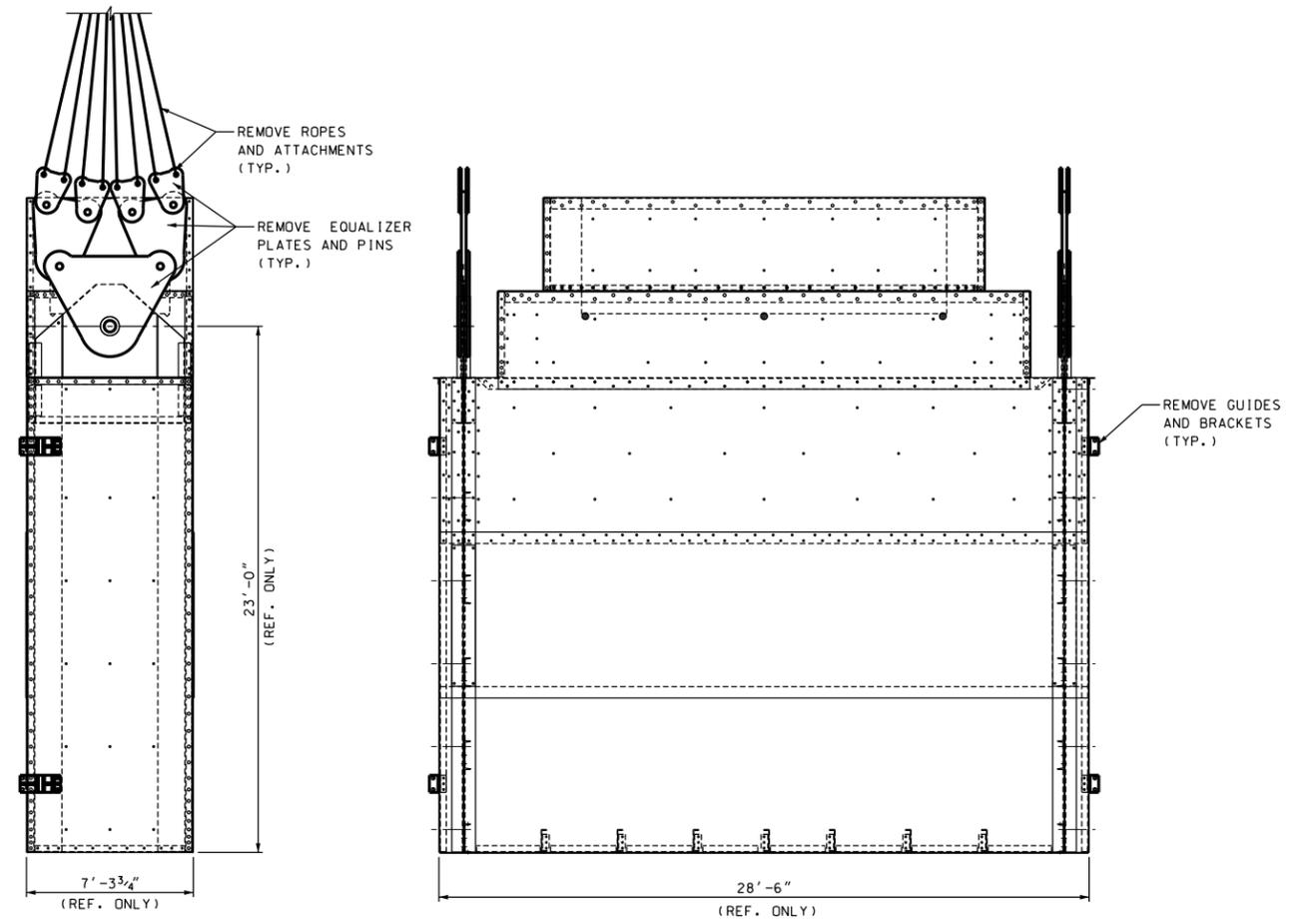
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M1	

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
DEMOLITION - EXISTING MACHINERY					
REVISIONS AFTER PROPOSAL	BY	DATE	CHECKED	BY	DATE
	JWW	11/11	CHECKED	WEN	11/11
	PRE	11/11	CHECKED	WEN	11/11
	XX	XX/XX	CHECKED	XX	11/11
ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS
REV. DATE					-

BRIDGE SHEET
 M1 OF M41
 FILE NUMBER
 107-1-1



COUNTERWEIGHT SHEAVE DEMOLITION
SCALE: 1/2" = 1'



COUNTERWEIGHT ATTACHMENT DEMOLITION
SCALE: 1/4" = 1'

NOTES:

1. ALL WORK REQUIRES SUPPORT OF COUNTERWEIGHT. SEE STRUCTURAL BRIDGE SHEETS.

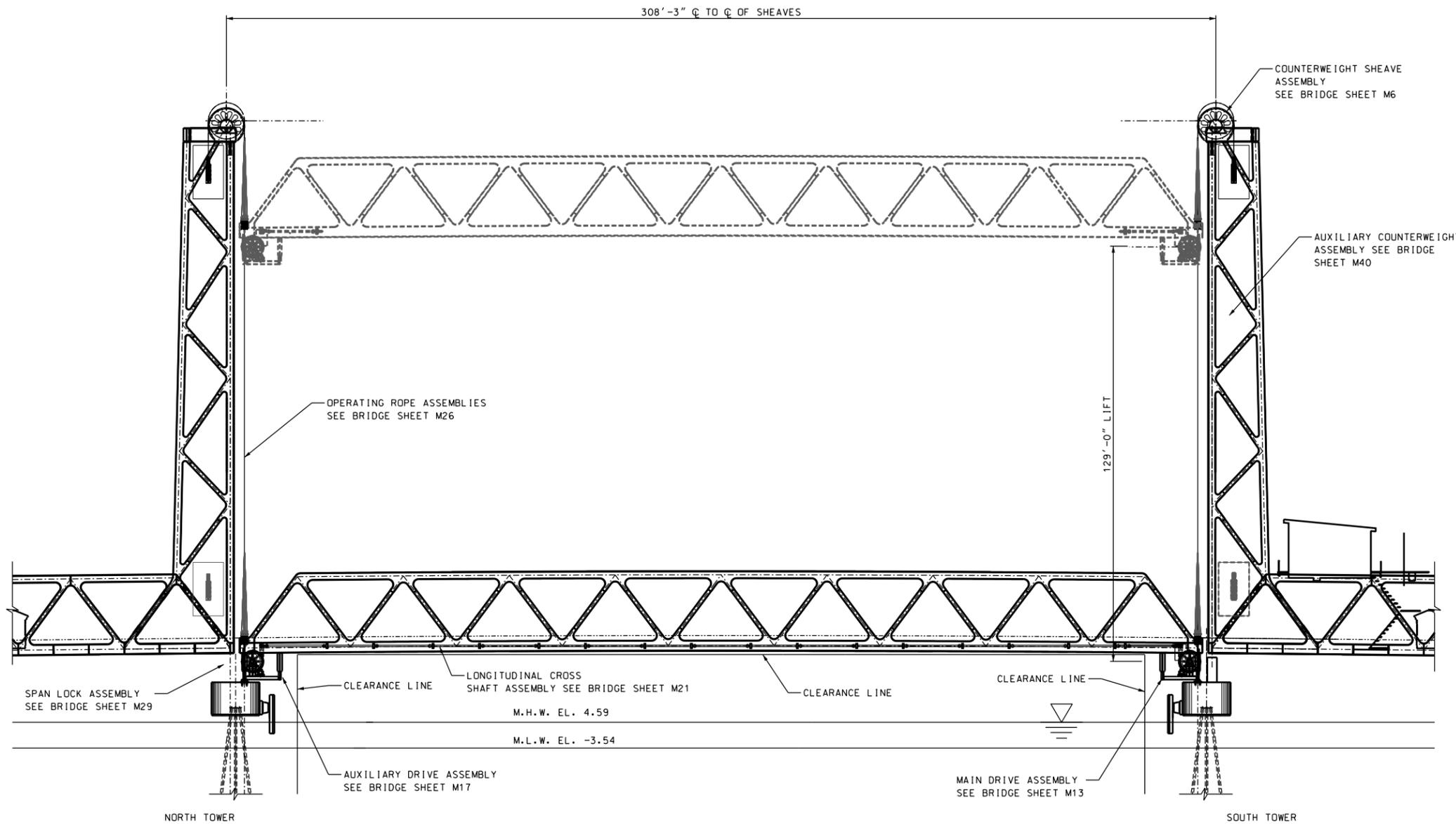
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HNTB Corporation
The HNTB Companies
Engineers Architects Planners

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M2	

STATE OF NEW HAMPSHIRE										
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN										
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F					
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER										
DEMOLITION - COUNTERWEIGHT AND SHEAVES										
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET			
		DESIGNED	JWW	11/11	CHECKED	WEN	11/11	M2 of M41		
		DRAWN	PRE	11/11	CHECKED	WEN	11/11	FILE NUMBER		
		QUANTITIES	XX	XX/XX	CHECKED	XX	11/11	107-1-1		
ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS				
REV. DATE						-				



GENERAL LAYOUT OF BRIDGE MACHINERY
 (ELEVATION LOOKING EAST)
 1" = 20'-0"

- NOTES:**
- SEE BRIDGE SHEET M4 FOR MACHINERY GENERAL NOTES.
 - SEE BRIDGE SHEET M5 FOR MACHINERY SCHEDULE.

80% SUBMISSION
 DECEMBER 5, 2011

ARCHER WESTERN CONTRACTORS

HNTB
 HNTB Corporation
 The HNTB Companies
 Engineers Architects Planners

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.			BRIDGE NO.	5276		STATE PROJECT	13678F	
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
GENERAL LAYOUT OF BRIDGE MACHINERY									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		
		JWW	11/11	WEN	WEN	11/11	M3 of M41		
		PRE	11/11	WEN	WEN	11/11	FILE NUMBER		
		XX	XX/XX	XX	XX	11/11	107-1-1		
ISSUE DATE	FEDERAL PROJECT NO.			SHEET NO.		TOTAL SHEETS			
REV. DATE						-			

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M3	

MACHINERY GENERAL NOTES:

- UNLESS OTHERWISE SHOWN OR NOTED ON THE PLANS OR SPECIFICATIONS, ALL MACHINERY SHALL CONFORM TO THE REQUIREMENTS OF THE 2007 AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS INCLUDING INTERIM REVISIONS THROUGH 2011.
- ALL MANUFACTURED/PURCHASED EQUIPMENT FURNISHED SHALL BE NEW AND SHALL BE AS SHOWN ON THE PLANS OR AN APPROVED EQUAL.
- THE CONTRACTOR SHALL DETERMINE THE FINAL DIMENSIONS OF ALL PARTS INVOLVING COMMERCIAL PRODUCTS SUCH AS MOTORS, SPEED REDUCERS, BEARINGS, ELECTRICAL EQUIPMENT, ETC. FROM CERTIFIED DIMENSION DRAWINGS OF THE COMMERCIAL PRODUCTS BEFORE MAKING SHOP DRAWINGS. CERTIFIED DRAWINGS FOR ALL COMPONENTS SHALL BE SUBMITTED WITH THE ASSEMBLY DRAWINGS.
- WHERE A PARTICULAR MANUFACTURER'S PRODUCT HAS BEEN SPECIFIED AS SUITABLE EQUIPMENT, ANOTHER MANUFACTURER'S EQUIVALENT PRODUCT MAY BE SUBSTITUTED SUBJECT TO THE APPROVAL OF THE ENGINEER.
- EQUIPMENT MANUFACTURERS RESERVE THE RIGHT TO CHANGE OR MODIFY THEIR PRODUCT WITHOUT NOTICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBSTITUTING AN EQUIVALENT PRODUCT FOR EQUIPMENT SHOWN ON THE PLANS OR SPECIFICATIONS IF A MANUFACTURER HAS DISCONTINUED OR MODIFIED EQUIPMENT SHOWN. THE EQUIVALENT PRODUCT SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- ALL HUBS OF COUPLINGS, BRAKEWHEELS, PINIONS AND OTHER SIMILAR ITEMS SHALL HAVE AN INTERFERENCE FIT WITH THEIR RESPECTIVE SHAFTS AND BE PROPERLY KEYED THERETO WITH PARALLEL-FACED KEYS.
- THE MANUFACTURERS OF BEARINGS AND OTHER EQUIPMENT REQUIRING LUBRICATION SHALL FURNISH AND INSTALL SUITABLE FITTINGS OR OTHER PROVISIONS NECESSARY TO PROPERLY LUBRICATE RUNNING PARTS. THESE FITTINGS OR PROVISIONS SHALL BE LOCATED AND POSITIONED FOR EASY ACCESSIBILITY. FITTINGS EXPOSED TO THE ELEMENTS SHALL BE SET IN 90 DEGREE PIPE ELBOWS. COUPLINGS SHALL BE PROVIDED WITH PIPE PLUGS SIZED TO ACCOMMODATE STANDARD LUBRICATION FITTINGS.
- ALL MACHINERY ITEMS WHICH REQUIRE OIL OR WATER REPLACEMENT AS ROUTINE MAINTENANCE SHALL HAVE SUITABLE DRAIN VALVES AND PLUGS AND SHALL BE EQUIPPED TO PROVIDE AN EFFECTIVE METHOD OF DRAINING AND COLLECTING THE WASTE. THE CONTRACTOR SHALL SUBMIT DRAWINGS LOCATING DRAIN ASSEMBLIES AND PROPOSED WASTE COLLECTING DEVICES FOR APPROVAL.
- SEE SPECIFICATIONS FOR PAINT AND PROTECTION OF MACHINERY.
- SEE ELECTRICAL SHEETS FOR TIME OF OPERATION.

MACHINERY SUPPORTS:

- THE CONTRACTOR SHALL FABRICATE MACHINERY SUPPORTS AS SHOWN FOR ALL COMPONENTS. SUPPORTS SHALL BE FABRICATED USING ASTM A709 GRADE 50 STEEL. DRAWINGS OF ALL SUPPORTS SHALL BE SUBMITTED FOR REVIEW TOGETHER WITH CERTIFIED DIMENSION DRAWINGS OF EQUIPMENT MOUNTED THEREON PRIOR TO FABRICATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION. ALL MACHINERY SUPPORTS SHALL BE WELDED WITH 5/16" FILLET WELDS, UNLESS NOTED OTHERWISE. SUPPORTS SHALL BE STRESS RELIEVED AFTER WELDING AND BEFORE MACHINING.
- FULL SIZE SHIMS SHALL BE PROVIDED AS REQUIRED FOR ALL COMPONENTS AT THE MACHINERY SUPPORTS. THE SHIMS SHALL BE THE THICKNESS AS STATED IN THE SPECIFICATIONS NECESSARY FOR OPTIMUM ALIGNMENT OF MACHINERY.
- ALL MACHINERY SUPPORTS SHALL BE MACHINED AFTER WELDING AND STRESS RELIEF TO PROVIDE A UNIFORM MOUNTING SURFACE. THE SURFACE SHALL BE FLAT TO WITHIN 0.010" OVER THE WIDTH OF THE ITEM BEING ATTACHED. MOUNTING SURFACES SHALL HAVE AN ANSI B46.1 ROUGHNESS OF 125 MICROINCHES UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS SHOWN ON THE PLANS ARE THE MINIMUM ACCEPTABLE AFTER MACHINING.

MISCELLANEOUS:

- REMOVE ALL BURRS, BREAK ALL SHARP EDGES OF FABRICATED PARTS.
- ALL WELDING SHALL BE PERFORMED TO THE REQUIREMENTS OF AWS D1.5 BY CERTIFIED WELDERS. ALL WELDMENTS CONTAINED IN THIS DESIGN ARE CONSIDERED MAIN MEMBERS. ALL WELDMENTS SHALL BE STRESS RELIEVED AFTER WELDING AND BEFORE MACHINING.
- ALL KEYS AND KEYWAYS SHALL HAVE AN FN2 FIT ON THE SIDES, AN LC4 FIT ON THE TOP AND BOTTOM AND BE FINISHED TO A 63 MICROINCH FINISH.
- FIELD DRILLED HOLES ARE TO BE USED ONLY WHERE INDICATED ON THE PLANS. BURNED HOLES ARE NOT ALLOWED.
- THE LUBRICATION OF ALL PARTS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE LUBRICATION CHART DEVELOPED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL HAVE THE ENGINEER VERIFY THE LUBRICATION OF EACH PIECE OF EQUIPMENT BEFORE IT IS PUT INTO OPERATION.

FASTENERS:

- HEAVY HEX STRUCTURAL BOLTS:
 - ALL BOLTS USED FOR ATTACHMENT TO BRIDGE STRUCTURE SHALL BE HEAVY HEX HIGH STRENGTH STRUCTURAL BOLTS UNLESS OTHERWISE SPECIFIED.
 - BOLTS SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASME B18.2.6, HEAVY HEX STRUCTURAL BOLTS, UNLESS OTHERWISE SPECIFIED.
 - MATERIAL: ASTM A 325 TYPE I OR AS SPECIFIED.
 - BOLTS SHALL COME COMPLETE WITH ONE HEAVY HEX NUT (ASTM A 563 GRADE A), ONE HARDENED STEEL WASHER (ASTM F436) AND ONE EXTRA DUTY LOCKWASHER.
 - BOLT HOLE DIAMETER SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER. F. FASTENERS SHALL BE GALVANIZED.
- HEAVY HEX HIGH STRENGTH MACHINERY BOLTS:
 - WHERE HEAVY HEX HIGH STRENGTH STRUCTURAL BOLTS ARE NOT APPLICABLE, HEAVY HEX HIGH STRENGTH MACHINERY BOLTS MAY BE USED.
 - MATERIAL: ASTM A 449 TYPE I OR AS SPECIFIED.
 - BOLTS SHALL COME COMPLETE WITH ONE HEAVY HEX NUT (ASTM A 563 GRADE A), ONE HARDENED STEEL WASHER (ASTM F 436) AND ONE EXTRA DUTY LOCKWASHER.
 - BOLT HOLE DIAMETER SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER.
- TURNED BOLTS:
 - TURNED BOLTS SHALL BE USED WHERE SPECIFIED IN THE PLANS AND FOR ALL PILLW BLOCK BEARING BOLTS.
 - BOLTS SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASME B18.2.6, HEAVY HEX STRUCTURAL BOLTS, UNLESS OTHERWISE SPECIFIED.
 - THREADS SHALL BE UNC-2A AS SPECIFIED IN ANSI B1.1.
 - SURFACE DISCONTINUITIES SHALL BE IN ACCORDANCE WITH ASTM F 788.
 - BREAK SHARP EDGES 0.003-0.015" UNLESS OTHERWISE NOTED.
 - MATERIAL: ASTM A 449 TYPE I OR AS SPECIFIED.
 - EACH BOLT SHALL BE MARKED AS PER ASTM ON TOP OF BOLT HEAD AND MAY BE RAISED OR DEPRESSED AT THE OPTION OF THE MANUFACTURER.
 - ALL TURNED BOLTS SHALL HAVE A HARDENED STEEL WASHER WHICH CONFORMS TO ASTM F 436 UNLESS OTHERWISE SPECIFIED.
 - ALL TURNED BOLTS SHALL HAVE TWO HEAVY HEX NUTS CONFORMING TO ASTM A 563.
 - THE SHANK OF ALL TURNED BOLTS SHALL BE 1/16" LARGER IN DIAMETER THAN THE NOMINAL THREAD SIZE SPECIFIED AND HAVE AN LC6 FIT WITH THE REAMED HOLE.
- ALL COTTER PINS SHALL CONFORM TO ANSI B18.8.1 STANDARD DIMENSIONS AND SHALL BE MADE OF ASTM A 276 TYPE 316 HALF-ROUND STAINLESS STEEL WIRE.
- SETSCREWS SHALL BE HEADLESS SAFETY TYPE WITH CONE POINTS, AND SHALL CONFORM TO ANSI B18.3 FOR SOCKET HEAD CAP SCREWS. THE SCREWS SHALL HAVE ACCURATELY FORMED THREADS OF THE COARSE THREAD SERIES, HEXAGONAL SOCKETS, AND SHALL BE MADE OF HEAT-TREATED ALLOY STEEL IN ACCORDANCE WITH ASTM F 912.

WIRE ROPE SOCKETS:

- ALL SOCKETS USED WITH WIRE ROPES SHALL CONFORM TO THE REQUIREMENTS OF FEDERAL SPECIFICATIONS RR-5-550, LATEST REVISION, EXCEPT AS OTHERWISE SHOWN.
- THE SOCKETS SHALL BE ATTACHED TO THE ROPES BY USING A HIGH QUALITY FILL MATERIAL APPROVED BY THE ENGINEER AND USING A RELIABLE METHOD THAT WILL NOT PERMIT THE ROPE, WHEN STRESSED TO 80% OF ITS SPECIFIED ULTIMATE STRENGTH UNDER THE TEST SPECIFIED IN WIRE ROPE STRENGTH TEST, TO SLIP MORE THAN 1/6 THE NOMINAL DIAMETER OF THE ROPE. IF A GREATER MOVEMENT SHOULD OCCUR, THE METHOD OF ATTACHMENT SHALL BE CHANGED UNTIL A SATISFACTORY ONE IS FOUND.
- THE SOCKETS SHALL BE STRONGER THAN THE ROPE WITH WHICH THEY ARE USED. IF A SOCKET SHOULD BREAK DURING THE TEST SPECIFIED IN WIRE ROPE STRENGTH TEST, TWO OTHERS SHALL BE SELECTED AND ATTACHED TO ANOTHER PIECE OF ROPE AND THE TEST REPEATED, AND THIS PROCESS SHALL BE CONTINUED UNTIL THE INSPECTOR IS SATISFIED OF THEIR RELIABILITY, IN WHICH CASE THE LOT SHALL BE ACCEPTED. IF, HOWEVER, 10% OR MORE OF ALL THE SOCKETS TESTED BREAK AT A LOAD LESS THAN THE SPECIFIED MINIMUM ULTIMATE STRENGTH, THE ENTIRE LOT SHALL BE REJECTED, AND NEW ONES, MADE OF STRONGER MATERIAL OR TO A HEAVIER DESIGN, SHALL BE FURNISHED. PIN AND SOCKET FITS DIFFERENT FROM THOSE SPECIFIED BY THE FEDERAL SPECIFICATION MAY BE SPECIFIED BY THE ENGINEER.
- SOCKETS SHALL BE PAINTED IN THE SHOP AS SPECIFIED FOR STRUCTURAL STEEL.

80% SUBMISSION
DECEMBER 5, 2011



SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M4	

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
MACHINERY GENERAL NOTES					BRIDGE SHEET
					M4 of M41
					FILE NUMBER
					107-1-1
					TOTAL SHEETS
					-

MACHINERY SCHEDULE

ITEM NO.	ITEM	QTY.	DESIGN REQUIREMENTS
R1	PRIMARY REDUCER	2	TRIPLE REDUCTION, VERTICAL SPEED REDUCER WITH TWO INPUT SHAFT EXTENSIONS, ONE HIGH SPEED OUTPUT SHAFT EXTENSION, AND TWO LOW SPEED OUTPUT SHAFT EXTENSIONS. RATIO OF 2:1 FROM DUAL MOTOR INPUT SHAFTS TO HIGH SPEED OUTPUT SHAFT, WITH CENTER DISTANCE AS REQUIRED TO CLEAR OTHER MACHINERY COMPONENTS. RATIO OF 60:1 TO DUAL LOW SPEED OUTPUT SHAFTS. INPUT TORQUE OF 27,011 LB-IN WILL BE DISTRIBUTED EQUALLY BETWEEN SINGLE HIGH SPEED OUTPUT SHAFT AND DUAL LOW SPEED OUTPUT SHAFT. MINIMUM OUTPUT TORQUE CAPACITY OF 819,230 LB-IN, AT 1.0 SERVICE FACTOR. RATING OF 375 HP AT 875 RPM (187.5 HP AT EACH INPUT SHAFT) FOR DURABILITY AND STRENGTH. PROVIDE EXTENDED INPUT SHAFT FOR BRAKEWHEEL AND CLUTCH AT NORTH REDUCER. CUSTOM MADE.
R2	OFFSETTING GEARBOX	2	SINGLE REDUCTION SPEED REDUCER, 1:1 RATIO, 27,011 LB-IN OUTPUT TORQUE RATING REQUIRED. RATING 187.5 HP AT 438 RPM FOR DURABILITY AND STRENGTH. 1.0 SERVICE FACTOR.
R3	RIGHT ANGLE GEARBOX	2	SINGLE REDUCTION, RIGHT ANGLE SPEED REDUCER, 1:1 RATIO, 27,011 LB-IN OUTPUT TORQUE RATING REQUIRED. RATING 187.5 HP AT 438 RPM FOR DURABILITY AND STRENGTH. 1.0 SERVICE FACTOR.
R4	INLINE REDUCER	1	DOUBLE REDUCTION SPEED REDUCER, 6:20:1 RATIO, 25,708 LB-IN OUTPUT TORQUE RATING REQUIRED. RATING 75 HP AT 1140 RPM FOR DURABILITY AND STRENGTH. 1.0 SERVICE FACTOR.
M1	MAIN MOTOR	2	FOOT MOUNTED, 125 HP, 900 RPM SYNCHRONOUS SPEED, 445T FRAME, TENV, 3-PHASE AC MOTOR, WITH ENCODER. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
M2	AUXILIARY MOTOR	1	FOOT MOUNTED, 50/25 HP, 1200/600 RPM, TENV, 3-PHASE AC MOTOR. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
C1	COUPLING	4	SINGLE-ENGAGEMENT GEAR COUPLING WITH STRAIGHT BORES. MINIMUM 410,000 LB-IN TORQUE RATING. A 8 3/4" DIA. BORE WITH KEYWAY TO SUIT R1 L.S. OUTPUT SHAFT. A 6 3/4" DIA. BORE WITH KEYWAY TO SUIT TRANSVERSE SHAFT.
C2	COUPLING	4	SINGLE-ENGAGEMENT GEAR COUPLING WITH STRAIGHT BORES. MINIMUM 410,000 LB-IN TORQUE RATING. A 6 3/4" DIA. BORE WITH KEYWAY EACH HUB TO SUIT TRANSVERSE SHAFT.
C3	COUPLING	2	SINGLE-ENGAGEMENT COUPLING WITH STRAIGHT BORES. MINIMUM 28,000 LB-IN TORQUE RATING. A 2 5/8" DIA. BORE WITH KEYWAY TO SUIT R1 H.S. OUTPUT SHAFT. A 5 1/4" DIA. BORE WITH KEYWAY TO SUIT OFFSETTING SHAFT.
C4	COUPLING	2	SINGLE-ENGAGEMENT COUPLING WITH STRAIGHT BORES. MINIMUM 28,000 LB-IN TORQUE RATING. A 5 1/4" DIA. BORE WITH KEYWAY TO SUIT OFFSETTING SHAFT. A 3 1/4" DIA. BORE WITH KEYWAY TO SUIT R2 INPUT SHAFT.
C5	COUPLING	2	SINGLE-ENGAGEMENT COUPLING WITH STRAIGHT BORES. MINIMUM 28,000 LB-IN TORQUE RATING. A 3 1/4" DIA. BORE WITH KEYWAY TO SUIT R2 OUTPUT SHAFT. A 5 1/4" DIA. BORE WITH KEYWAY TO SUIT R2/R3 CONNECTING SHAFT.
C6	COUPLING	2	SINGLE-ENGAGEMENT COUPLING WITH STRAIGHT BORES. MINIMUM 28,000 LB-IN TORQUE RATING. A 5 1/4" DIA. BORE WITH KEYWAY TO SUIT R2/R3 CONNECTING SHAFT. A 3 1/2" DIA. BORE WITH KEYWAY TO SUIT R3 INPUT SHAFT.
C7	COUPLING	2	SINGLE-ENGAGEMENT COUPLING WITH STRAIGHT BORES. MINIMUM 28,000 LB-IN TORQUE RATING. A 3 1/2" DIA. BORE WITH KEYWAY TO SUIT R3 OUTPUT SHAFT. A 5 3/4" DIA. BORE WITH KEYWAY TO SUIT LONGITUDINAL CROSS SHAFT S11.
C8	COUPLING	2	SINGLE-ENGAGEMENT COUPLING WITH STRAIGHT BORES. MINIMUM 28,000 LB-IN TORQUE RATING. A 5 3/4" DIA. BORE WITH KEYWAY TO SUIT LONGITUDINAL CROSS SHAFT S11. A 5 1/4" DIA. BORE WITH KEYWAY TO SUIT LONGITUDINAL CROSS SHAFT S9.
C9	COUPLING	14	SINGLE-ENGAGEMENT COUPLING WITH STRAIGHT BORES. MINIMUM 28,000 LB-IN TORQUE RATING. A 5 1/4" DIA. BORE WITH KEYWAY EACH HUB TO SUIT LONGITUDINAL CROSS SHAFTS S9 and S10.
C10	COUPLING	1	GRID-TYPE COUPLING WITH STRAIGHT BORES. MINIMUM 4,150 LB-IN TORQUE RATING. A 2 7/8" DIA. BORE WITH KEYWAY TO SUIT AUXILIARY MOTOR SHAFT. A 1 5/8" DIA. BORE WITH KEYWAY TO SUIT R4 INPUT SHAFT.
C11	COUPLING	4	SINGLE-ENGAGEMENT GEAR COUPLING WITH STRAIGHT BORES. MINIMUM 410,000 LB-IN TORQUE RATING. A 10 3/8" DIA. BORE WITH KEYWAY TO SUIT PINION SHAFT. A 6 3/4" DIA. BORE WITH KEYWAY TO SUIT TRANSVERSE SHAFT.
CL1	CLUTCH	1	ELECTRICALLY ENGAGED CLUTCH WITH STRAIGHT BORES. 4,050 LB-FT NOMINAL STATIC TORQUE RATING. UNIT SHALL BE DYNAMICALLY BALANCED, WITH SPLIT TYPE NEMA 3R ENCLOSURE AND STRIP HEATER. FURNISH COMPLETE WITH RECTIFIER REQUIRED TO OPERATE THE UNIT. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
BK1	MOTOR BRAKE	1	3 PHASE AC THRUSTER ACTUATED SPRING-SET SHOE BRAKE WITH MANUAL RELEASE, FOR 13" DIA. x 5 3/4" FACE BRAKEWHEEL. TORQUE RATING OF 660 LB-FT, SET TO 560 LB-FT. TYPE 3R ENCLOSURE WITH STRIP HEATER. BK1 AND BW1 SHALL BE COMPATIBLE. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
BK2	MOTOR BRAKE WITH BRAKEWHEEL	1	3 PHASE AC THRUSTER ACTUATED SPRING-SET SHOE BRAKE WITH MANUAL RELEASE, WITH 13" DIA. x 5 3/4" FACE BRAKEWHEEL. TORQUE RATING OF 660 LB-FT, SET TO 560 LB-FT. TYPE 3R ENCLOSURE WITH STRIP HEATER. BRAKEWHEEL FURNISHED WITH BRAKE. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
BK3	MACHINERY BRAKE	1	3 PHASE AC THRUSTER ACTUATED SPRING-SET SHOE BRAKE WITH MANUAL RELEASE, FOR 13" DIA. x 5 3/4" FACE BRAKEWHEEL. TORQUE CAPACITY OF 400 LB-FT SET TO 280 LB-FT. TYPE 3R ENCLOSURE WITH STRIP HEATER. BK3 AND BW1 SHALL BE COMPATIBLE. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
BK4	MACHINERY BRAKE WITH BRAKEWHEEL	1	3 PHASE AC THRUSTER ACTUATED SPRING-SET SHOE BRAKE WITH MANUAL RELEASE, WITH 13" DIA. x 5 3/4" FACE BRAKEWHEEL. TORQUE CAPACITY OF 400 LB-FT SET TO 280 LB-FT. TYPE 3R ENCLOSURE WITH STRIP HEATER. BRAKEWHEEL FURNISHED WITH BRAKE. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
BW1	BRAKEWHEEL COUPLING	2	13" DIA. x 5 3/4" FACE BRAKEWHEEL GRID COUPLING WITH STRAIGHT BORES. MINIMUM 13,600 LB-IN TORQUE RATING. RIGID HUB WITH 2 1/2" DIA. BORE AND KEYWAY TO SUIT R1 MAIN INPUT SHAFT. FLEXIBLE HUB WITH 3 3/8" DIA. BORE AND KEYWAY TO SUIT M1 SHAFT. BK1 AND BW1 SHALL BE COMPATIBLE. BK3 AND BW1 SHALL BE COMPATIBLE. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL.
G1	DRUM GEAR	4	FORGED CARBON STEEL, ASTM A 668 CLASS D. 74 TEETH, 3 1/2" CIRCULAR PITCH, 20° INVOLUTE FULL DEPTH TEETH, 6 3/4" FACE.

MACHINERY SCHEDULE

ITEM NO.	ITEM	QTY.	DESIGN REQUIREMENTS
S1	PINION SHAFT	4	10 1/2"Ø INTEGRAL PINION SHAFT. FORGED ALLOY STEEL, ASTM A 291 GRADE 7 CLASS H. 18 TEETH, 3 1/2" CIRCULAR PITCH, 20° INVOLUTE FULL DEPTH TEETH, 7 1/4" FACE. SHAFT SHALL BE MACHINED CONCENTRIC FULL LENGTH.
S2	OPERATING DRUM SHAFT	4	FORGED CARBON STEEL SHAFT, ASTM A 668 CLASS D. SHAFT SHALL BE MACHINED CONCENTRIC FULL LENGTH.
S3	TRANSVERSE SHAFT (FLOATING SHAFT)	2	6 3/4"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 HOT ROLLED CLASS BB. LENGTHS AS REQUIRED.
S4	TRANSVERSE SHAFT (FIXED SHAFT)	2	6 3/4"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 HOT ROLLED CLASS BB. LENGTHS AS REQUIRED.
S5	TRANSVERSE SHAFT (FLOATING SHAFT)	2	6 3/4"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 HOT ROLLED CLASS BB. LENGTHS AS REQUIRED.
S6	TRANSVERSE SHAFT (FLOATING SHAFT)	2	6 3/4"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 HOT ROLLED CLASS BB. LENGTHS AS REQUIRED.
S7	OFFSETTING SHAFT	2	5 1/4"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 HOT ROLLED CLASS BB. LENGTHS AS REQUIRED.
S8	R2/R3 CONNECTING SHAFT	2	5 1/4"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 HOT ROLLED CLASS BB. LENGTHS AS REQUIRED.
S9	LONGITUDINAL CROSS SHAFT (FIXED SHAFT)	8	5 1/2"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 CLASS BB COLD FINISHED OR TGP. 198" LONG
S10	LONGITUDINAL CROSS SHAFT (FLOATING SHAFT)	7	5 1/2"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 CLASS BB COLD FINISHED OR TGP. 198" LONG
S11	LONGITUDINAL CROSS SHAFT (END SECTIONS)	2	6 1/2"Ø ALLOY STEEL SHAFT, ASTM A 434 4140 CLASS BB COLD FINISHED OR TGP. 206" LONG
	OPERATING DRUM ASSEMBLY	2 RH/ 2 LH	72" PITCH DIA. DRUM ASSEMBLY INCLUDING G1, S2, B1, AND B3.
	COUNTERWEIGHT TRUNNION SHAFT	4	FORGED CARBON STEEL SHAFT, ASTM A668 CLASS D. MACHINE CONCENTRIC FULL LENGTH.
	COUNTERWEIGHT SHEAVE	4	135" PITCH DIAMETER SHEAVE ASSEMBLY; 16 GROOVES FOR 1-7/8" DIA. ROPES.
	COUNTERWEIGHT ROPE ASSEMBLY	64	1-7/8" DIA. EXTRA EXTRA IMPROVED PLOW STEEL ROPE. 6 X 25 FILLER WIRE CONSTRUCTION WITH INDEPENDENT WIRE ROPE CORE. APPROXIMATE LENGTH 180'.
	OPERATING ROPE ASSEMBLY	16	1-1/2" DIA. EXTRA EXTRA IMPROVED PLOW STEEL ROPE. 6 X 25 FILLER WIRE CONSTRUCTION WITH INDEPENDENT WIRE ROPE CORE. APPROXIMATE LENGTH 155'.
	MACHINERY HOUSE HOIST	2	5 TON CAPACITY ELECTRIC WIRE ROPE HOIST WITH MANUAL TROLLEY. MINIMUM 30 FOOT LIFT. 10 FPM MINIMUM SPEED.
	TOWER HOIST	2	ELECTRIC WIRE ROPE HOIST WITH MINIMUM CAPACITY 1 TON AT A 25 FEET RADIUS, 10 FPM MINIMUM SPEED. REQUIRED WIRE ROPE LENGTH 175 FEET.
	CONTROL HOUSE HOIST	1	ELECTRIC WIRE ROPE HOIST WITH MINIMUM CAPACITY 1 TON. MINIMUM 30 FOOT LIFT. 10 FPM MINIMUM SPEED.

MACHINERY SCHEDULE

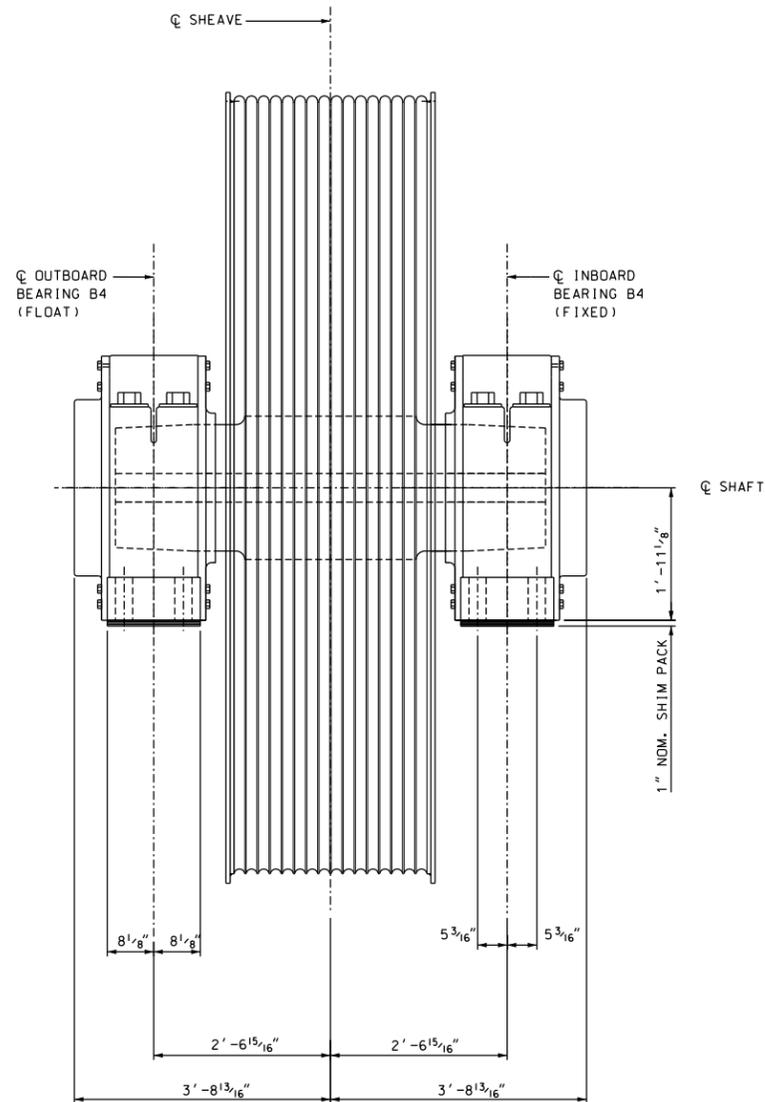
ITEM NO.	ITEM	QTY.	DESIGN REQUIREMENTS	SUITABLE EQUIPMENT
B1	PINION SHAFT BEARING	4 FLOAT	SPHERICAL ROLLER BEARING PILLOW BLOCK ASSEMBLY WITH CAST STEEL HOUSING AND SOLID BASE. MINIMUM DYNAMIC LOAD RATING 346,000 LB. ASSEMBLY TO INCLUDE TAPERED ADAPTER, LOCKNUT AND WASHER AND TRIPLE RING SEALS. FIELD DRILL BASE FOR TURNED BOLTS AT ASSEMBLY.	SAFS23056K-10 7/16- FL
B2	PINION SHAFT BEARING	4 FIXED	SPHERICAL ROLLER BEARING PILLOW BLOCK ASSEMBLY WITH CAST STEEL HOUSING AND SOLID BASE. MINIMUM DYNAMIC LOAD RATING 346,000 LB. ASSEMBLY TO INCLUDE TAPERED ADAPTER, LOCKNUT AND WASHER, STABILIZING RING, AND TRIPLE RING SEALS. FIELD DRILL BASE FOR TURNED BOLTS AT ASSEMBLY.	SAFS23056K-10 7/16
B3	OPERATING DRUM BEARING	4 FIXED 4 FLOAT	SPHERICAL ROLLER BEARING PILLOW BLOCK ASSEMBLY WITH CAST STEEL HOUSING AND SOLID BASE. MINIMUM DYNAMIC LOAD RATING 515,000 LBS. ASSEMBLY TO INCLUDE TAPERED ADAPTER, LOCKNUT AND WASHER, AND TRIPLE RING SEALS. FIELD DRILL BASE FOR TURNED BOLTS AT ASSEMBLY.	SDAFS23056K-9 1/2 1/16
B4	COUNTERWEIGHT SHEAVE BEARING	4 FIXED 4 FLOAT	SPHERICAL ROLLER BEARING PILLOW BLOCK ASSEMBLY WITH CAST STEEL HOUSING AND SOLID BASE. MINIMUM STATIC LOAD RATING 4,590,000 LBS. ASSEMBLY TO INCLUDE TRIPLE RING SEALS. FIELD DRILL BASE FOR TURNED BOLTS AT ASSEMBLY.	232/530K
B5	LINE SHAFT BEARING	4	SPHERICAL ROLLER BEARING PILLOW BLOCK ASSEMBLY WITH CAST STEEL HOUSING AND SOLID BASE. MINIMUM STATIC LOAD RATING 346,400 LBS. ASSEMBLY TO INCLUDE TAPERED ADAPTER, LOCKNUT AND WASHER AND TRIPLE RING SEALS. FIELD DRILL BASE FOR TURNED BOLTS AT ASSEMBLY.	SAFS22536K
B6	LONGITUDINAL CROSS SHAFT BEARING	16	SPHERICAL ROLLER BEARING PILLOW BLOCK ASSEMBLY WITH CAST STEEL HOUSING AND SOLID BASE. MINIMUM STATIC LOAD RATING 288,000 LBS. ASSEMBLY TO INCLUDE TAPERED ADAPTER, LOCKNUT AND WASHER AND TRIPLE RING SEALS. FIELD DRILL BASE FOR TURNED BOLTS AT ASSEMBLY.	SDAFS22532

80% SUBMISSION
DECEMBER 5, 2011

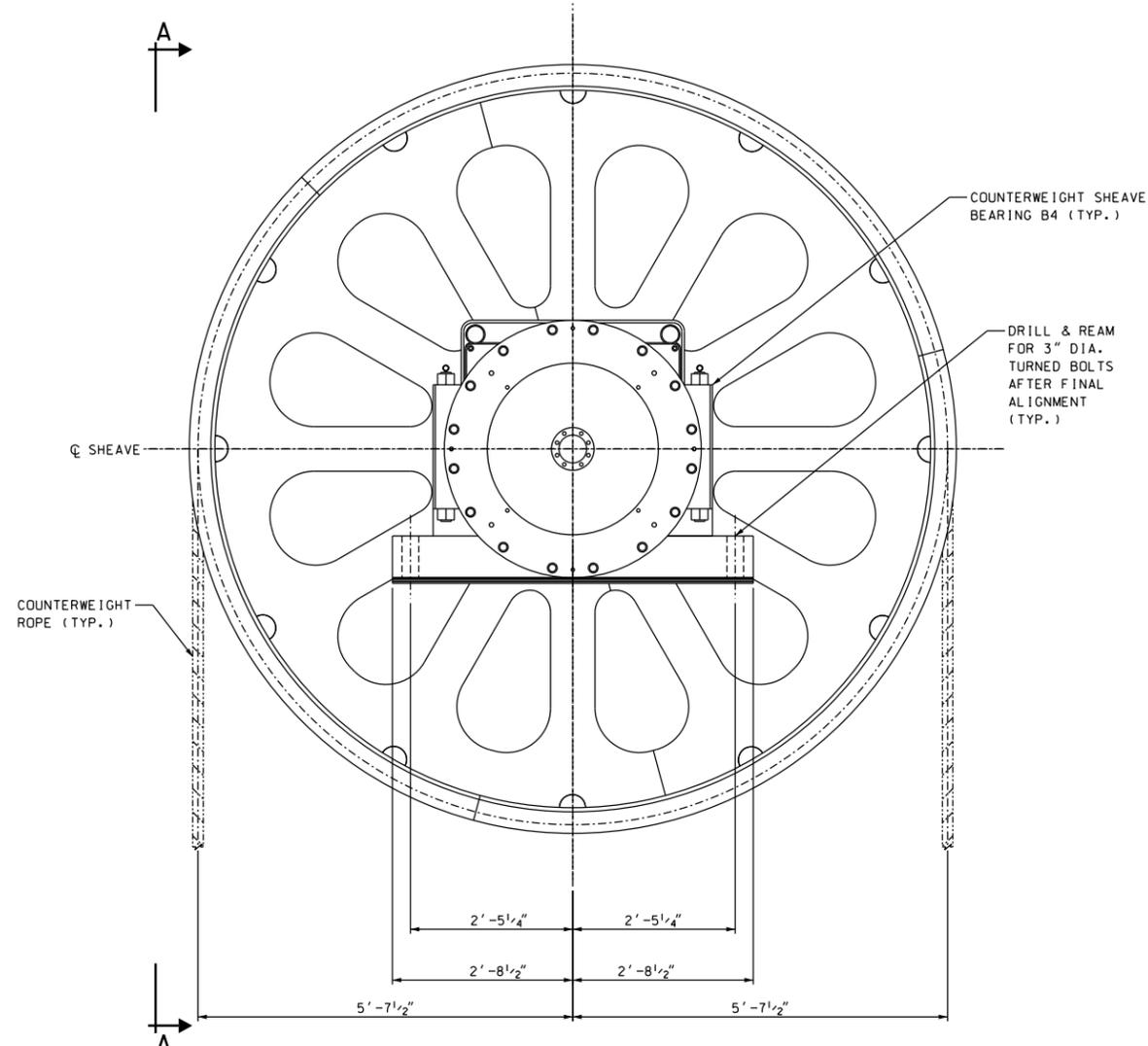


STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN			
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276
STATE PROJECT	13678F		
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER			
MACHINERY SCHEDULE			
REVISIONS AFTER PROPOSAL	BY	DATE	BRIDGE SHEET
	JWW	11/11	MS of M41
	PBH	11/11	FILE NUMBER
	XX	XX/XX	107-1-1
ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.
REV. DATE			TOTAL SHEETS
			-

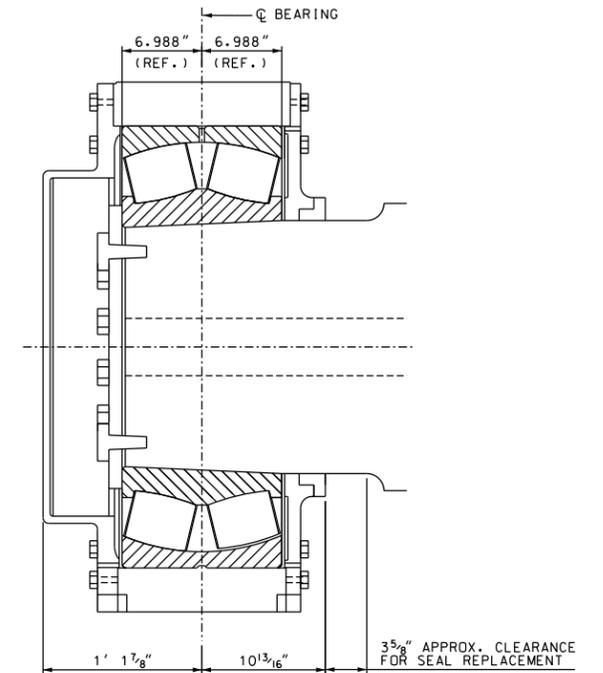
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M5	NOT TO SCALE



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



SHEAVE ASSEMBLY - ELEVATION
3/4" = 1'-0"
(4) ASSEMBLIES REQUIRED



BEARING ASSEMBLY
1 1/2" = 1'-0"

NOTES:

1. SHAFT FITS AND FINISHES TO BE COORDINATED WITH BEARING MANUFACTURER.
2. FINAL ALIGNMENT OF SHEAVES TO BE CONFIRMED WHEN UNDER FULL LOAD OF SPAN AND COUNTERWEIGHT.
3. ALL DIMENSIONS TO BE CONFIRMED WITH BEARING AND HOUSING MANUFACTURERS.

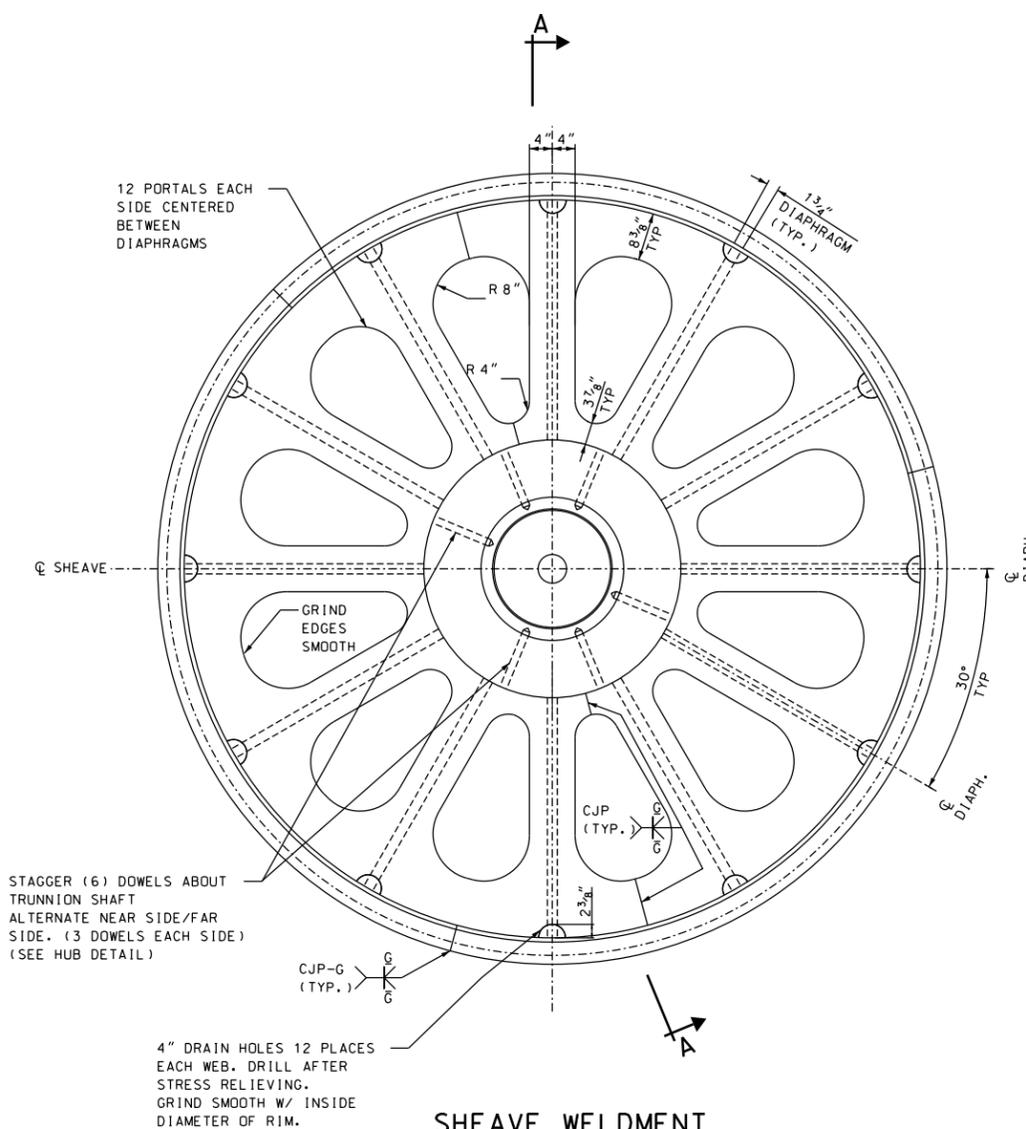
80% SUBMISSION
DECEMBER 5, 2011



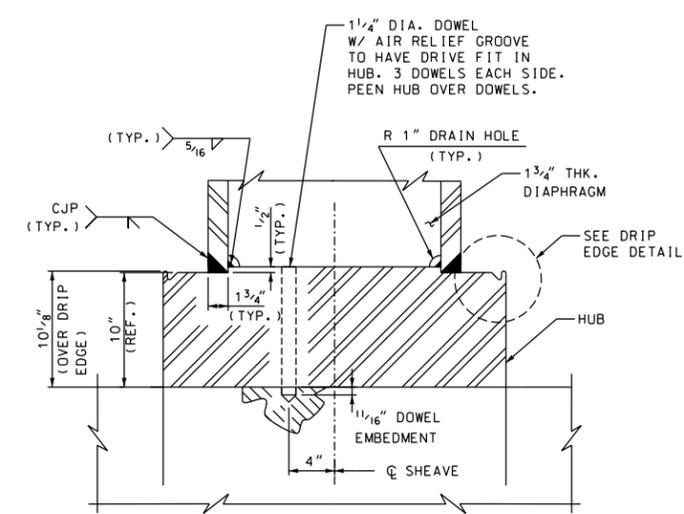
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M6	AS NOTED

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
COUNTERWEIGHT SHEAVE ASSEMBLY					
REVISIONS AFTER PROPOSAL	BY	DATE	CHECKED	BY	DATE
	JWW	11/11	CHECKED	WEN	11/11
	JWW	11/11	CHECKED	WEN	11/11
	XX	XX/XX	CHECKED	XX	XX/XX
ISSUE DATE	FEDERAL PROJECT NO.			SHEET NO.	TOTAL SHEETS
REV. DATE					

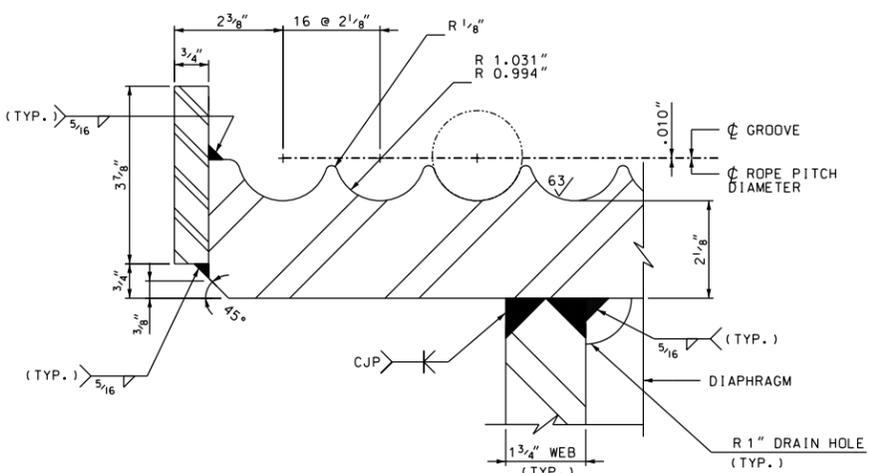
BRIDGE SHEET
M6 of M41
FILE NUMBER
107-1-1
TOTAL SHEETS
-



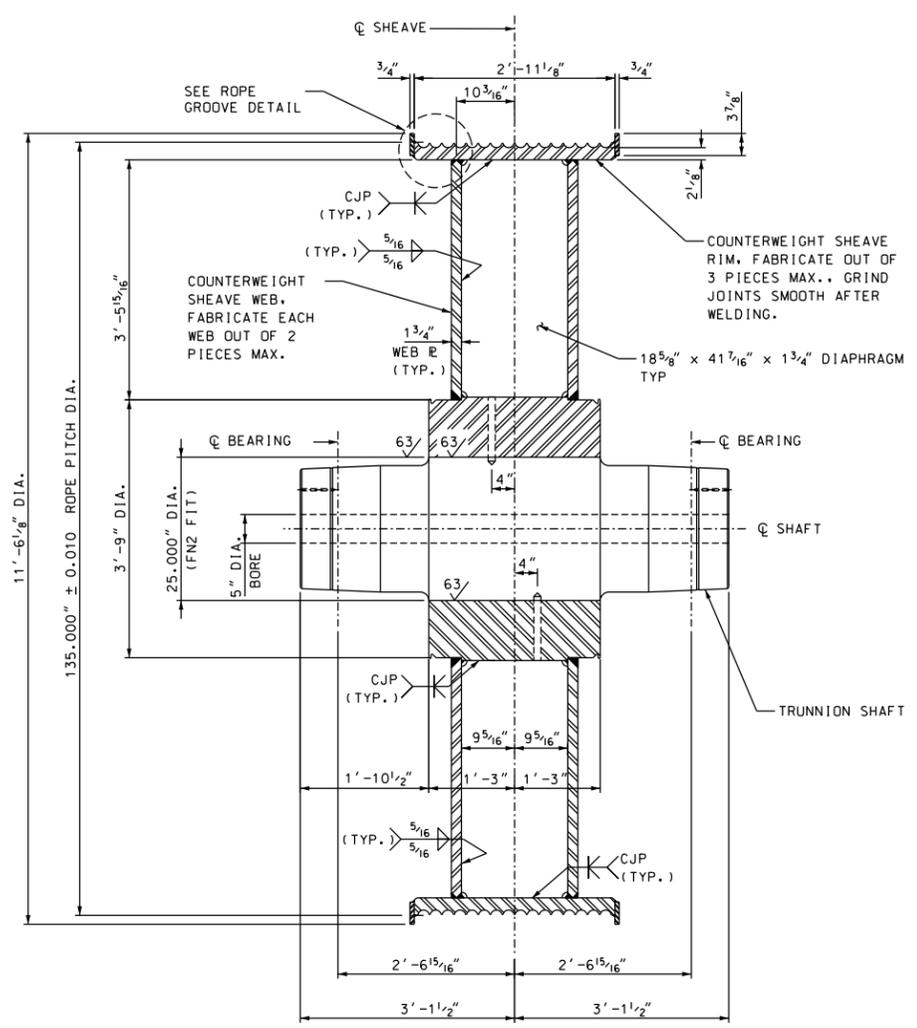
SHEAVE WELDMENT
 $3/4" = 1'-0"$
 (4) ASSEMBLIES REQUIRED



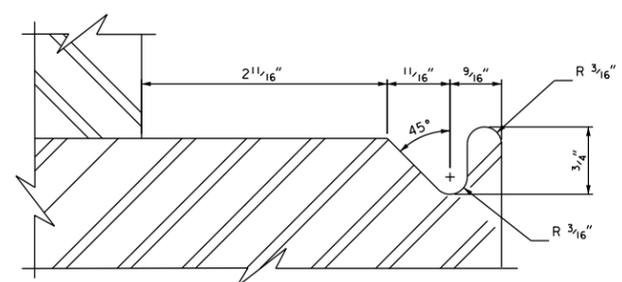
HUB DETAIL
 $1 1/2" = 1'-0"$



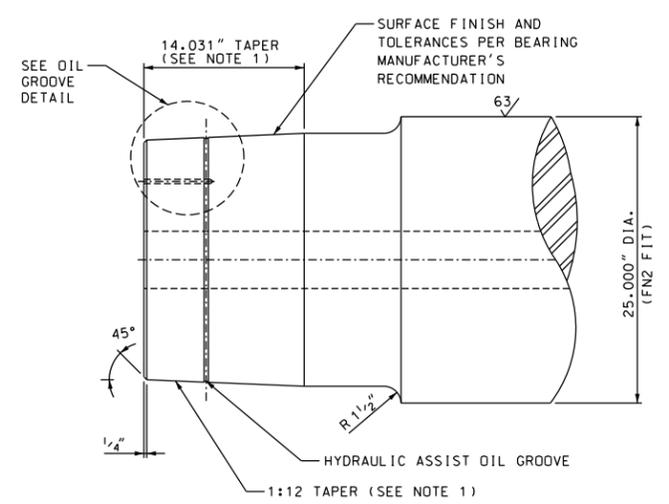
ROPE GROOVE DETAIL
 $6" = 1'-0"$
 ROPE GROOVE TO BE FINISHED TO 63 MICROINCHES



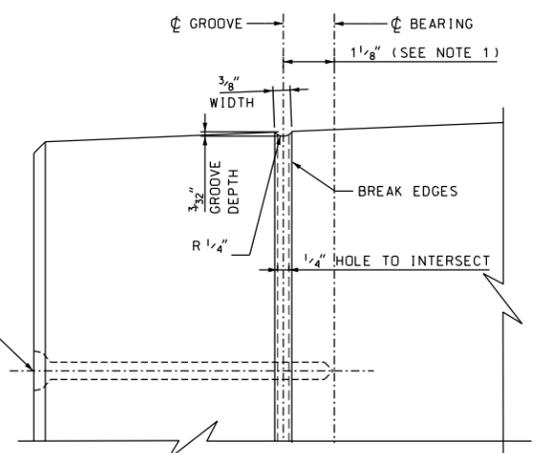
SECTION A-A
 $3/4" = 1'-0"$



DRIP EDGE DETAIL
 $1" = 1"$



SHAFT END DETAIL
 $1 1/2" = 1'-0"$



OIL GROOVE DETAIL
 $6" = 1'-0"$

- NOTES:**
- COORDINATE DIMENSIONS WITH BEARING MANUFACTURER
 - ALL SHEAVE ASSEMBLY MATERIAL TO BE STRUCTURAL CARBON STEEL (ASTM A 709 GRADE 50), UNLESS OTHERWISE NOTED. RIM TO BE ASTM A36 (AASHTO M 183). HUB, DOWELS, AND SHAFT TO BE FORGED CARBON STEEL ASTM A668 CLASS D. HUB MATERIAL MAX. 0.35% CARBON CONTENT.
 - WELDMENT TO BE STRESS RELIEVED AFTER WELDING AND BEFORE MACHINING. UNLESS OTHERWISE SPECIFIED, THE SHEAVE ASSEMBLY SHALL BE STRESS RELIEVED BY HEAT TREATMENT.

80% SUBMISSION
 DECEMBER 5, 2011

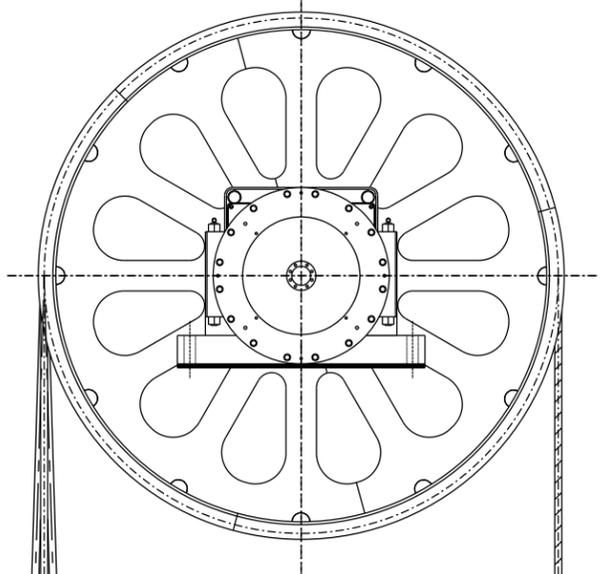
ARCHER WESTERN CONTRACTORS
HNTB
 The HNTB Companies
 Engineers Architects Planners

STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN			
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276
STATE PROJECT	13678F		
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER			
COUNTERWEIGHT SHEAVE DETAILS			
REVISIONS AFTER PROPOSAL	BY	DATE	DATE
	JWW	11/11	11/11
DESIGNED	JWW	11/11	CHECKED WEN
DRAWN	JWW	11/11	CHECKED WEN
QUANTITIES	XX	XX/XX	CHECKED XX
ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.
REV. DATE			TOTAL SHEETS

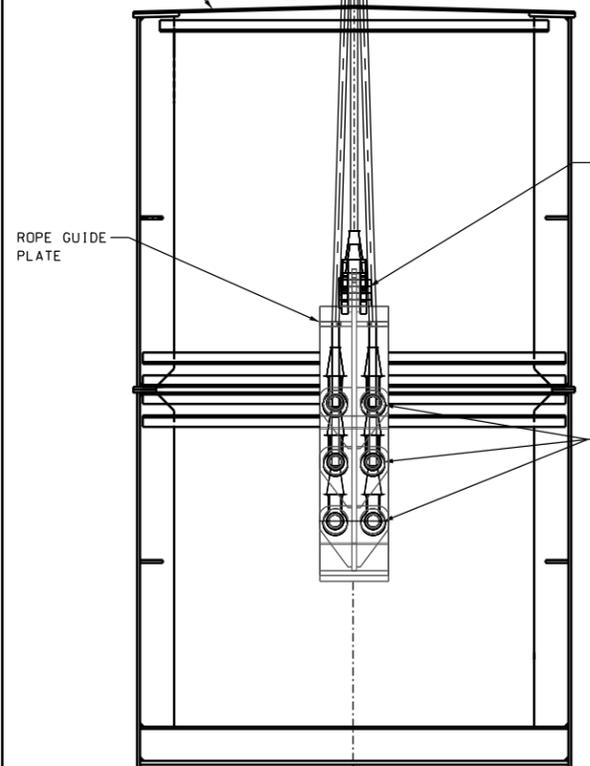
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M7	AS NOTED

BRIDGE SHEET
 M7 of M41
 FILE NUMBER
 107-1-1
 TOTAL SHEETS
 -

☉ SHEAVE



TOP OF COUNTERWEIGHT

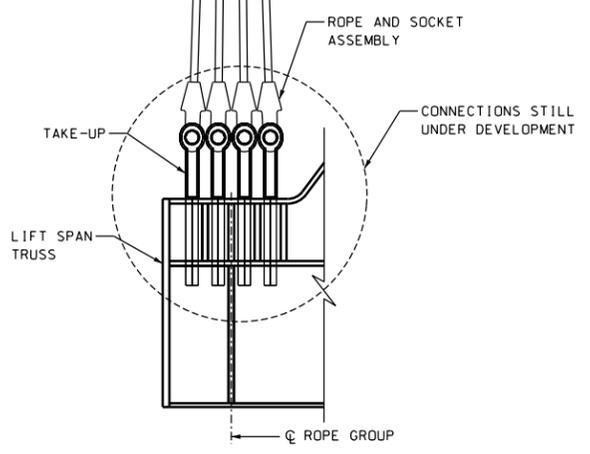


UPPER COUNTERWEIGHT CONNECTION SOCKETS

LOWER COUNTERWEIGHT CONNECTION SOCKETS

ROPE GUIDE PLATE

☉ COUNTERWEIGHT



ROPE AND SOCKET ASSEMBLY

CONNECTIONS STILL UNDER DEVELOPMENT

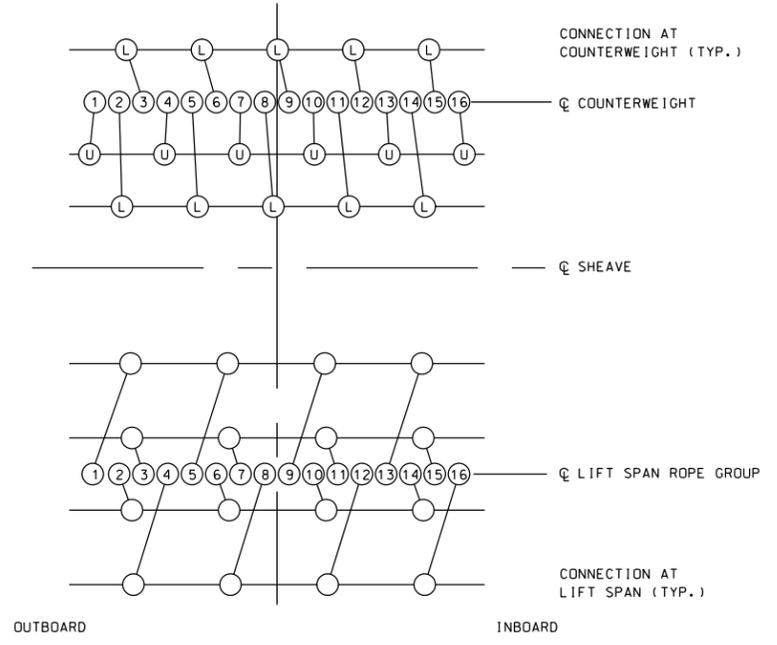
LIFT SPAN TRUSS

☉ ROPE GROUP

COUNTERWEIGHT ROPE ATTACHMENT LOCATIONS

SCALE: 1/2" = 1'
(4) LOCATIONS

☉ SHEAVE



CONNECTION AT COUNTERWEIGHT (TYP.)

☉ COUNTERWEIGHT

☉ SHEAVE

☉ LIFT SPAN ROPE GROUP

CONNECTION AT LIFT SPAN (TYP.)

OUTBOARD

INBOARD

**ROPE CONNECTION DIAGRAM
PLAN VIEW**
NOT TO SCALE

- Ⓚ INDICATES ROPE ANCHORED AT UPPER ATTACHMENT POINT
- Ⓛ INDICATES ROPE ANCHORED AT LOWER ATTACHMENT POINT

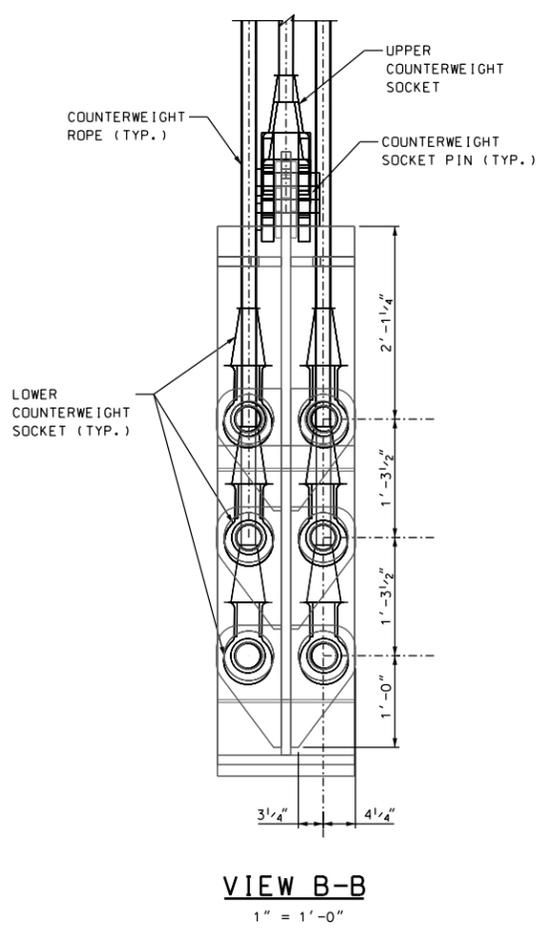
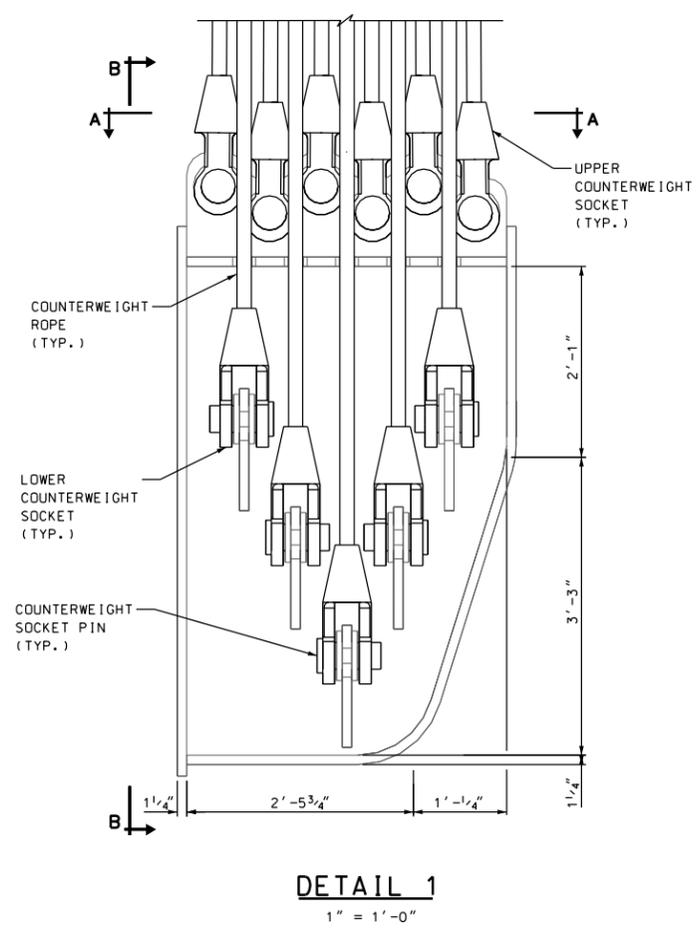
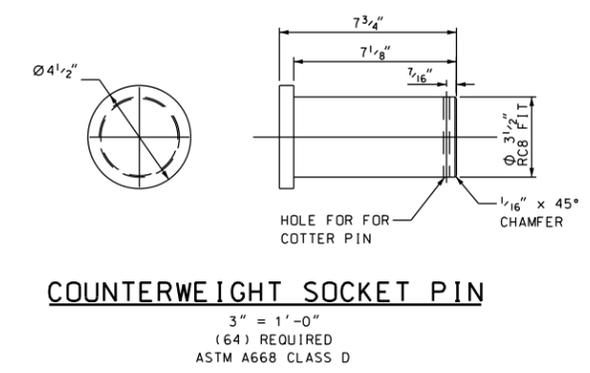
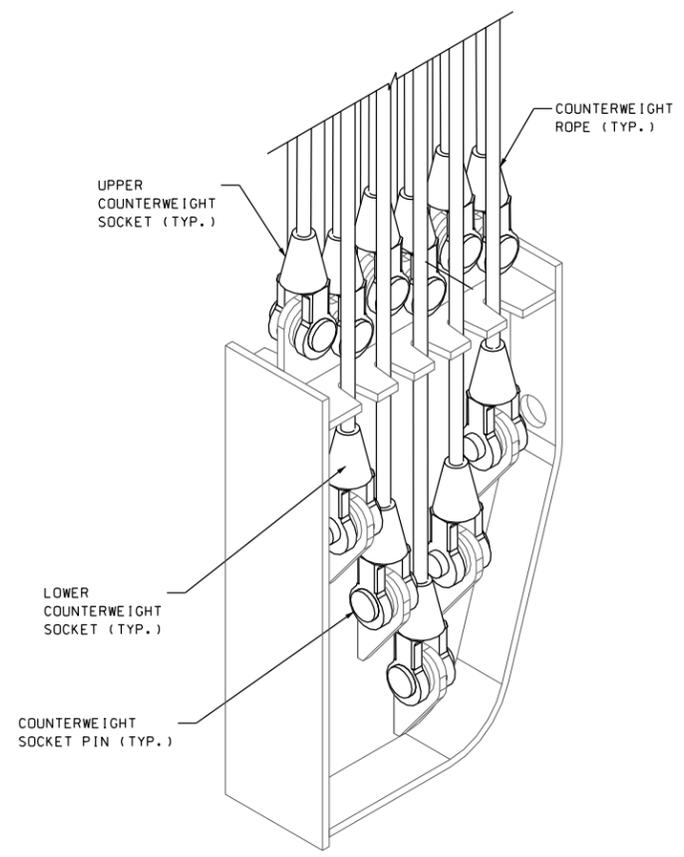
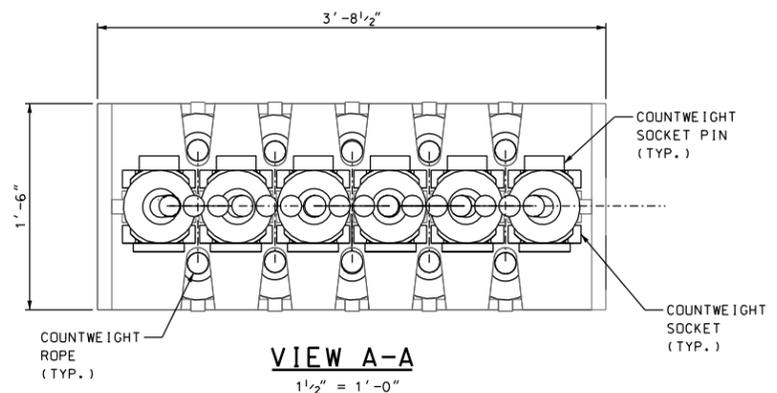
NOTES:

1. SEE BRIDGE SHEETS NO. M9, M10, AND M11 FOR ROPE ATTACHMENT AND SOCKET DETAILS.

80% SUBMISSION
DECEMBER 5, 2011



STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.			BRIDGE NO.	5276	STATE PROJECT	13678F		
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
COUNTERWEIGHT ROPE AND SOCKET ASSEMBLIES									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		
		DESIGNED	TPZ	11/11	CHECKED	WEN	M8 of M41		
		DRAWN	JWW	11/11	CHECKED	WEN	FILE NUMBER		
		QUANTITIES	XX	11/11	CHECKED	XX	107-1-1		
		ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS		
SUBDIRECTORY		DGN LOCATOR	SHEET SCALE		REV. DATE		BHF-T-0101(015)		XXX
80% Submission		13678F-M8							



ISOMETRIC VIEW
N.T.S.

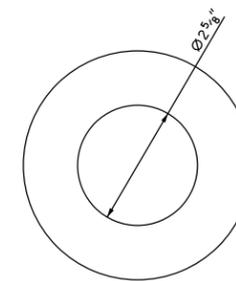
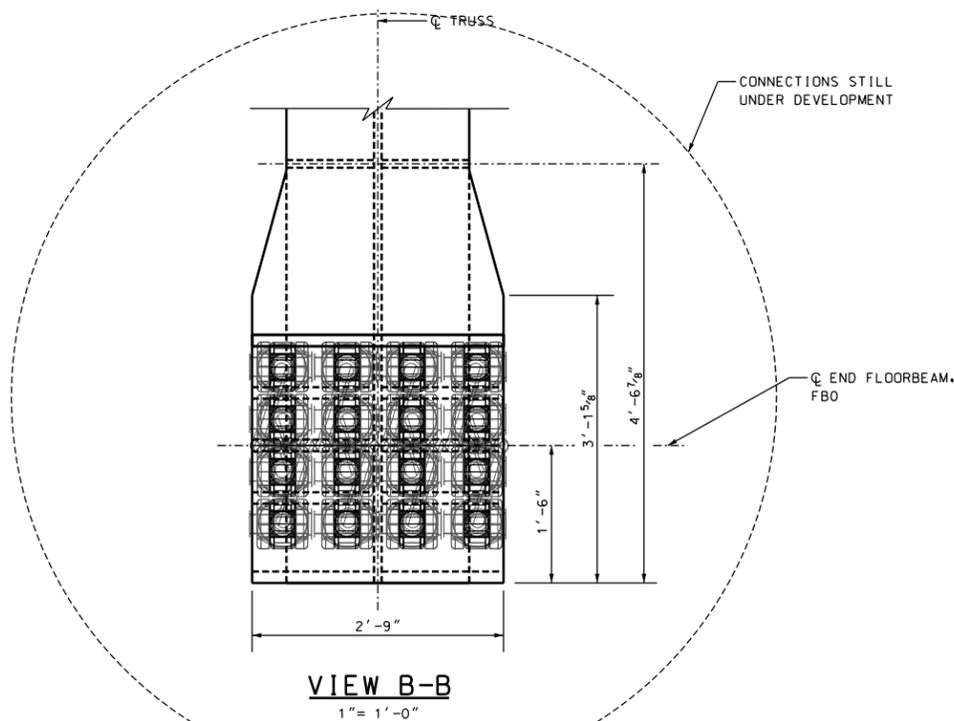
NOTES:
1. SEE BRIDGE SHEET B37 FOR CONNECTION DETAILS.

80% SUBMISSION
DECEMBER 5, 2011

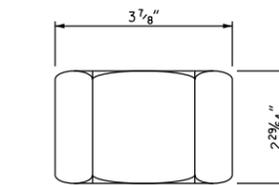
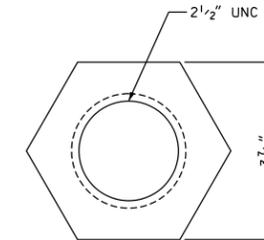
ARCHER WESTERN CONTRACTORS
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Engineers Architects Planners

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN PORTSMOUTH, NH. - KITTERY, ME.		BRIDGE NO. 5276		STATE PROJECT 13678F		BRIDGE SHEET M9 OF M41			
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
ROPE ATTACHMENT DETAIL - COUNTERWEIGHT SIDE									
REVISIONS AFTER PROPOSAL	BY	DATE	CHECKED	WEN	DATE	FILE NUMBER	107-1-1		
	JWW	11/11	CHECKED	WEN	11/11	TOTAL SHEETS	-		
	JWW	11/11	CHECKED	WEN	11/11				
	XX	XX/XX	CHECKED	XX	XX/XX				
ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS				
REV. DATE									

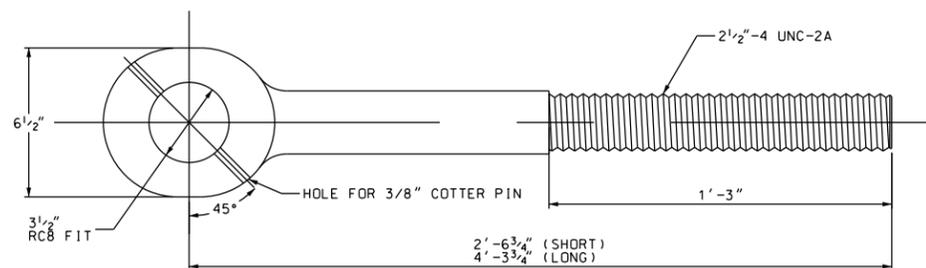
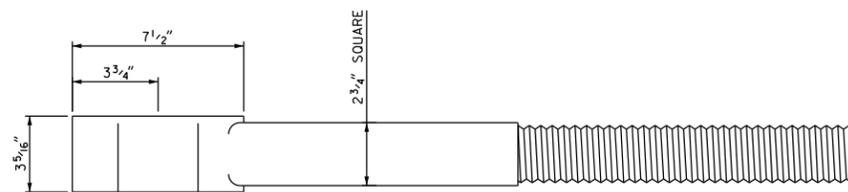
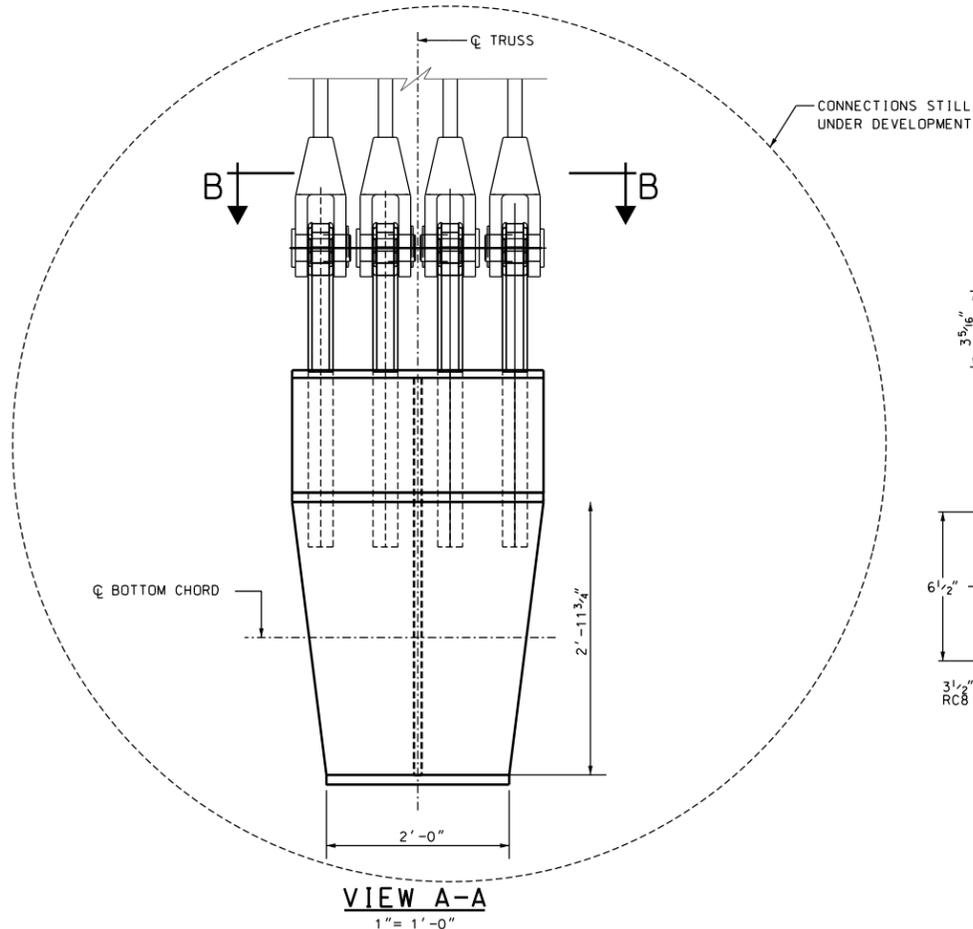
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M9	AS NOTED



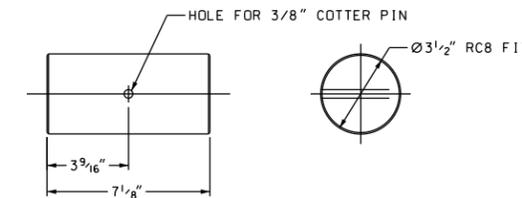
WASHER
6" = 1'-0"
(64) REQUIRED
ASTM B22 ALLOY C91100



NUT
6" = 1'-0"
(64) REQUIRED
ASTM A563 GRADE DH HEAVY HEX



TAKE-UP
3" = 1'-0"
(32) REQUIRED (SHORT)
(32) REQUIRED (LONG)
ASTM A668 CLASS H



LIFT SPAN SOCKET PIN
3" = 1'-0"
(64) REQUIRED
ASTM A668 CLASS D

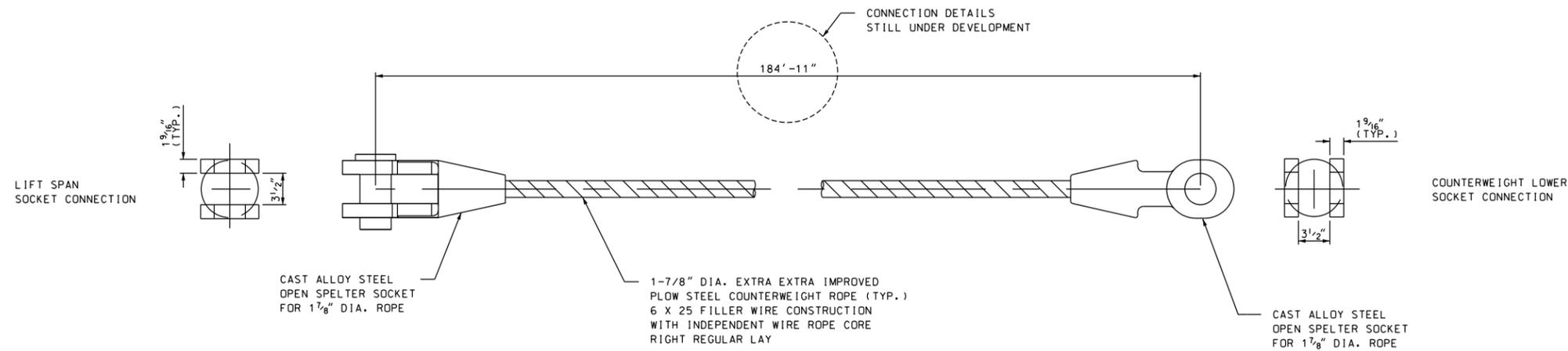
NOTES:
1. SEE STRUCTURAL BRIDGE SHEETS FOR CONNECTION DETAILS.

80% SUBMISSION
DECEMBER 5, 2011



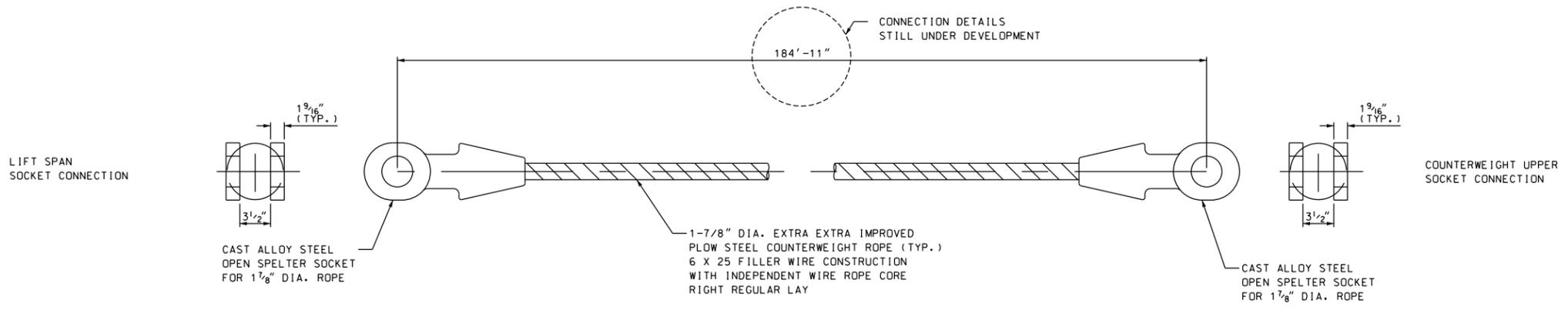
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M10	AS NOTED

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
ROPE ATTACHMENT DETAIL - SPAN SIDE					
REVISIONS AFTER PROPOSAL	BY	DATE	BY	DATE	BRIDGE SHEET
	JWW	11/11	WEN	11/11	M10 of M41
	JWW	11/11	WEN	11/11	FILE NUMBER
	XX	XX/XX	XX	XX/XX	107-1-1
ISSUE DATE	FEDERAL PROJECT NO.			SHEET NO.	TOTAL SHEETS
REV. DATE					-



COUNTERWEIGHT ROPE AND SOCKET ASSEMBLY - TYPE 1

SCALE: 1 1/2" = 1'-0"
 CONNECTION DETAILS STILL UNDER DEVELOPMENT
 TOTAL ASSEMBLIES REQUIRED



COUNTERWEIGHT ROPE AND SOCKET ASSEMBLY - TYPE 2

SCALE: 1 1/2" = 1'-0"
 CONNECTION DETAILS STILL UNDER DEVELOPMENT
 TOTAL ASSEMBLIES REQUIRED

NOTES:

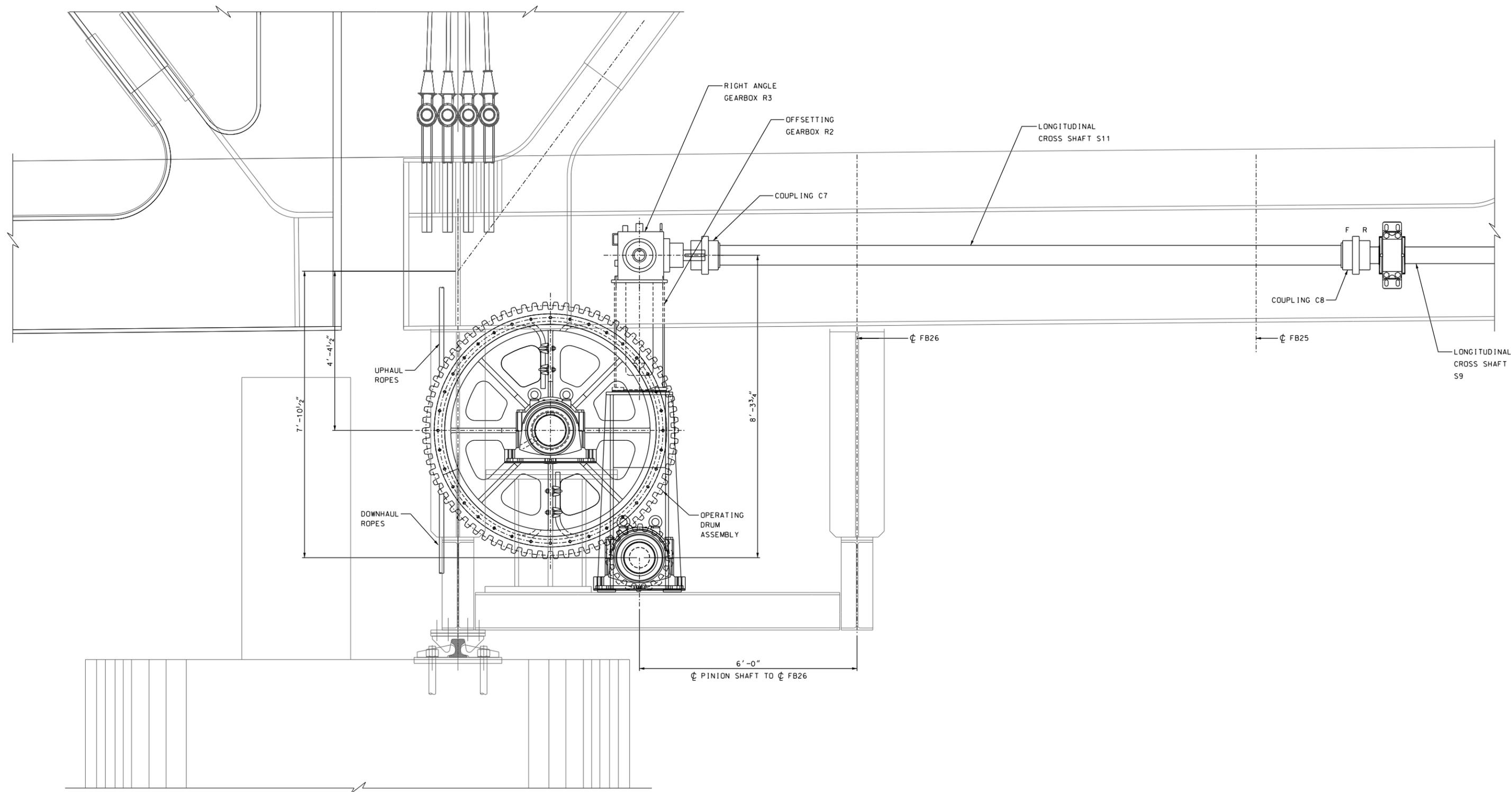
1. SEE BRIDGE SHEET M4 FOR GENERAL MACHINERY NOTES.
2. DIMENSIONS SHOWN ARE FINISHED DIMENSIONS.
3. ROPE LENGTH SHOWN IS APPROXIMATE. CONTRACTOR TO CALCULATE ACTUAL REQUIREMENTS PRIOR TO FABRICATION.
4. WHEN ROPES ARE MEASURED THEY SHALL BE SUPPORTED THEIR ENTIRE LENGTH AND SUBJECTED TO A TENSION OF NOT LESS THAN 12% OF THEIR SPECIFIED TENSILE STRENGTH.
5. ROPE SHALL HAVE A WHITE OR YELLOW STRIPE PAINTED FULL LENGTH TO AID IN ERECTION AND ASSEMBLY.
6. SOCKETS SHALL CONFORM TO FEDERAL SPECIFICATION RRS-550. LATEST EDITION.
7. SEE BRIDGE SHEETS M9 AND M10 FOR PIN DETAILS.

80% SUBMISSION
 DECEMBER 5, 2011

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STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F				
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
COUNTERWEIGHT ROPE DETAILS									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		
		DESIGNED	JWW	11/11	CHECKED	WEN	11/11	M11 of M41	
		DRAWN	JWW	11/11	CHECKED	WEN	11/11	FILE NUMBER	
		QUANTITIES	XX	11/11	CHECKED	XX	11/11	107-1-1	
ISSUE DATE		FEDERAL PROJECT NO.				SHEET NO.	TOTAL SHEETS		
REV. DATE									

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M11	



MACHINERY ELEVATION

MACHINERY AT NORTH END OF LIFT SPAN SHOWN, LOOKING EAST

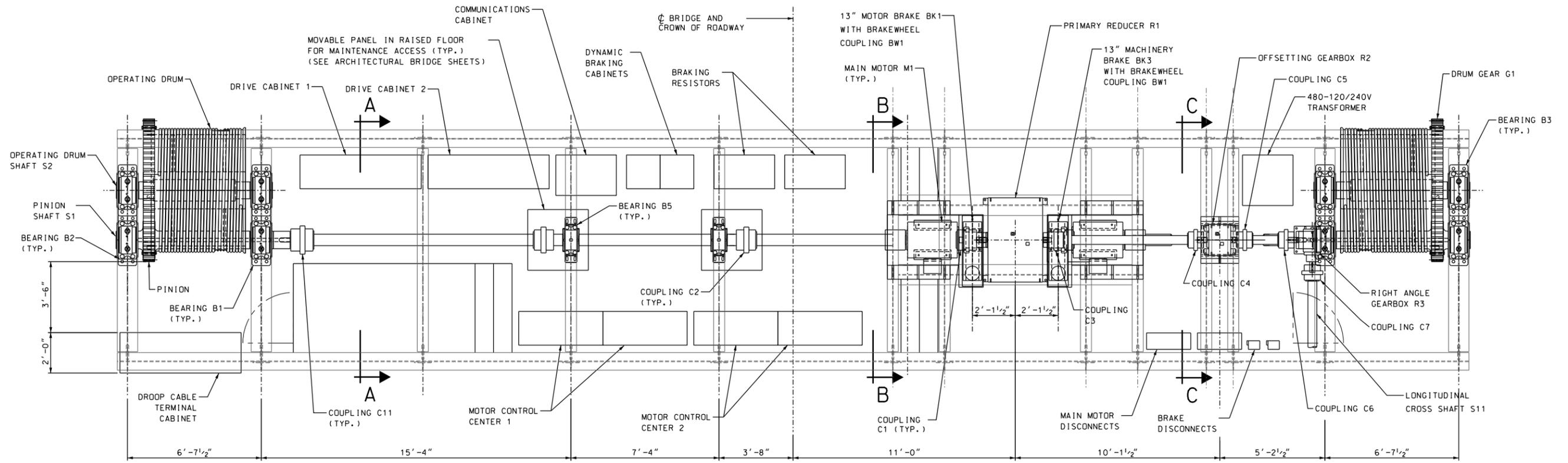
$3/4'' = 1'-0''$

80% SUBMISSION
DECEMBER 5, 2011



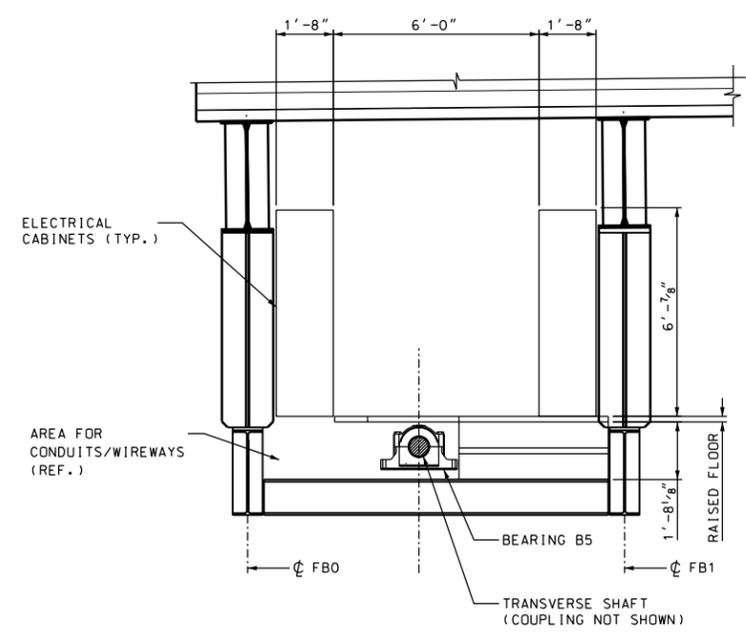
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M12	3/4" = 1'-0"

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.			BRIDGE NO.	5276		STATE PROJECT	13678F	
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
MACHINERY ELEVATION								BRIDGE SHEET	M12 OF M41
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	FILE NUMBER		
		DESIGNED	JWW	11/11	CHECKED	WEN	11/11	107-1-1	
		DRAWN	PBH	11/11	CHECKED	WEN	11/11	TOTAL SHEETS	
		QUANTITIES	XX	XX/XX	CHECKED	XX	XX/XX	-	
		ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.				
		REV. DATE							



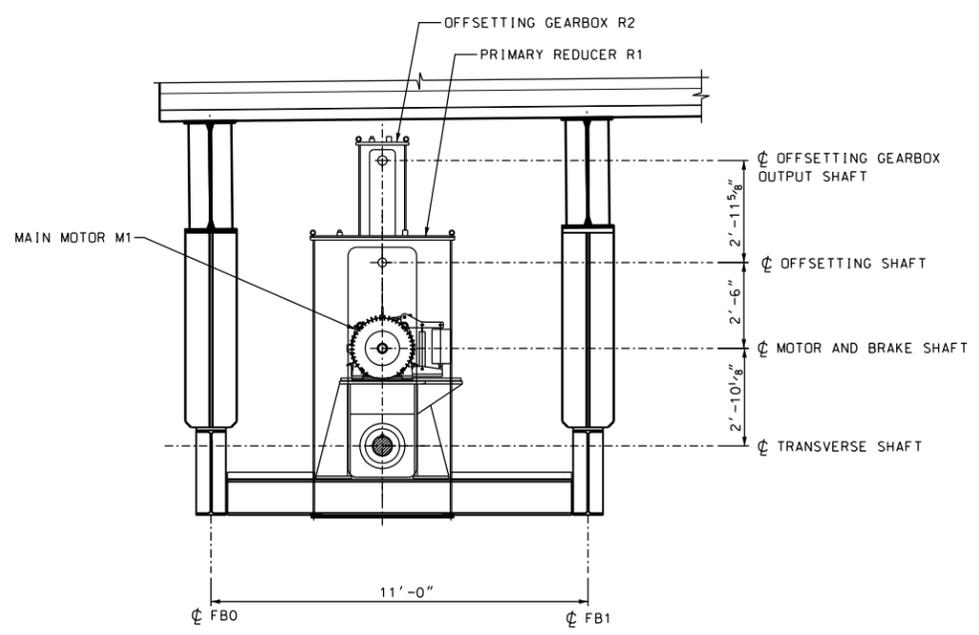
SOUTH MACHINERY LAYOUT - PLAN VIEW

3/8" = 1'-0"



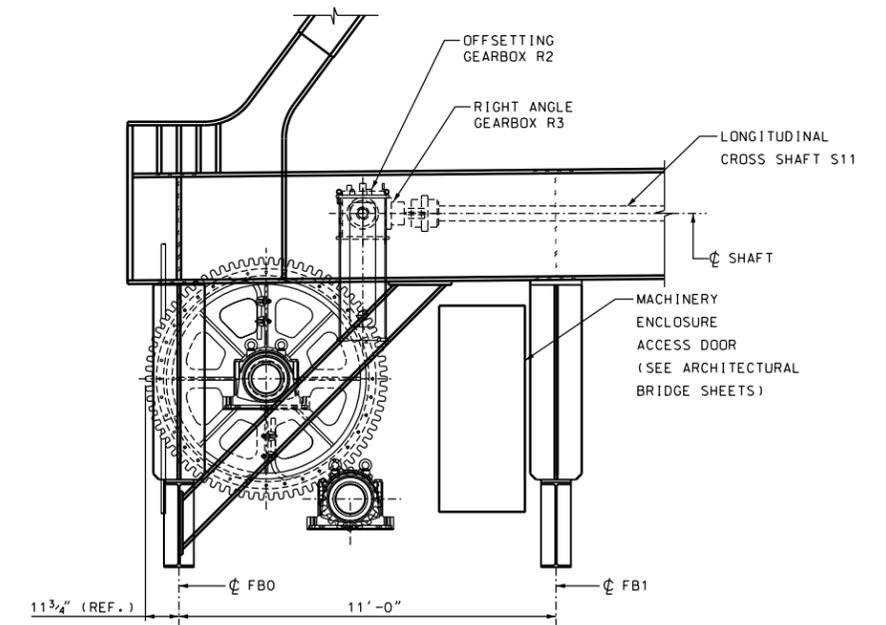
SECTION A-A

3/8" = 1'-0"



SECTION B-B

3/8" = 1'-0"



SECTION C-C (SHOWN)

SECTION C'-C' (SHEET M-17 OPP. HAND)

3/8" = 1'-0"

NOTES:
1. ELECTRICAL EQUIPMENT SHOWN FOR REFERENCE ONLY.

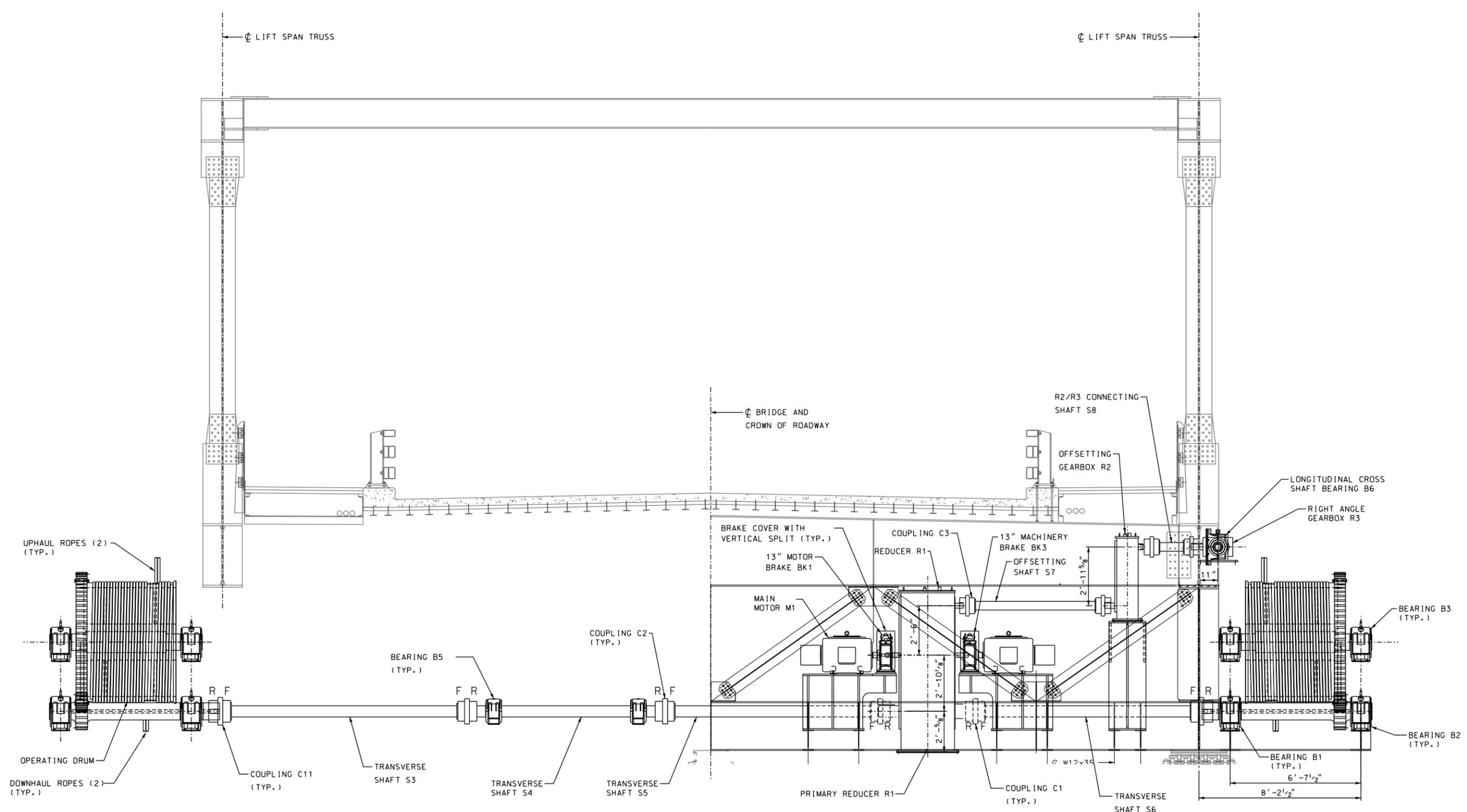
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STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
MAIN DRIVE ASSEMBLY PLAN VIEW					
REVISIONS AFTER PROPOSAL		BY	DATE	BY	DATE
		JWW	11/11	WEN	11/11
		JWW	11/11	WEN	11/11
		XX	XX/XX	XX	XX/XX
ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS
REV. DATE					
					BRIDGE SHEET M13 OF M41 FILE NUMBER 107-1-1 TOTAL SHEETS -

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M13	3/8" = 1'-0"



MACHINERY CROSS SECTION
SECTION AT SOUTH TOWER LOOKING SOUTH
 $\frac{3}{8}'' = 1'-0''$

- NOTES:**
1. "R" DENOTES RIGID HUB
"F" DENOTES FLEX HUB
 2. SEE BRIDGE SHEET M5 FOR MACHINERY SCHEDULE.
 3. MACHINERY GUARDS NOT SHOWN FOR CLARITY.

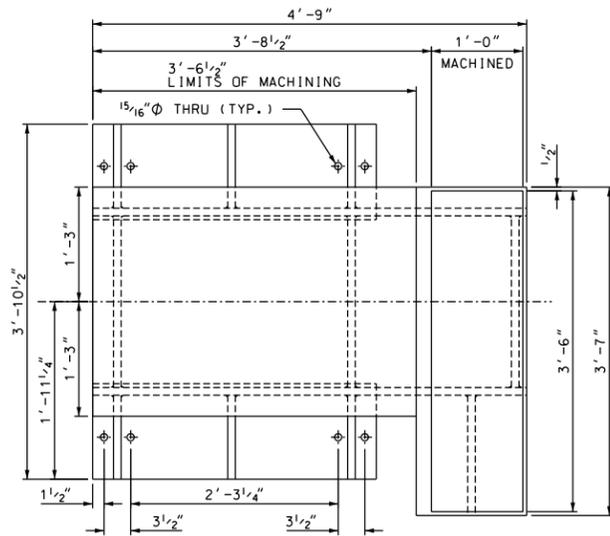
80% SUBMISSION
DECEMBER 5, 2011

ARCHER WESTERN CONTRACTORS

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STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN PORTSMOUTH, NH. - KITTERY, ME.		BRIDGE NO. 5276		STATE PROJECT 13678F					
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
MACHINERY CROSS-SECTION									
REVISIONS AFTER PROPOSAL		BY	DATE	BY	DATE	BRIDGE SHEET			
		JWW	11/11	WEN	11/11	M14 of M41			
		PBH	11/11	WEN	11/11	FILE NUMBER			
		XX	XX/XX	XX	XX/XX	107-1-1			
ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS			
REV. DATE									

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M14	3/8" = 1'-0"

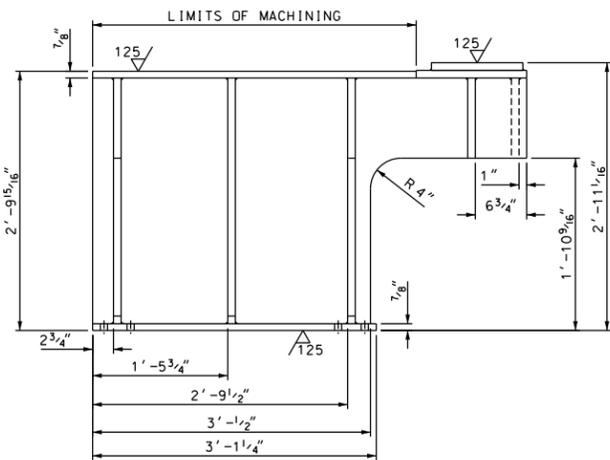


MAIN DRIVE SUPPORT PLAN VIEW

3/8" = 1'-0"

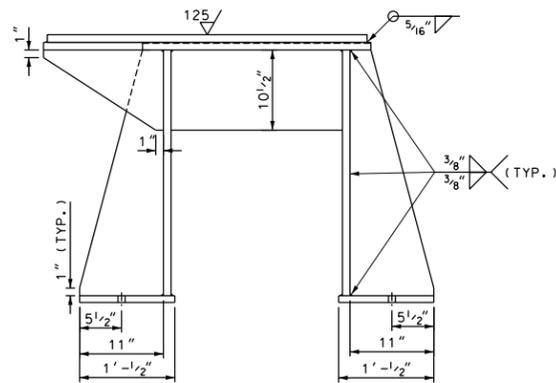
NOTES:

1. SEE BRIDGE SHEET M4 FOR MACHINERY GENERAL NOTES
2. CONTRACTOR TO COORDINATE ALL DIMENSIONS WITH ACTUAL EQUIPMENT SUPPLIED.
3. ALL MATERIAL TO BE ASTM A709 GRADE 50, 1" THICK UNLESS NOTED OTHERWISE.



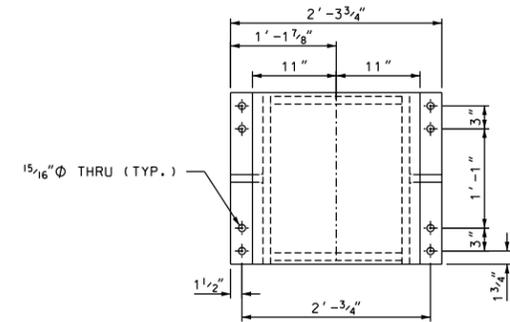
MAIN DRIVE SUPPORT ELEVATION

3/8" = 1'-0"



MAIN DRIVE SUPPORT END VIEW

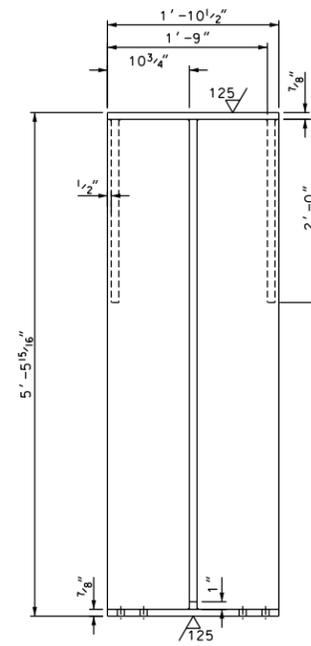
3/8" = 1'-0"



OFFSETTING GEARBOX SUPPORT

PLAN VIEW

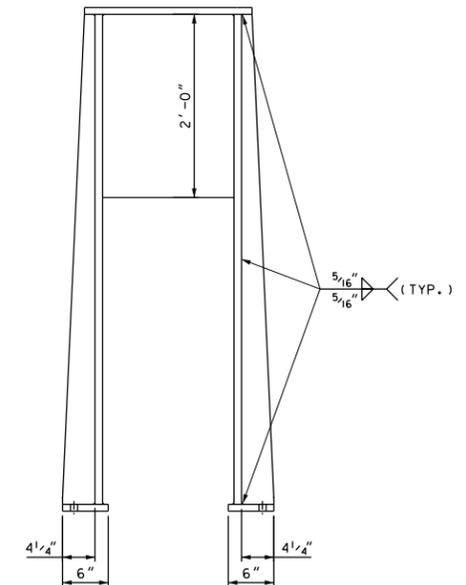
3/8" = 1'-0"



OFFSETTING GEARBOX SUPPORT

ELEVATION

3/8" = 1'-0"



OFFSETTING GEARBOX SUPPORT

END VIEW

3/8" = 1'-0"

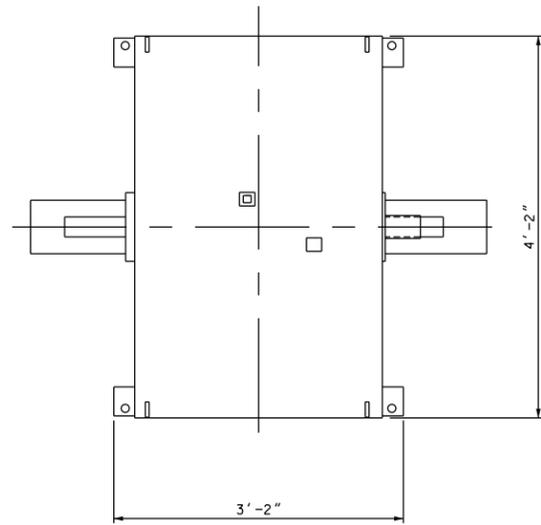
80% SUBMISSION
DECEMBER 5, 2011



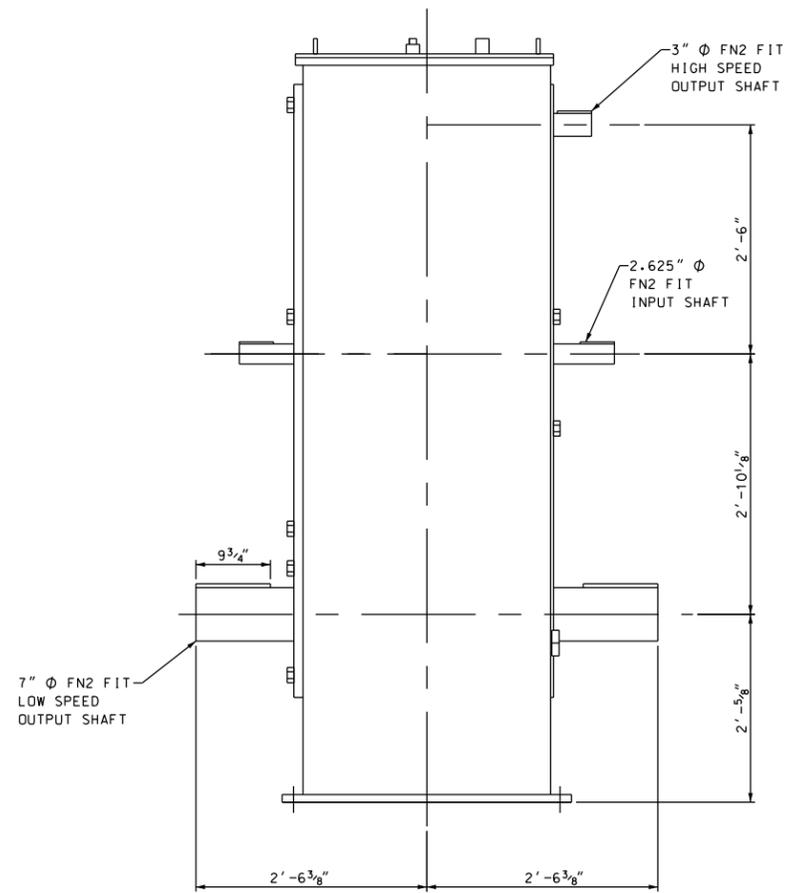
HNTB Corporation
The HNTB Companies
Engineers Architects Planners

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
MAIN DRIVE SUPPORT DETAILS					BRIDGE SHEET
REVISIONS AFTER PROPOSAL	BY	DATE	BY	DATE	M15 of M41
	DESIGNED	JWW	11/11	CHECKED	WEN 11/11
	DRAWN	GPD	11/11	CHECKED	WEN 11/11
	QUANTITIES	XX	XX/XX	CHECKED	XX XX/XX
ISSUE DATE	FEDERAL PROJECT NO.			SHEET NO.	TOTAL SHEETS
REV. DATE					-

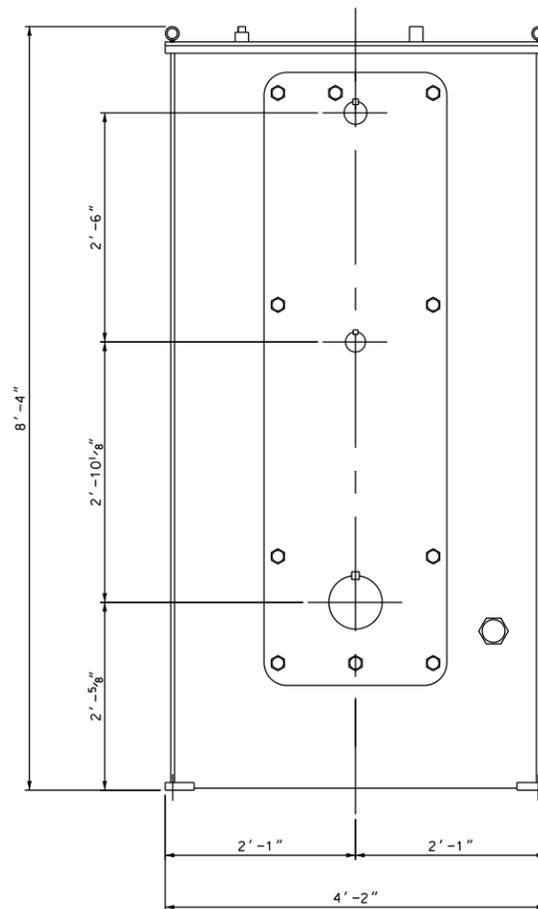
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M15	AS NOTED



PLAN VIEW
1" = 1'-0"



END VIEW
1" = 1'-0"



SIDE VIEW
1" = 1'-0"

NOTES:

1. ALL DIMENSIONS TO BE CONFIRMED BY REDUCER MANUFACTURER.
2. REFER TO SPECIFICATIONS FOR ADDITIONAL REDUCER REQUIREMENTS.

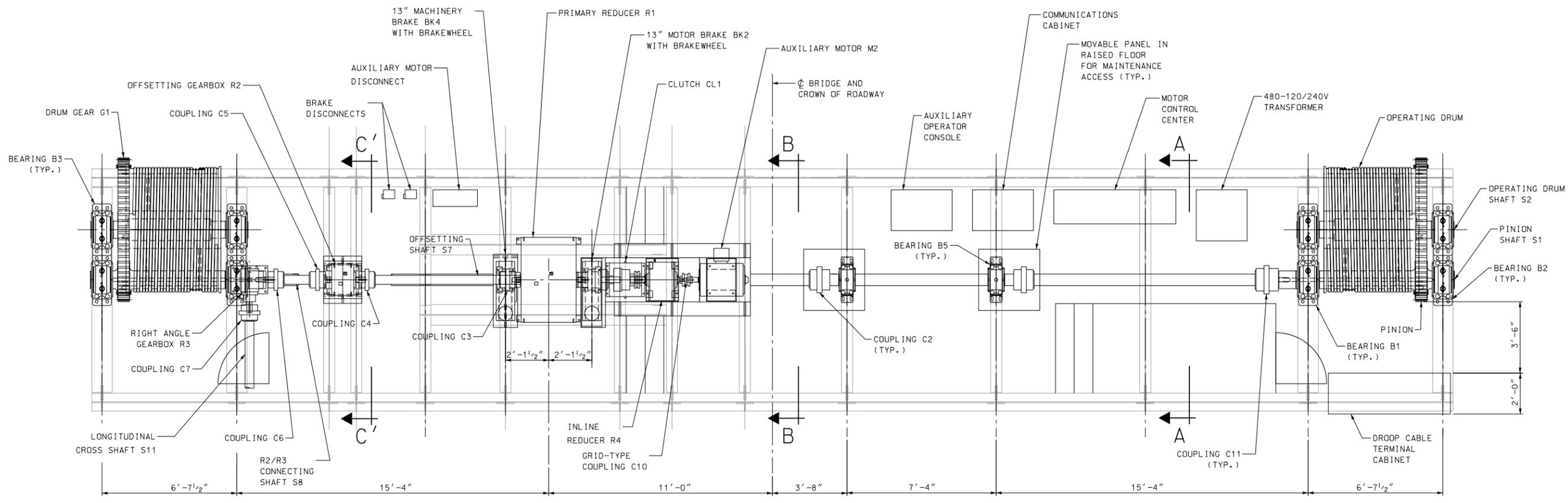
80% SUBMISSION
DECEMBER 5, 2011



STATE OF NEW HAMPSHIRE											
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN											
TOWN		PORTSMOUTH, NH. - KITTERY, ME.		BRIDGE NO.		5276		STATE PROJECT		13678F	
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER											
PRIMARY REDUCER DETAILS											
REVISIONS AFTER PROPOSAL		BY		DATE		BY		DATE		BRIDGE SHEET	
		DESIGNED		JWW		11/11		CHECKED		WEN	11/11
		DRAWN		PRE		11/11		CHECKED		WEN	11/11
		QUANTITIES		XX		XX/XX		CHECKED		XX	11/11
ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS					
REV. DATE											

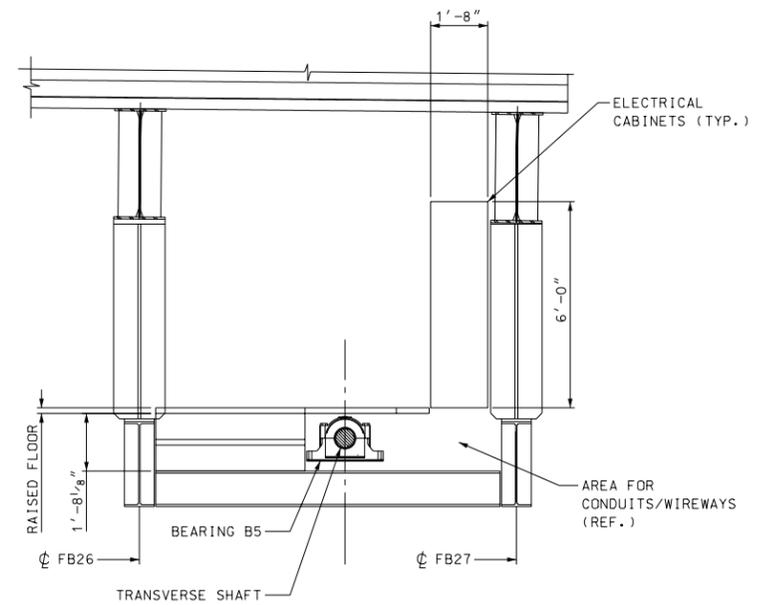
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M16	

BRIDGE SHEET
M16 of M41
FILE NUMBER
107-1-1
TOTAL SHEETS
-

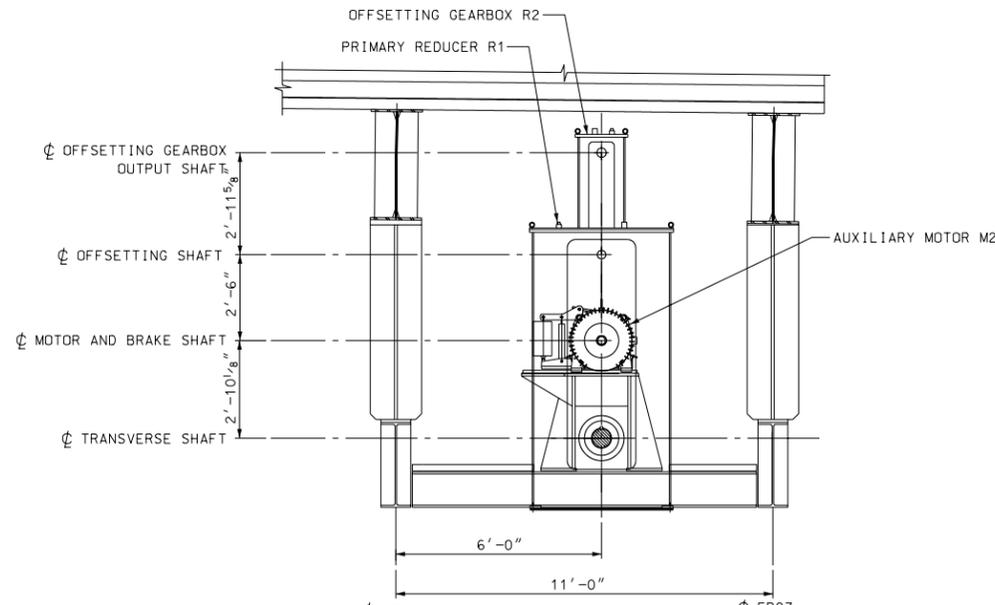


NORTH MACHINERY LAYOUT - PLAN VIEW

3/8" = 1'-0"



SECTION A-A
 3/8" = 1'-0"



SECTION B-B
 3/8" = 1'-0"

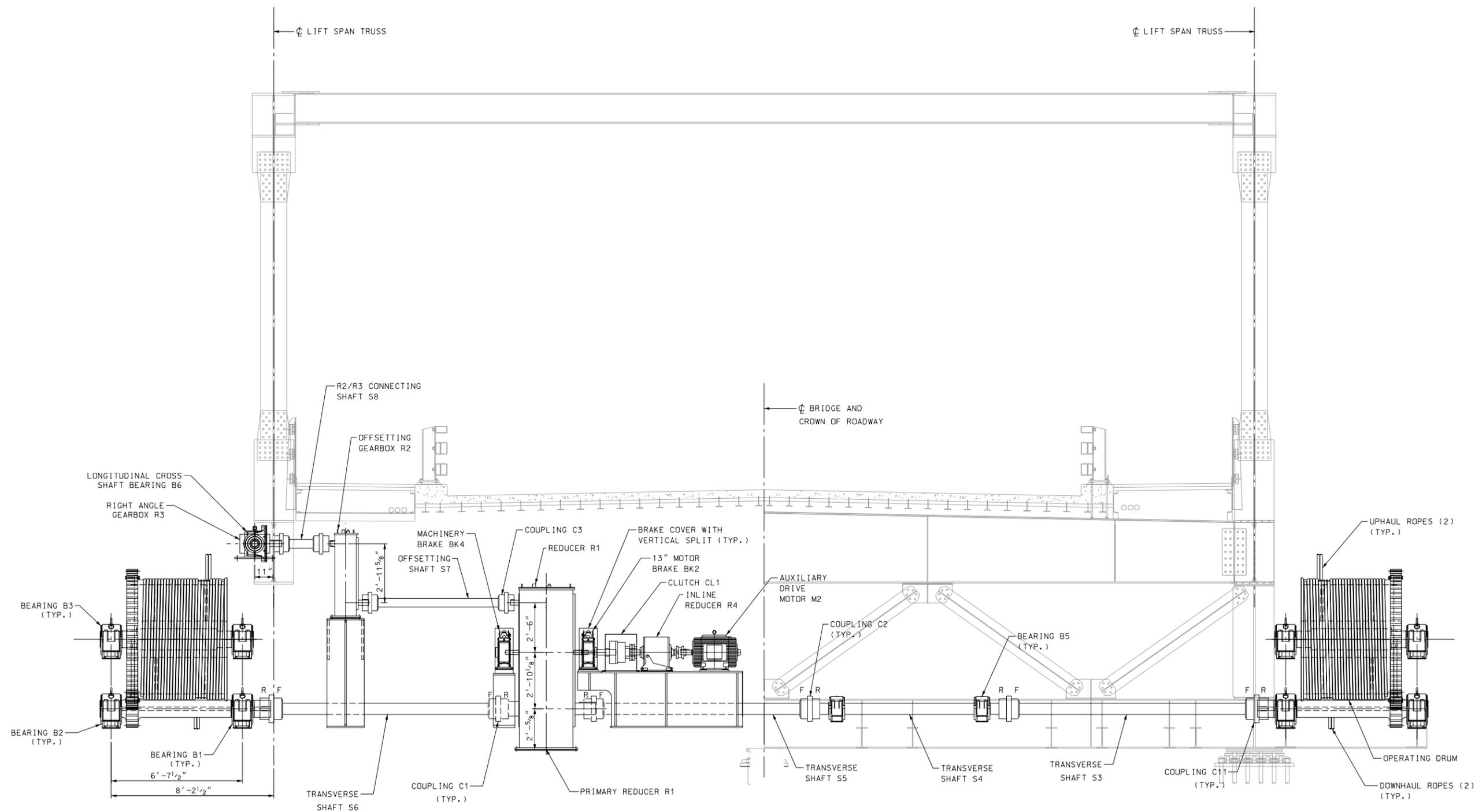
- NOTES:
 1. ELECTRICAL EQUIPMENT SHOWN FOR REFERENCE ONLY.
 2. FOR SECTION C'-C', SEE BRIDGE SHEET M13.

80% SUBMISSION
 DECEMBER 5, 2011

ARCHER WESTERN CONTRACTORS
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STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.			BRIDGE NO.	5276		STATE PROJECT	13678F	
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
AUXILIARY DRIVE ASSEMBLY PLAN VIEW								BRIDGE SHEET	M17 of M41
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	FILE NUMBER		
		DESIGNED	JWW	11/11	CHECKED	WEN	11/11	107-1-1	
		DRAWN	JWW	11/11	CHECKED	WEN	11/11	TOTAL SHEETS	
		QUANTITIES	XX	XX/XX	CHECKED	XX	XX/XX	-	
ISSUE DATE		FEDERAL PROJECT NO.			SHEET NO.		TOTAL SHEETS		
REV. DATE									

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SBRDIRS	SFILENAMES	3/8" = 1'-0"



AUX. DRIVE MACHINERY CROSS SECTION

SECTION AT NORTH TOWER LOOKING NORTH

3/8" = 1'-0"

NOTES:

1. "R" DENOTES RIGID HUB
"F" DENOTES FLEX HUB

2. SEE BRIDGE SHEET M5 FOR
MACHINERY SCHEDULE.

3. MACHINERY GUARDS NOT SHOWN FOR CLARITY.

80% SUBMISSION
DECEMBER 5, 2011



ARCHER WESTERN CONTRACTORS



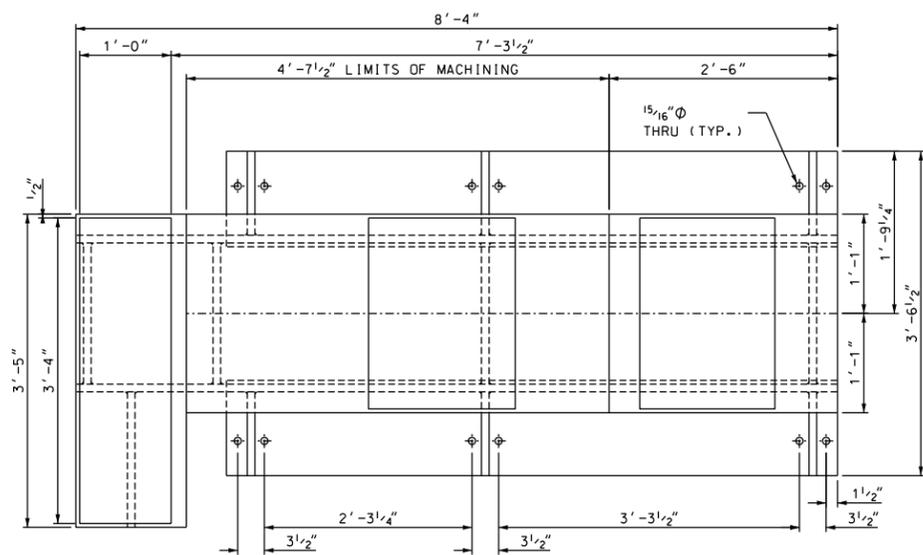
HNTB Corporation
The HNTB Companies
Engineers Architects Planners

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
SBRDIRS	SFILENAMES	3/8" = 1'-0"

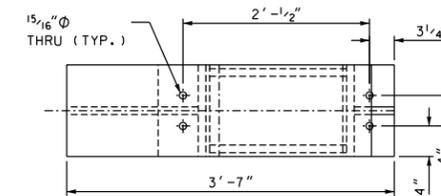
STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F				
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
AUXILIARY DRIVE CROSS-SECTION									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		
		JWW	11/11		WEN	11/11	M18 of M41		
		JWW	11/11		WEN	11/11	FILE NUMBER		
		XX	XX/XX		XX	XX/XX	107-1-1		
ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS			
REV. DATE						-			

NOTES:

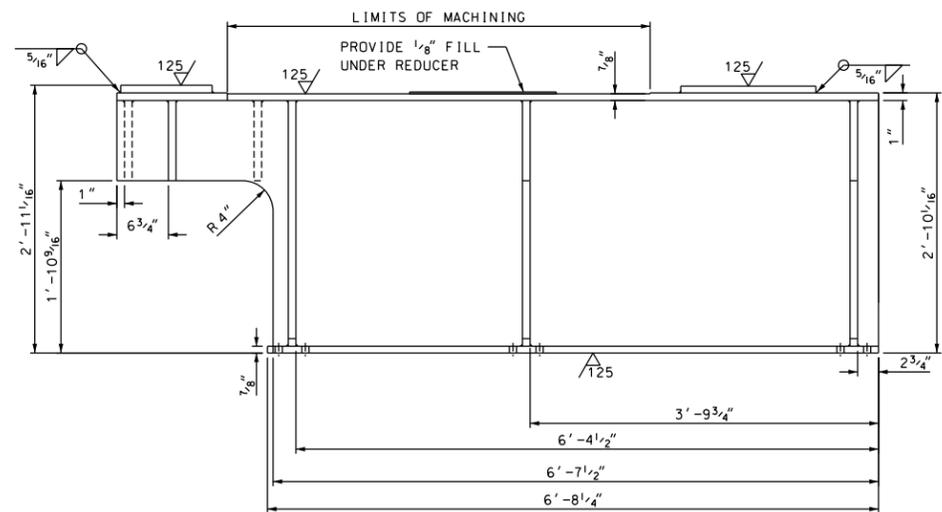
1. SEE BRIDGE SHEET M4 FOR MACHINERY GENERAL NOTES
2. CONTRACTOR TO COORDINATE ALL DIMENSIONS WITH ACTUAL EQUIPMENT SUPPLIED.
3. ALL MATERIAL TO BE ASTM A709 GRADE 50, 1" THICK UNLESS NOTED OTHERWISE.



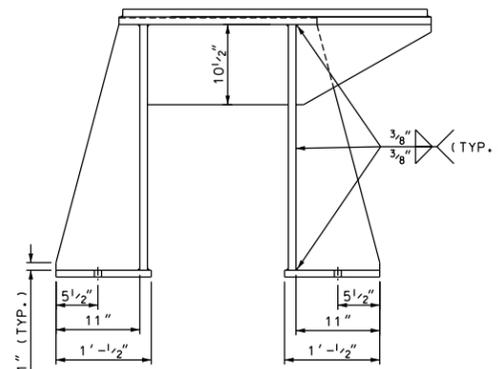
AUXILIARY DRIVE SUPPORT PLAN VIEW
3/8" = 1'-0"



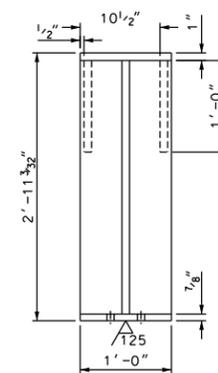
BRAKE SUPPORT PLAN VIEW
3/8" = 1'-0"



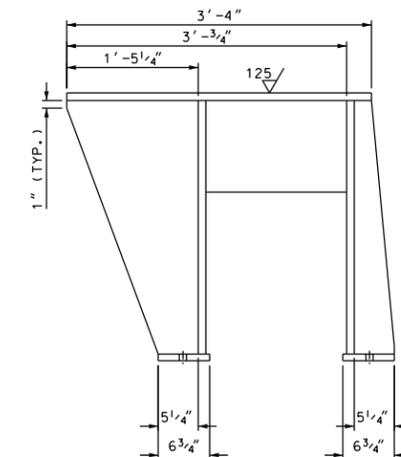
AUXILIARY DRIVE SUPPORT ELEVATION
3/8" = 1'-0"



AUXILIARY DRIVE SUPPORT END VIEW
3/8" = 1'-0"



BRAKE SUPPORT END VIEW
3/8" = 1'-0"

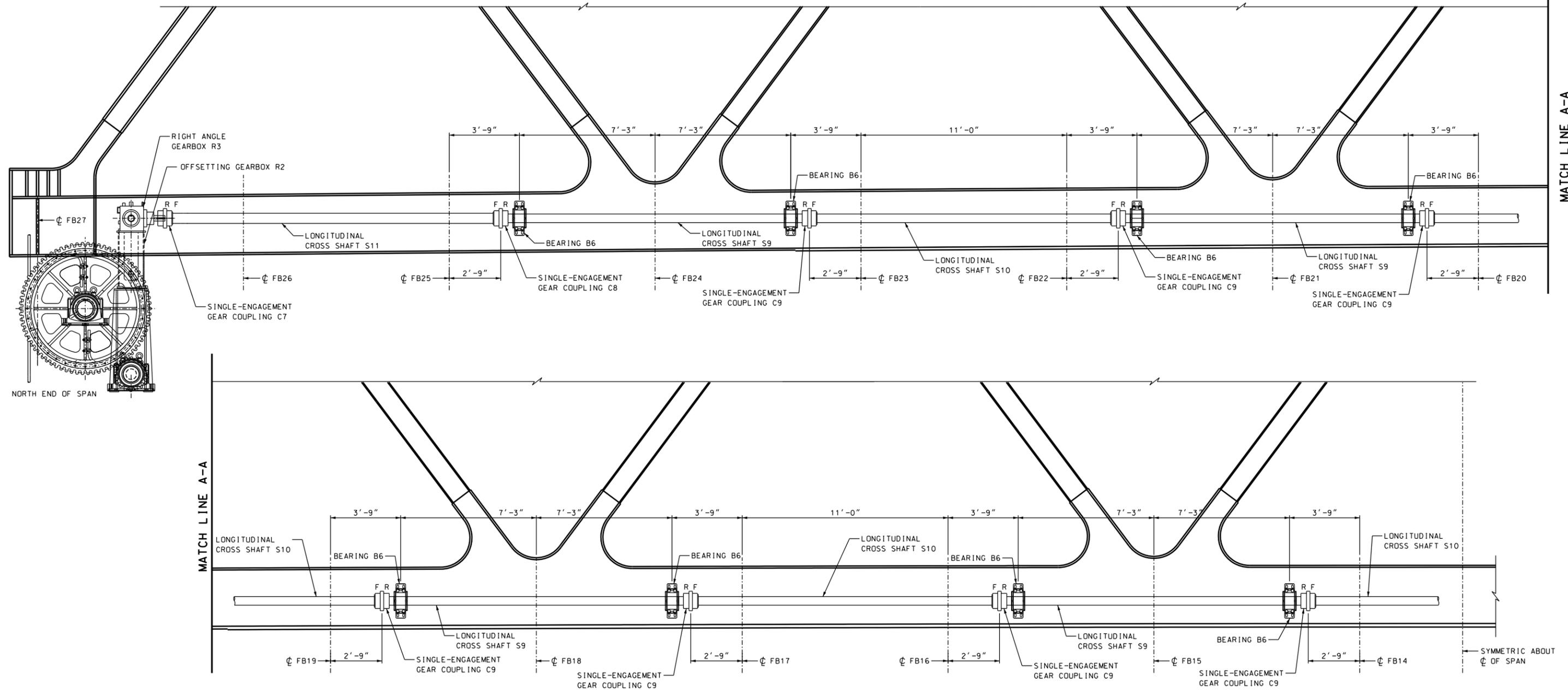


BRAKE SUPPORT ELEVATION
3/8" = 1'-0"

80% SUBMISSION
DECEMBER 5, 2011



STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN			
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276
STATE PROJECT	13678F	LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER	
AUXILIARY DRIVE SUPPORT DETAILS			BRIDGE SHEET
REVISIONS AFTER PROPOSAL			M19 of M41
DESIGNED	JWW	11/11	CHECKED WEN 11/11
DRAWN	GPD	11/11	CHECKED WEN 11/11
QUANTITIES	XX	XX/XX	CHECKED XX XX/XX
ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.
REV. DATE			
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE	TOTAL SHEETS
80% Submission	13678F-M19	AS NOTED	-



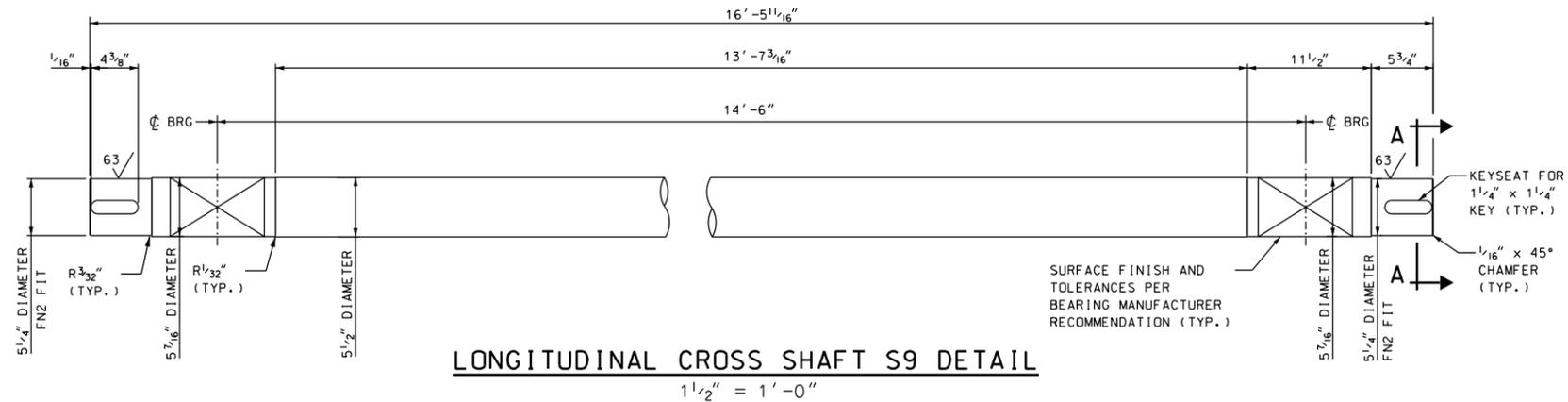
LONGITUDINAL CROSS SHAFT LAYOUT
 ELEVATION LOOKING EAST
 $\frac{3}{8}'' = 1' - 0''$

- NOTES:**
1. "R" DENOTES RIGID HUB
 "F" DENOTES FLEX HUB
 2. SEE BRIDGE SHEET M5 FOR MACHINERY SCHEDULE.

80% SUBMISSION
 DECEMBER 5, 2011

STATE OF NEW HAMPSHIRE											
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN											
TOWN PORTSMOUTH, NH. - KITTERY, ME.				BRIDGE NO. 5276				STATE PROJECT 13678F			
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER											
LONGITUDINAL CROSS SHAFT LAYOUT										BRIDGE SHEET	
REVISIONS AFTER PROPOSAL										M21 of M41	
DESIGNED		BY JWV		DATE 11/11		CHECKED		BY WEN		DATE 11/11	
DRAWN		BY PBH		DATE 11/11		CHECKED		BY WEN		DATE 11/11	
QUANTITIES		XX		XX/XX		CHECKED		XX		XX/XX	
ISSUE DATE				FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS			
REV. DATE											

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M21	AS NOTED

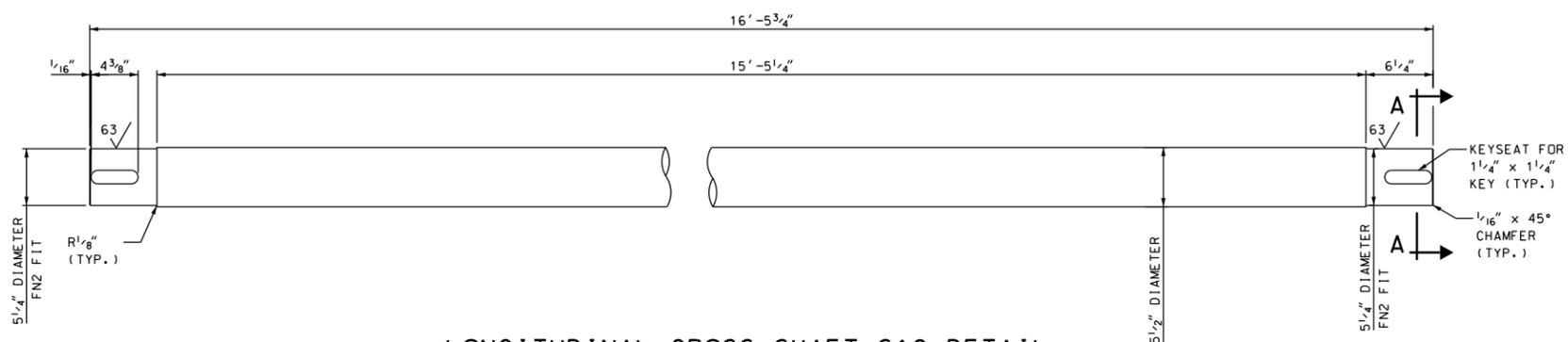


LONGITUDINAL CROSS SHAFT S9 DETAIL

1 1/2" = 1'-0"

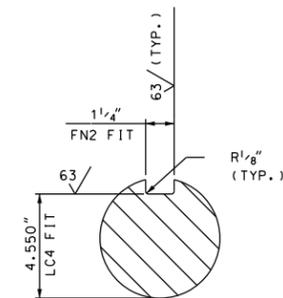
SURFACE FINISH AND TOLERANCES PER BEARING MANUFACTURER RECOMMENDATION (TYP.)

- NOTES:**
1. CONTRACTOR TO CONFIRM SHAFT S11 LENGTH WITH REDUCER MANUFACTURER.
 2. SEE BRIDGE SHEET M4 FOR MACHINERY GENERAL NOTES.
 3. SEE BRIDGE SHEET M5 FOR MACHINERY SCHEDULE AND MATERIAL SPECIFICATION.



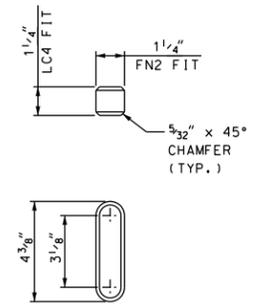
LONGITUDINAL CROSS SHAFT S10 DETAIL

1 1/2" = 1'-0"



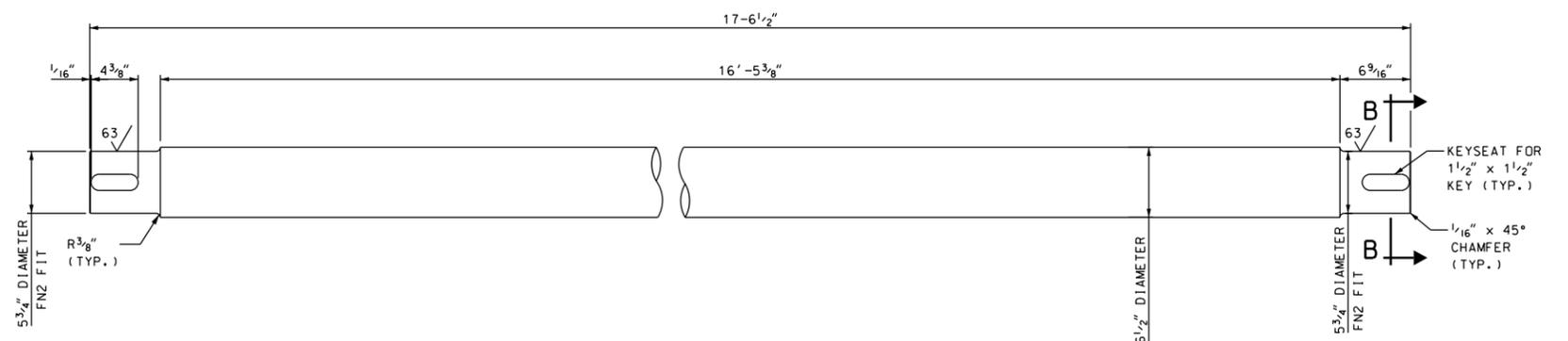
SECTION A-A

3" = 1'-0"



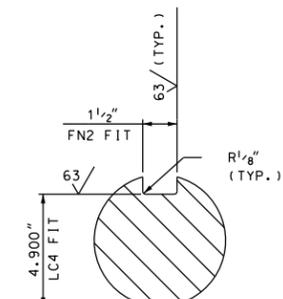
SHAFTS S9 & S10 KEY

3" = 1'-0"



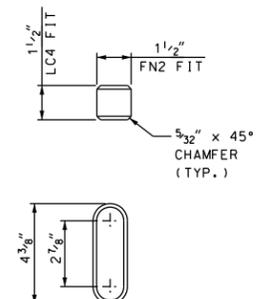
LONGITUDINAL CROSS SHAFT S11 DETAIL

1 1/2" = 1'-0"



SECTION B-B

3" = 1'-0"



SHAFT S11 KEY

3" = 1'-0"

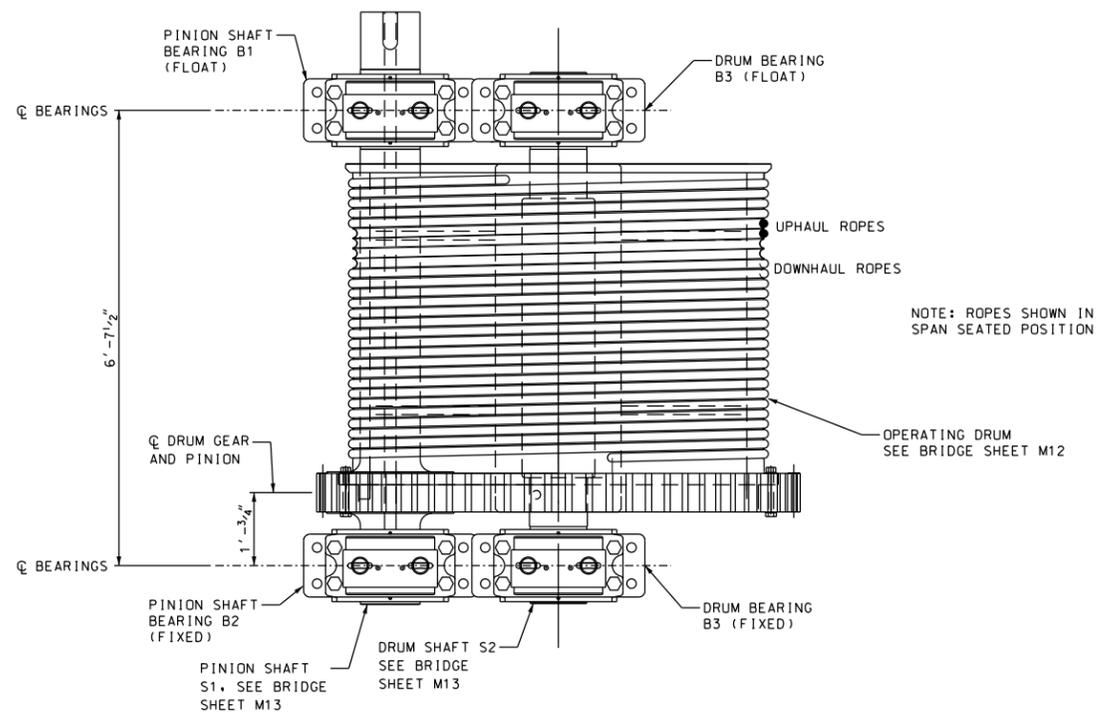
80% SUBMISSION
DECEMBER 5, 2011



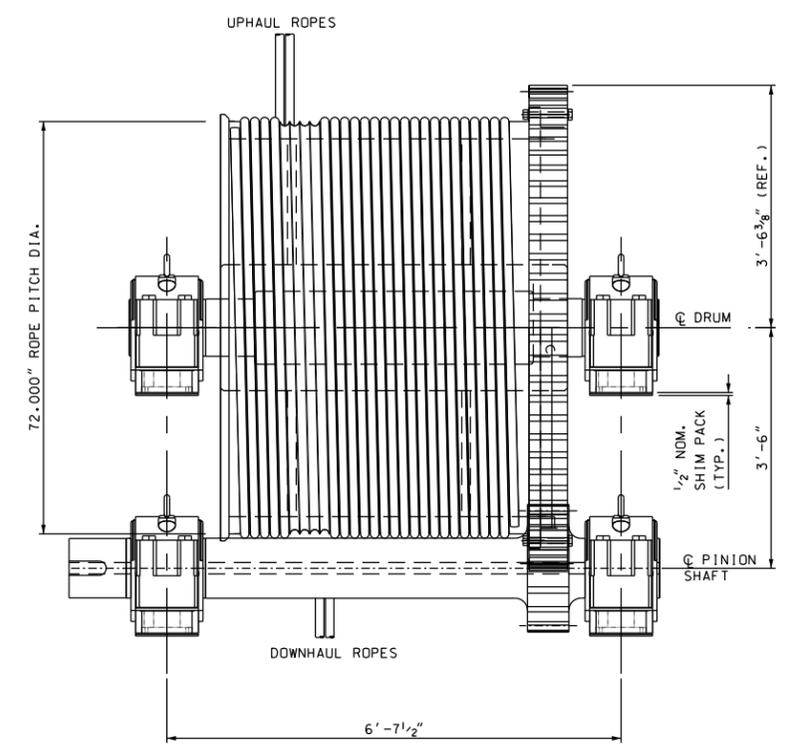
STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN PORTSMOUTH, NH. - KITTERY, ME.		BRIDGE NO. 5276		STATE PROJECT 13678F	
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
LONGITUDINAL CROSS SHAFT DETAILS					
REVISIONS AFTER PROPOSAL		BY	DATE	BY	DATE
		JVW	11/11	WEN	11/11
		PBH	11/11	WEN	11/11
		XX	XX/XX	XX	XX/XX
ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS
REV. DATE					

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M22	AS NOTED

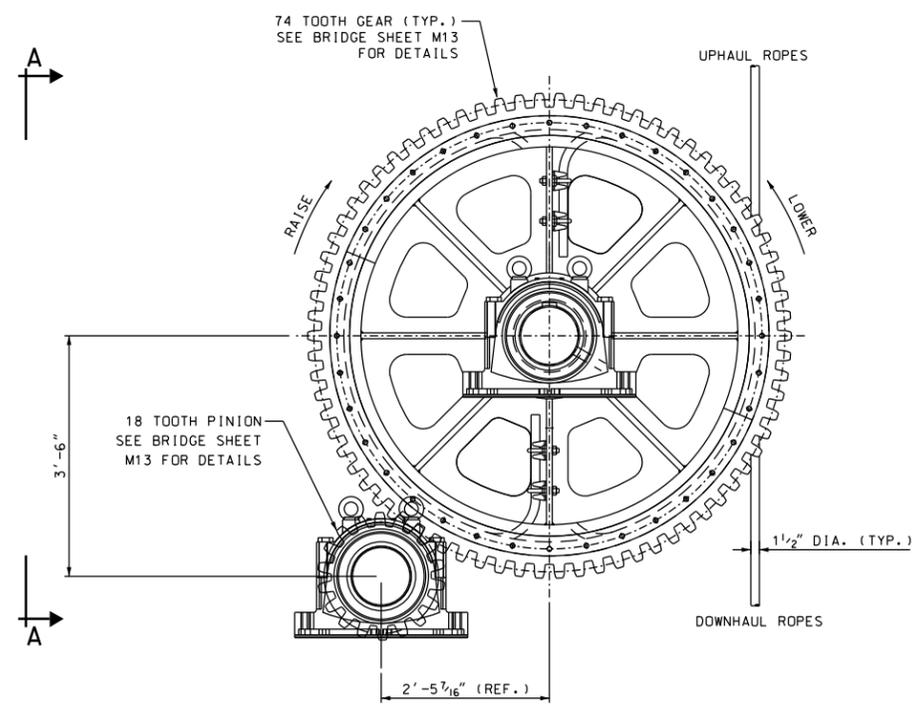
BRIDGE SHEET	M22 of M41
FILE NUMBER	107-1-1
TOTAL SHEETS	-



PLAN
 $\frac{3}{4}'' = 1'-0''$
 SOUTHWEST DRUM ASSEMBLY SHOWN



VIEW A-A - ELEVATION
 $\frac{3}{4}'' = 1'-0''$



OPERATING DRUM ASSEMBLY - ELEVATION
 $\frac{3}{4}'' = 1'-0''$
 SOUTH END OF SPAN SHOWN
 LOOKING EAST

NOTES:

1. SEE BRIDGE SHEET M4 FOR GENERAL MACHINERY NOTES. SEE BRIDGE SHEET M5 FOR MACHINERY SCHEDULE.
2. PROVIDE 1/2" NOMINAL THICKNESS SHIM PACKS UNDER ALL BEARINGS.
3. BEARING BOLTS TO BE SUB-DRILLED AND REAMED TO FINAL SIZE AFTER FINAL ALIGNMENT.
4. DRUM HUB TO BE DOWELED TO SHAFT AT ASSEMBLY. SEE BRIDGE SHEET M24 FOR DETAIL.

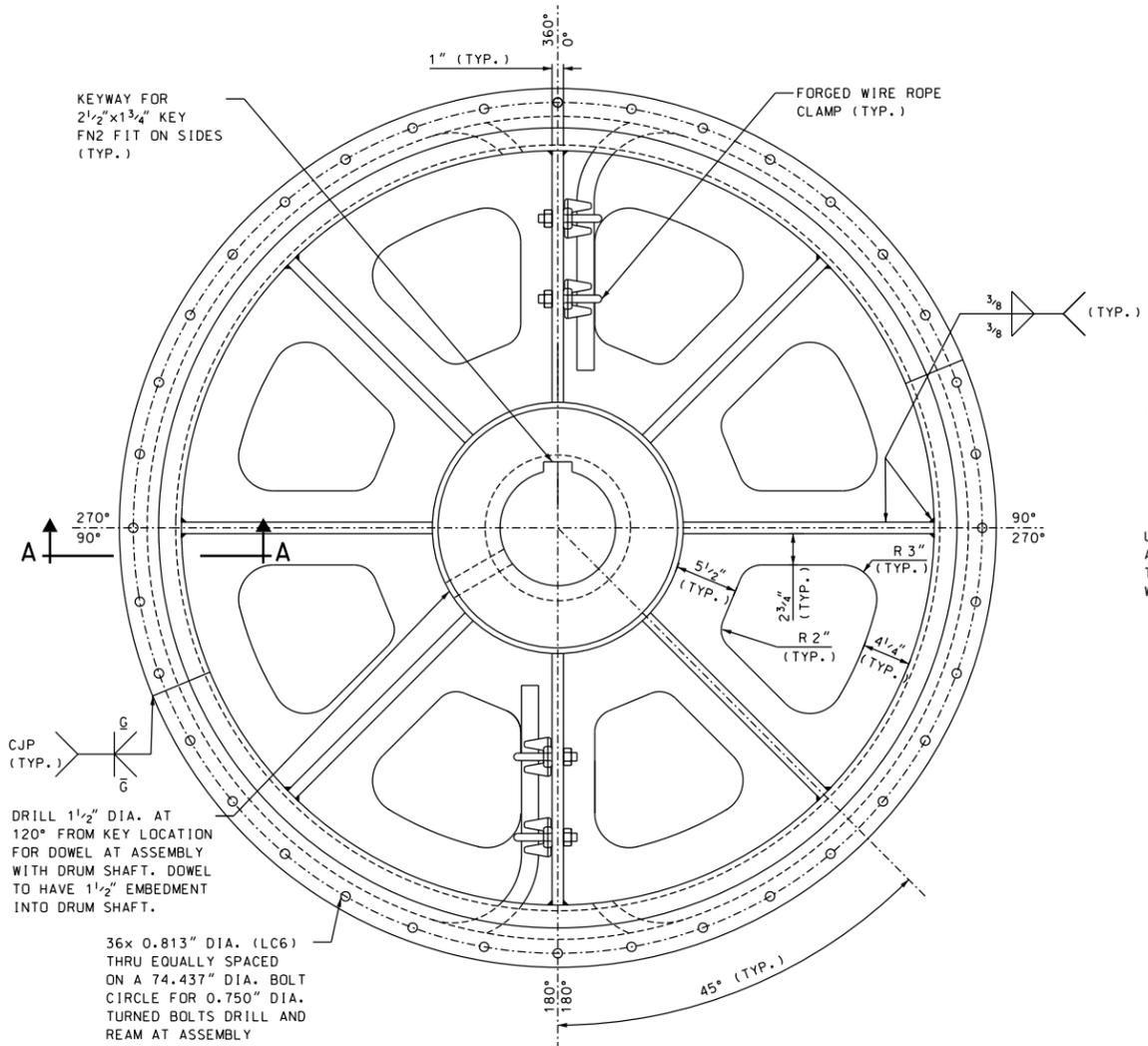
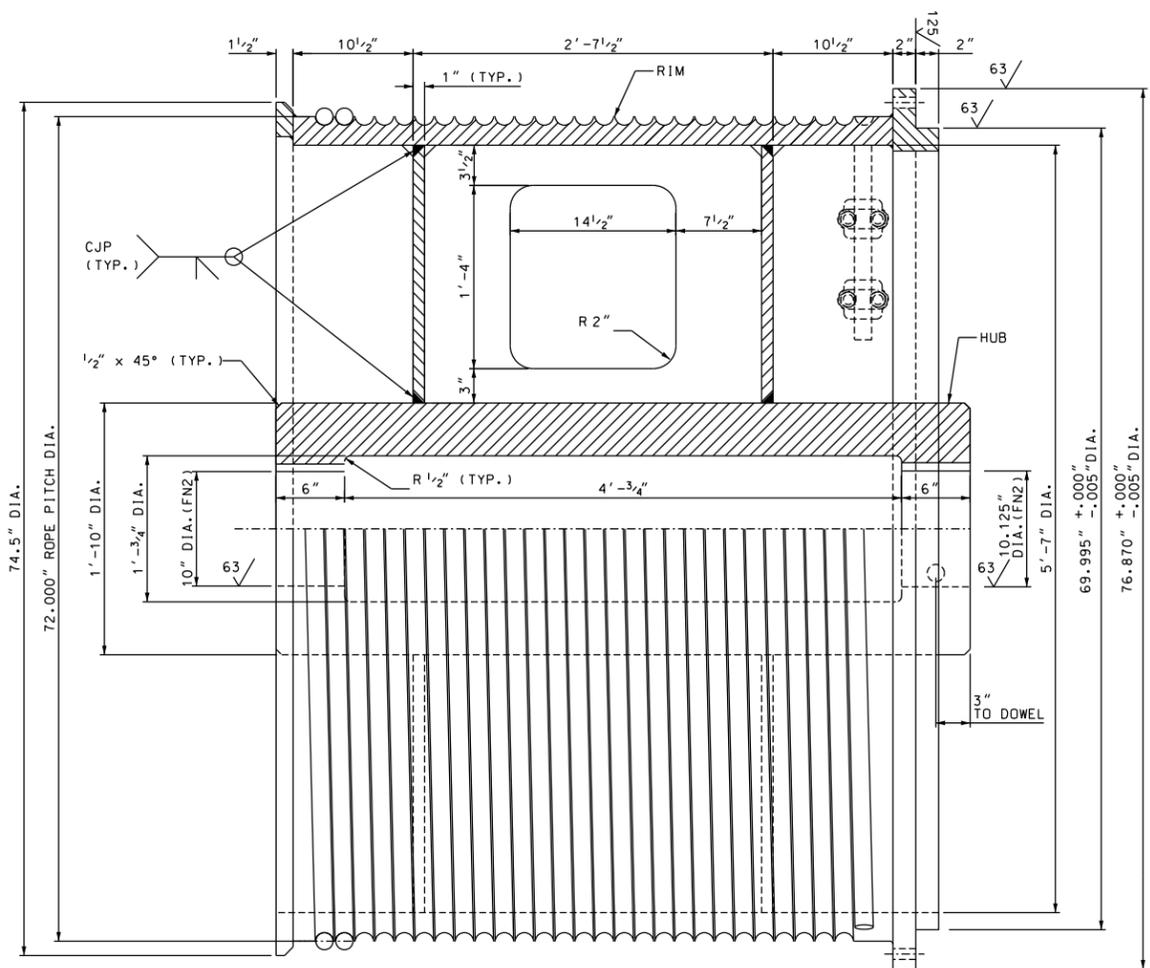
80% SUBMISSION
 DECEMBER 5, 2011

ARCHER WESTERN CONTRACTORS
 ARCHER WESTERN CONTRACTORS

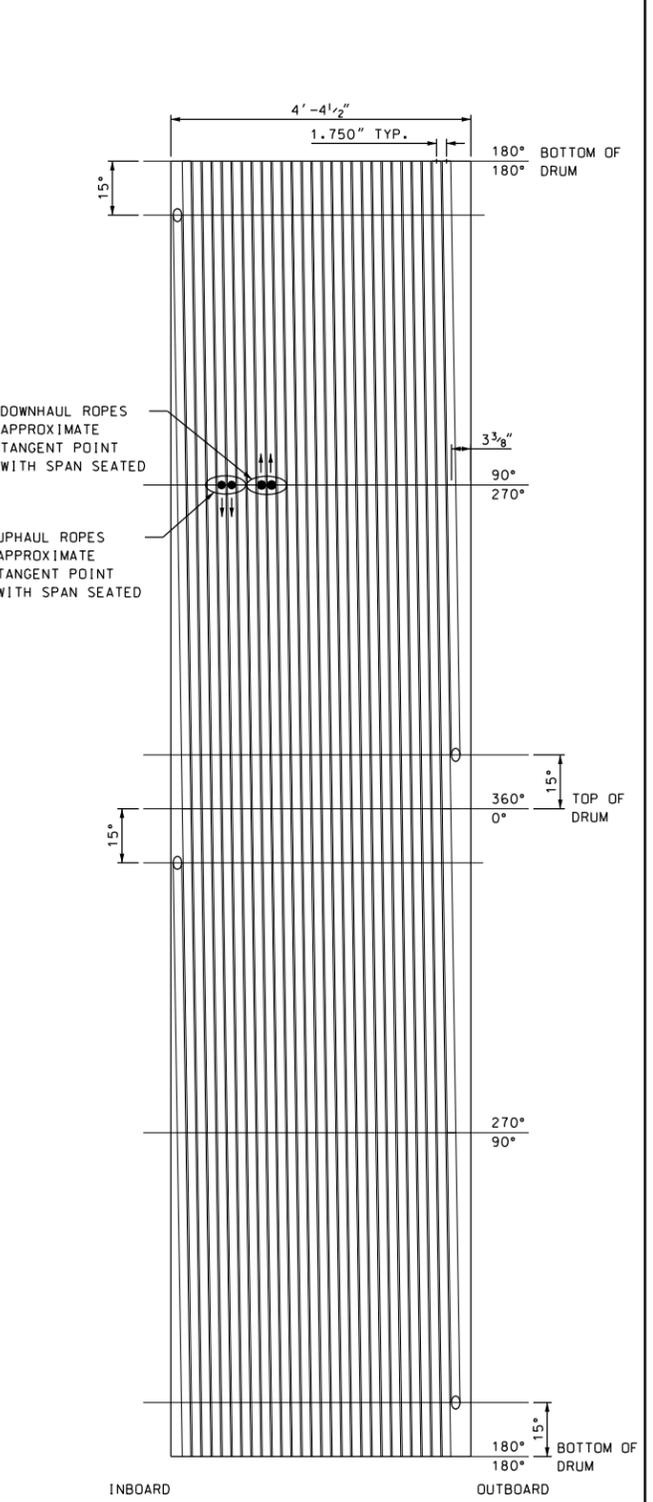
HNTB
 HNTB Corporation
 The HNTB Companies
 Engineers Architects Planners

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F				
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
OPERATING DRUM ASSEMBLY									
REVISIONS AFTER PROPOSAL		BY	DATE	BY	DATE	BRIDGE SHEET			
		DESIGNED	JWW	11/11	CHECKED	WEN	11/11	M23 OF M41	
		DRAWN	JWW	11/11	CHECKED	ETK	11/11	FILE NUMBER	
		QUANTITIES	XX	XX/XX	CHECKED	XX	XX/XX	107-1-1	
		ISSUE DATE	FEDERAL PROJECT NO.			SHEET NO.		TOTAL SHEETS	
		REV. DATE							

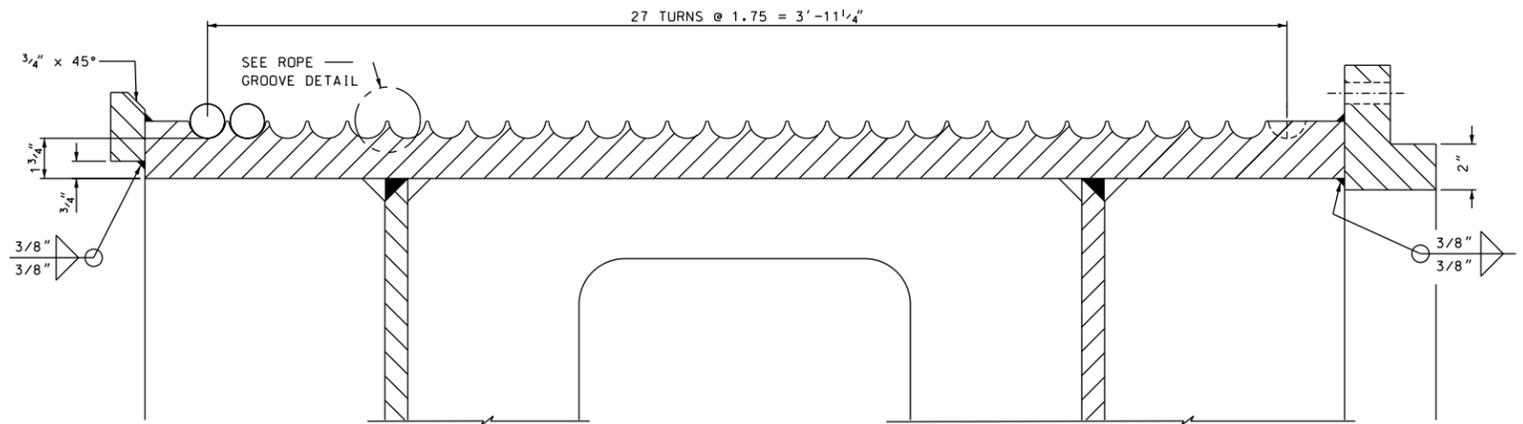
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M23	



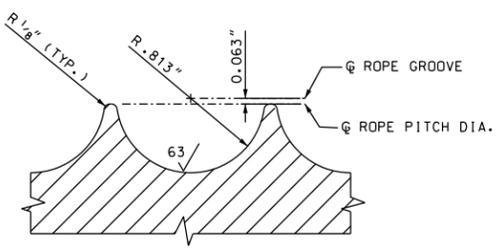
OPERATING DRUM
1 1/2" = 1'-0"



DEVELOPED DRUM SURFACE
3/4" = 1'-0"
SW DRUM SHOWN - SPAN SEATED
(4) TOTAL REQUIRED -
(2) AS SHOWN, (2) OPPOSITE HAND



SECTION A-A
3" = 1'-0"
RIM DETAIL



ROPE GROOVE DETAIL
1" = 1'-0"

- NOTES:**
- SEE BRIDGE SHEET M4 FOR GENERAL MACHINERY NOTES.
 - ALL ROPE GROOVES AND RADII TO BE FINISHED TO 63 MICROINCH FINISH.
 - DRUM TO BE FABRICATED FROM STRUCTURAL CARBON STEEL (ASTM A709 GRADE 50) UNLESS OTHERWISE NOTED. RIM TO BE ASTM A36. HUB TO BE FORGED CARBON STEEL. ASTM A668 CLASS D. MAXIMUM CARBON CONTENT 0.35%.
 - WELDMENT TO BE STRESS RELIEVED AFTER WELDING AND BEFORE MACHINING.

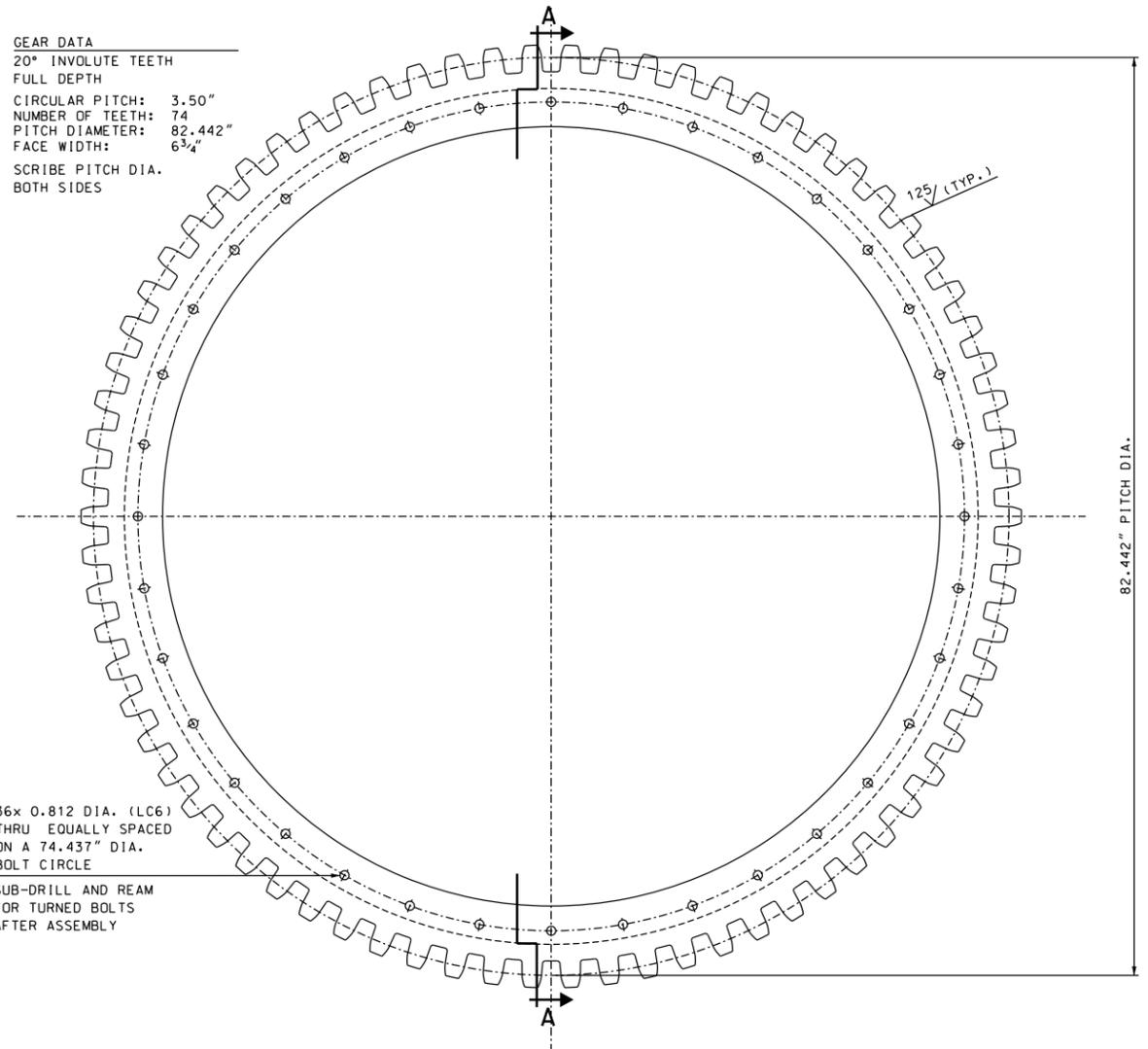
80% SUBMISSION
DECEMBER 5, 2011

ARCHER WESTERN CONTRACTORS
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STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN			
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276
STATE PROJECT	13678F	LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER	
OPERATING DRUM DETAILS			BRIDGE SHEET
REVISIONS AFTER PROPOSAL			M24 OF M41
DESIGNED	JWW	11/11	CHECKED WEN 11/11
DRAWN	JWW	11/11	CHECKED ETK 11/11
QUANTITIES	XX	XX/XX	CHECKED XX XX/XX
ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.
REV. DATE			TOTAL SHEETS
			-

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M24	AS NOTED

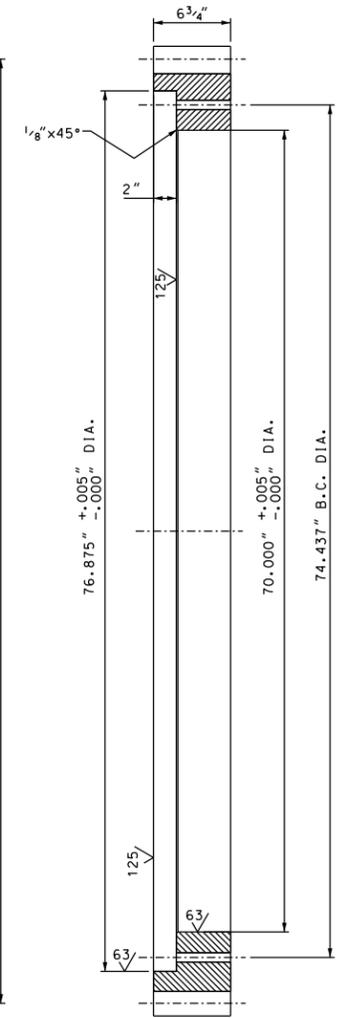
GEAR DATA
 20° INVOLUTE TEETH
 FULL DEPTH
 CIRCULAR PITCH: 3.50"
 NUMBER OF TEETH: 74
 PITCH DIAMETER: 82.442"
 FACE WIDTH: 6 3/4"
 SCRIBE PITCH DIA.
 BOTH SIDES



36 x 0.812 DIA. (LC6)
 THRU EQUALLY SPACED
 ON A 74.437" DIA.
 BOLT CIRCLE
 SUB-DRILL AND REAM
 FOR TURNED BOLTS
 AFTER ASSEMBLY

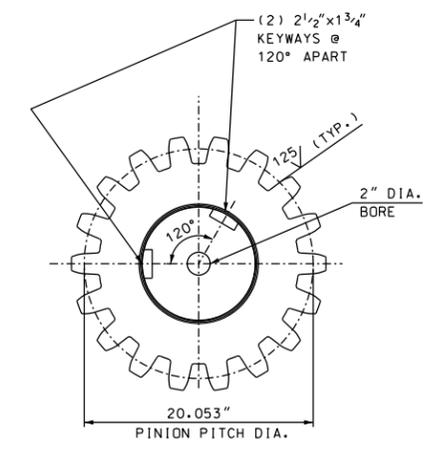
DRUM GEAR

1 1/2" = 1'-0"
 MATERIAL: ASTM A 668 CLASS D FORGING
 LOCALLY HARDEN TEETH TO 270 TO 300 BHN



SECTION A-A

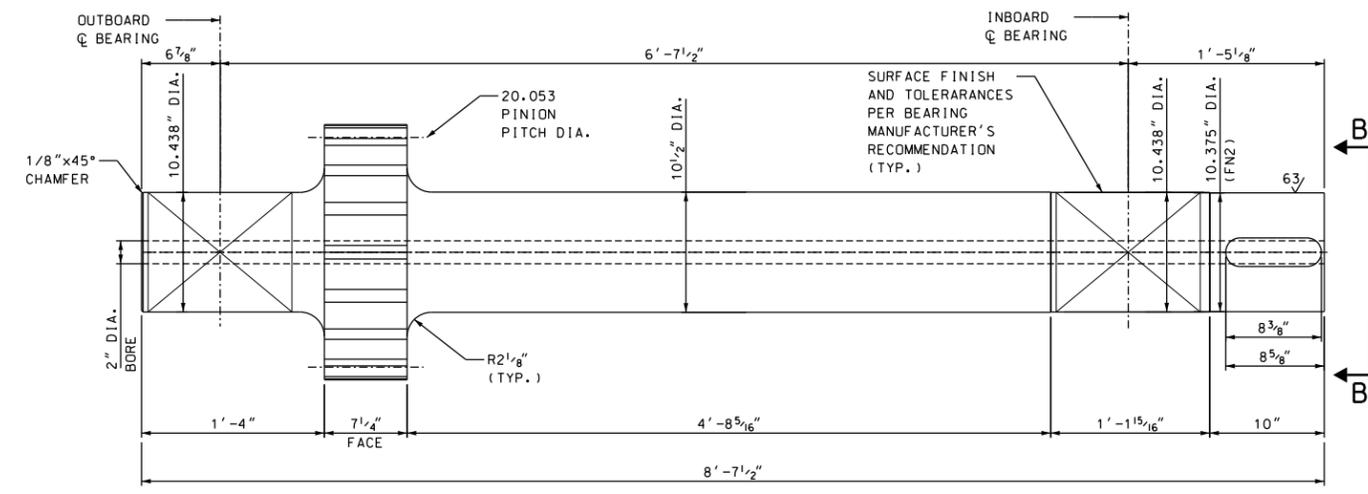
1 1/2" = 1'-0"



PINION DATA
 20° INVOLUTE TEETH
 FULL DEPTH
 CIRCULAR PITCH: 3.50"
 NUMBER OF TEETH: 18
 PITCH DIAMETER: 20.053"
 FACE WIDTH: 7 1/4"
 SCRIBE PITCH DIA.
 BOTH SIDES

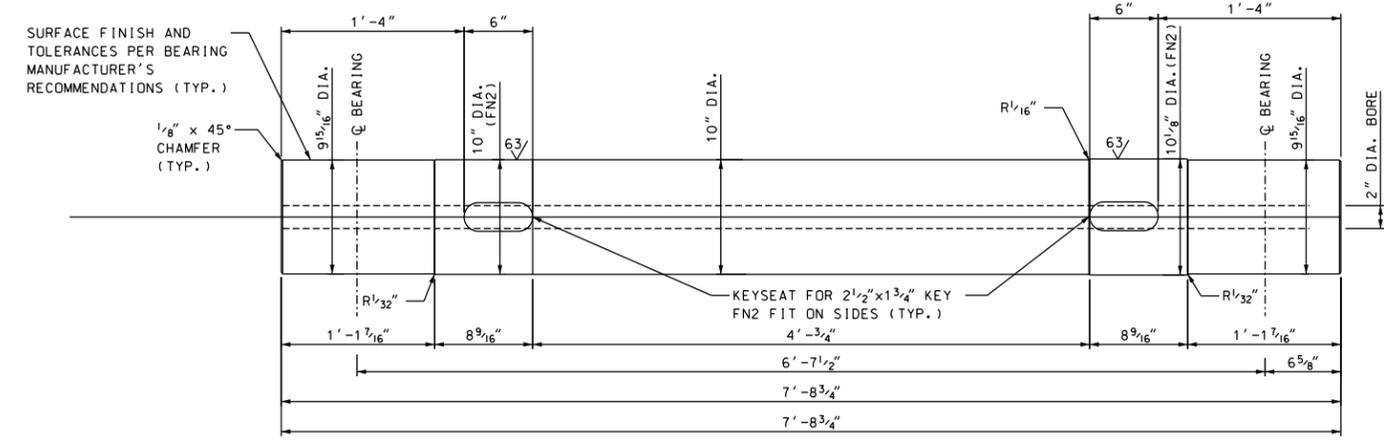
VIEW B-B

1 1/2" = 1'-0"



PINION SHAFT S1

1 1/2" = 1'-0"
 MATERIAL: ASTM A 291 GRADE 7 CLASS H FORGING
 TOOTH HARDNESS = 340 TO 370 BHN



DRUM SHAFT S2

1 1/2" = 1'-0"
 MATERIAL: ASTM A 668 CLASS D FORGING

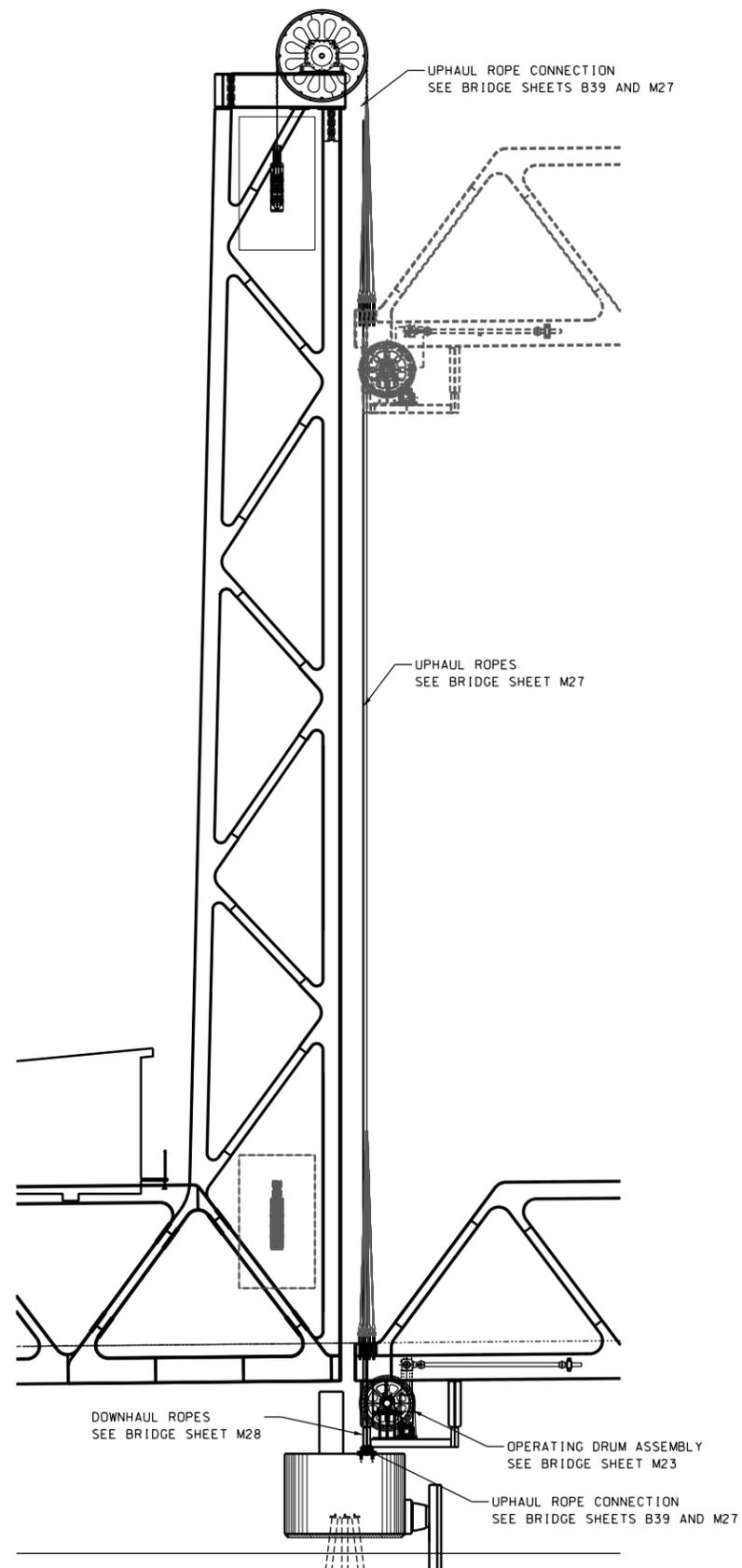
NOTES:
 1. SEE BRIDGE SHEET M5 FOR MACHINERY SCHEDULE.

80% SUBMISSION
 DECEMBER 5, 2011

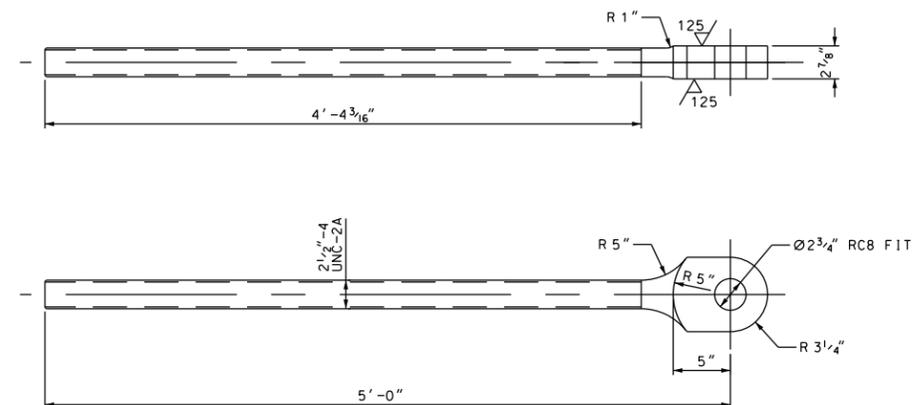
ARCHER WESTERN CONTRACTORS
HNTB
 The HNTB Companies
 Engineers Architects Planners

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION - U.S. ROUTE 1 OVER PISCATAQUA RIVER					
DRUM SHAFT GEAR AND PINION DETAILS					BRIDGE SHEET
REVISIONS AFTER PROPOSAL					M25 OF M41
DESIGNED	JWW	11/11	CHECKED	WEN	11/11
DRAWN	JWW	11/11	CHECKED	ETK	11/11
QUANTITIES	XX	XX/XX	CHECKED	XX	XX/XX
ISSUE DATE			FEDERAL PROJECT NO.		SHEET NO.
REV. DATE					TOTAL SHEETS

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M25	AS NOTED



OPERATING ROPE LAYOUT
3/32" = 1'-0"



EYE ROD
SCALE: 1 1/2" = 1'
(16) REQUIRED
MATERIAL: ASTM A 668 CLASS D FORGING

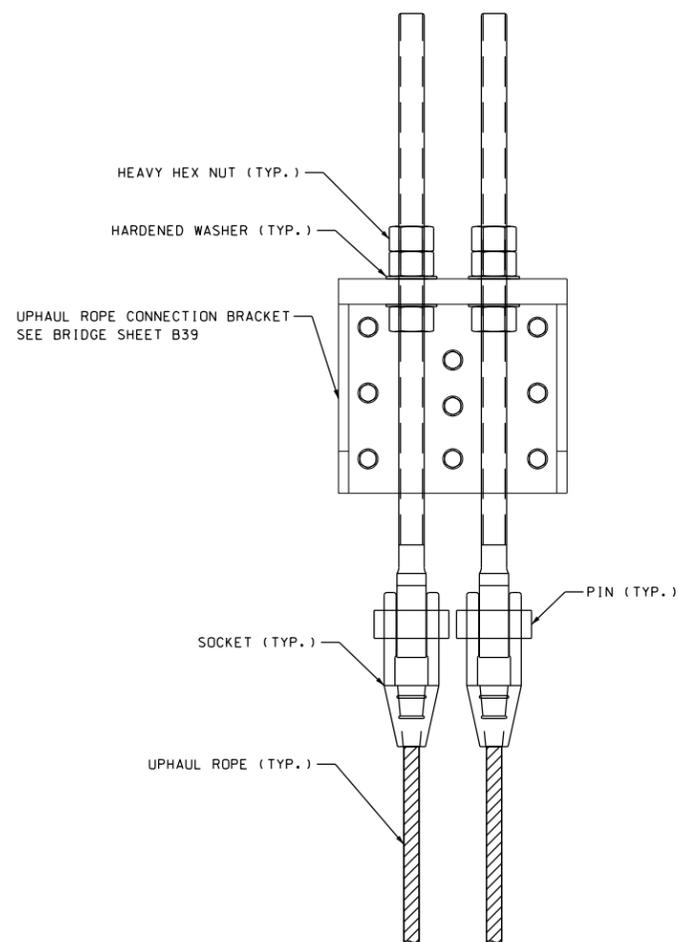
NOTES:
1. SEE BRIDGE M4 FOR MACHINERY GENERAL NOTES.

80% SUBMISSION
DECEMBER 5, 2011



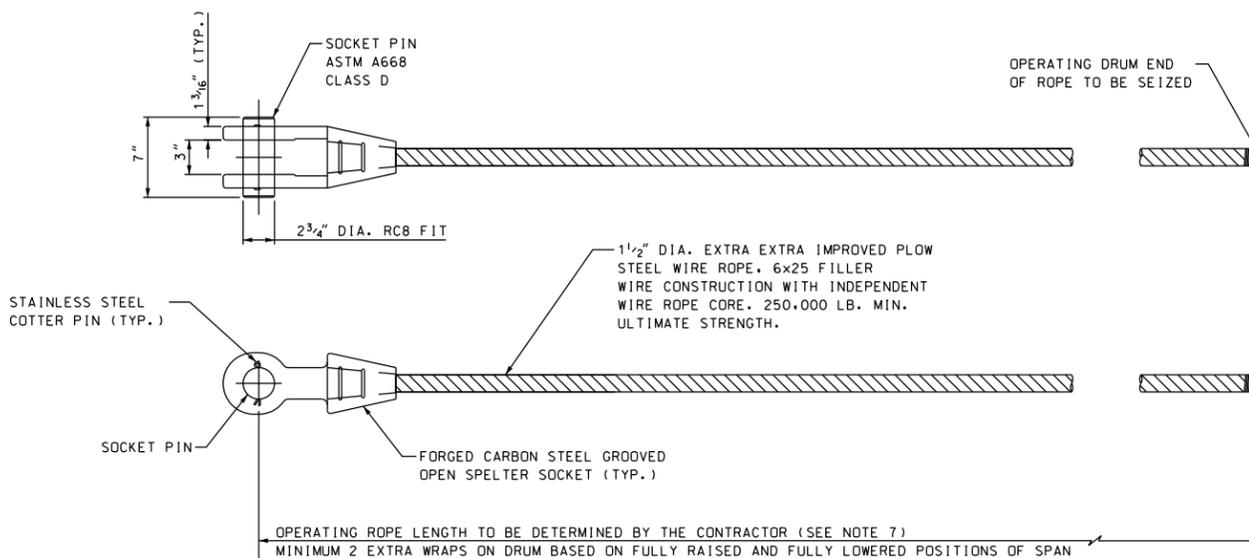
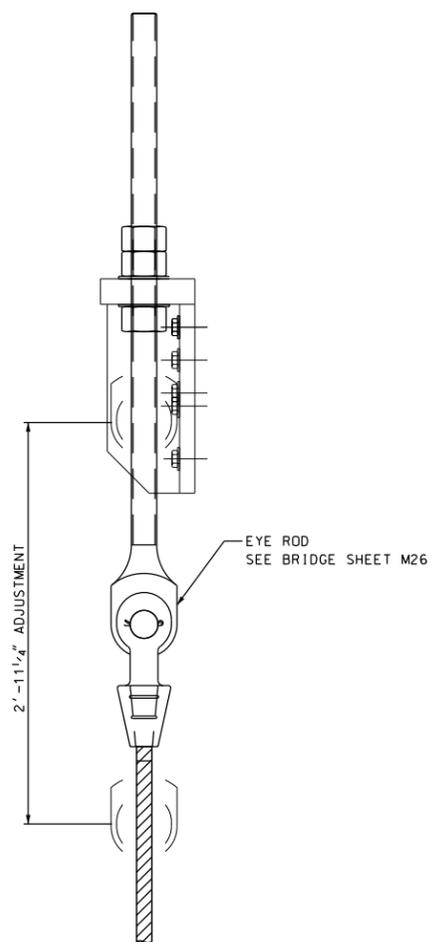
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M26	AS NOTED

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.			BRIDGE NO.	5276		STATE PROJECT	13678F	
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
OPERATING ROPE ASSEMBLIES									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		M26 of M41
		DESIGNED	JWW	11/11	CHECKED	WEN	11/11	FILE NUMBER	
		DRAWN	JWW	11/11	CHECKED	WEN	11/11	107-1-1	
		QUANTITIES	XX	11/11	CHECKED	XX	11/11	TOTAL SHEETS	
		ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.			
		REV. DATE							



UPHAUL ROPE ASSEMBLY

SCALE: 1 1/2" = 1'
(8) REQUIRED



UPHAUL ROPE PIN AND SOCKET

SCALE: 1 1/2" = 1'
TYPICAL (8) UPHAUL ROPES REQUIRED

NOTES:

1. OPERATING ROPES SHALL BE MADE OF EXTRA EXTRA IMPROVED PLOW STEEL WIRE. ALL OPERATING ROPES SHALL BE PREFORMED WIRE ROPE.
2. ROPES SHALL NOT BE SPLICED.
3. WHEN ROPES ARE MEASURED THEY SHALL BE SUPPORTED THEIR ENTIRE LENGTH AND SUBJECTED TO A TENSION OF 12% OF THEIR SPECIFIED ULTIMATE STRENGTH.
4. SEE SPECIFICATIONS FOR ROPE AND SOCKET TEST REQUIREMENTS.
5. SOCKETS SHALL BE PAINTED IN THE SHOP AS SPECIFIED FOR STRUCTURAL STEEL.
6. SOCKETS SHALL CONFORM TO FEDERAL SPECIFICATION RR-S-550, LATEST EDITION.
7. (4) UPHAUL ROPES REQUIRED APPROXIMATELY 212'-6"
(4) UPHAUL ROPES REQUIRED APPROXIMATELY 203'-2".

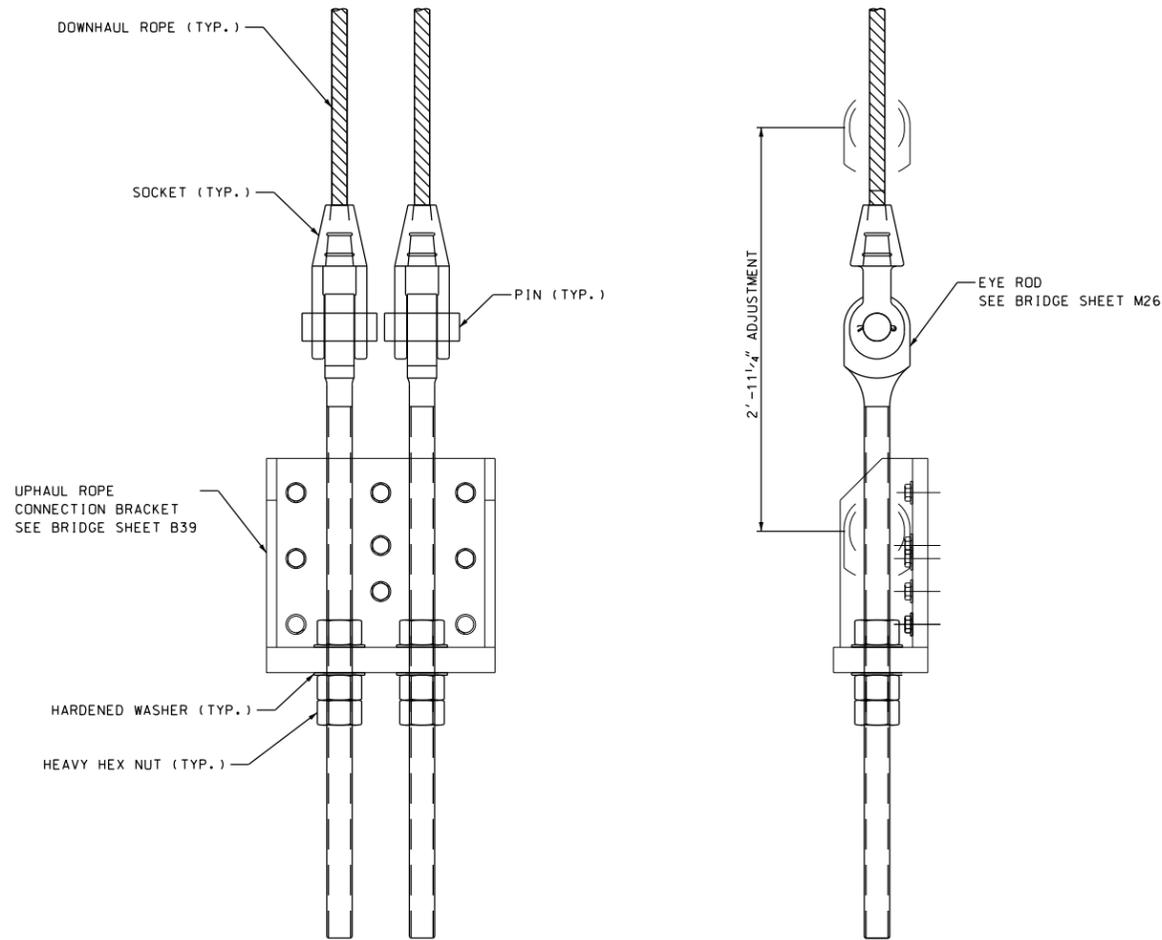
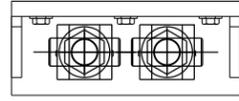
80% SUBMISSION
DECEMBER 5, 2011



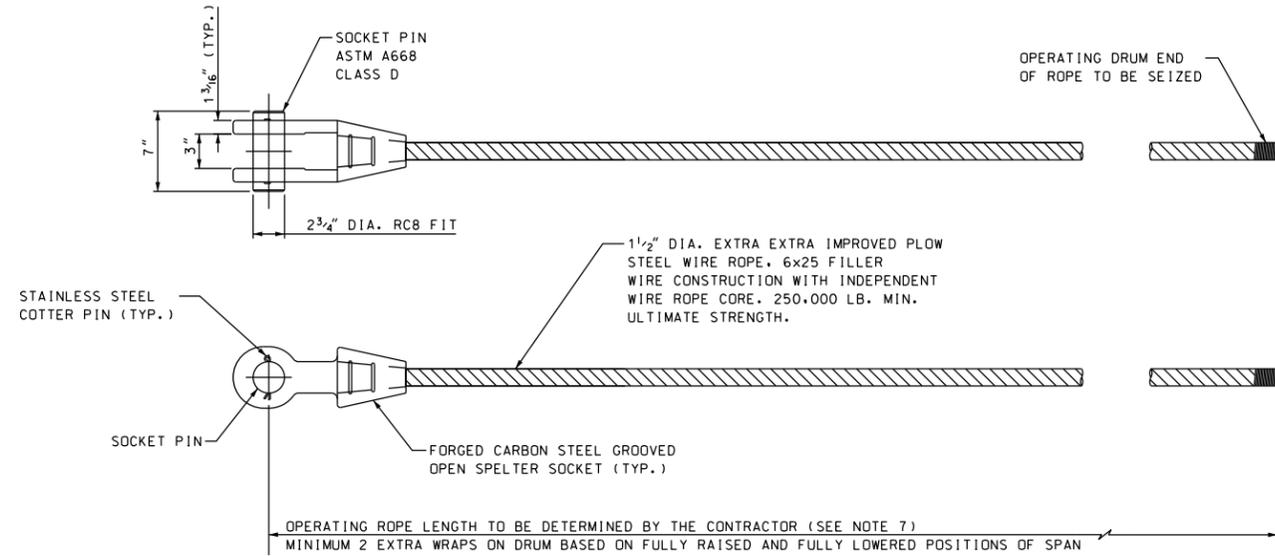
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The HNTB Companies
Engineers Architects Planners

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M27	

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER					
UPHAUL ROPE AND CONNECTION DETAILS					BRIDGE SHEET
REVISIONS AFTER PROPOSAL					M27 of M41
DESIGNED	JWW	11/11	CHECKED	WEN	11/11
DRAWN	JWW	11/11	CHECKED	WEN	11/11
QUANTITIES	XX	11/11	CHECKED	XX	11/11
ISSUE DATE			FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE					-



DOWNHAUL ROPE ASSEMBLY
SCALE: 1 1/2" = 1'
(8) REQUIRED



DOWNHAUL ROPE PIN AND SOCKET

SCALE: 1 1/2" = 1'
TYPICAL (8) DOWNHAUL ROPES REQUIRED

NOTES:

1. OPERATING ROPES SHALL BE MADE OF EXTRA EXTRA IMPROVED PLOW STEEL WIRE. ALL OPERATING ROPES SHALL BE PREFORMED WIRE ROPE.
2. ROPES SHALL NOT BE SPLICED.
3. WHEN ROPES ARE MEASURED THEY SHALL BE SUPPORTED THEIR ENTIRE LENGTH AND SUBJECTED TO A TENSION OF 12% OF THEIR SPECIFIED ULTIMATE STRENGTH.
4. SEE SPECIFICATIONS FOR ROPE AND SOCKET TEST REQUIREMENTS.
5. SOCKETS SHALL BE PAINTED IN THE SHOP AS SPECIFIED FOR STRUCTURAL STEEL.
6. SOCKETS SHALL CONFORM TO FEDERAL SPECIFICATION RR-5-550. LATEST EDITION.
7. (4) DOWNHAUL ROPES REQUIRED APPROXIMATELY 196'-0"
(4) DOWNHAUL ROPES REQUIRED APPROXIMATELY 186'-8".

80% SUBMISSION
DECEMBER 5, 2011

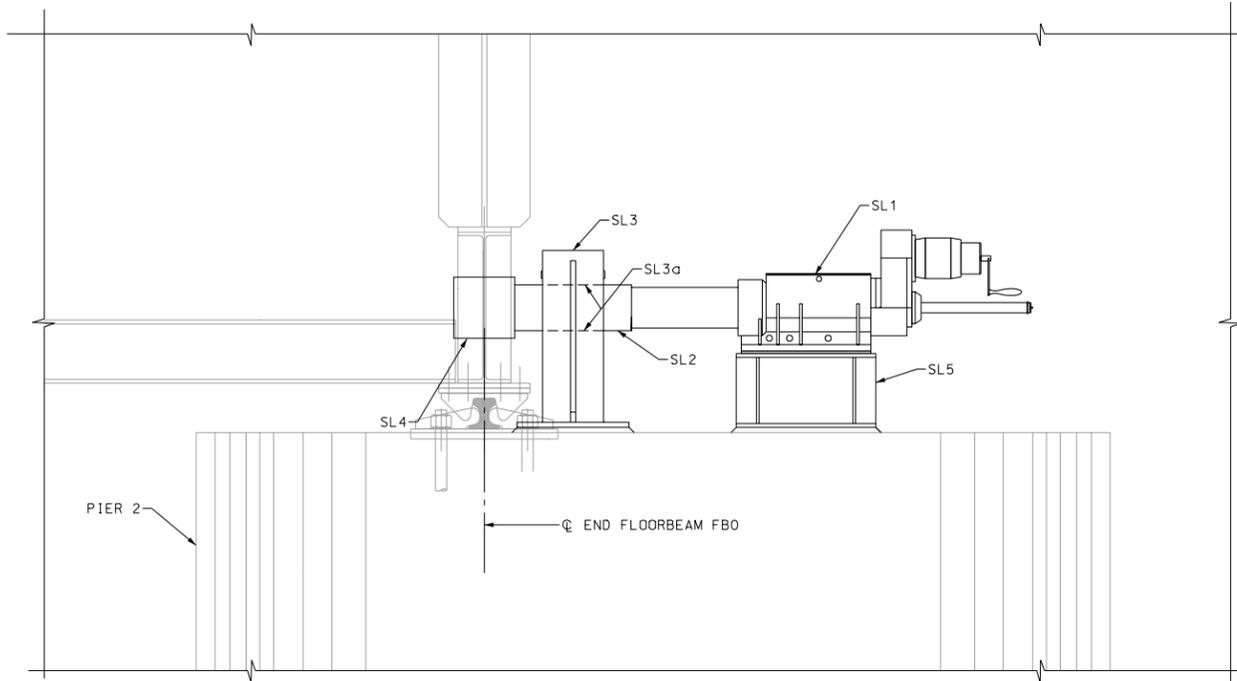


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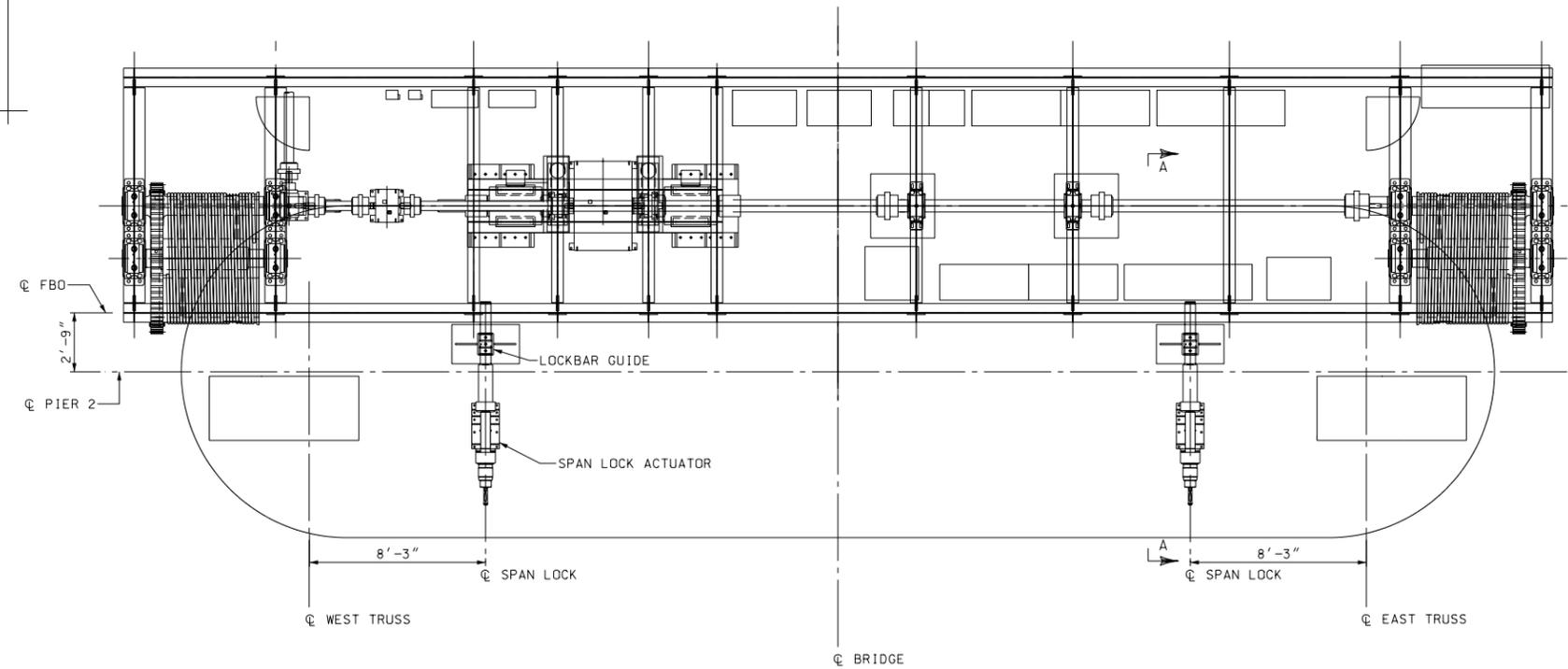
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
80% Submission	13678F-M28	

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	PORTSMOUTH, NH. - KITTERY, ME.	BRIDGE NO.	5276	STATE PROJECT	13678F				
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER									
DOWNHAUL ROPE AND CONNECTION DETAILS									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		
		JWW	11/11	WEN	WEN	11/11	M28 of M41		
		JWW	11/11	WEN	WEN	11/11	FILE NUMBER		
		XX	11/11	XX	XX	11/11	107-1-1		
ISSUE DATE		FEDERAL PROJECT NO.				SHEET NO.	TOTAL SHEETS		
REV. DATE									

SPAN LOCK MACHINERY SCHEDULE				
ITEM NO.	QTY.	ITEM	DESIGN REQUIREMENTS	SUITABLE EQUIPMENT/MATERIAL
SL1	4	SPAN LOCK ACTUATOR	ELECTRICALLY DRIVEN LINEAR SCREW ACTUATOR WITH 16 INCH STROKE WITH 8,800 LBS OF THRUST AT 1 1/2" IN/SEC. PROVIDE REMOVABLE HAND CRANK WITH MECHANICAL DISENGAGE AND ELECTRICAL INTERLOCK, STROKE LIMIT SWITCHES, ADJUSTABLE BRAKE, AND MOTOR STRIP HEATERS.	EARLE EG3 OPERATOR WITH SPECIAL HOUSING
SL2	4	LOCK BAR	6"x9" BAR. SEE M30 FOR DETAILS	ASTM A668 CLASS K
SL3	4	LOCK BAR GUIDE	SEE M30 FOR DETAILS	ASTM A709 GRADE 50
SL3a	8	GUIDE BEARING PLATE	SEE M30 FOR DETAILS	ASTM B22-C9110
SL4	4	LOCK BAR RECEIVER	SEE M30 FOR DETAILS	ASTM A709 GRADE 50
SL5	4	SPAN LOCK ACTUATOR SUPPORT	SEE M30 FOR DETAILS	ASTM A709 GRADE 50



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



PIER 2 PLAN

1/2" = 1'-0"
SOUTH TOWER AND APPROACH SPAN
NOT SHOWN FOR CLARITY
PIER 3 SIMILAR

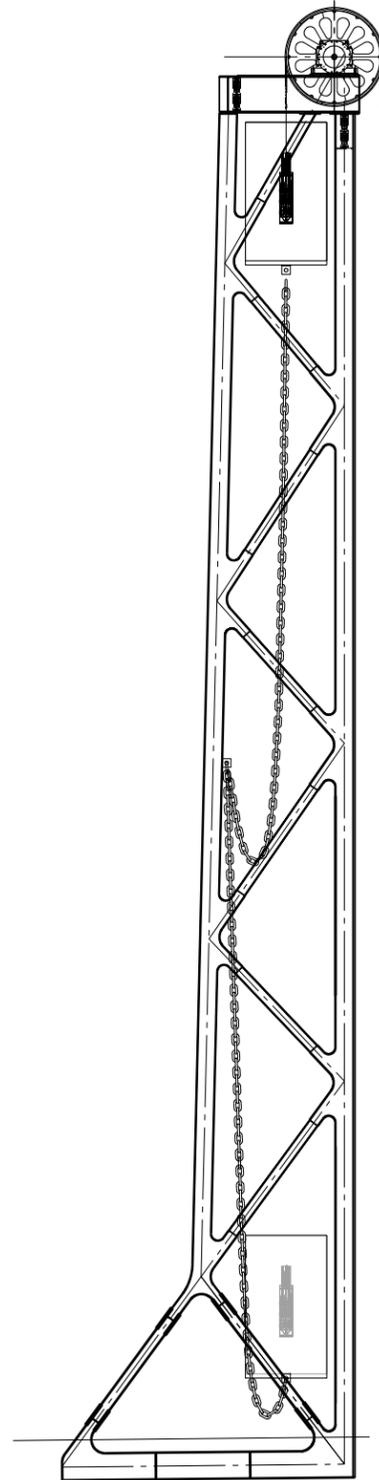
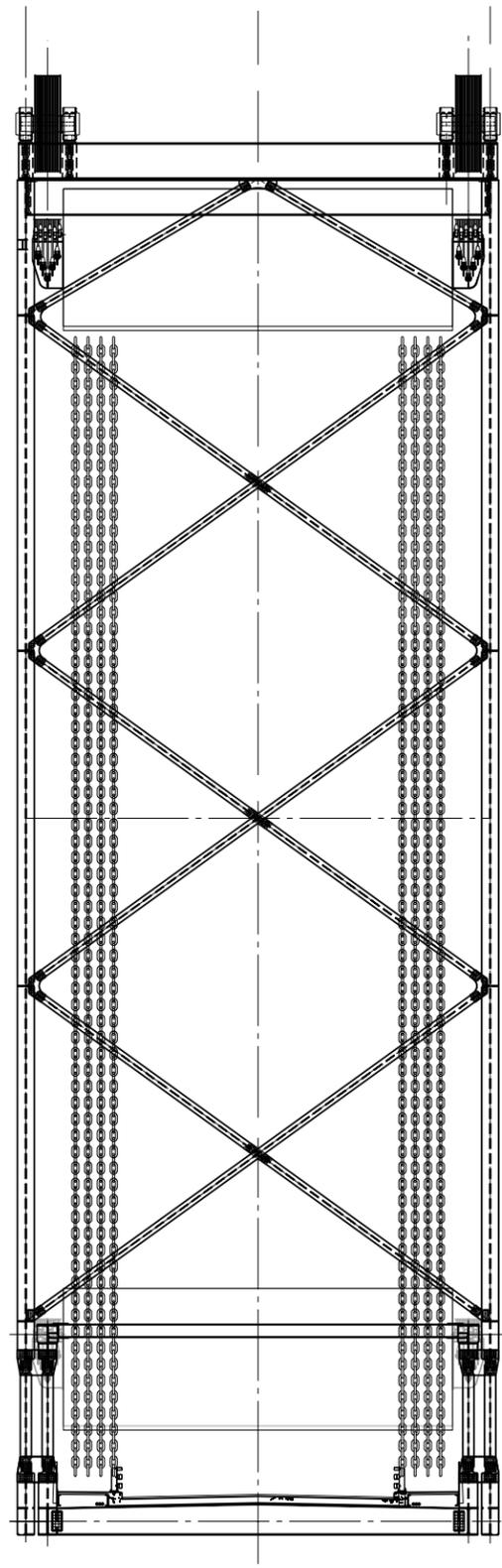
80% SUBMISSION
DECEMBER 5, 2011



SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
SBRDIRS	SFILENAME	1/2" = 1'-0"

STATE OF NEW HAMPSHIRE										
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN										
TOWN		PORTSMOUTH, NH. - KITTERY, ME.		BRIDGE NO.		5276		STATE PROJECT		13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER										
SPAN LOCK ASSEMBLY										
BRIDGE SHEET										
M29 of M41										
FILE NUMBER										
107-1-1										
TOTAL SHEETS										
-										

SUMMARY OF QUANTITIES		
QTY.	DESCRIPTION	LENGTH
16	2 7/8" DIA. ANCHOR CHAIN	XXX
32	2 7/8" DIA. ANCHOR CHAIN SWIVELS	XXX



ELEVATION

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DECEMBER 5, 2011

STATE OF NEW HAMPSHIRE										
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN										
TOWN		PORTSMOUTH, NH. - KITTERY, ME.		BRIDGE NO.		5276		STATE PROJECT		13678F
LOCATION U.S. ROUTE 1 OVER PISCATAQUA RIVER										
BALANCE CHAIN LAYOUT										
BRIDGE SHEET										
M40 of M41										
FILE NUMBER										
107-1-1										
TOTAL SHEETS										
-										
DESIGNED	MWG	11/11	CHECKED	XX	XX/XX	BY	DATE			
DRAWN	DBR	11/11	CHECKED	XX	XX/XX	BY	DATE			
QUANTITIES	XX	XX/XX	CHECKED	XX	XX/XX	BY	DATE			
ISSUE DATE			FEDERAL PROJECT NO.			SHEET NO.				
REV. DATE										



SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
SBRDIRS	SFILENAMES	3/32" = 1'-0"