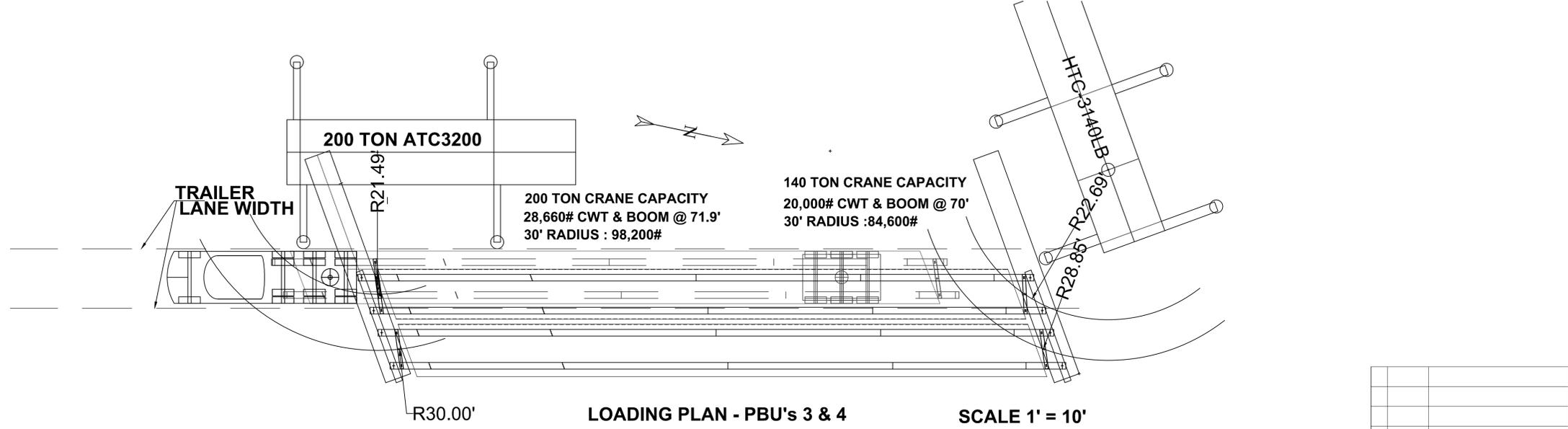
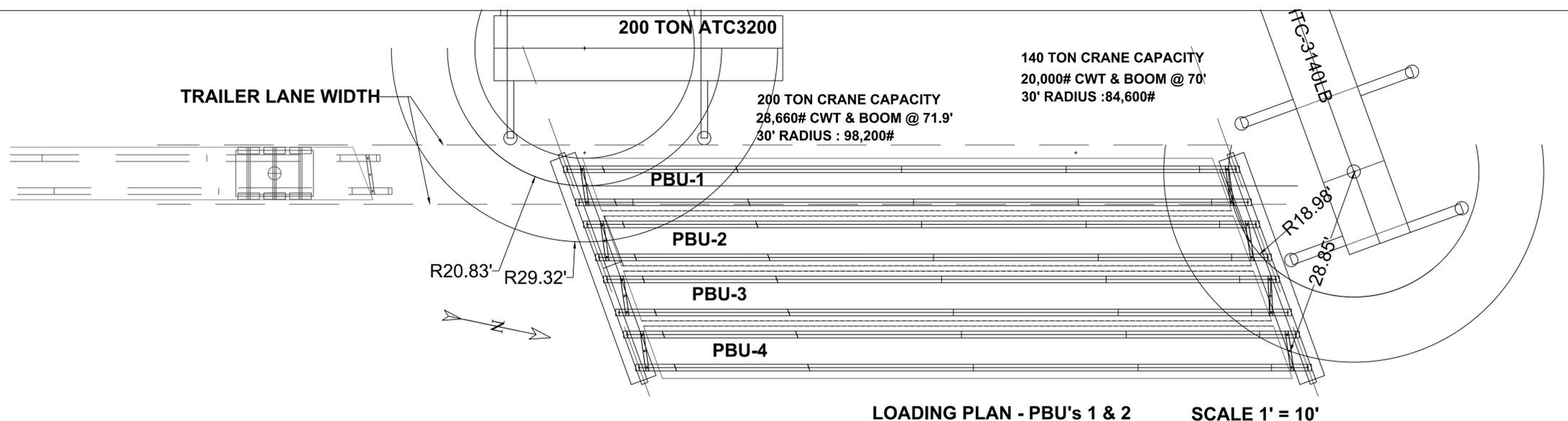


- A OVERVIEW**
- THIS PLAN DEPICTS ERECTION PRECAST BRIDGE UNITS (PBU) FOR WARREN BRIDGE 013-4(32) ON US ROUTE 100 OVER MAD RIVER IN TOWN OF WARREN VT. THE STRUCTURE CONSISTS OF A SINGLE SPAN AND INCLUDES 4 PREFABRICATED UNIT SECTIONS.
  - 2 CRANES WILL BE USED FOR THE ERECTION. AN HTC-3140 LINK-BELT 140 TON HYDRAULIC CRANE WITH 60,000# COUNTERWEIGHT AND BOOM LENGTH SET AT 55 FT. WILL BE SET UP ON THE SOUTH APPROACH AS SHOWN ON THE PLAN. AN ATC 3200 LINK-BELT 200 TON CRANE WITH 55,115# COUNTERWEIGHT AND BOOM LENGTH SET AT 71.9 FT. WILL BE SET UP ON THE NORTH APPROACH AS SHOWN ON THE PLAN. PBU'S WILL BE DELIVERED FROM THE NORTH WITH PIECE MARKS ON THE DOLLY END OF THE DELIVERY TRANSPORTS.
  - RIGGING FOR ALL GIRDERS WILL BE THE SAME FOR ALL CRANES AND ALL LIFTS AS DEPICTED IN THE RIGGING DETAILS ON SHEET EP-1.
- B MISCELLANEOUS NOTES:**
- ALL WORK WILL BE DONE IN ACCORDANCE WITH OSHA REGULATIONS
  - DON DROLLETTE, THE CONTRACTOR'S M&P PERSON WILL HAVE THE RESPONSIBILITY TO ASSURE THAT ALL CONDITIONS OF THE MUTCD AND PROJECT SPECIFICATIONS ARE MAINTAINED DURING THE ERECTION PROCEDURE
  - ALL PERSONNEL WILL WEAR APPROPRIATE PROTECTION EQUIPMENT.
  - FALL PROTECTION:
    - ALL PERSONNEL WILL BE TIED OFF WITH FULL SAFETY GEAR PER LATEST OSHA STANDARDS AT ANY POINT OF EXPOSURE DURING THE ERECTION PROCEDURE
    - AFTER ERECTION OF THE STRUCTURE, ANY TEMPORARY WALKWAY FOR WORKERS WILL HAVE OSHA APPROVED HANDRAILS. SUCH WALKWAYS WILL BE CLOSED TO THE GENERAL PUBLIC.
  - ALL RIGGING (SHACKLES, SLINGS AND CLAMPS) SHALL BE OF AN APPROPRIATE RATING FOR THE PICKS BEING MADE.
  - PRIOR TO THE ERECTION, A PRE-LIFT MEETING WILL BE HELD BY LUCK BROS SAFETY OFFICER GARY MORROW.
  - BEFORE HOISTING OPERATIONS, ONE PERSON SHALL BE APPOINTED "GROUND DIRECTOR" (GD) AND ONLY HE SHALL BE RESPONSIBLE FOR OVERALL DIRECTION AND COMMUNICATION WITH THE CRANE OPERATORS. ALL EMPLOYEES SHALL BE MADE AWARE THAT THIS PERSON IS DON DROLLETTE OF LUCK BROS..
  - THE GROUND DIRECTOR (GD) WILL HOLD SAFETY MEETINGS AT EVERY POINT OF A NEW ITEM OF WORK DURING THE ERECTION PROCEDURE.
  - NO CRANE SHALL BE OPERATED IN A MANNER THAT WILL EXCEED ITS RATED CAPACITY AT A RADIUS AS SHOWN BY THE MANUFACTURER. BOTH CRANES USED FOR THIS ERECTION HAVE OPERATIONAL SAFETY DEVICES INCLUDING A) "LOAD AND RADIUS MEASURING DEVICES PRE-PROGRAMMED TO CONTINUOUSLY RELATE THE MEASURED DATA TO THE LOAD RADIUS CHART AS A DIRECT READING OF LOAD OR PERCENTAGE OF THE RATED LOAD, AND CONNECTED TO A WARNING LIGHT AND AN ACOUSTICAL SIGNAL LOCATED AT THE OPERATOR'S POSITION OR IN THE CAB TO INDICATE OVERLOAD". AND B) DEVICES "THAT CONTINUOUSLY INDICATE THE LEVELNESS OF THE MACHINE AND IS VISIBLE FROM THE OPERATOR'S CONTROLS."

- C ERECTION SEQUENCE**
- PBU WILL BE LOADED ONTO TRANSPORTS AT THE CASTING BED AREA AS DEPICTED ON SHEET EP-1
  - CRANES WILL PBU TO CLEAR DOLLYS AND TRACTOR BED AND TRANSPORT WILL BE BACKED UNDER THE PBU AND LOWERED ON THE TRANSPORT. RESTRAINTS WILL BE ATTACHED TO EACH END OF THE PBU, USING SOFTENERS TO PROTECT EDGES OF THE CONCRETE DECK.
  - PBU UNITS WILL BE TRANSPORTED TO RT 100 AND BACKED SOUTHERLY TO THE PROJECT SITE.
  - A SLIDER BEAM WILL BE USED TO MOVE THE PBU'S ACROSS THE NEW SPAN AND WILL BE LOCATED AS SHOWN ON EP-2
  - THE FIRST UNIT TO BE ERECTED WILL BE PBU-1. UNIT WILL BE BACKED TO THE EAST SIDE OF THE NORTH CRANE. RIGGING WILL BE ATTACHED TO SOUTH END BEARING LOCATIONS AND CRANE WILL BE HOOKED. NORTH CRANE WILL LIFT THE SOUTH END OF THE BEAM CLEAR OF THE DOLLY, AND CONCURRENTLY WITH THE TRACTOR, MOVE THE BEAM SOUTHERLY TO THE CARRIAGE OF THE SLIDER BEAM. THE PBU WILL BE LOWERD ONTO AND BOUND TO THE SLIDER CARRIAGE AND THE CRANE WILL BE RELEASED. TRACTOR WILL ADVANCE THE PBU SOUTHERLY APPROXIMATELY HALF WAY ACROSS THE SLIDER. NORTH CRANE WILL BE HOOKED TO THE NORTH END OF THE PBU AND THE UNIT WILL BE LIFTED CLEAR OF THE TRACTOR. TRACTOR HOOK TO THE DOLLY UNIT AND BE DISPATCHED FROM THE SITE.
  - NORTH CRANE WILL ADVANCE PBU TOWARDS THE SOUTH CRANE RIGGING LOCATION. SOUTH CRANE WILL BE RIGGED TO THE SOUTH END AND ASSUME THE LOAD. RESTRAINTS TO CARRIAGE WILL BE REMOVED.
  - SOUTH CRANE WILL HOIST SOUTH END OF PBU AND BOTH CRANES WILL SIMULTANEOUSLY SWING THE UNIT WESTERLY TO ITS INTENDED LOCATION AND LOWERED ONTO ITS RESPECTIVE LEVELING SUPPORT PLATES.
  - SEQUENCE WILL BE REPEATED FOR PBU-2 AND PBU-3. PBU-3 WILL BE TEMPORARILY RESTED ON WOOD BLOCKING PLACED ON THE ABUTMENT SEAT IN NEAR PROXIMITY TO ITS SUPPORT BOLTS & LEVELING PLATES.
  - PBU-4 WILL USE SAME SEQUENCE EXCEPT THAT IT WILL BE TEMPORARY RESTED ON BLOCKING PLACED ON PREVIOUSLY SET PBU-3.
  - SLIDER BEAM WILL BE REMOVED.
  - PBU-4 WILL BE RE-RIGGED, HOISTED AND PLACED ON ITS BEARING LOCATIONS.
  - PBU-3 WILL BE RE-RIGGED & HOISTED. TEMPORARY WOOD BLOCKING WILL BE REMOVED AND THE UNIT AND WILL BE PLACED ON ITS SUPPORT BOLTS & LEVELING PLATES.

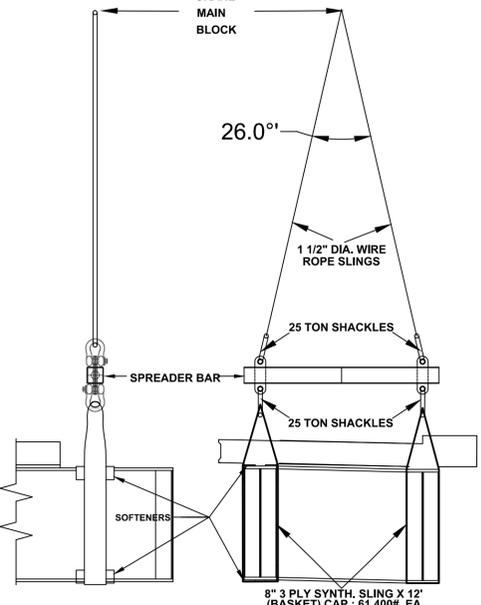


UNIT ID	UNIT WT (#)*	PER CRANE RIGGED WT.** (#)	SOUTH CRANE MAX. LIFT RADIUS	SOUTH CRANE CAPACITY @ MAX. LIFT RADIUS	SOUTH CRANE FACTOR OF SAFETY	NORTH CRANE MAX. LIFT RADIUS	NORTH CRANE CAPACITY @ MAX. LIFT RADIUS	NORTH CRANE FACTOR OF SAFETY
PBU-1	125984	67992	35	83800	1.23	35	96000	1.41
PBU-2	116317	63158	35	83800	1.33	35	96000	1.52
PBU-3	116317	63158	35	83800	1.33	35	96000	1.52
PBU-4	125984	67992	35	83800	1.23	35	96000	1.41

\*INCLUDES GIRDER ASSEMBLIES, CONCRETE, REINFORCEMENT, STUD SHEARS + 1000 LB MISC ACCESSORIES  
 \*\* 1/2 TOTAL UNIT WEIGHT + 5000 RIGGING ALLOWANCE

Boom Radius FT	BOOM LENGTH (FEET)											
	43.3	57.7	71.9	86.3	100.4	114.0	128.9	143.3	157.5	171.9	186.0	196.9
10.0	306.0	364.5	255.0	196.5								
12.0	277.5	384.5	255.0	196.5	162.5							
14.0	258.5	258.0	252.5	196.5	156.0							
16.0	233.0	233.5	231.5	196.5	145.5	121.5						
18.0	208.5	208.5	207.0	192.5	136.5	119.5						
20.0	186.5	186.0	187.0	185.5	128.0	117.0	91.3	73.6				
25.0	148.0	147.5	148.5	147.0	111.0	102.0	91.3	73.6	59.3			
30.0	120.4	120.0	122.0	117.5	97.5	96.5	83.9	73.3	58.3	47.8	37.5	
35.0	93.8	95.0	91.5	85.2	80.9	75.3	68.3	58.0	47.0	37.5	30.9	
40.0	74.8	77.0	75.2	77.2	76.3	67.8	61.7	54.9	45.7	37.4	30.9	
45.0	61.2	63.2	64.1	67.1	65.7	59.7	56.5	51.2	42.9	36.3	30.9	
50.0	53.0	56.8	57.2	55.6	51.8	49.4	47.9	40.1	34.4	30.9		
55.0		47.6	49.5	48.7	47.1	44.7	42.8	42.8	37.7	32.4	30.9	
60.0		42.2	42.6	41.9	40.2	39.5	37.3	36.3	35.4	30.5	28.4	
65.0		37.1	36.4	35.0	36.1	33.1	32.9	32.3	28.9	27.1		
70.0		32.7	32.2	30.7	32.2	28.9	29.1	29.0	27.5	25.7		
75.0		28.5	28.5	27.0	28.5	26.7	26.0	25.9	25.3	24.3		
80.0			25.3	23.8	25.3	24.8	23.7	23.8	22.5	22.7		
85.0			22.4	20.9	22.4	22.8	22.3	22.1	19.8	21.6		
90.0			19.6	19.9	20.1	20.8	20.7	20.3	18.0	18.9		
95.0			19.1	17.9	18.8	18.9	18.5	16.5	16.8			
100.0			18.3	16.4	14.5	17.2	16.6	15.0	15.2			
110.0					14.3	12.0	14.4	13.3	12.1	12.2		
120.0						12.4	11.5	10.7	9.5	9.5		
130.0							10.2	9.3	8.4	7.3	7.3	
140.0								7.4	6.6	5.4	5.4	
150.0									5.0	4.1	4.1	
160.0										3.9	2.4	2.4

Boom Radius FT	BOOM LENGTH (FEET)								
	42	55	70	85	100	115	130	145	160
9.0	280,000								
10.0	264,900	157,100	151,700						
12.0	240,000	157,100	144,800						
15.0	204,500	157,100	137,400	110,100					
20.0	151,600	152,200	118,300	106,500	80,700	61,300			
25.0	118,800	122,200	103,700	93,500	77,100	61,300	49,400		
30.0	96,400	99,900	92,100	73,200	67,900	61,300	47,400	41,000	35,500
35.0	83,800	82,900	74,700	65,000	61,300	45,500	41,000	35,500	35,500
40.0	72,200	72,700	67,700	62,400	52,000	40,800	35,500	35,500	35,500
45.0	62,600	64,600	61,900	57,000	47,500	36,800	36,800	33,000	33,000
50.0	56,400	54,800	52,400	43,500	33,300	33,700	30,000	30,000	30,000
55.0	48,500	49,000	48,400	40,200	30,300	31,000	27,300	27,300	27,300
60.0	42,700	42,700	42,200	36,000	27,600	28,600	24,900	24,900	24,900
65.0	37,500	37,100	32,000	25,400	26,400	24,100	21,500	21,500	21,500
70.0	33,300	33,000	28,500	23,600	24,500	21,500	18,800	18,800	18,800
75.0	29,800	29,400	25,400	22,000	22,800	20,100	18,800	18,800	18,800
80.0		26,300	22,800	20,600	21,200	18,800	17,700	17,700	17,700
85.0		21,400	20,500	19,300	19,800	18,000	16,600	16,600	16,600
90.0			18,500	18,000	18,500	16,000	14,700	14,700	14,700
95.0			17,300	16,900	17,100	15,600	14,700	14,700	14,700
100.0			16,300	15,900	16,000	14,700	13,800	13,800	13,800
105.0			15,000	14,900	15,000	13,800	13,000	13,000	13,000
110.0			14,100	13,800	14,000	13,000	12,500	12,500	12,500
115.0			13,400	13,400	13,400	12,500	12,300	12,300	12,300
120.0			12,800	11,900	11,600	11,600	11,100	11,100	11,100
125.0				11,300	11,000	11,000	10,400	10,400	10,400
130.0					10,700	10,400	10,400	9,900	9,900
135.0						10,100	9,900	9,300	9,300
140.0							9,300	8,600	8,600
145.0								8,600	7,900
150.0									7,900



**RIGGING DETAIL** NTS

No.	Date	Description
1	07/10/14	Erection sequence blocking notes

Revisions	
-----------	--



Contractor: Luck Bros., Inc.  
 73 Trade Rd.  
 Plattsburgh, NY 12901

Project: Warren BRF 013-4(32)

Designed by: DFB  
 Date: 06/05/2014

Drawn by: DFB  
 Scale: AS NOTED

Checked by: TL  
 Drawing No.: EP-1

Approved by: TL

BRIDGE NO. 166

PBU ERECTION PROCEDURE