CCS Constructors Inc.

Supply & Erect Structural Steel and Precast
Crane Service Rigging Pile Driving Heavy Hauling

Erection Plan for Precast Concrete NEXT BEAMS
Barton, VT
BRO 1449(31)

July 2, 2015

General Requirements:

The erection shall not be performed during windy or heavy rain conditions. A Grove GMK5275 truck crane will be used for the erection.

The units shall be picked from the locations and lifting apparatus shown in the J.P. Carrara & Sons Inc. shop drawings, and shall be installed according to the manufacturer's requirements and project specifications. Each Next Beam unit is to be picked from (4) locations. See below for rigging sizes, which are minimum; slightly larger rigging is permissible.

The maximum permissible crane radius for unloading and setting the Next Beam units is shown on layout drawing, and shall not be exceeded.

The Grove GMK5275 shall setup with 169,700 lbs. counterweights. See the attached layout drawing for crane setup location information and additional requirements. The sub-base beneath the cranes shall be firmly compacted structural backfill. The General Contractor is to provide/place crane mats to the footing depth, underneath rear outriggers of the GMK5275 to prevent surcharge loading of the wingwalls and abutments. The GMK5275 shall setup outriggers on 6 ft square x 3" thick square steel plate assemblies.

The Crane shall have the operator in the cab at all times while lifting NEXT beams (beams shall not be left supported by cranes during breaks or overnight).

GMK5275, single crane pick:

NEXT BEAM RIGGING:

- Four (4) 53 Kip round slings x 40' long from crane hook
- To (4) 35 Ton screw type shackles
- To (4) 35 Ton Shackles to attach to Next Beam lifters (by NEXT beam manufacturer)

B - NB 1, 2, 3 RIGGING:

Item:	QTY	Wt Each		Total Wt.	
Precast Next Beam 1 -3	1	108.78	k	108.780	k
35T Shackles	4	0.05	k	0.200	k
40' -"Brown" Round Slings	4	0.14	k	0.600	k
Load Line	1	1.10	k	1.100	k
Load Block	1	5.00	k	5.000	k
Total Weight:				**115.680**	**k**

GMK5275 RADIUS= 40', 120.0 K CAPACITY, 104' BOOM
(at RADIUS= 41', 117.2 K CAPACITY, 104' BOOM)

Respectfully Submitted,

Sam Davis

Sam Davis

Digitally signed by Andrew White
Date: 2015.07.02 13:16:21 -04'00'

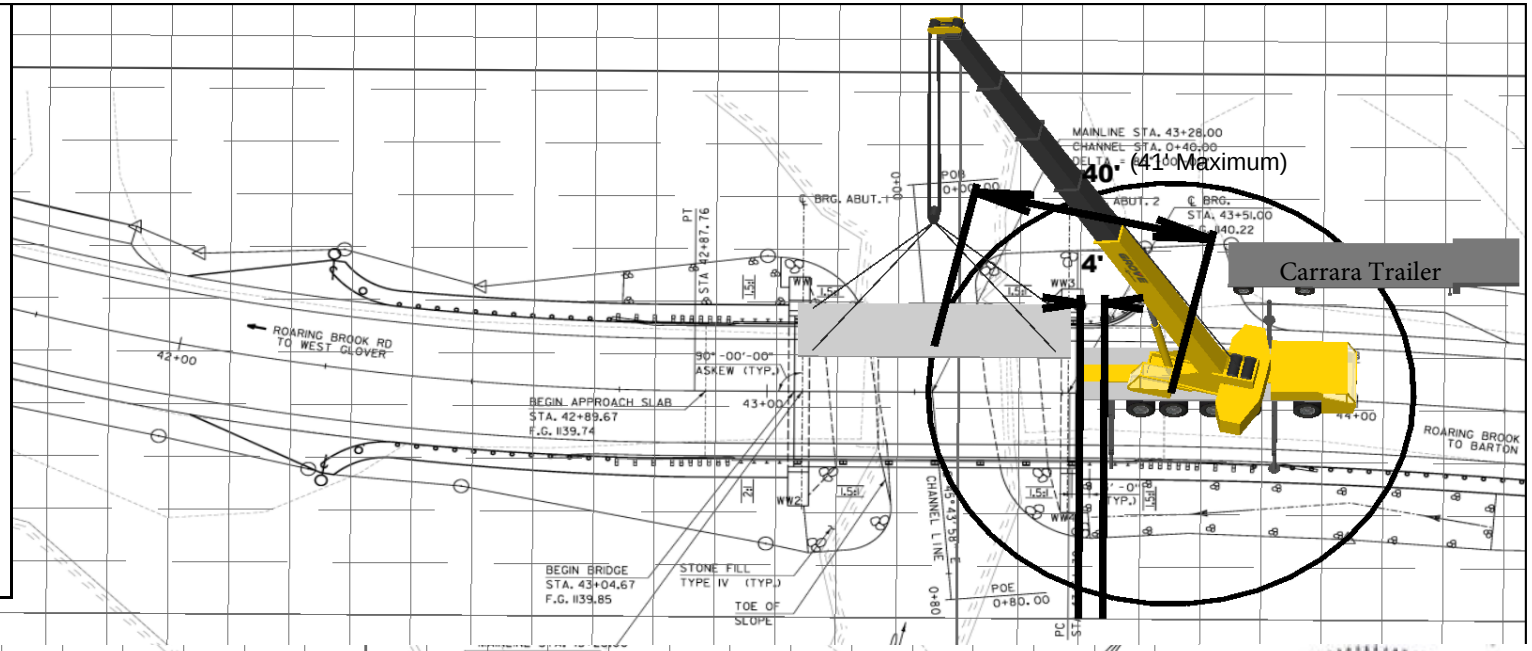
Crane

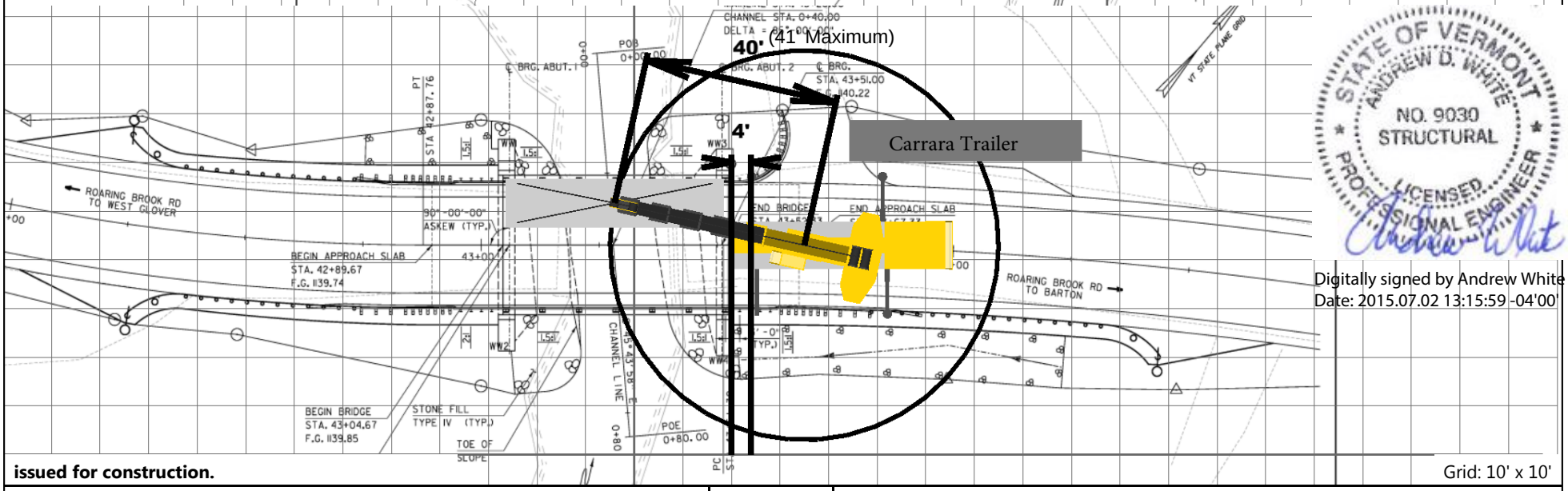
Grove GMK5275
104.2' Main Boom at 64.4°
Base: 100% Outriggers
Counterweight: 169,700 lbs
40' Lift Radius (360°)
Crane Capacity at 40' = 120,000 lbs

Load

Load Line	1,100 lbs
Block	5,000 lbs
Rigging	600 lbs
Rigging	200 lbs
Total Rigging Weight	**6,900 lbs**
Load	108,780 lbs
Total Load	**115,680 lbs**

96% of capacity
Sling Tension: 31,633 lbs





STATE OF VERMONT
ANDREW D. WHITE
NO. 9030
STRUCTURAL
LICENSED
PROFESSIONAL ENGINEER

Digitally signed by Andrew White
Date: 2015.07.02 13:15:59 -04'00'

issued for construction.

Grid: 10' x 10'

SK-1 Setting NEXT Beam

Title	Lift Plan	
Project	Barton Lift Plan	
Customer	JP Sicard	
Description	Next Beam Erection	
Drawn By	Sam Davis	07/02/2015

3 119 100

	Crane with 169 700 lbs (77 t) counterweight Outrigger base - length 28.1 ft - width 26.6 ft									
	Main boom - fixed length in ft									
	87.3	87.9	88.5	88.8	89.3	102.1	102.2	102.9	103.7	104.2
Tel. sec. I	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.50
Tel. sec. II	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.00	0.50	0.50
Tel. sec. III	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50
Tel. sec. IV	0.00	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50	0.50
Tel. sec. V	0.50	0.50	0.50	0.00	0.00	1.00	0.50	0.50	0.50	0.00
Tel. sec. VI	1.00	0.50	0.00	0.00	0.00	1.00	1.00	0.50	0.00	0.00
Slewing range	360°									
Radius in feet	Lifting capacities in 1000 lbs									
10.0	81.0	116.0	146.0	185.0	244.0					
15.0	78.0	116.0	146.0	185.0	242.0	70.0	81.0	116.0	146.0	185.0
20.0	66.0	107.0	146.0	180.0	212.0	59.0	72.0	115.0	146.0	182.0
25.0	57.0	94.0	126.0	157.0	181.0	51.0	63.0	102.0	137.0	166.0
30.0	50.0	84.0	111.0	138.0	155.0	45.0	56.0	92.0	122.0	151.0
35.0	44.0	75.0	98.0	123.0	135.0	39.4	50.0	83.0	110.0	136.0
40.0	39.4	68.0	88.0	110.0	118.0	35.4	45.0	76.0	99.0	120.0
45.0	36.0	62.0	79.0	99.0	104.0	32.2	40.8	70.0	90.0	106.0
50.0	33.0	57.0	72.0	90.0	93.0	29.4	37.6	65.0	82.0	95.0
55.0	30.6	53.0	66.0	82.0	84.0	27.2	34.8	60.0	75.0	85.0
60.0	28.2	50.0	61.0	76.0	75.0	25.0	32.4	56.0	69.0	77.0
65.0	26.4	47.0	57.0	70.0	69.0	23.2	30.4	52.0	63.0	70.0
70.0	24.8	43.6	53.0	63.0	60.0	21.0	28.4	48.0	59.0	64.0
75.0			50.0	50.0	48.0	19.2	26.8	45.0	55.0	58.0
80.0						18.0	25.4	41.6	52.0	53.0
85.0						17.0	24.2	39.2	49.0	46.0
90.0						16.2	22.2	37.2	39.2	36.8
SLI Code	2200									
Max. permitted windspeed	**14 m/s**			**11 m/s**	**10 m/s**	**14 m/s**			**11 m/s**	**9 m/s**

Endless Round Slings / Polyester Type - Capacities rated in (lbs).			
Color	Vertical	Choker	Basket
Purple	2600	2100	5200
Green	5300	4200	10600
Yellow	8400	6700	16800
Tan	10600	8500	21200
Red	13200	10600	26400
White	16800	13400	33600
Blue	21200	17000	42400
Grey	31000	24800	62000
Brown	53000	42400	106000
Olive	66000	52800	132000

1 part mechanical splice IPS IWRC 6x9 & 6x37 - Rated capacities in lbs.						
Hitch Type						
Diameter	Vertical	Choke	Basket	60°	45°	30°
1/2	4,400	3,200	8,800	7,600	6,200	4,400
5/8	6,800	5,000	13,600	11,800	9,600	6,800
3/4	9,800	7,200	19,400	16,800	13,800	9,800
7/8	13,200	9,600	26,000	22,000	18,600	13,200
1	17,000	12,600	34,000	30,000	24,000	17,000
1-1/8	20,000	15,800	42,000	36,000	30,000	20,000
1-1/4	26,000	19,200	52,000	44,000	36,000	26,000
1-3/8	30,000	24,000	62,000	54,000	44,000	30,000
1-1/2	36,000	28,000	74,000	64,000	52,000	36,000
1-3/4	50,000	38,000	98,000	86,000	70,000	50,000
2	64,000	48,000	128,000	110,000	90,000	64,000
		Multiplier → → → →		1.00	.75	.60

Sling length formula / Distance between pick points x Multiplier = Sling Length

Crosby® Screw Pin Shackles

G-209 / S-209 Screw Pin Anchor Shackles

Nominal Size (in.)	Working Load Limit (t)*	Stock No.		Weight Each (lbs.)	Dimensions (in.)											Tolerance + / -	
		G-209	S-209		A	B	C	D	E	F	G	H	L	M	P	C	A
3/16	1/3	1018357	–	.06	.38	.25	.88	.19	.60	.56	.98	1.47	.16	1.14	.19	.06	.06
1/4	1/2	1018375	1018384	.10	.47	.31	1.13	.25	.78	.61	1.28	1.84	.19	1.43	.25	.06	.06
5/16	3/4	1018393	1018400	.18	.53	.38	1.22	.31	.84	.75	1.47	2.09	.22	1.71	.31	.06	.06
3/8	1	1018419	1018428	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.02	.38	.13	.06
7/16	1-1/2	1018437	1018446	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.37	.44	.13	.06
1/2	2	1018455	1018464	.72	.81	.63	1.88	.50	1.31	1.19	2.31	3.28	.38	2.69	.50	.13	.06
5/8	3-1/4	1018473	1018482	1.37	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06
3/4	4-3/4	1018491	1018507	2.35	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.25	.06
7/8	6-1/2	1018516	1018525	3.62	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06
1	8-1/2	1018534	1018543	5.03	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.13	1.06	.25	.06
1-1/8	9-1/2	1018552	1018561	7.41	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.71	1.25	.25	.06
1-1/4	12	1018570	1018589	9.50	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.25	1.38	.25	.06
1-3/8	13-1/2	1018598	1018605	13.53	2.25	1.50	5.25	1.42	3.63	3.31	6.38	9.16	.75	6.83	1.50	.25	.13
1-1/2	17	1018614	1018623	17.20	2.38	1.63	5.75	1.54	3.88	3.63	6.88	10.00	.81	7.33	1.62	.25	.13
1-3/4	25	1018632	1018641	27.78	2.88	2.00	7.00	1.84	5.00	4.19	8.86	12.34	1.00	9.06	2.25	.25	.13
2	35	1018650	1018669	45.00	3.25	2.25	7.75	2.08	5.75	4.81	9.97	13.68	1.22	10.35	2.40	.25	.13
2-1/2	55	1018678	1018687	85.75	4.13	2.75	10.50	2.71	7.25	5.69	12.87	17.84	1.38	13.00	3.13	.25	.25